LOUISIANA ARCHAEOLOGY

Jon L. Gibson, editor

1975
NUMBER—2

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Bulletin of the Louisiana Archaeological Society

Number 2

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Cover, Chitimacha "Rattlesnake" design by
Jon L. Gibson

Published by the Society
Lafayette, Louisiana

Printed by the
University of Southwestern Louisiana Printing Department
Lafayette, Louisiana

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Louisiana's Historic Indians

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ABSTRACT

The traditional culture of Louisiana's historic Indian tribes is described. Although assimilation, enculturation, and depopulation brought an end to most traditional culture elements soon after white contact, many of the unique and interesting aspects of material culture and life styles were recorded by early explorers and colonists and have thus survived. These accounts show the historic Indians of Louisiana had a rich and varied repertoire of material cultural items, economic forms, social organization, political institutions, and other elements of culture.

INTRODUCTION

A treatise on Louisiana's Indians can emphasize one of several approaches. It can deal entirely with Indians as they were prior to the arrival of Europeans, a prehistoric period where evidence regarding them comes through the examination of artifacts procured by the methods of archaeology. It can be a history of the Indians from earliest times to the present. Or it can be as this study is, an attempt to recon-

struct the manner of life, the culture, of the Indians prior to the modifications wrought by European contacts. Since the Indians lacked writing, primary dependence must be put on early European accounts. Complications enter because European accounts largely reflect the interests of the observer, which likely were quite limited. Accounts by the Indians at times long after initial contacts with Europeans reflect changes, many so subtle that the Indians themselves are unaware of them.

The sources of information here employed are primarily secondary. Great dependence has been placed on the works of the late John R. Swanton (1911, 1942, 1946), by all odds the great authority on the Indians of the Southeast and Louisiana. New evidence will continue to emerge from the archives of Europe for a long time. These and other documentary sources, it appears, can but fill in details here and there to remove uncertainties and to confirm or disprove Dr. Swanton's educated guesses. Archaeology too can help clarify descriptive ethnology. Over and above that, it can hopefully answer questions concerning late prehistoric tribal movements.

EARLY LOUISIANA TRIBES

Earliest accounts of Louisiana's Indians were recorded by members of DeSoto's party in the 1540's (Bourne 1904; Robertson 1933). Unfortunately, locations are not always certain, nor are tribal identifications clear. Not until 150 years later, with the great flurry of exploration of the Louisiana territory by LaSalle and his successors, did tribal identities and locations become reasonably fixed. But by this time the effects of European contacts had caused shifts of Indian tribes and modifications of their ways.

Language similarities and differences are commonly employed for a basic distinction of groups of tribes. Among Louisiana Indians there were 4 groups, properly language families or stocks: Caddoan, Tunican, Natchezan, and Muskhogean. Three mutually unintelligible languages constituted the Tunican family, while all Caddoan tribes understood the speech of the others. Common was the use of Mobilian jargon, a trade language, to communicate among the several tribes.

The Atakapa, lowest on the scale of attainment, consisted of several loosely organized bands ranging over considerable territory in

pursuit of their gathering-fishing-small-game economy. Their villages were set at the margins of marsh and swamp on the Calcasieu, Mermentau, Vermilion, Teche, and possibly the Sabine, rivers. Related linguistically but quite different were the Opelousa, centered about the modern town of the same name. The term Atakapa is Choctaw for "eaters of human flesh." To support the validity of the name is meager historic evidence but more substantial archaeological finds.

Caddoan tribes were concentrated along upper Red River, with outliers to east and west. Agriculture was a basic pursuit, but so was hunting. All but one of the Louisiana Caddoan tribes in 1700 were members of the Natchitoches confederacy, an organization providing strength in warfare. In a number of respects Caddoan practices were divergent from those of Mississippi River tribes, with leanings toward the Marginal Plains tribes to the west.

To the Tunica is assigned extreme northeastern Louisiana, seemingly heavily populated in DeSoto's time and rich in archaeological sites. By 1700 there was not certainly a single tribe resident in the area. Indian settlements were then situated on the high ground of the eastern, Mississippi side of the river.

One of the 2 Natchezan-speaking tribes in Louisiana, the Taensa, occupied 7 to 9 towns on Lake St. Joseph. The other, the Avoyel, were oriented to the lower Red River from Alexandria to its mouth. These 2 tribes held prime farming land, and agriculture was the mainstay of their economy. The Natchez towns and fields lay in the fertile blufflands east of the river, though certainly their utilization and influence extended westward into Louisiana.

The Muskogean Choctaw speakers of the southeastern part of the state consisted of some 7 recognizable tribes in 1700. Along Pearl River were 6 Acolapissa towns. On the river of the same name were the Tangipahoa. At some uncertain site near Pointe Coupee were the Okelousa. At modern Bayou Goula was the Bayougoula town, and below, still on the west bank, were the Quinipissa, living with the Mugulasha. Finally, at the northwest corner of the Florida Parishes was the Houma town. Agriculture remained a major economic activity, with fishing, hunting, and collecting strong adjunctives.

Lastly, in central coastal Louisiana were the Chitimacha villages centered on Grand Lake, and the related Washa and Chawasha on the lakes and streams to the southeast, particularly along Bayou Lafourche. Agriculture was certainly a major economic activity but the variety of

crops produced seemingly was not so great as was true farther north. The level of attainment in the arts and in the social structure was high, support for Swanton's assertions (1946:436) that the tribes of the lower Mississippi valley reached a peak of accomplishment unmatched elsewhere in the Southeast.

SETTLEMENTS

The structure of Indian settlement reflected the basic place of agriculture in a non-mechanized technology. Each major town had a central nucleus that contained the temple, chief's house, and a few other dwellings and buildings, all of which might be enclosed by a stockade. Scattered was a patchwork of cultivated fields, near each of which were dwellings of those tending the crops. Fields were connected with the nucleus and isolated dwellings by simple footpaths. In time of danger scattered families might take refuge within the stockaded center.

Despite the dispersed nature of the towns, each was recognized as including all contiguous cultivated ground. Any intrusion by foreign tribes could lead to war. Gaining agricultural ground, it has been asserted (Larson 1972), was the major reason for warfare. This is a bit difficult to accept for Louisiana in view of the great abundance of unused prime farmland (cf. Gibson 1974).

Beyond the limits of cultivated fields, tribal claims on land seem to have been very loose. The Mississippi was apparently a freeway, for the Natchez are said to have descended to the mouth for oysters; others to hunt buson. There are accounts of trips west of the Mississippi for bison and salt (du Pratz 1774:133-140, 171). Certainly, to bound tribal lands by precise lines on a map is misleading.

The rather complicated dwellings, temples, storehouses, and other buildings of the river tribes have disappeared without trace or memory. Knowledge of them comes chiefly from early written accounts (du Pratz 1774:359)

There were 2 types of dwellings; one tightly constructed as a winter or "hot" house and the other, a more open and airy summer house. To the north, where both were present, each was occupied during the appropriate season. Temples and chiefs' houses were generally larger and more elaborate winter houses set on mounds. The winter house of the Natchez and neighboring tribes was square in ground plan,

with poles pulled together to effect a dome shape. On them was built a sort of latticework over which clay was plastered. Cane mats lined inside and out, then a thatching of grass was added over the outside and another covering of mats. There was a small entrance but no window or smoke hole. An inside fire kept the house very warm in winter. South of the Houma along the Mississippi, the house ground plan was round, with vertical walls capped by a cone-shaped roof.

The simpler summer house, at least among the Choctaw, was a rectangular gabled structure with wattlework walls covered by bark. Simpler yet were the summer arbors with flat roof and open sides. Among the immediate coastal peoples were palmetto houses with thatching over a gabled framework, built until recently by trappers. Represented among the Caddo was the beehive-shaped house with a covering of bundles of grass.

Also included in the miscellany of buildings were granaries, charnel or bone houses, sweathouses, and dance houses. Stockades were composed of vertical posts or poles set in the ground. To make ingress difficult, the 2 ends of the stockade overlapped, forming a narrow and easily defended entrance. Additionally there were banquettes of earth against the inside wall, loop holes, and watchtowers.

ECONOMY

It is possible that the introduction of highly productive hybrid corn swung the balance in favor of inland agriculture over abundant supplies of coastal shellfish, fish, and small game. If so, the shift to agriculture must have taken place in late prehistoric time, for the so-called agricultural tribes had not lost their ability to live well by non-agricultural means alone. Taste in foods was not won over competely to the agricultural harvest. To the men, agriculture provided a nourishing, portable food, maize, the better to give their undivided attention to the demands of warfare.

Agriculture

The alluvial deposits of Louisiana's rivers provided the favored sites for agriculture. Where annual or even occasional flooding renewed the quality of soils, the same fields could be cultivated year after year without loss of productivity. The blufflands tilled by the Natchez are

composed of loess, a soil of great original productivity but subject to decline with continued use. Fortunately, the loess slopes were subject to wash, which exposed fresh soil, and crops of beans renewed the nitrogen content. Aside from the addition of potash from the burning of wood and cane on newly cleared ground, there was no kind of fertilization.

Corn, beans, and squash, all imports from Mexico, were the staples of Indian agriculture. Plants of local origin may have been part of a pre-maize agriculture, sunflowers, pigweed, lambsquarters, giant ragweed, marsh elder, and *rustica* tobacco. Only sunflowers and tobacco survived as common crops after the appearance of corn and beans.

Indian corn or maize was grown in 3 varieties, a small popcorn, a flint or hominy corn, and dent or flour corn. Beans were of the *vulgaris* species, navy, red, kidney, and pinto and were used green as snapbeans or mature as dry beans. Squash, pumpkins, and gourds were grown, while seed-bearing grasses and berries were tolerated about the garden for their usefulness. Sunflowers and tobacco were secondary crops. Agriculture reached a peak along the Mississippi and its tributary Ouachita and Red rivers. The Chitimacha are reputed to have had corn but no squash and beans, while the Atakapa have been regarded as non-agricultural.

Cultivated fields might in time become quite large, ranging from tens of acres to as much as 2,000. However, they exhibited the disorder of a pioneer settlement, with dead trees, stumps, irregularly oriented plots, and an abundance of weeds. Planting took place early in March, after the brush and refuse had been piled and burned. In the planting, men broke the ground with stout hickory sticks having a curve in one end to serve as a blade. Women planted, making holes with sharpened sticks some 5 feet apart, in which were placed several grains of corn and beans. As the corn and beans grew, the earth was raked up about them producing a series of hills dotting the field. Squash and sunflowers grew between the hills, tobacco in marginal patches.

There was a watch to keep birds and mammals from the growing crops, but cultivation was minimal. The harvest was a joint effort of all ages. A great deal of the new crop was consumed in the feasting that accompanied the harvest. Of the remainder, pumpkins were sliced and dried. Corn was dried, and some of the latter was ground and preserved as the useful "cold meal" of the English and French.

Wild Plant Foods

Few today appreciate the abundance and excellence of wild plant food that goes practically unused. Combined with a similar abundance of game and fish, wild plant foods had given rise to a so-called maximum forest efficiency among the Indians, an economy that worked so well as to slow the acceptance of agriculture. Even in historic times, wild plants were an important supplement to crop foods, for the latter were insufficient to last until the next harvest. At least one wild plant food, persimmons, was said to constitute the sole source of sustenance for the Tunica during a month of each year.

The list of edible wild plant foods is long. There are groundnuts, wild sweet potatoes, smilax, sagittaria or arrowhead, plums, grapes, mulberries, dewberries, strawberries, and blackberries. There is a variety of nuts: acorns, chestnuts, chinquapins, walnuts, pecans, hickorynuts, pond lily nuts, and honey locust beans. Among bearers of edible seeds are the palmetto, cane, cockspur grass, wild rice, and many others. Then there are wild peas, mushrooms, puffballs, and palmetto heart. Some of the wild foods had of necessity to be consumed immediately, but others, such as nuts, roots, and seeds might be stored in the granaries.

Hunting

Hunting remained an essential part of Indian economy after the acceptance of agriculture. Furthermore, even green corn lacked the toothsome appeal of buffalo meat or venison. Equally important, hunting, along with warfare, was a prestigious occupation for men, which cannot be said for agriculture.

Hunting small game was a training ground for the youngsters. There was a short hunt for men after planting and before harvest. The big hunt came during the long months between harvest and planting. The latter might involve moving the hunter's whole family to a special hunting camp. There were long hunts for men only that might bring them into contact with enemy tribes.

Still hunting or stalking was the common mode of hunting. If in safe territory, woods and canebrakes were fired to stir up game. A deer-head disguise enabled the hunter to get close to his quarry. Bear were prized especially for their grease or oil. The usual way to get them was to toss burning brands into hollow trees where they were denned. Bison or buffalo appeared in Louisiana only after DeSoto's visit and before

LaSalle's descent of the Mississippi (Rostlund 1960). They were quickly accepted and became prized for their flesh and hides. Stalking was used in taking them. Excess meat was preserved by smoking.

Snares, deadfalls, and traps supplemented bow and blowgun for raccoons, rabbits, squirrels, beaver, turkeys, and passenger pigeons. There is strangely little reference in the early literature to the hunting of waterfowl. They were abundant, most useful, and susceptible to impoundment and enmeshment in nets, methods surely available to the Indians.

Fishing

Then as now, Louisiana provided abundant fish and shellfish of excellent quality. Little advantage could be taken of the saltwater fishery because the means were lacking. However, sharks' teeth were an important trade item; they may have been collected from dead fish washed upon the shore. The same source might have provided small whales. Interior peoples presumably descended the Mississippi to secure shellfish.

The methods of securing freshwater fish included virtually every modern device: hook and line, spear, hoop net, cone-shaped trap, trotline, plus a distinctive method, poisoning. Poison derived from the buckeye or from the root of the devil's shoestring, or catgut, was stirred into a pool when streams were low. The stunned fish rose to the surface to be easily netted. The species caught include those of modern Louisiana, exclusive of introduced fish such as the European carp.

The species mentioned above under fishing and hunting by no means include the whole range of animal life utilized by Louisiana Indians. Considered edible were not only today's accepted species of mammals, birds, fish, and shellfish, but also beetles, locusts, eels, lizards, snakes, porpoises, and virtually every living creature. There was evidently a distaste for dog and opposum, both of which were more highly regarded by invading Europeans.

Preparation and Consumption of Food

All the common methods of preparing food, with the exception of frying, were used by Louisiana Indians. A pot was the chief receptacle used, a separate one for each food cooked. Meat was thoroughly cooked. Large game was dressed out before cooking, but small animals were cooked whole, then the edible portions separated from the refuse. Soup,

porridge, stew, and mush, and boiling, broiling, roasting, baking, and parching were all familiar dishes and methods.

Corn, the great staple plant food, was prepared in many ways. Roasted green corn was the most delectable of all plant foods, but there was hominy, fine and coarse grits, sagamite (a porridge), smoke-dried cornmeal to be consumed mixed with water. Corn stalks were chewed for their sugar content. Corn was a chief ingredient of bread.

Eating habits were of course conditioned by the food available. There was no regular regime of 3 meals a day. As mentioned, periods of almost continuous eating marked the harvest period. Late winter was likely a time of dwindling food supplies and less regular meals. With the steady labor of the planting season there would be a mid-morning meal after a certain amount of work. There was regularly food available at night for those who wished to eat. And as noted, fresh game and a big fish catch often resulted in immediate preparation and consumption. Those on a long hunt or a raid against the enemy carried only a supply of fine cornmeal to be consumed after mixing with water and as opportunity offered.

Trade

Exchange of goods was a firmly established economic activity of Louisiana Indians, in part to obtain essential articles: salt, stone, bow wood, and the like. In part it effected a distribution of "luxury" items: stone beads, conch shells, pearls, copper, and galena. In part it reflected superior goods produced by some tribe, such as Chitimacha basketry or Caddo pottery. Much of the trade passed through middlemen, such as the Avoyel. Trade parties rarely went hundreds or thousands of miles to get desired goods. Rather the goods moved from tribe to tribe.

As an example, the Atakapa sent smoked fish, Spanish moss, sharks' teeth, conch shells, and feathers northward in exchange for bow wood, flint points and blanks, large animal skins, and pottery. The Caddo got turquoise and cotton from the distant Southwest for bow wood. From the far north came Michigan copper and Minnesota catlinite for pipes and, from the Atlantic seaboard, *marginella* shells for beads.

Media of Exchange and Counting

Since all trading could not be direct, article for article, some medium of exchange, in effect, money, was necessary. For this purpose

shells, pearls, vermilion pigment, pieces of quartz had a roughly established value (Swanton 1946:481). But the best established medium was shell beads, preferably the snail shell, *marginella*. As an example of equivalent values, 4 deerskins equalled 1 large conch shell bead, as cited for the Chickasaw (Adair 1775:170).

Lacking writing and a developed mathematics, there was nevertheless a workable system of keeping count. It began in the age-old fashion of finger counting. There were bundles of sticks to count the passage of days, knotted strings, and notched sticks. Mnemonic belts with patterns of shell beads recorded tribal history. The Natchez preserved knowledge of 45 or 50 successive Great Sun rulers. There is record of pictographic messages. There were a pantomine "language" for communication among speakers of different languages who were not familiar with Mobilian jargon, smoke signals, and intoned whoops that conveyed a message. There were established symbols identifying each tribe.

The Annual Cycle of Economic Activity

Seasonal changes in economic activity have been implied in the foregoing discussion. Late winter and spring were successively times for clearing new land, cleaning up old fields, and planting. Spring is also marked by spawning runs of several species of fish, where these can be taken easily and in great numbers. Summer, that part of it between planting and harvest, freed the men to make a short hunt, and perhaps go for salt and shellfish if not locally available. The long harvest period from mid-summer into fall was a time for labor, but also for feasting, celebration, and religious observances. Winter meant the long hunt and dispersal of families to hunting camps. Additionally, the men went even longer distances for bison and bear, or bent on other economic activities.

WEAPONS, ARTS, CRAFTS

In view of the superiority of today's metallic tools and weapons, one might wonder how the Indians ever accomplished the necessary ends when limited to stone, wood, shell, and the like. They managed with such skills as not to be in any way handicapped by the absence of metal tools. Eager adoption of European tools and weapons was not entirely a matter of their superiority. In part, at least, it was the prestige attached to owning them.

Native weapons for warfare and hunting covered a wide range: bow, blowgun, club, knife, spear or dart thrower (atlatl), possibly the sling, shield, and a category including lance, spear, javelin, and pike. Most often employed was the bow. Bows were long, sometimes matching the height of the bowman. Preferred woods were hickory, black locust, and Osage orange or *bois d'arc*. Arrow shafts were variously cane, hickory, and dogwood, tipped with bone, split cane, garfish scales, stone points, or simply hardened in fire.

Louisiana Indians were superb archers. Their accuracy was phenomenal, power of penetration almost unbelievable, and speed of successive discharge far in excess of the single-shot European musket. Second to the bow was the blowgun, a 7-10 foot section of cane equipped with foot-long darts; the butt wrapped with thistle down. Propelled with a blast of breath, the darts moved rapidly and accurately to the target. They were effective in warfare and against small game. Long after the mature hunter and warrior used guns, Indian boys maintained the old skills with bow and blowgun for hunting small game.

Miscellaneous Implements

Where stone was available in quantity and of proper quality, it was used for many purposes: stone scrapers and knives, grooved stone axes, stone wedges for splitting wood, hammerstones, small stone mortars and grinding stones for cracking nuts and grinding paints, the disk-shaped chunkey stone used in the game of the same name (Swanton 1946: 541-549). There were pipes of imported catlinite and "black marble."

In immediate coastal Louisiana there is no stone. In other sections there is little. Adequate substitutes were found where stone could not be imported. Knives were of shell, bone, and above all of split cane. Wooden mortars were made of upended sections of partially hollowed logs, the pestle a 5-foot pole. Shell was reportedly used as hoe blades. In some cases, articles of stone were actually inferior to the wooden counterpart, for example the split-cane knife and the wooden mortar.

There were low, 4-legged stools hacked out of a single piece of wood and wooden dishes ranging from plates to cups. Big spoons used in eating were of wood or bison horn. Gourds were transformed into bottles, shells into spoons and ladles. There were toothed combs, back scratchers, chests, boxes of cane, and cane hampers. There was a baby's cradle that could be carried, leaned against a tree, or suspended from a branch.

There was a variety of drums; a hide over a partially filled pot, hollow logs and cypress knees, or simply a board or log, anything that could make a noise. Gourds became rattles with the insertion of stones or seeds. Terrapin shells and deer dewclaws were fashioned into anklet rattles. A section of cane became a flageolet with the addition of finger holes.

Transportation

In common with other southeastern Indians, the Louisiana tribes were skillful makers and users of the dugout boat, or pirogue. There is mention of cypress, poplar, cottonwood, and black walnut used in its making. The log was shaped outside into a blunt-ended form, tapering upward at both bow and stern. It was hollowed by successive charring and scraping. Dugouts varied in size from a 1-man craft to those reportedly having a capacity of 60 to 80 men. The dugout was propelled with the hands as well as with paddles. They were excellent on calm waters but not well adapted to open water.

The quickly constructed cane raft, or *cajeu*, was used for ferrying. A tier of bundles of cane was covered with another laid at right angles. This nearly unmanageable craft could carry a considerable load and might be abandoned after a single use.

In Louisiana and throughout the Southeast, it was the practice to carry important people. The means varied from the elaborate litters of the Natchez to the Caddo custom of carrying important people on the backs of individual men.

Basketry and Pottery

Basketry and pottery, made almost exclusively by women, matched in excellence, beauty, and utility anything fashioned by Louisiana Indians. They rest high on the scale whereby Swanton placed Lower Valley Indians at the peak of accomplishment for the whole Southeast.

A twilling technique was used in basketry, with split cane, and rarely fan palmetto the material. There was great variety of form and size, from large carrying baskets to small baskets with covers for personal effects, winnowing baskets and sieves, and double baskets. Cane matting was also used for a variety of purposes. Red, yellow, and black dyed cane was woven into traditional designs. Modern Chitimacha basketry is among the finest produced by American Indians.

Less is known about the pottery made by Louisiana historic Indians, since it did not survive as long as basketry. It was made by the common coiling method, was incised and otherwise decorated, but little use was made of color and it was not glazed. There were large coarse pans for making salt, bowls, cooking pots, basins, pitchers, bottles, pipe bowls, small delicate pots of little practical use, and clay figurines. There were enormous receptacles capable of holding 50 pints of oil. At its best, Indian pottery was favorably compared by white observers with the pottery of the Old World. The Caddo and Tunica were the best potters among Louisiana tribes.

DRESS AND PERSONAL ORNAMENTATION

True tailored clothing, with material cut and sewed together, was unknown to pre-conquest Louisiana Indians. In fact, it was known only to the northernmost natives of the continent. The one indispensable garment of men was the yard-long buckskin breechcloth. It ran between the legs with the ends tucked under and over a belt that held it in place. The ends, hanging down front and rear, gave the appearance of aprons. For warmth men would add a robe or feathered mantle. For traveling they added full-length buckskin leggings, the top attached to the belt. Moccasins worn for travel or other special occasions were made of one piece of leather crudely shaped by a seam running lengthwise across the instep and another up the back. A crude garment fashioned of 2 deerskins placed face to face and sewed around the edges may have been pre-Columbian.

Women wore a simple wrap-around skirt reaching from waist to knee. On occasion they wore robes or feather mantles, half-length leggings, and moccasins. Children wore little or nothing prior to puberty.

Headgear for either sex was rare. Oldest references (Swanton 1946:504) suggest a turban worn by men, which was likely simply a band. However, treatment of head hair was distinctive, sexually and tribally. Both sexes removed all body hair with clam-shell tweezers. Women wore their hair long except when in mourning. Otherwise it was dressed in styles tribally distinctive.

There was some tribal distinction in men's hair, but in common they retained a little tuft at the top of the head. Each tribe had its readily

distinguishable mode of hair dressing for warriors engaged in battle, the better to distinguish friend from foe.

A great variety of local and imported materials was fashioned into objects in personal adornment. For example, the columella of the conch was fashioned into a nail-like ornament to be worn in the ear lobe or the septum of the nose. Sea snails, wood, seeds, berries, mussels, fish vertebrae, fossil crinoid stems, pearls, and copper were made into beads or ornaments for necklaces, bracelets, armbands, rings, ear plugs, and they decorated clothing, garters, belts, and formed strings with an established exchange value.

All tribes and both sexes used a variety of body paints, sometimes for mere decoration, but equally as indication of special occasions, preparation for war, for ball games, and for mourning. Tattooing, used by both sexes, was equally widespread. It too was both ornamental and symbolic of attainment and status. Among the Natchez, tattooing of the body extremities carried no special significance, but tattooing suns, serpents, war clubs, and heiroglyphic signs on the trunk of the body were marks of social distinction and heroic deeds in warfare.

Intentional head deformation was widespread among tribes of the Lower Mississippi. It had but a single purpose, to produce a highly desirable effect, thereby reflecting honor on the mother who had carried it out. Both sexes were involved. The process was initiated during early childhood, lasting until the age of 9 or 10. Head deformation did not apply to all individuals in all tribes by any means, though Bartram (1792:515) reported that it was true of all Choctaw males.

SOCIAL ORGANIZATION AND FUNCTIONS

Social Grouping

A rather rigid social structure and great power vested in certain individuals characterized the practices of the Lower Mississippi River tribes. Descent was reckoned through the female line and totemic clans were common.

An oligarchic system reached a peak among the Natchez, where the Great Sun was an absolute monarch. Nevertheless, the Natchez social structure consisting of several ranks was so constituted that there was constant movement up and down. For example, the successor to the Great Sun was his eldest sister's eldest son, even though her husband

may have come from the lowest social class. Only the Chitimacha had a true caste system, with marriage within one's caste and the several castes ranked as to relative status.

The Crises of Life

Each of the important stages in the development of the individual from birth to death had its attendant observances. Mothers gave birth to their children unattended in huts where they had been secluded. The newly born were placed in cradleboards and head deformation initiated. They were well looked after, rubbed regularly with oil, taught to swim and to bathe daily, instructed in their duties as males or females, and in the ways of their people, social, religious, and material.

Boys learned the use of weapons in warfare and hunting, how to make tools, weapons, houses, and how to cultivate properly the sacred fields. Just as old men taught the boys, so did old women instruct girls in the domestic arts and crafts, agriculture, and social and religious obligations. It was early established that men took precedence over women.

Attainment of sexual maturity occasioned no special ceremonial observance. Girls observed the rule of seclusion in a special hut during menstruation. As unmarried women they had great sexual freedom and gifts from their lovers constituted a kind of dowry. The Caddo, it seems clear, valued abstinence in a maiden but deemed it a little too much to expect.

The attainment of adulthood in boys meant taking on the functions of men. Among the Chitimacha, they fasted and danced and sought their own guardian spirit. As men matured they lost their childhood names for ones reflecting their warlike deeds. They had to learn the implications of a complicated kinship system with its attendant rules of behavior.

It may be said in general of marriage among Louisiana Indians that it followed clan exogamy, that is, outside the clan where clans existed; was generally but not exclusively monogamous; that the married couple lived with the wife's people; and that the peculiar incest rules were to be strictly observed.

Not unlike other societies, death among Indians was an occasion for both genuine and ritual mourning and for ceremonial observances. There was variation in practice, but Choctaw, Houma, Chitimacha,

Bayougoula, and Caddo rites were quite similar. They reached a peak of elaboration in the rites marking the death of the Natchez Great Sun.

The corpse was not interred until the flesh was sufficiently rotted to be removed from the bones. Mourning was indicated by cutting the hair, leaving the face unpainted, wailing at intervals, and avoidance of public gatherings. Well into historic times, Natchez, Chitimacha, and likely others interred their dead in mounds.

Among the Natchez the death of an important individual was followed by the death of his wives, some of his officers, and volunteers who sought honor for themselves or their children.

Property and Inheritance

There were definite practices with respect to property ownership and channels of inheritance. There was distinction between real estate and chattel property and recognition of ownership of incorporal property such as songs, dances, curing rites, clan crests, and the like.

Ownership of agricultural lands was specific. Chiefs might own fields outright. Other fields belonged to the towns for use by their inhabitants. To the extend that lands were held by family groups, inheritance was reckoned through the female line, as was the case with all kinds of property. A man's chattel went to his sister's son, while his own son inherited from his mother's brother, a logical arrangement to members of female-descent clans.

Justice

Distinction between right and wrong and the nature of punsishment to be meted out were rarely in doubt. However, as with modern society, where rank distinctions were firmly established, the upper stratum of society was less subject to punishment than were inferior ranks.

Rape, incest, adultery, murder, witchcraft and wizardry were major crimes punishable by death. Repeated theft was similarly treated. If any of those assigned to a community project proved to be shirkers, they could be punished by switching. Failure of children to take the morning bath drew mild reproval and light switching.

Play

An important part of the social spectrum was the attention given to formal and informal play. Both boys and girls learned adult skills

through play. Boys also exercised vigorously at wrestling, running, throwing and lifting weights, and they played at the ball and chunkey games. At least some variant of the ball and chunkey games obtained among all Louisiana tribes. At adult level, they were contests of skill played by mature experts, providing unlimited opportunity for gambling. Other games were less athletic in nature but provided similar opportunity for gambling. One involved guessing the location of a hidden object, another the manner in which short sections of halved cane would land when tossed in the air, another resembled jackstones, and still another, tick-tack-toe.

The ball game is related to the lacrosse of the northeastern Indians, now widely played in colleges. However, here it employed 2 rackets. Goal posts marked the ends of fields of varying lengths. The ball could be carried in the pockets of the rackets or thrown. The size of teams varied from a few individuals to the whole populations of towns. Prior to the game there were preliminary ceremonies and body painting. The play was exceedingly rough, sometimes resulting in the death of players.

The chunkey game was played by 2 skilled men, each equipped with slender poles. One player rolled the chunkey stone and both in turn threw their poles, the object variously to hit the stone, strike the opponent's stick, or come to rest nearest the stone after it had completed its roll.

To be counted as recreational was the feasting that lacked ceremonial significance. Indians were given to eating heavily when they had food and tightening their belts when it was in short supply.

Accompanying the feasting was dancing and singing. For the informal occasions, there was impromptu composition of song and dance, accompanied by pipes, rattles, and drums, producing what to the French was a horrendous cacophony.

GOVERNMENT AND WARFARE

The rigid social system of the Lower Mississippi tribes was extended into an absolutism in governmental structure that reached its peak among the Natchez and Taensa. The chiefs of the latter tribes ruled with an absolute power. They were surrounded with strictly enforced rules of etiquette, a retinue of guards and servants, and an elaborate ceremonialism. Away from the Natchez and Taensa the power

of chiefs declined, though there was a resurgence among the Chitimacha and Chawasha with their unique true caste system.

With all the formal power of a Great Sun, his authority was in part conditioned by his individual abilities and experience. Where vested power was less, there was greater opportunity for one of lesser birth to become powerful. And there was a famed Chitimacha woman chief who gained her power not by descent but because of ability.

There were chiefs for each of the tribe's towns. They in turn belonged to the tribal council. The looser the tribal organization, the more important the town or village chiefs, and the more likely men of ability to become important.

Warfare was an integral part of life. It was virtually the only means whereby a young man could advance to accepted adulthood. Since warfare was so important, reasons for specific engagements might arise in various ways. A chief might feel his position threatened by a neighboring tribe, a fellow tribesmen might be killed, there could be real or fancied territorial intrusion, or captives might be desired.

If war was proposed, youths without honors sought a place on the war party, hoping to kill an enemy and secure a scalp or to capture a prisoner. The chosen participants engaged in preparatory activities: body painting, consulting with shamans, dancing, and other established practices.

The party, stripped to breechcloth and moccasins, travelled at night, carrying dried meal for food and the war medicine of their town. The battle might be furious for a while. The success of the attack was measured by the enemy killed, the scalps taken, and the captives made. On reaching home, spoils were given to families of slain warriors. Most male captives were tortured to death, and women and children captives distributed among the tribe. The latter were not truly slaves, for they eventually would be absorbed and treated as any other. A calumet peace ceremony terminated the war. Youthful warriors, who had won honors, recorded them by tattooing their bodies.

RELIGION, CEREMONIALISM, MEDICINE, ORAL LITERATURE

Religion

One may wonder how the Indians ever accomplished any of the practical matters of life, so surrounded were they by a spirit world,

beliefs, observances, and a variety of practitioners. There was what appears to be a confusion of temples, idols, supernatural beings, ghosts, fairies, dwarfs, sacred places, taboos, priests, conjurors, curative rites, and ceremonies. Religion, magic, and medicine were intermingled.

There were salient beliefs and practices common to most tribes: a sky god and numerous subordinate beings. The earth was flat; upon the vault of heaven lived the sky god and other deities. A being from above created the earth and endowed it. There was a great flood that deluged the earth. The souls of the dead met various fates, depending in part on their earthly behavior.

Common to all were beliefs that dwarfs or fairies could endow humans with supernatural power, such as the ability to cause rain. Taboos covered a wide range of matters, from the nonuse of a person's name to the mixture of certain foods. Omens were taken most seriously, sufficiently to turn a war party from its intended goal. Charms could draw deer to hunters. Dreams were revelations. It behooved the individual to keep on the best of terms with the spirit world and seek to win its special favors.

Ceremonialism

Ceremonialism was an inescapable segment of living. Purely religious ceremonies honored the sky deity and other gods. Ceremony marked the steps in the life of the individual. There was a first fruits, or green corn festival, and one for the harvest, this latter observance somewhat paralleling the Creek busk. There were ceremonies attending warfare, especially known to Europeans through the calumet ceremony formalizing the conclusion of a conflict. Taking the black drink, extracted from yaupon (*Ilex vomitoria*), accompanied a number of ceremonies.

The calumet ceremony had reached the Lower Mississippi River tribes from its northern point of origin by the time of French settlement. Farther north the ceremony was used with a variety of stages of warfare. Here it was used primarily to formally conclude a conflict, though it might precede conflict as well.

There was originally a material calumet that consisted of 2 reeds or shafts. The addition of a pipe bowl and the use of tobacco led to the name being attached to the pipe, thus calumet or "peace pipe." A distinctive chant or dance was part of the ceremony, hence reference to "dancing the calumet."

Mention here of the use of tobacco points to the fact that smoking was likely less personal pleasure than it was of spiritual, almost sacred, observance. The Caddo, for example, blew smoke to the deities in the 4 cardinal directions before eating.

Medicine

In defining the causes of illness, supernatural agencies outnumbered natural malfunctionings. There was recognition of this duality in the presence of 2 classes of medicine men. One might work by counter magic, the other more by dieting, bleeding, sweat bathing, vomiting, and massaging. Surgery was limited. No treatment was judged effective without the accompanying recitation of the appropriate magical formula.

Psychology was certainly an important means of curing a variety of ills. Indians were convinced of the power of medicine men. Even early European observers thought the Indian practitioners to be remarkably effective. However, Indian doctors soon recognized that they had no power against European diseases such as smallpox.

Oral Literature

Without written literature, oral literature among Louisiana's Indians was rich. Unfortunately, little was recorded by the early Europeans and serious attempts to record it by scholars came so late that much was lost and more was altered by European contacts.

Universal is the creation myth, usually a very detailed and lengthy account. There is a cosmologic myth that establishes the nature of the universe. Literal acceptance of these definitive myths allays forever any question regarding the reason or cause of any natural elements or complexes.

There is the universal flood myth, certainly established prior to European contacts. Then there are tales involving animals, of a time when people and animals could communicate. There are travel tales. There were old people who could relate the history of the tribe into the distant past. There were tales told children by their grandparents, avidly listened to and memorized by repeated tellings.

It was a rich literature, much better disseminated through the tribe than is the voluminous written literature of today.

IN CONCLUDING

This is a much abbreviated version of a larger work. It obviously suffers thereby. It omits any mention of 2 whole chapters, the first a geographical and ethnological orientation for each tribal group, the second on the fate of Louisiana Indians and Indians who moved into the state during the historic period. There is also missing the section on archaeology that will be part of the book-length version. Even in the latter there will remain largely unanswered and unsolved several significant questions and problems.

One problem considers the low cultural status of the Atakapa as contrasted with the rich archeological remains in the western Louisiana marshes that were Atakapa domain. Another pursues further the tantalizing hints of once intimate relationships between Chitimacha and Natchez. Another asks why and when the earthen mounds and enormous shell middens of the eastern Louisiana marshes were abandoned. And just what was native theory and practice regarding tribal territoriality? Why were there so many small tribal units, particularly in the Florida Parishes and along the lower course of the Mississippi, in contrast to the comparatively cohesive organization of the neighboring Choctaw, and even the Caddo?

One who dwells on these questions will inevitably develop tentative answers, but any final resolution must await exhaustive archival search, linguistic analyses, and especially, detailed archaeological investigations. May the documentary sources and archaeological sites be preserved!

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Chitimacha Basketry

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ABSTRACT

Multicolored split cane basketry made 30 years ago by Pauline Paul, one of the well known Chitimacha basket-weavers of the Charenton community, is illustrated and described. The techniques of weaving and of preparation of materials, as described to John Swanton, Caroline Dormon and present day interrogators are outlined. Information concerning the Chitimacha weavers is presented.

INTRODUCTION

At the Chitimacha Indian reservation, near Charenton, St Mary Parish, Louisiana, Chitimacha weavers still manufacture traditional basketry, one of the oldest Indian crafts in the Southeast. Made of split wild cane, *Arundinaria*, these utilitarian items have gradually become art work for Chitimacha women. Like much of the Southeastern Indian culture—so often predicted by ethnologists and

other students of culture change to become moribund (Dormon 1931) or to disappear—Chitimacha basketry has failed to vanish.

Ethnographic accounts dealing with the Louisiana Indians have all mentioned split cane basketry; the work on Chitimacha basketry by John R. Swanton (1911) probably is the most detailed description available. Yet specific data are often not present. Linguistic notes (Swanton 1911; Swadesh 1934, 1946) have contained some information and Gene Weltfish did an exhaustive study of the technology in the 1930's (Haas 1973), but this is still not available. A popular account of Chitimacha basketry was written by Caroline Dormon (1931) but has never been reissued.

ANTIQUITY OF BASKETRY IN LOUISIANA

Anthropological literature has long discussed the priority of basketry over ceramics (James 1972:229), and in Louisiana there can be little doubt that baskeury antedated pottery by many centuries. Gagliano (1967:99) has dated fragments of basketry found at Avery Island to at least 2310 B.C. Ford and Webb (1956:11) pointed out the presence of basketry impressions on clay in mound construction and of impressions of basketry on baked clay objects at a number of Poverty Point period sites in the state. One such impression on a piece of bitumin, found at the Garcia site near Lake Pontchartrain, has very fine split cane weaving reminiscent of modern Chitimacha basketry. Since the site is a Poverty Point component (Gagliano and Saucier 1963:320-327), the use of fine cane splints in basketry can be dated at least a millennium before the Christian Era. Two of the above occurrences were in southern Louisiana, the Avery Island find within a few miles of the traditional Chitimacha tribal territory and the Pontchartrain Basin find about 70 airline miles away.

Pottery can be seen as a late Poverty Point period development, but the abundant use of pottery came with Tchefuncte times after 600 B.C. The date from Avery Island places basket-making prior to any of the prehistoric ceramic traditions yet discovered in Louisiana. The fact that the prehistoric specimens were made of *Arundinaria*, termed "river cane" by the Chitimacha and other contemporary Louisiana Indians, emphasizes the continuity of these early adaptations to the regional environment.

In central and northern Louisiana, basketry impressions and fragments found in archaeological contexts fill in the gap between modern and earlier finds. They are known from the Marksville period Crooks site (Ford and Willey 1940) and the Troyville period levels of the Great Mound at Jonesville (Walker 1936), and fragments of mats have been found in Troyville-Coles Creek levels of the Wiley Mound in Catahoula Parish, Louisiana. The long continuum of basket-making is an example of the potential relevance of ethnographic work with contemporary Indians to archaeological work on regional culture history. Although basketry is seldom well preserved in the humid Southeast, woven cane matting at the Mounds Plantation site on Red River in northwestern Louisiana was remarkably well preserved from a date of A.D. 1050 (Webb and McKinney 1975). Technological data from groups like the Chitimacha suggest that these artifact forms have never ceased to be made and that techniques show little change in hundreds, if not thousands, of years.

CHITIMACHA BASKETRY FROM 1945

It is of interest to illustrate and describe examples of Chitimacha basketry of a generation ago, made by Pauline Paul for the junior author in 1945. This collection was donated recently by Webb to Northwestern State University and is housed in the Williamson Museum. Correspondence concerning the collection is stored at the Eugene P. Watson Library. Concurrently, we report from notes on technology and on form and design from the Caroline Dormon files, now also at Northwestern, and from information secured from present day Chitimacha weavers by the senior author. A more extensive report on Chitimacha basketry is also under preparation by Sally Bond (Personal communication 1975), Peabody Museum, Harvard University, where a collection of baskets by the late Clara Darden is to be found.

The Webb collection includes 7 specimens (Fig. 1). In the following descriptions, we give the terms for functional uses first as given to Dormon in the 1940's, then as given to Layton Miller and Ms. Phyllis Simoneaux in the Chitimacha community recently. Design names are in Chitimacha (Swanton 1911) and English, as secured by Swanton, Dormon, Miller, and Simoneaux.

a. Egg or sewing basket, medium size, transverse dimensions 22.5-25cm, depth 13.75cm; tightly woven with 3-4mm splints; constricted orifice and squared base; decorated with *Turtle's Necktie* or *Turtle with a Necktie* (*näbc-käkt'tĩ*), originally *Turtle's Necklace*, design of festoons in red, dark brown or black, and natural cane colors; the interior has 2 horizontal lines of simple chain design in beige color.

b. Egg or sewing basket, medium size, transverse dimensions 20-23cm, depth 13cm; also closely woven with 3-3.5mm splints; constricted orifice and squared base; decorated with *Bear's Earrings* (*aku' ngwã' cacti*) design in red, dark brown-black and natural colors; chain or stepped line design in beige on the interior.

c. Tray or shallow basket, small, orifice dimensions 12.5 x 15cm, depth 3.75cm; slightly looser weave with 3mm splints; decorated with alternating red and dark brown-black bands in which are set diagonal rows of stepped figures, the *Black Bird's Eye(s)* (*tcêxt-kani'*) design; red, black and yellow strips line the interior walls.

d. Fanner or fruit basket, shallow, medium size, with orifice dimensions 23.75 x 25cm, depth 7.5cm; closely woven with 3-4mm splints. Decorated over the bottom with *Muscadine Rind* (*k' óspi-suu*) design in red, black and natural cane colors; interior and exterior walls have a combination of vertical and diagonal bands in red, black, beige and natural cane colors.

e. Basket lid or minature sewing basket, with orifice diameter 7.5cm, depth 3.75cm; squared base; double weave, diagonal, with plain herringbone interior except for bands of alternating red and black at and shortly below the orifice. Exterior decoration with similar bands above and below a median strip which bears diagonally placed *Black Bird's Eye(s)* (*tcêxt-kani*) design; tightly woven with 2.5-3mm splints.

f. Egg or miniature sewing basket, transverse dimensions 8-8.5cm, depth 7cm; squared base; double weave with 2-2.5mm splints. Decoration in red, black, and yellow, with beige on the interior; *Broken Plaits* (*kastpx-apctõ'xn*) or *Fish-scales* (*makc-nakc*) design, surmounted by black and yellow columns.

g. Cigar or cigarette case with lid, overall length (closed) 12-13.5cm, width 8-8.8cm, thickness at orifice 4-5cm; closely placed diagonal double weave with 3mm splints; decorated in black, red, and natural cane colors forming encircling narrow and wide bands, the latter bearing *Mouse Tracks* (*ketmic-so*) designs.

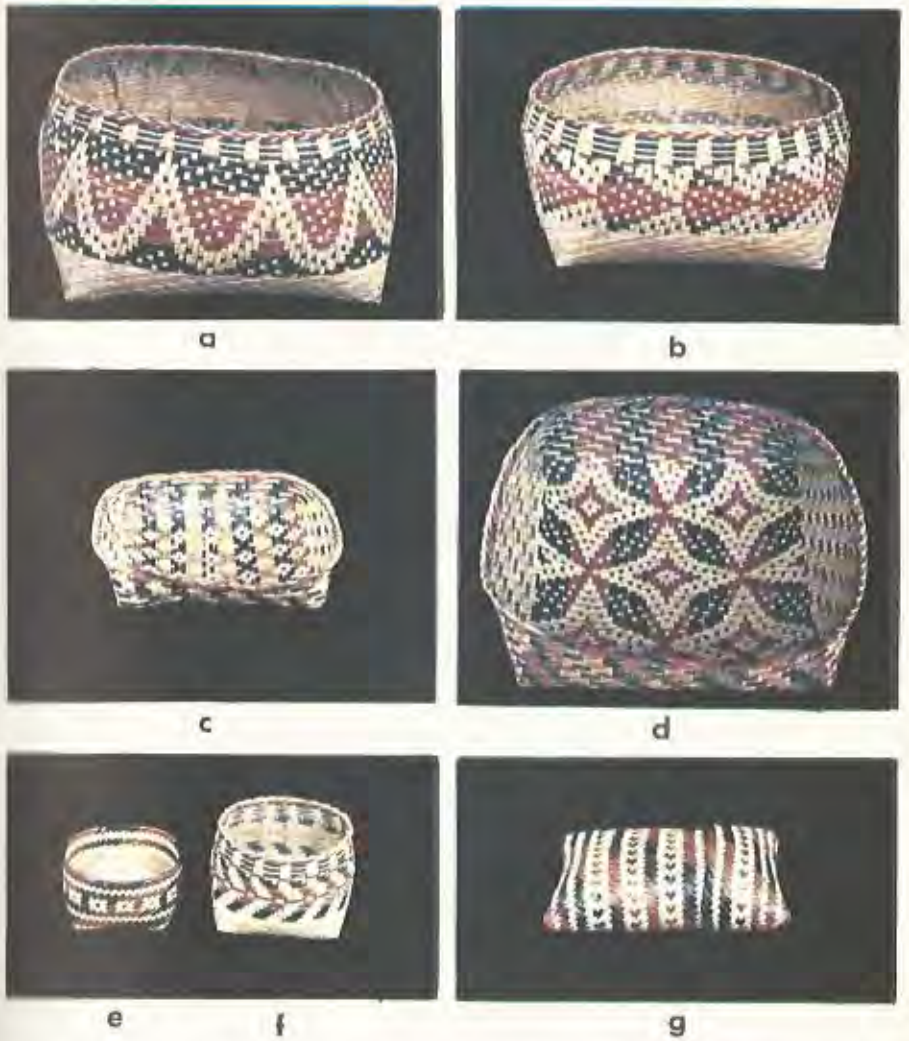

Fig. 1.—Chitimacha baskets. a. egg or sewing basket with *Turtle's Necktie* design; b. egg or sewing basket with *Bear's Earrings* design; c. small fanner with *Black Bird's Eyes* design; d. fanner basket with *Muscadine Rind* design; e. miniature basket lid with *Black Bird's Eyes* design; f. miniature egg or sewing basket with *Broken Plaits* design; g. cigar or cigarette case with *Mouse Tracks* design. Collection at the Williamson Museum, Northwestern State University. Photographs by Webb.

TECHNOLOGY

As noted earlier, Chitimacha weavers use the "river cane", or *pi' ya* (Swanton 1911), for the manufacture of their baskets. Dormon (1931:13-14) noted that the cane used was *Arundinaria gigantica*, the larger variety of the wild cane. Contemporary weavers state that they must have cane an inch or more in diameter, since it is split by twisting it in the hands and quartering it with a sharp blow across the thigh or knee (Dormon 1931; Mrs. Faye Stouff, personal communication, 1975). It must be large enough to grasp securely for this maneuver.

The disappearance of this cane, once superabundant in Louisiana and not to be confused with exotic bamboos introduced during the last 2 centuries, has been a serious threat to the industry. Contemporary weavers must travel great distances to obtain cane of proper age and size; they are interested in procuring it wherever it grows across the state. Weavers and tribal leaders would like information on canebrakes where they might presently obtain the material. As early as 1931, Pauline Paul, generally known to the Chitimacha as *Tante* Pauline, wrote to the late Caroline Dormon (Miscellaneous collections, Eugene P. Watson Library, Paul to Dormon): "Well Mrs. Paul (Mrs. Christine Paul, wife of Chief Benjamin Paul) just have to take her bad luck charm, we are short of the material to make mat and large baskets."

Conditions have steadily worsened in the past 45 years. Canebrakes have been cleared for sugar-cane and soybean production, and the state has even used herbicide on some of the plants growing near state roads and highways. The white man could appreciate baskets but did not seem to realize that they were ultimate Indian extracts from the natural environment.

Everything about Chitimacha basketry was drawn from nature. The cane was first cut, then quartered by twisting and breaking it across the leg, and the cortical surface was peeled into strips or splints by catching the thin strips in the teeth. Only in the initial cutting was any artifact involved.

The swamps also yielded the bright reds, yellows and blacks so often seen in Chitimacha designs. All of these dyes were extracted from plants found in the woods near the Chitimacha communities.

The cane has to be split fairly soon after it is cut, though it may be kept a short time if the weather is wet and the cane is moistened. Contemporary weavers, Mrs. Faye Stouff and Mrs. Ada Thomas,

concur that it must be split and peeled shortly after it is cut (Personal communication, 1975). The late Pauline Paul agreed in a letter to Miss Dormon (Miscellaneous collections, Eugene P. Watson Library, Paul to Dormon 1931): "I had some cane that was drying on me we have to work them when they are green."

The cortical splints are aged, however, and then dyed with plant derivatives. Pauline Paul further noted that some dyes were harder to set than others: "I was dyeing cane black that's take time to prepare the cane."

Modern weavers, (Stouff and Thomas, personal communication, 1975) echo Paul's sentiments that the black dye is the hardest to set. The deep browns and blacks are primarily derived from black walnuts but experimentation has suggested that there are other steps involved in the process. Mrs. Stouff, student of her late mother-in-law, Delphine Decloux Stouff, states that the dye processes of the Chitimacha have never been totally shared with outsiders, that tribal informants always "kept a little back".

Miss Dormon, longtime friend, basket-merchant, and political ally of the Chitimacha, probably obtained more information than anyone else about the dyeing methods. In a short article published in *Holland's Magazine* in 1931, she stated that the red and yellow dyes were both derived from the lowly dock, *Rumex* sp. She went slightly further and reiterated Swanton's (1911:348) discussion of preparation of the cane prior to using the dock. According to Swanton there were conflicting accounts, but it was clear that the cane splints were exposed to the dew between 6 and 8 days. Then they were soaked in a lime water solution and boiled with dock roots, called *Powa' ash* or "Deer's Ears" in the Chitimacha language (Dormon 1958:38). Mrs. Sidney Bradford was told, ostensibly by Mrs. Clara Darden, wife of Chief Alexandre Darden, that the exposure was for 8 days. Swanton (1911:348) favored this version over the 6 day period, because the number involved the sacred number 4, so often encountered in Southeastern magic and religion. We should note, however, that the number 6 may be more traditional and equally widespread in Indian lore because of the concept of unity: the 4 cardinal directions coupled with "up" and "down". Either or both of these numbers may be correct.

At any rate this process, plus the lime water "soak", produced the brilliant red color; those not soaked in lime dyed a bright yellow. Some baskets over a hundred years old appear as bright and unfaded as newly

dyed specimens. Miss Dormon also collected processual data on the dyeing process and her unpublished notes agree with Swanton's in most details. Her correspondence with Christine Paul and her sister-in-law, Pauline, add a few bits of interesting information. Christine Paul explained in a 1936 letter to Dormon that they started dyeing cane in August and had previously gathered the dock roots in June. Such roots had to be gathered when they were yellow, as white roots would not yield any dye. Which species of plant was used, whether *Rumex verticallatus* or *R. crispus*, perplexed Swanton (1911:348), and the Chitimacha remain silent on this point.

The dock, or *La Passiance* as it is most often termed by contemporary French-speaking Chitimacha, remains the primary ingredient of the red and yellow dyes. However, present-day weavers assert that the whole formula remains the sole property of the Chitimacha weavers (Chief Emile Stouff, personal communication, 1975). It is further suggested (Faye Stouff and Ada Thomas, personal communication, 1975) that the process will be taught only to Chitimacha.

FORM

Once the cane was cut, "not too young or too old" but at exactly the correct growth stage (Chief Emile Stouff, personal communication, 1975), the splints were prepared as described. It was then ready for weaving into a variety of forms. The splints could be used dyed or undyed, depending on the desire of the weaver.

Baskets were woven in either fine or coarse single weaves, or in the more complex, often watertight, double weave. The latter was probably the most complex plaited basketry on the North American continent. Splints as narrow as 2 to 3mm were woven up to the rim, turned down tightly, then woven back around the first container and into one another at the base. This method required longer splints and, for many years, the size of the baskets has been controlled by the availability of cane with long segments, since they prefer that cane joints not show on the final surface. Small miniature or toy forms are traditional among the Chitimacha and have been made steadily over the years. Some of these, no more than 1 to 2cm in diameter, are evidence of the weavers' remarkable control over the medium. At least some of these baskets are "training baskets" for children (Jon Gibson and Faye Stouff, personal

communication, 1975). However, the larger, complex, double woven baskets are less and less available, due to the lack of suitable cane.

Forms, double and single plaited, were quite variable. Miss Dormon's friends among the Chitimacha furnished her with a list of forms they were producing (Unpublished field notes 1929-1931) between the years 1929 and 1942. They are reproduced herewith (Fig. 2), including Miss Dormon's simple phonetics; her words sound like they look. A few known forms are not included, despite the fact that they appeared in the *Holland's Magazine* article. These are forms known to most contemporary Southeastern Indians as "wall-hanging basket" and "elbow basket". The scarcity of these forms among various collections of Chitimacha basketry in the state suggests that they were not as popular among the Chitimacha as among some of their neighbors. Possibly the infrequent forms reached them by diffusion and were never well accepted; in this case the lack of terms for them in the Dormon list is understandable. The list does seem to include the normative range of forms for the Chitimacha.

Fig. 2.—Native terms and basket forms.

These forms were made in miniature, medium, and large sizes. They varied from nearly a meter to only a few centimeters in diameter. Some kinds of containers were apparently introduced after the coming of Europeans; for example, double baskets with lids made to hold cigars and cigarettes, which the Dormon correspondence indicates were popular in the 1930's. Faye Stouff explains that she made them in the 1940's with foil interliners for the Chitimacha service men in World War II (Personal communication, 1975). Also small "needle cases", which were miniature, lidded, and round, may have been produced after the 1890's when they become very popular with seamstresses, Chitimacha and non-Indian, on Bayou Teche (Lillian Foote, personal communication, 1958).

The alteration of Chitimacha forms by introductions or reinterpretations is very important. It shows that the art remained functional, as traditional Indian art most often was and continues to be. Old behavior is adapted to new stimuli and then persists without pattern loss. Such adaptability shows the viability of Chitimacha basketry in a changing cultural environment.

DESIGN

As with form, decoration on Chitimacha basketry covers a number of different elements. Combinations of these elements into motifs and the varying combinations of motifs on the containers make Chitimacha basketry design a complicated topic. Decoration of larger walled baskets, both double and single woven, was always limited to the exterior (Fig. 1a, b). However, winnowing or "fanner" baskets frequently show designs on the interior bottom and the upper quarter of their low walls (Fig. 1c, d).

The design may cover the entire exterior, especially on double woven baskets, or be limited to the upper one-fourth to two-thirds. Form and color are controlled among contemporary weavers by the traditional usage of their predecessors. Old baskets have long served as "patterns" among the Chitimacha, much as old quilts have among their Anglo-Saxon and French neighbors. This is not a new practice, as is evidenced in a letter from Pauline Paul (Paul to Dormon 1931): "I found this design on the old basket."

Faye Stouff and Ada Thomas also state that older baskets are kept for patterns and that without them designs would be hard to duplicate. In one instance a pattern was criticized for departing too far from traditional design. Mrs. Stouff has kept a number of baskets made by her mother-in-law, Mrs. Delphine Decloux Stouff, as well as even older "pattern baskets" which belonged to the latter. The Dormon letters from Christine and Pauline Paul strongly suggest that they did likewise. This pious respect for traditional design has limited innovation but has kept the Chitimacha designs remarkably consistent from generation to generation. Very little, if any, significant variation can be found in designs on baskets collected over the past 87 years; the Stouff baskets at Charenton show no change in the past century.

Again analogous to quilt patterns, the Chitimacha designs have names: *Bear's Ears* or *Earrings, Little Trout, Worm Tracks, Alligator Entrails, Black Bird's Eyes, Cow's Eyes, Muscadine Rind, Rattlesnake, Chain, Broken Plaits, Plaits Beginning to Start, Worm Track Broken, Turtle's Necktie* or *Necklace, Mouse Tracks, Rabbit Teeth* and *Bed Spread.* Most of these were tabulated by Swanton (1911) but some errors crept in. The curvilinear designs apparently confused the early ethnographers. Contemporary weavers, Mrs. Faye Stouff and Mrs. Ada Thomas, differentiate *Worm Tracks, Alligator Entrails* and a design that they call *Rattlesnake.* Swanton (1911: Plates 24, 28) showed all 3 designs but his *Alligator Entrails* should be *Rattlesnake,* and all others should be either *Worm Tracks* or *Worm Track Beginning to Start.* The Chitimacha names for all of these designs have been retained, despite the fact that the Chitimacha language is no longer spoken fluently by the tribal members. Traditional behavior, as reflected in material culture, is extremely tenacious and terminology may be one of the last areas of change. Once a motif or design element finds a valued niche in tradition it may remain forever. These ancient Chitimacha terms evoke the imagery of sandbar and swamp—the natural environment of the weavers who first captured these impressions in cane.

Swanton (1911) and Weltfish (Haas 1973) have recorded the Chitimacha terminology for these designs, some of which has been given earlier in this paper. The remarkable fact is that, with a slight correction of Swanton's terms, they remain in use today.

THE BASKET MAKERS

Anthropological studies of Indian crafts rarely mention individual craftspeople; more often the obscure adjective "Indian" or the tribal name is used, but individual names are omitted. A number of names are associated with Chitimacha basketry during this century, which we consider deserving of mention.

Swanton (1911) collected terms and specimens from Mrs. Sidney Bradford of Avery Island, who obtained them from Clara Darden, the oldest Chitimacha weaver at that time (*circa* 1900). Many of Clara Darden's baskets are at the Peabody Museum, Harvard University.

The Dormon and Webb collections at Northwestern Louisiana State University were mostly obtained from Christine Paul, Pauline Paul, Mrs. Regeste (Adele) Darden and Mrs. Delphine Decloux Stouff, and were woven by these artisans in the years between 1929 and 1945. The baskets shown in Fig. 1 were woven by Pauline Paul at the request of Caroline Dormon, who took the photograph of Pauline shown in Fig. 3a. The Dormon papers also mention other weavers at Charenton. Mrs. Zelia Marcotte, actually a Houma but who lived at Graine á Voleè Cove near Charenton (Chairman Leroy Burgess and Chief Emile Stouff, personal communication, 1975), was photographed by Miss Dormon with Chitimacha baskets and in the process of weaving one (Fig. 3b). Apparently this old Houma lady had been so thoroughly accepted by the Chitimacha that she was taught the craft. The only other non-Chitimacha who has been so taught, to our knowledge, is Faye Stouff, the wife of the traditional contemporary Chitimacha chief, Emile Stouff.

There is also some reference in the Dormon correspondence to Lydia Darden (Fig. 3c), Lucy Darden, and one or two other weavers. It can be certain, however, that Dormon actually purchased baskets from Christine and Pauline Paul, which is not the case with the other weavers mentioned.

The 1930's saw the loss of some weavers, for example, Lydia Darden, and her death was followed by others. Today only Lucy Darden, of the earlier group, and the descendants of the other weavers remain active.

The most active present weaver, Faye Stouff, learned the craft from her mother-in-law, Delphine Decloux Stouff, after moving to the Chitimacha reservation at Charenton in 1926 (Stouff and Twitty 1971:7-11). She also became a close friend of the others weavers:

a b c

Fig. 3.—Chitimacha basket weavers. a. Pauline Paul; b. Mrs. Zelia Marcotte; c. Lydia Darden. Photographs by the late Caroline Dormon, reproduced courtesy Special Collections Division, Eugene P. Watson Library, Northwestern State University, John Price, Curator.

Christine and Pauline Paul and Lucy Darden. Today Faye Stouff and Ada Thomas do most of the weaving; Lucy Darden weaves only occasionally.

As late as 1942, the Chitimacha school, a 2-room school for grades 1 through 8, sponsored classes in Chitimacha basketry. In 1942, Pauline Paul actively taught classes in the school, but, unfortunately, the crafts program declined later in the 1940's and has not been revived. The Chitimacha Tribal Council is presently planning a crafts program (Chairman Leroy Burgess, personal communication, 1975) and hopefully traditional basketry will become a major component.

The older Chitimacha artisans continue to weave but the younger still complain that the old craft is too arduous to learn. Meanwhile the paucity of the "river cane" and the limitiations that contemporary economics place upon weaving time reduce production. The *Eyes of Black Birds*, *Rattlesnakes*, and *Worm Tracks* are seen less often. Still, the old ways change very slowly and the craft persists. In fact, some environmental pessimists suggest that the Chitimacha and their basketry may last longer than the vast swamps of the Atchafalaya Basin.

However, modern Chitimacha are already scouting for cane in other regions, as far away as Mississippi (Tribal administrator Larry Burgess, personal communication, 1975).

ACKNOWLEDGEMENTS

In 1950, the late Caroline Dormon gave the senior author his introduction to the living Indian culture of Louisiana. Much of that lecture was devoted to her Chitimacha baskets and the friends who made them. She had also been the intermediary through whom arrangements were made for Pauline Paul to make the baskets shown in Fig. 1 for the junior author.

The Dormon and Webb letters have become part of the Special Collections Division of the Eugene P. Watson Library at Northwestern Louisiana State University. Together with Miss Dormon's notes and letters they have become a valuable resource of the institution. Dr. John Price, curator of the special collections and archives, is given thanks for permission to use the photographs of Pauline Paul, Lydia Darden, and Mrs. Marcotte, as well as the correspondence between Miss Dormon and her Chitimacha friends. This is, in many ways, a paper that they wrote.

Much information has been given freely by the present Chitimacha traditionalists. The contemporary weavers, Mrs. Faye Stouff and Mrs. Ada Thomas, were kind and patient; they have added valuable insights into life at Charenton and the recent history of their craft. The Tribal Chairman, Leroy Burgess, helped to fill in the gaps in knowledge about the Chitimacha community and his help is acknowledged. His tribal administrator, Larry Burgess, is thanked for encouraging the senior author to visit the community and for his efforts to make their tribal center a meaningful place to visit.

Chief Emeritus Emile Stouff has given freely of his knowledge to a number of people who have sought to learn about the Chitimacha and their culture; his contribution to this paper is considerable. He and Mrs. Stouff are thanked for their justly renowned hospitality and generosity.

To these people and to the other Chitimacha, we offer appreciation for the maintenance of one of Louisiana's most ancient crafts. Their friendship was valued by Caroline Dormon and it is by the authors. We hope this effort, like her earlier one, will be of some value to the tribe.

Layton Miller and Ms. Phyllis Simoneaux, Chitimacha Community Health representative, secured confirmation of the identification and functional uses of the baskets shown in Fig. 1.

Thanks are also due to Ernest C. Downs, Director, Southeast Indian Project, Institute for the Development of Indian Law, for help with the senior author's travel related to Louisiana Indian communities.

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Mounds Plantation (16CD12), Caddo Parish, Louisiana

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ABSTRACT

Mounds Plantation is a multicomponent site on Red River in northwestern Louisiana. Surface surveys and exploration of 2 mounds show that the plaza-mound complex was initially planned and inhabited during Coles Creek times. The mounds demonstrate a transition from Coles Creek to Alto Caddoan culture, with mound construction and ceremonial burial placements during both of these culture periods. Intrusive burials were placed in each mound during subsequent Bossier and Belcher periods. Characteristic artifacts of pottery, stone, and other materials are described, and their assignment to the 4 culture periods is indicated. Unusual preservation in a log-covered tomb permitted the study of wooden objects, including bows and split cane matting. Techniques of preservation of such objects and of aboriginal weaving are described. Portulaca (purslane) seeds and maize cobs attest to the use of these plants for food. Radiocarbon datings establish the tomb at approximately 1050 A.D.

INTRODUCTION

Mounds Plantation is the most impressive mound and plaza site on Red River in northwestern Louisiana. It is significant in Caddoan archaeology because a major component is representative of the Alto Focus of Gibson Aspect, or early Caddoan culture, and is coeval with the Gahagan and Crenshaw sites on Red River, as well as the Davis site in East Texas. Minor components at Mounds Plantation relate to Bossier and Belcher cultures of the Fulton Aspect, or later prehistoric Caddoan periods. Moreover, like Crenshaw, Mounds Plantation has a major Coles Creek component and participates in the Coles Creek-Caddoan transition on Red River.

For these reasons, plus the unique preservation of wood and fabrics found in a log tomb, we report explorations of the site, even though much of the excavation was done on a salvage basis and technically is no more satisfactory to us than it may be to the reader.

Mounds Plantation is located about 11 miles (17.7km) north of Shreveport. It is approximately 2.4-3.2km west of the present Red River channel and immediately southwest of a relict channel (Fig. 1).

The site was described by Clarence B. Moore (1912) as the Pickett Landing site and was alluded to by Ford (1936) and Webb (1948, 1959, 1961) as Mounds Plantation. Moore described the site arrangement as an irregular ESE-WNW ellipse, 615 by 150 yards in dimensions, formed by 7 mounds enclosing a large plaza. Three mounds were stated to be truncated pyramidal mounds and all but one had farm dwellings on the flat tops (Moore 1912). The latter circumstance inhibited mound excavation by Moore but he tested in the plaza without success. The mounds were 2 to 15 feet in height; all but 2 were thought to have been altered in shape or height by erosion. The westernmost (Mound 2, Fig. 1) was said to be square with basal dimensions of 150 feet and a flat top about 70 feet in diameter. The easternmost (Mound 5, Fig. 1) was quadrangular with basal dimensions of 160 by 220 feet, a flat summit 90 by 145 feet, and over 15 feet in height.

PHYSIOGRAPHIC AND ECOLOGICAL SITUATION

No attempt will be made to reiterate the physiographic and ecological factors which pertain to this site. These have been detailed in

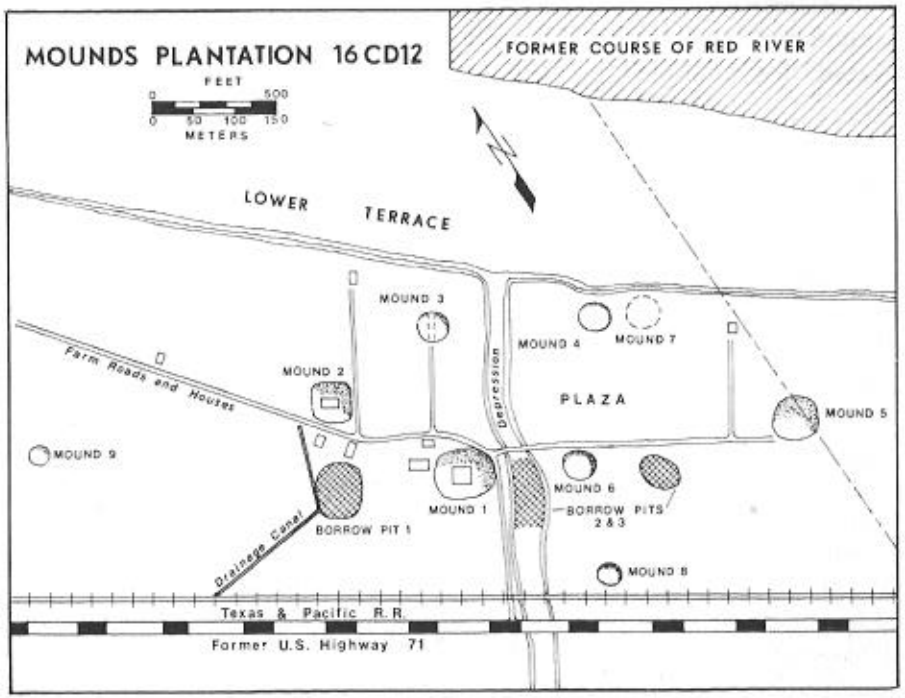


Fig. 1.—Mounds Plantation site, showing mounds, plaza, borrow pits, farm roads and farm houses, lower terrace and relict channel of Red River. From 1950 aerial photograph for U.S. Department of Agriculture. Scale established from ground measurements.

the Belcher Mound report (Webb 1959), a site that is only 16km north of Mounds Plantation, and in more recent descriptions of sites along Red River (Davis 1967; 1970; Hoffman 1969; Smith 1975; Banks and Winters 1975).

It seems sufficient to note that the site is located in a wide valley containing an active river, old cut-off lakes, natural levees of silty loam, backwater mudflats and shallow lakes and is flanked by forested upland terraces. An abundance of natural floral and faunal resources was available, plus fertile soil and a favorable climate for horticulture and agriculture. The major sites of the prehistoric and protohistoric Caddoan occupations along Red River, between Natchitoches and the

Fulton bend, are down in the valley, on natural levees near the river, or around the lateral lakes. Numerous small occupations, however, occurred along the small tributaries in the uplands.

SITE DESCRIPTION AND EXPLORATIONS

Since Moore's description, the site has been in cultivation or pasturage continuously and has served as headquarters for farm operation. At the time of our earliest visits, during the 1930's and 1940's, the plaza and surrounding fields were in cultivation and houses were on 4 of the mounds (1, 2, 3 and 5). The site sits on the second terrace above the relict stream, about 1.5m above the first terrace. Figure 1 is derived from a 1950 aerial photograph (U.S. Department of Agriculture); the scale was established by on-site measurements done with steel tape by McKinney from center to center of all of the mounds around the plaza. The photograph and measurements confirmed Moore's approximate dimensions. Our measurements indicate a length of 575m and a width of 190m. The long axis is SE-NW in orientation. The terrace edge is considerably eroded and the entire site has suffered some sheet erosion from a century of cultivation, but the generally level contours show this has not been excessive.

The aerial photograph shows the curving course of an even older river channel about 800m south of the mound group. It curves northeastward at the lower end, crosses the adjoining plantation some 400m east of the site, and enters the relict channel previously mentioned. The older channel is filled but the land is still low; southwest of it are low backlands of stiff red clay with deposits of fresh water mussel shells.

Former U.S. Highway 71 and the Texas and Pacific Railroad tracks cut across the terrace southwest of the mounds (Fig. 1). Surface evidence of occupation has been found across the highway. At the southeast end, Mound 5 is crossed by a N-S property line. The land to the east has usually been under separate ownership but surface exploration by McKinney showed potsherds to extend to the plantation headquarters about 300m from the line. Beyond the northwest end of the ellipse in an open field is a low mound, not mentioned by Moore. This mound (Fig. 1, Mound 9), approximately 400 meters from Mound 2, is 0.3-0.6m in height and 15-18m in diameter. We have found sherds,

including Holly Fine Engraved, around it and around a similar small mound (also omitted by Moore) near the railroad (Fig. 1, Mound 8). We therefore consider the total length of occupational zone to be approximately 1200m, its greatest width about 600m, and the total village area to be some 40 hectares (approximately 100 acres).

The plaza area is generally flat with a few undulations. The aerial photograph shows a dark band of soil (Fig. 1) traversing the plaza; on the surface this was a mildly depressed band of red clay, about 30m in width, becoming wider and deeper in front of the owner's home (Mound 1), presumably from use as a borrow pit. Across the highway, the depressed channel is now used for a drainage canal. Most of the plaza is covered by a moderately stiff red loam, sandier near the mounds and along the terrace margin. Various artifacts have been found in the plaza area through the years, but our examination showed only occasional sherds or debris, except along the terrace edge and around the mounds, where artifacts were more numerous.

Mound 1 had been cut down and spread out to accommodate the owner's dwelling and yard. It now is about 2.0m in height, fairly steep on the front and sloping in the rear. Mound 2 was as described by Moore, with a tenant house on its summit, and still appeared to be quadrilateral in outline. A few years ago, the ownership changed hands and, before we could contact the new owner, the fatal attraction of power tools led to removal of the old dwelling and more than half of the mound. We have no information as to what was found as the soil was removed.

Mound 3 was circular when first seen by us, flat-topped, about 3.0m in height and 36m in diameter. A tenant house was on top of it until 1959, when the owner removed it and planned to remove mound dirt to fill low areas. Salvage exploration will be described later.

Mound 4 was a low mound, plowed over and spread out to form a sandy area that reached almost to the terrace margin (Fig. 1). The area was 30-40m in diameter and elevated only 0.3-0.5m. Sherds collected from this area showed a high percentage of late Caddoan (Belcher and Bossier) wares. East of Mound 4 was an even larger sandy area in roughly circular form, also with late Caddoan sherds. Although it was barely elevated above the adjoining terrace, we assumed that it was one of the mounds seen by Moore. We have labeled it Mound 7 (Fig. 1); it is about 40m in diameter.

Mound 5 is at the southeastern end of the plaza. When first seen by us, it was as described by Moore, steep with a tenant house on the flat summit. Exploration will be detailed later. Mound 6 was across the center of the plaza from Mound 4. It had been spread out, had a barn and garden on it and, in the center, a windmill. The mound was about 0.6m in elevation and spread to a diameter of 45-50m. A few pottery sherds were found in the garden.

Another low mound may have been located outside of the ellipse, 109m northwest of Mound 3 near the terrace margin where a tenant house was formerly situated (Fig. 1). The present slight elevation may, instead, be the result of protection from erosion and the accumulation of modern debris. A few pottery sherds were found around it.

There are 3 borrow pits (Fig. 1). The major pit was west of Mound 1 and southwest of Mound 2. The farm horse and mule lot was adjacent to it in former years and water for the stock stayed in the pit almost continuously. The depth is uncertain; the transverse dimensions are approximately 64 and 70m. A drainage canal connected with its west side. The second borrow pit was the expanded part of the transverse depression described above, between Mounds 1 and 6. It was oval in outline and held water only after rains. The third pit was just south of a line between Mounds 5 and 6; its dimensions were about 37m by 50m.

Each of the authors has made surface collections, mostly between 1936 and 1960, while the fields were cultivated. Regretfully we did not keep the collections from various parts of the site segregated but made notes about predominance of certain types in some areas. From the general surface collections there are 940 pottery sherds, 1 pipe bowl, 6 stem fragments of long-stemmed ceramic pipes, 56 projectile points, 23 chipped stone tools or bifaces, 2 small polished stone chisels, 1 pitted stone, 1 small hammerstone, 2 polishing stones, 7 Catahoula sandstone abraders, 2 quartz crystal flakes and 2 fragments of blue pigment. These will be tabulated or described under ARTIFACTS.

Pottery Cache in Borrow Pit 1

About 1950, Webb found remains of a hearth and cache pit eroding out of the east edge of Borrow Pit 1 (Fig. 1) The pit was about 0.5m in diameter and 30-45cm in depth. In the bottom, beneath pottery sherds, were evidences of fire and 16 lumps of fired clay. In the pit were 440 sherds, most of them thick domestic wares with indications of having been exposed to extreme heat sufficient to cause distortion,

crackling, and orange-red colors (Tab. 2). Of special significance is the evidence that they were deposited before or during mound construction, since the cache pit was impinged upon by the borrow pit.

Plaza Burial 1

In 1952 after spring plowing, Webb found a child's burial uncovered by the plow on the terrace edge about 15m east of Mound 7. Much had been destroyed but the skull was relatively intact. Above and to the right of the skull were sherds of a plain vase, which were subsequently reassembled.

Mound 3 Excavations

After the owner moved the tenant house from Mound 3 in 1959, he began to remove soil from the top of the mound. Approximately 0.6m from the top a burial was struck and the owner, Charles F. Grimes, contacted McKinney, who recovered pottery fragments. Grimes then consented to McKinney's trenching the mound before its destruction. A 3.35m trench was cut on a NE-SW line for a distance of 30m through the center of the mound and down to premound level (Figs. 1,2). To the extent possible, thin slices were removed with tractor and slip, salvaging as many artifacts as possible. When features or concentrations of artifacts were found, hand investigation with trowel and shovel was used. Sherds were kept separate by approximately 30cm levels. McKinney was assisted by various relatives and friends; Webb visited the site during the excavations and drew the profiles shown in Fig. 2. The conditions and procedures were less than ideal but McKinney was faced with an unreasonably imminent deadline and secured what information he could under the circumstances.

Shortly after beginning the trench, McKinney found another burial at 0.7-1m below the original summit. The accompanying pottery was of Belcher types: 2 bowls of Hodges Engraved type, 2 small jars of Belcher Ridged and a bottle of Keno Trailed type (Fig. 11c, e, h). Also with the burial was a highly polished deer mandible, similar to those with Belcher Mound burials and interpreted as corn shellers (Webb 1959).

Mound 3 was nearly circular. The height was 2.4m after the initial removal of about 0.6m from the top; the flat top approximated 26m in diameter (Fig. 2). The peripheral slope was steep, dropping to ground level within 3 to 5m, a total diameter of 33-36m. Much of the slope was

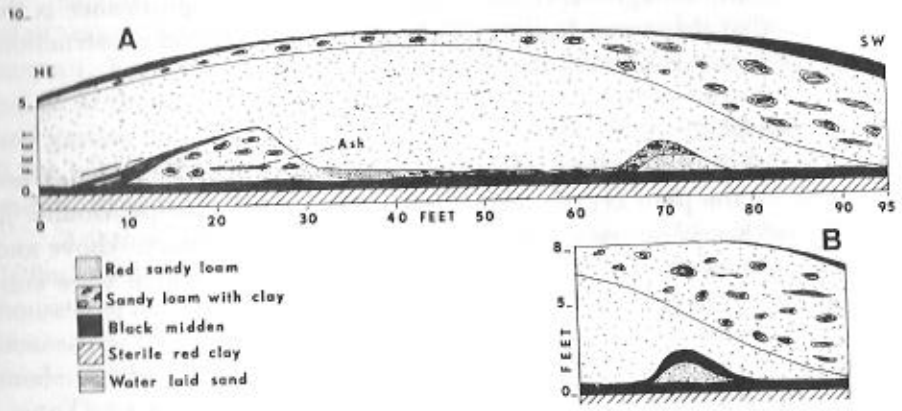


Fig. 2.—Profiles of trench through Mound 3. A: southeast profile showing premound midden, covering of possible house ruins, water laid sand, 2 successive mantles and midden atop mound. B: short section of northwest profile (reversed), with similar findings.

covered with intensely black midden extending outward for an additional 3-4m around the edges. Presumably this represented aboriginal and modern midden washed off the mound top, as the trench showed the black layer to be superficial. Many sherds, animal bones and other debris were found in it.

The southeastern trench profile (Fig. 2A) showed, from bottom to top, a basal layer of sterile red clay, capped by a premound black midden layer that varied from 15 to 20cm in thickness. This layer contained sherds but no evidence of a submound structure. Near the northeast end of the trench, the profile showed a layer of white sand, about 30cm in thickness, above the submound midden. The sand was surmounted by a narrow band of dark midden soil with a 30-38cm wide bed of ashes in its center (Feature 1). A zone of sandy loam with clay lumps was heaped above the ash-midden layer and extended beyond it for a total height of 1.0m and width of 9.0m; the central part of this elevation was about 3.0m wide and tapered downward on each side. Numerous sherds and animal bones, especially deer, were found with this feature. Near the southwest end of the trench the profile showed

another heaping-up of dark soil (Feature 2) with associated sherds and bones. Between these features, under the middle of the mound, the submound midden was covered with several inches of layered white sand.

The profile showed that the major part of the mound fill, above Features 1 and 2 and the waterlaid sand, was composed of sand with a moderate admixture of red clay, including lumps of varying size. This zone was built up to a rounded covering that reached 2.3m above the submound midden; it trended downward at the southwest end and was covered by a denser clay-sand mixture in which larger clay lenses trended upward toward the mound center. A small cap of this zone persisted atop the sand zone across the center and to the northeast slope. The final layer, thicker at each end of the profile, was black midden, which thickened from 5.0-7.5cm near the top to 12-15cm near the bottom of the incline.

The thick black middens with numerous sherds and animal bones suggest that Mound 3 was an activity area related to cooking and eating; its propinquity to the plaza but detachment from the major plaza axis (Mounds 2 and 5) raise the further possibility that it may have been the center of ceremonial feasting. Despite our failure to find post molds in the trench or profile, we suggest that Mound 3 was erected over the ruins of a structure, which may be partially represented by Features 1 and 2. The black midden soil and sherds washing off the slopes also suggest that Mound 3, in its final stage, might have been a substructure for an arbor or house.

Pottery sherds and other materials found in the various levels will be tabulated and described in a following section. It appears that heavy occupation of the submound and surrounding area occurred during Coles Creek times, that construction of the mound occurred during the Coles Creek-Alto transition, and that the mound was used only for burial placements during the later Bossier and Belcher periods.

Mound 5

Later in the winter of 1959, Grimes moved the tenant house from Mound 5 and removed soil from the western two-thirds of the mound top. In February, 1960, McKinney examined the exposed area and found freshly broken Belcher Ridged potsherds and bone fragments presumably representing a disturbed shallow burial. After acquiring the adjoining property, Grimes removed additional fill dirt from the eastern

side of the mound. In the summer of 1960, an agreement was reached for McKinney to move the mound in such way that archaeological study could be done, making the spoil available to the owner for fill of low places on the property.

Excavation was started on August 31, 1960 by McKinney and Robert Plants, with occasional help by Raymond McKinney, James Lee and other friends. After discovery of Burial Pit 1, they were joined by Webb in further explorations. McKinney's farm laborers assisted intermittently with spoil removal or excavation of sterile fill. A number of others assisted at various times, but the excavations were directed by McKinney with Webb's participation when available. Daily logs were maintained by Plants through October, 1960, and a number of sketches and profiles were made that were invaluable in preparation of this report. After October, notes, profiles, diagrams and photographs were taken intermittently by McKinney and Webb. Measurements were taken in feet and inches and will be so recorded, with metric equivalents when indicated. Charles R. McGimsey and a party from the University of Arkansas visited the excavations during the summer of 1961 while Burial Pit 5 was open, and a number of photographs taken then were made available by McGimsey.

Upper Burials, Mound 5

The disturbed dirt and grass cover atop the remaining part of the mound was first removed by McKinney, using a tractor-slip to shave thin slices. Shortly, Upper Burial 1 was found 8-9 inches (20-23cm) below the surface. It lay diagonally across the property line with the head directed southeast (Fig. 3). No pit outline was found but the burial was covered with firm red clay. This burial and the next were extended but the skeletal material was fragile and absorbed to the extent that size, age, and sex were not determined. A Belcher Ridged pottery vessel was at the right elbow and a Belcher Engraved bottle above the right shoulder (Fig. 11a, i). Upper Burial 2 was found the following day, about 18 inches (46cm) below the surface and 8 feet (2.4m) southwest of Burial 1. It was placed on sand and also covered with compact red clay. The head was directed southeast. An intact Keno Trailed vessel and a broken Hodges Engraved bowl were by the right side; 2 Belcher Ridged pots were by the upper left side (Fig. 11b, d, j, k).

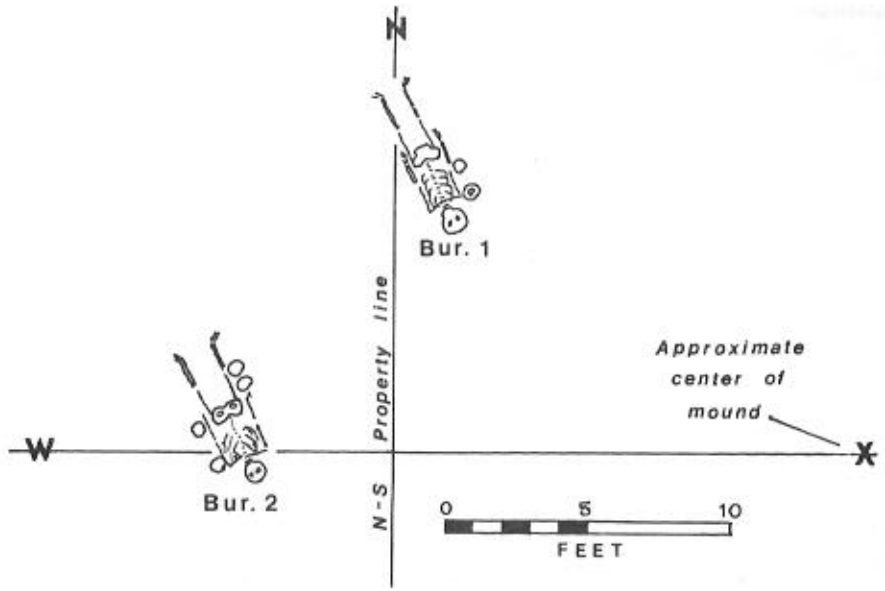


Fig. 3.—Upper burials in Mound 5.

Mound 5 Levels

It was then decided to explore the mound construction by trenching from the mound crest to the western margin. Topsoil was removed from the south edge of the crest and 2 narrow trenches were started. The southernmost trench looked more promising and it (Fig. 4, Trench 1) was extended 30 feet (9.15m) WSW; it was widened to 4 feet (1.2m) and carried downward to a depth of 7 feet (2.1m). Vertical alidade measurements were established from a small area of the mound crest that had been left for this purpose. Eventually both trenches were incorporated into a single wider trench. At about 25 feet (7.6m) from the origin, a 4-foot square was carried below the 7-foot level down to 10 feet below the crest. At the 9-foot depth (2.7m) a black humus layer was found and was interpreted as the premound habitation level. It was found to correspond to the present elevation of the fields surrounding the mound and away from its talus. Water levels precluded deeper excavation but a small test hole was dug from the 10-foot (3.0m) level to

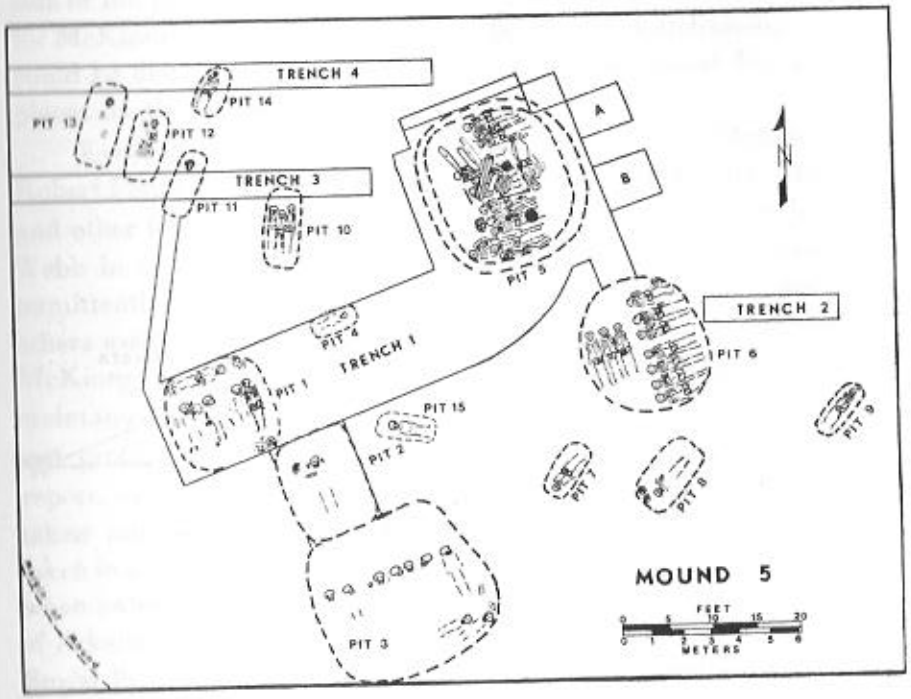


Fig. 4.—Excavations of Mound 5. Note Trenches 1-4 and Burial Pits 1-15. A,B: Features adjoining Burial Pit 5.

a total depth of 13.5 feet (4.0m) from the crest. Clear wet sand was found to the 13-foot depth, at which a dark red clay layer was found. On or above this red clay were a few plain, crude pottery sherds and decayed bone fragments. A small test pit placed 30 feet northwest of the mound disclosed an identical dark red clay layer at a depth of 5 feet (1.52m) from the existing surface; this layer will also be described from the deep pit excavations. The inference is that it extends beneath the entire mound at the same level.

The test pit at the SW end of Trench 1 was enlarged to dimensions of 8 x 5 feet (2.4x1.5m), down to the submound humus. This (Figs. 6A, 7A) proved to be a 6-8 inch (15-20cm) layer of black midden with occasional debris, covered by a layer of sterile sand. The Trench 1 profile (Fig. 7A) showed a red clay layer, 6-12 inches (15-30cm) thick, rising from the premound midden to an elevation of 3 feet (1.0m) above

the midden, over a distance of 8 feet (2.4m), then leveling off beneath the mound crest. This was the first indication of a primary mound. A second, higher, thin (2.0-5.0cm) red cap showed on the southernmost profile, rising to a level of 1.67m above the midden, but this layer was not observed elsewhere. The mound fill between and above the red clay caps was of mixed sand-clay loam, with occasional traces of black midden soil. The clay caps frayed out beneath the mound crest, where heavier clay and sand lenses were recorded (Fig. 7A).

At the NE end of the excavated pit, 2 circular penetrations of the lower primary mound cap appeared to be post molds, 30cm in diameter and discernible for a depth of 45cm. They were 30 inches (76cm) apart. Subsequent excavations did not disclose other post molds that would delineate a house structure. Two sherds of Coles Creek Incised pottery were found at the juncture of the primary mound clay cap and the submound midden.

At the next excavating session, McKinney and Plants decided to test near the southwest margin of the mound. A 4 x 5 foot (1.2x1.5m) pit was placed in line with Trench 1 and about 1.5m from its termination. Levels were examined at 8-inch decrements. At a depth of 4 feet (1.2m), an interruption of the soil appearance proved to be the margin of a large pit, 11 by 13 feet in dimensions (3.35 x 4.0m), which was excavated over the next 3 weeks. It was during this time that Webb was contacted and began participation in the studies. Instead of following the sequence of excavation notes, the pit and its contents will be described in toto.

Burial Pit 1, Mound 5

This pit was under the southwestern slope of the mound, where 4 to 5 feet (1.2-1.5m) of fill overlay the submound midden (Figs. 4, 7A). The pit floor, rectangular with rounded corners, was 10 by 11 feet (3x3.35m) in dimensions and was placed at an angle about 15 degrees west of north. The pit was recognized 12-15in (30-38cm) above the submound midden and carried to a level floor about 3 inches below the midden, a total pit depth of 2 feet (60cm). One Coles Creek sherd and 4 plain black sherds were found in the loose fill; 3 rim sherds of a red filmed Hickory Engraved bowl were on the pit floor.

A row of 5 badly absorbed burials lay across the middle of the pit. They were fully extended and supine (Fig. 4) with heads directed northwest. At the north end of the pit, on a dirt ledge built up about 18-

20cm above the floor, was a better preserved, single adult male (Skeleton 2), supine and with head directed northeast. The length was about 70 inches (178cm); no artifacts were in direct association. Skeleton 3 was 16 inches (40cm) from the WSW wall, the first in the central row; only the crushed skull and traces of long bones remained. To the left of the body, 26 Alba points (Fig. 12e) of gray, brown, and red grainy chert had their distal ends directed toward the feet. Small copper stains were near the skull. Forty-one inches (104cm) down from the top of the skull and 15cm apart were 2 groups of small pebbles, 17 and 15 in number, presumably from rattles.

About 45cm east of this skull were 32 teeth in a cluster. Further over, in the center of the pit, traces of teeth and bone indicated an adolescent, Skeleton 1, about 58 inches (147cm) in height. A decayed copper-plated ear spool was to the right of the skull and to the left was a larger circular object of leather-covered wood with copper studs (Fig. 14a). Nearby were 5 beautifully chipped Alba points of gray-green exotic flint (Fig. 13d). Diagonally across the chest was a large Gahagan knife (bifacial foliate) of gray flint (Fig. 12cc). A small celt of green porous material was below the waist and at the right foot were traces of turtle carapace and a group of small pebbles. Despite evidences of adolescent age, the significant placements indicate Skeleton 1 to be the paramount individual of Burial Pit 1.

Two Alba and 3 Hayes arrow points were near the left shoulder of Skeleton 1. Below them were several decayed bones which appeared to be animal rather than human. Skeletons 4 and 5 were closely placed. The former, 30cm from the east wall, was an adult about 65 inches (165cm) in length, with the head and upper body twisted toward Skeleton 5. The latter was probably a child, of which only traces of skull and long bones remained. Bright yellow sand surrounded the upper body areas and traces of copper were near the 2 skulls. Two Catahoula points of tan and mottled chert, a Friley point of gray flint and 1 Alba of tan chert were to the left of Skeleton 4.

The major offerings were found in the corners of the pit. The largest group of 40 objects, in the NW corner, included 3 polished celts (Fig. 13e, f,j), a rectanguloid biface (Fig. 12k), a galena mass, 2 sandstone hones, and 33 assorted stones, flint flakes, and cores. Four of the larger stones were highly polished (Fig. 13n, t, u), others less so; there were 2 cores (Fig. 12l), 3 used flakes and an ironstone slab. Most of the offerings were piled on the dirt shelf. The end of this shelf and the

pit wall in this corner were hard and reddish-yellow in color, as though subjected to heat.

In the NE corner were 8 stones, including 2 hammerstones, 2 chert pebble cores and 4 polishing stones, spaced in a curving line about 10 cm from the pit wall. In the SE corner 3 hammerstones and 5 natural pebbles were neatly stacked and surmounted by sherds of a Holly Engraved vessel (Fig. 9a). In the SW corner were 5 plain sherds and charred or partly mineralized animal bones extending into an undercut niche. Similar niches in the SE and NW corners contained a few smaller animal bone fragments, interpreted as food offerings. Another Alba point was an unassociated find.

Burial Pit 2, Mound 5

In working out the SE corner of Pit 1, evidence was found of another pit cutting into the corner of Pit 1. Burial Pit 2 (Figs. 4, 6A) originated at the existing mound surface and was cut downward for a depth of about 6 feet (1.8m) to a floor 9 inches (23cm) beneath the premound midden. The floor was rectangular, 11 feet, 10 inches (3.6m) long and 6.5 feet (2m) wide, placed at a compass alignment almost identical with Pit 1. In the center of Pit 2 was a single adult, extended and supine, with a length approximating 66-68 inches (167-173cm). The bones were poorly preserved and the crushed skull further inhibited sex determination, but male was suspected. The worn teeth suggested middle age. To each side of the skull were circular ear ornaments (Fig. 14b,c) of wood plated with copper, about 6.0-7.0cm in diameter and with 3 finger-like projections from the inferior edges. Five projectile points, 4 Hayes and 1 Alba, 8 thin Gahagan knives (Fig. 12r-t, v, x-aa) and a bear canine tooth were about 45cm to the right of the skull. An ovate greenstone petaloid celt (Fig. 13h) overlay the right chest area.

Burial Pit 3, Mound 5

Directly southeast of Pit 2 and touching its margin was a larger pit, with shallow crater-like side walls, lying beneath the outer slope of the mound (Fig. 4). The shape of Pit 3 was an irregular trapezoid with rounded corners. The dimensions of the pit floor, delineated with difficulty, were about 17 by 13.5 feet (5.2 x 4.0m). It lay at about the same level as that of Pit 2. The skeletal material was in even worse condition than in the first 2 pits, with poorly discernible skulls and with traces of long bones found in only 4 instances. There had been a row of at least

7 individuals placed across the middle of the pit, with heads directed NW. Two were in the SE corner, with heads directed NE. In 3 instances, the approximate lengths of skeletons were 50, 42 and 21 inches (127, 107, 53cm), presumably 2 children and an infant; in several instances, adults were indicated by the dentition. The only artifacts preserved in the entire pit were 1 projectile point of indeterminate type and traces of a copper sheet (7.5-10cm) near a skull. Yellow sand and green pigment colored the pit floor above the central row of skulls; 3 animal bones were near the NE wall.

Burial Pit 4, Mound 5

After completion of the above pits, Trench 1 was widened to 10 feet (3.0m) and cleared toward the center of the mound. During this process, Burial Pit 4 (Fig. 4) was found beneath the western mound slope. It was a smaller and presumably earlier pit, originating from the premound midden and cut downward for about 2.5 feet (76cm). The length was 6 feet (1.8m), the width 2.5 to 3 feet (76-96.5cm), with the long axis E-W. Traces of a single skeleton showed the head oriented toward the east. The age, sex and size were indeterminate and no offerings were preserved.

Mound 5 Center and Burial Pit 5

As Trench 1 approached the mound center, upward slanting of the fill elements was noted (Figs. 4, 7H). Then, between 20 and 30 feet (6.0-9.0m) from the eastern edge of Pit 1, there was a heaping up of layers with an arc of black humus lumps, and a dropping off to a sloping crater wall which cut through the premound humus. Mixed red loam filled the pit to a height of about 4 feet (1.2m) above the premound midden level. The sloping pit walls had been dug through several feet of mound fill as well as through the black premound midden. The soil excavated by the aborigines had been piled in layers around the pit margins (Fig. 6C) on 3 sides. On the south side the pit had been cut more vertically through about 4 feet (1.2m) of the primary mound and the excavated dirt was not piled on this side. On the north, east and west sides, the crater walls had then been covered with a thin layer of red ocher. At premound levels, the pit dimensions were 19 by 17 feet (5.8 x 5.2m), with the major axis NW-SE. When eventually cleared, the pit floor measured 15.25 by 13.5 feet (4.6 x 4.1m).

The pit fill was removed to a level just below the premound midden, where a hollow sound was noted when working in the NW corner. Trowel investigation showed, about 2 feet (0.6m) below the

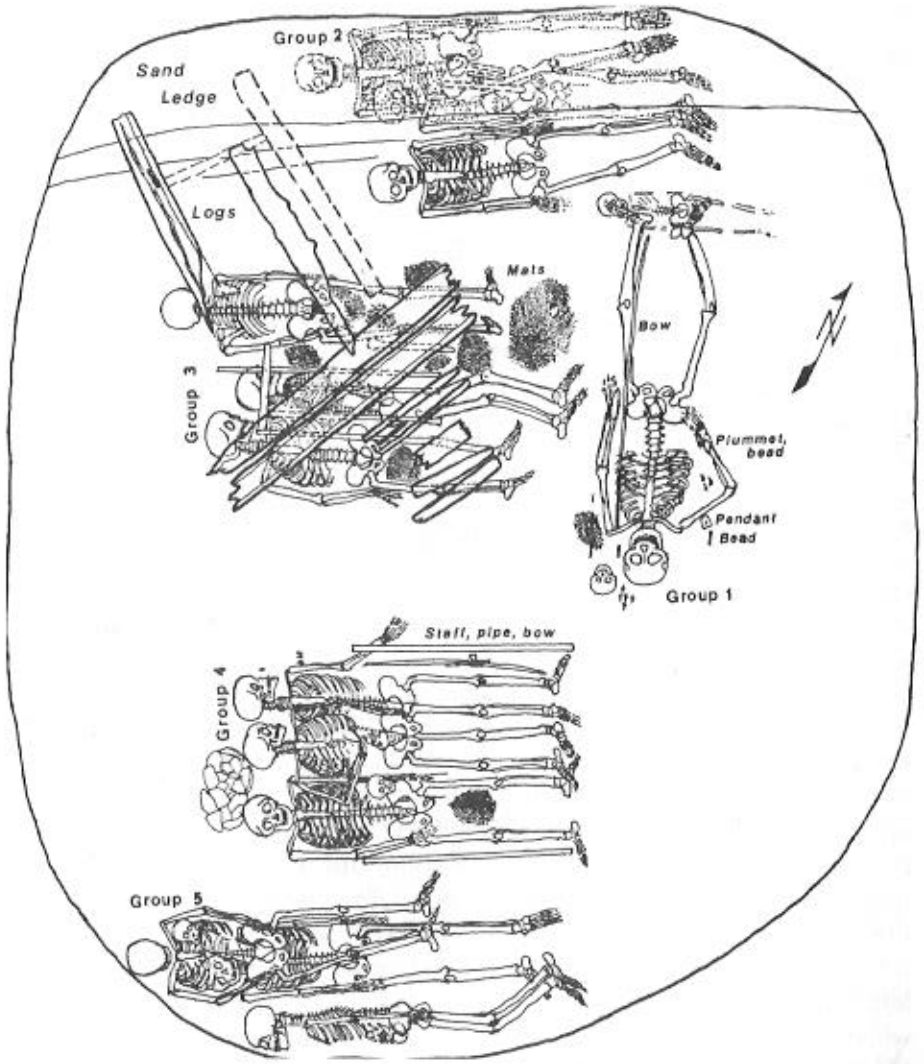


Fig. 5.—Burial Pit 5. Note sand ledge overlying Burial Group 2 at NW end, timber frame and Burial Groups 1-5. Also note masses of split cane matting.

midden level, 2 well preserved logs (Fig. 5, 6D) extending toward the center of the pit with a hollow space beneath them.

The decision was made to remove the pit fill in the NE corner and to approach the logs laterally. The pit floor was found at a depth of 4 feet (1.2m) below the top of the premound midden lying immediately upon the red clay layer that had previously been established at a consistent depth of 13 feet (3.96m) from the mound top.

A group of skeletons (Fig. 5, Group 2), parallel to the NNW wall, comprised 3 adults and 1 infant or child. Subsequently, we found the remains of another infant below the feet of the adult in Group 1, so placed that it probably belonged to Group 2. An adult male lay along the NNW wall. The bones were well preserved, the teeth mature with moderate wear, and the length approximated 69 inches (175cm). Unfortunately the skull, the only intact specimen found, was stolen in the sole instance of vandalism that we experienced. The other two adults were judged to be females, each about 63 inches (160cm) in length. One was overlain by the right side of the male and also by the infant skeleton.

The male of Group 2 had a Gahagan knife (Fig. 12u) by the left arm and 8 small Hayes and Alba points along the left side. Five other points were scattered with the group. Overlying the group were several eroded pieces of wood, 30-60cm in length and about 1.5cm in thickness, possibly some kind of frame. Several fragments of split cane matting were also found.

Clearing along the ENE wall and toward the center of the pit uncovered the skeleton of a large male (Group 1), approximately 72 inches (183cm) in length, with massive bones; the legs and right arm were akimbo (Fig. 5). Along the left side of the body, medial to the arm and leg, was a long wooden bow (Figs. 6H, 15g), well preserved for the lower 48.5 inches (123cm) but with some distortion and decay of the upper end. Stained soil indicated an original length of 65-66 inches (165-167.6cm). Decayed ear ornaments were by each side of the skull; 5 Scallorn points were to its left; a Gahagan knife (Fig. 12w) was by the left forearm; and deposits of cane matting, seeds, leather and small wood fragments were to the left of the body. By the flexed right arm (Figs. 6G, 13a-d) were two red stone tubular beads, a pendant made from a broken slate gorget, a perforated hematite plummet, 3 puma teeth, another mass of seeds, and a small mass of calcifying pigment in which were impressions of a bead and the plummet. We judged that this

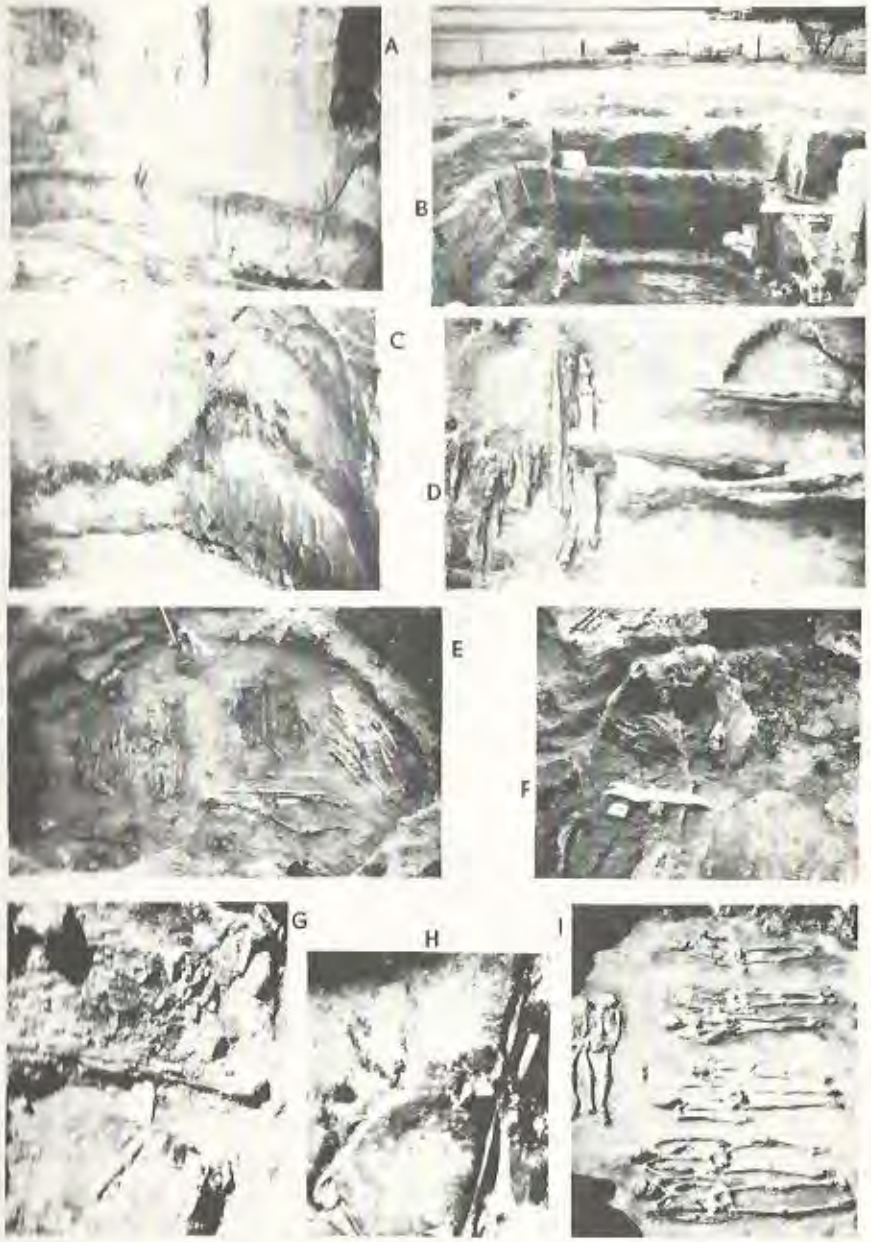
male was the paramount individual of Burial Pit 5. The skull of an infant was to the left of his head and the skeleton of another (related to Group 2) was beneath his feet.

We next moved to clear and study the logs and subjacent objects. While clearing Group 2, we had noticed that most of the group was covered by hard compact sand that extended out from the pit wall and upward for 18-20 inches (45-50cm) to form a shelf along the NNW wall. The shelf continued beyond the burials to form a support for the log ends (Figs. 5,7I).

Stains of a third rotted timber appeared in the soil, parallel to and on the same level as the first 2 timbers (Fig. 6D). The stain was 12 inches east of the second timber, and was 56 inches (142cm) long, 2.5 to 5 inches (6.35-12.7cm) in width. The initially discovered timbers were cedar, knotted and gnarled. Log 1 was 4.5 to 5 inches (11.4-12.7cm) in diameter, 55 inches (140cm) in length, with dark soil projections indicating an original length of 172cm. Two oval holes in the side facing Log 2 (Fig. 6D) were interpreted as a possible mortise-and-tenon joint, especially since stains of a cross timber joined the logs at this level. Log 2, also cedar and similarly gnarled, was 50 inches (127cm) long and 4.5 inches (11.4cm) in diameter; its outer end had fallen to about 25cm below the level of the others. This end had an oval notch, possibly another mortise.

A profile was cut along the easternmost timber stain, vertically almost to the floor and horizontally for the length of the stain, and thence to the pit center (Fig. 7I), staying above any burials or objects on the pit floor. This profile confirmed the sand shelf, showed deeper lying timbers, and disclosed a projection of hard red clay-sand lying transversely across the pit center (later found to separate Burial Groups 3 and 4). The profile also showed layered white sand with red clay streaks, presumably brought down from the pit fill by percolating water. Bluish clay streaks showed in some places below the timbers. Layering of varicolored clays and sands was found later by vertical and horizontal shaving of dirt between and below the logs. The hollow area was confirmed as about 18 inches (46cm) in diameter and depth. Sand and dark humus were found beneath the hollow but we cannot be certain whether the cavity resulted from decay of piled offerings or from a retention of fill dirt by the timber construction (or both).

Excavation between the ends of the logs and the pit center showed transversely lying timbers (Fig. 6D), 6 to 12 inches (15-30cm) above



the floor. There were 2 long halves of split cedar logs, approximately 16 inches (40cm) in diameter, 62 and 70 inches (157, 178cm) in length, with frayed ends and stained soil suggesting original lengths of about 7 feet (210cm). Three or 4 shorter timbers (38-66cm long) paralleled the longer to approach the pit center. Beneath these was a cedar block, about 30cm in diameter and 38cm long, lying on the pit floor; we interpreted it as an overturned vertical support for the framework. Water-laid layers of sand and varicolored clays (red, yellow, blue) were above, between, and below the transverse timbers. We watched carefully for rotted fragments or dirt stains that would indicate timbers over other parts of the pit, but none were found.

Group 3 burials beneath the timbers consisted of 4 individuals, with heads directed south of west (Fig. 5). The first from the north was an adult, lying prone instead of the usual supine position; the length approximated 66 inches (167.6cm). The bones were gracile and the teeth were small, but all molars were erupted and showed deep wear, hence we believe this to have been a middle-aged woman. The adjoining skeleton lay on the left side, with the knees flexed around the wood block mentioned above. Despite the estimated height of 67 inches (170cm), this was also a female, because bones of a fetus were immediately above the pelvis in the uterine position. The fourth individual was an adolescent, 64 inches (162.5cm) in length with normally placed but unerupted third molars; a periodontal abscess was noted.

A framework of decayed wood, with 1 transverse and 4 longitudinal laths, overlay the middle skeleton. Possibly it was a carrying frame for

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Fig. 6.—Photographs taken during Mound 5 excavations. A: south wall of Trench 1, showing fill of Burial Pit 2, also submound midden; B: Burial Pit 5, looking north, showing mound layers; C: heaped-up soil layers around top of Burial 5 crater; D: cedar logs in Pit 5 (note mortise holes in Log 1 and hollow space beneath end of Log 2); E: skeletal groups in Burial Pit 5; F: Group 5, showing half-seated individual overlying another skull; G: beads, pendant, plummet and puma teeth by right arm of paramount male; H: wooden bow and Gahagan knife by left side of paramount male; I: Burial Pit 6, facing north (one skeleton missing at far left). Photographs B, D, E, F by Chas. R. McGimsey.

her anticipated infant, although it seems to have been slightly large for this purpose, 38 inches (96.5cm) long and 12-14 inches (30-35.5cm) wide. A baton-shaped object (Fig. 15i) of wood lay between the first 2 adults. Eight arrow points were among the group, 3 Alba, 3 Scallorn and 2 broken; all were of local materials. The most important finds with Group 3 were numerous well-preserved fragments of split cane matting (Figs. 16-22). These were placed from shoulder to knee and between and to the sides of the skeletons. Most of the matting appeared to have been placed over the bodies rather than wrapped around them, as very few fragments were found beneath the bones. In many instances, 4 to 8 layers were stuck together. One of the largest masses lay between groups 3 and 1. Whenever possible we removed the masses *in toto*, then cleaned them at home. Along with the matting were 7 objects of wood (Fig. 15a-f,i): 3 handle or knife-shaped, a comb with 3 prongs, 2 pointed objects and the baton. Matting was agglutinated to the surface of some objects.

We believe that the matting and wood were preserved through a combination of dryness beneath the log cover and blanketing of the objects between the dense clay of the pit floor and a layer of close-grained clay that was plastered on the burials and artifacts, probably percolated downward from the pit fill. Under such conditions the filtration of water, soil oxidation and growth of microorganisms must have been inhibited sufficiently to prevent the complete decay that is usual in this climate.

Moving southeastward down the pit, Group 4 (Fig. 5) was separated from Group 3 by about 60 cm. There were 3 adults, 1 infant and 1 fetus in Group 4. All except the fetus were fully extended and supine with heads directed south of west. First was an adult male, 67 inches (170cm) in length and less robust than the males in Groups 1 and 2. The teeth were moderately worn. Next was an adult female also with worn teeth. This individual was presumably not beyond 40-45 years of age, since a flexed fetus was found in characteristic uterine location. The third adult was thought to be female; the length, as was that of the previous female, was 64 inches (162.5cm). The skull of an infant or young child was found between the females. The bodies were closely placed; the pregnant female largely overlay the male with her right arm flexed across the chest of the second female.

It should be mentioned that lengths were measured with a steel tape, from the crown of the cranium to the bottom of the calcaneum, attempting to make adjustments for flattening of the skull or flexion of

the extremities. It is thought that measurements are correct to within 2.5cm, even though they show these adults to be surprisingly tall.

Placements with Group 4 include a large pottery bowl (Fig. 9e), inverted and shattered over the heads of the two women; a short (78cm) wooden bow (Fig. 15h), a long stemmed clay pipe (Fig. 13bb), a hollow (cane?) staff and 5 arrow points to the left of the male; a similar hollow staff beside the second woman with her finger bones around the top, and a single arrow point, a mussel shell "skin" bag*, and cane matting between her legs. The arrow points with this group were: 3 Hayes, 4 Scallorn, 1 broken; one was of novaculite, the others of local tan chert. The hollow staffs beside the bodies were 43 and 44 inches (109-111.7cm) in length and 3.2-3.8cm in diameter. They were jelly-like in consistency and efforts to dry and preserve them were futile. The wood bow and another small piece of wood were preserved.

The final Group 5 (Figs. 5,6F) was jammed against the southeastern wall. A third pregnant female with her flexed fetus was lying on the right side to face and curve against the pit end. A second female lay extended and supine between the first and Group 4. A third female half sat, half leaned against the pit wall, the head 17 inches (43cm) above the floor, the rib cage overlying the second woman's skull and the lower body atop the second's chest and thighs. The skull of a child was cradled in the curve of the sitting female's left arm. The skeletal material was so jumbled and poorly preserved that we did not establish body lengths.

Placements with Group 5 were few. The first female had a tan chert Scallorn point and a broken point of novaculite near the pelvis and a tan chert Alba point near the shoulder. Two small pieces of wood, 8-10cm in length and 9mm in diameter, could have been arrow foreshafts. Skeleton 2 had 5 Scallorn points, made of local cherts, pointed upward near the skull and a broken point in the rib cage. The child had 1 Alba and 2 broken points near the rib cage. Skeleton 2 had a wooden object near the left knee and matting near the pelvis.

In clearing the NW corner of the pit, stained soil was found which approximated the size and curvature of a bow about 3 feet (1m) in length. It lay atop the sand ledge. Beneath the ledge, the pit corner had

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*Fresh water mussels are covered by a skin-like horny layer called the periostracum, which gives color to the shell.

been undercut and animal bones were found in this cache. With this exception, the pit corners and margins differed from those of Burial Pit 1 in having no offerings. The powdered hematite that covered the crater walls was especially heavy in the corners and heavily concentrated about 66cm above the pit floor, where the cratering walls were cut downward more steeply. In the SE corner were several layers of water-laid sand and, in the SW corner, 3 typical crayfish holes and "chimneys" were found just above the floor. These findings suggest (1) that the south end stayed open longer than elsewhere, at least long enough for sand to be washed in and crayfish to build their runs; (2) that either the pit was filled differentially to about the 66cm level and extra hematite sprinkled on the upper walls, or the pit was cut down to the 66cm level, sprinkled with hematite, parts of it reopened to make burial placements, and the hematite was later concentrated by rain wash.

A few plain pottery sherds and 7 arrow points were unassociated in the pit fill. Altogether, there were 53 arrow points in Pit 5:19 of Scallorn type, 12 Alba, 9 Hayes, 1 Friley and 1 broken or untyped. Seven points were made of novaculite; all others were of local tan, red, gray and brown cherts.

Of the 21 skeletons identified in Pit 5, 3 were judged to be adult males, 8 adult females, 1 adult uncertain, 1 adolescent, 5 infants and children, and 3 fetuses.

Two blocks, 5 feet long and 6 feet wide, were excavated ENE from the Pit 5 crater (Figs. 4A,B; 6C) to explore the mound layers east of the crater. From the existing surface, they were cut 4 feet (1.2m) downward to a level approximating 60cm above the premound midden and 2m above the pit floor. Both showed a heaping up of soil layers around the pit margin, similar to that observed on the west side (in Trench 1). The layers showed the reverse of what was probably removed in digging the pit: mixed red sand-clay loam, a layer of black midden soil which crested about 1m from the crater margin, and then lighter sand (Fig. 6C).

Our interpretation of the sequence and methods by which Burial Pit 5 was constructed and used are as follows: first, the large crater was dug on the northern edge of the summit and slope of the primary mound through the premound humus and down to its floor. The excavated dirt was heaped up, layer by layer, around the crater's eastern, northern and western margins to increase its size (Fig. 7H). Powdered hematite was spread over all pit walls, except the SE. Burial Group 1 was placed

alongside the NW end; all 5 individuals apparently interred simultaneously and a packed sand ledge was placed over the first 3 individuals. It is possible, however, that only these 3 were initially placed in the pit, followed shortly by a woman and child. Some of the sand seems to have been intentionally placed or, perhaps, washed onto the latter 2 bodies. The sand ledge extended across the entire end of the pit and presumably was the only covering over Group 2 until the log tomb was built. The latter construction may have related to Group 3 only, but the continuous masses of objects and fabrics—preserved and rotted—between Groups 1 and 3 indicate simultaneous placement of these groups. It is uncertain whether the log frame and transverse timber construction preceded or followed the placement of Group 3 beneath it, but it is quite possible that the death of the paramount male in Group 2 led to construction of the log tomb and simultaneous placement of his body and the infant in Group 1, followed by the placement of retainers or family members in Group 3. Possibly the log structure was found to be inadequate, and he was placed separately with ample room for offerings. Then the bodies of Group 3 may have been pushed under an already constructed timber cover. The latter possibility is suggested by the awkward placement of the bodies; one in prone position, another on the side, and only one in the customary supine position. Mats were placed over and around Groups 1 and 3 and the pit was half filled up to a height of 66cm. Before covering the sand ledge, a short bow was laid along its west end. At a later date, Group 4 was probably placed and the pit virtually filled except for the SE end, which was left uncovered long enough for water-borne sand to accumulate and for crayfish to make their burrows. Finally Group 5 was hurriedly and carelessly squeezed into the narrowed space at the SE end and the entire pit filled. For pit fill, separate mixed red sand-clay loam was brought in, as all of the originally excavated dirt seems to have been left around the pit crater margins. As a final step, the primary mound and Burial Pit 5 were capped. We must confess that there is good evidence for the major steps in this sequence but that some of the details are conjectural.

Burial Pit 6 and the Primary Mound

Trench 1 had shown mound layers slanting upward toward the area south of Burial Pit 5. Exploration of the layers east of Pit 5 also revealed an upward slant in the same direction. A trench was therefore cut southeastward from Pit 5, immediately identifying a primary mound

overlying an interruption of the premound midden. Previous removal of topsoil and the upper layers of the mound had left some 2m of the original 3m above premound midden. Removal of this showed that the clay cap of the primary mound reached a rounded crest about 4.6m SE of the southern edge of Burial Pit 5 and about 1.2m (4 feet) above premound midden level. Complete removal uncovered another large burial pit beneath the crest of the primary mound (Fig. 4). It had been started just above the premound level and cut down to a pit floor between 24 and 30 inches (61-76cm) below the midden. No evidence of houses or habitation levels were found in the primary mound.

Burial Pit 6 was oval in outline, 16 by 14 feet (4.88 x 4.27m) in dimensions and oriented, like Pit 5, about 15° west of north. Seven bodies had been placed in a row, supine and extended, with heads directed south of west (Fig. 6I) and near the long axis. Above their heads were 3 parallel individuals, perpendicular to the first group, with heads directed NW. They were also supine and extended. In the first line of 7, there were 3 groups of 2 closely placed individuals and 1 placed separately. The latter, at the NW end, was a young female, 65 inches (165cm) in length with body flexed to the left and the left arm flexed with the hand on the left shoulder. Between her leg and the pit wall were 10 smooth stones and 2 bone pins (Fig. 13s, u, z, aa). The next pair were adults, male and female; the former was 66 inches (167.6cm) in length, the latter 63 inches (160cm). Twenty-five arrow points of Homan type (Fig. 12b) were beside the male's left thigh, copper stains were to the left of his skull, and groups of small pebbles (rattles) around each ankle. Copper stains from a presumed arm band were at the right wrist of the female. Her left arm was flexed across the chest. Next were an older child or adolescent, 51 inches (129.5cm) in length, and an adult female, 64.5 inches (163.8cm) in length. The final 2 were adults; a female of 65 inches (165cm) and a probable male, 67 inches (170cm) in length. The 3 offset individuals were all females, with lengths of 65, 60 and 64 inches (165, 152, 162.2cm). The skeleton of a large bird, apparently of the egret or crane family, was beside the SW wall; otherwise no objects were found with the last 7 listed individuals.

The Southern Mound Slope and Burial Pit 7

Prior removal of dirt south of Pit 6 had left an elevation of 4 feet (1.2m), dropping to 1m above the premound level at a point 3m S of Pit 6. This slope was shaved and we picked up the dark clay layer atop the

primary mound. It was 15-20cm in thickness, diminishing to 12.5cm as it dropped to an elevation of 38cm some 3m distant from the pit. Charcoal stains and occasional Caddoan sherds showed that it was used but no post molds or hearths were found. Two disturbances were found; both identified as burial pits (Fig. 4).

Burial Pit 7 started in the reddish-black clay cap, 25-28cm above the premound midden; it passed through the midden to a level 61cm below it. The pit was rectangular, 193cm long and 78.7cm wide. It contained the single skeleton of an adult female, 160cm in length with head directed 30° west of south. Two Alba and 1 Scallorn point were found in the chest area. A profile of the SE wall of Pit 7 (Fig. 7F) shows the rising clay of the primary mound.

Burial Pit 8

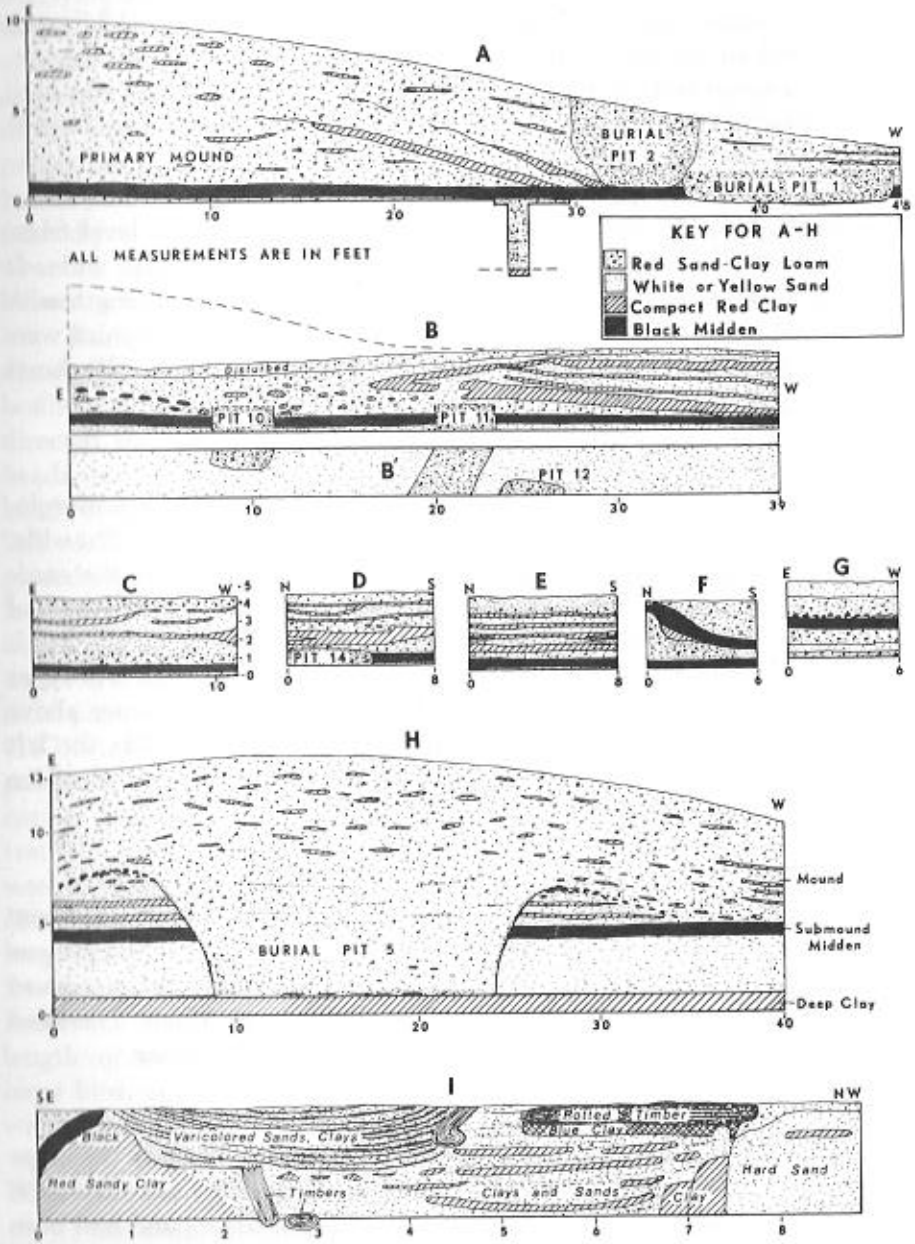
The second disturbance, noted about 1.5m south of Pit 6 margin, proved to be Burial Pit 8. It was approximately 3m long and 1.5m wide, began at about the same elevation as Pit 7, and extended to the same depth. There was a single skeleton with the head directed 50° west of south. The bones were so poorly preserved that sex was uncertain, but it was adult, about 170cm in length. There were 2 pottery vessels of types Hickory and Holly Fine Engraved (Fig. 9c, d) in the pit corner above and to the left of the skull; both were broken in place. Beside the left arm was a Gahagan knife (Fig. 12bb), about 23cm in length, 1 Scallorn and 4 Catahoula points.

Burial Pit 9

This pit was found somewhat later than pits 7 and 8. It was about 4.27m SE of Pit 6 margin, east of the property line (Fig. 4). The pit was about 213cm in length and 76cm in width. A single skeleton was so poorly preserved that age, sex and size were not determined. The head was directed NE, and above the head were a few animal bones.

Trench 2

In order to explore the east side of the mound, especially the slope of the primary mound, a 1m wide trench was cut from near Burial 6 margin eastward for 4.57m (15 feet). That part of the mound had been cut to within some 1.2m of the premound level and the trench was carried downward to below this level. The south profile of Trench 2 (Fig. 7C) shows the premound midden to be level and about 15cm in



thickness. Immediately above was a 15-17cm layer of red sandy, homogeneous clay and then a layer of fine white river sand that was 25-35cm in thickness until it approached the primary mound where it thinned. It was capped by a 5cm red clay layer which thickened upward and downward as it neared Burial Pit 6. Another white sand zone was capped by a thicker red clay layer which rose steeply, between 1.5 and 2.1m east of Pit 6, to an elevation of 1m above the submound midden. It then leveled off and frayed out; possibly it had been disturbed by the previous soil removal. This upper red clay cap probably corresponds to the red clay layer which covered the primary mound west and south of Burial Pit 6. Between the 36 and 48 inch (91-122cm) elevations in Trench 2 were mixed clay-sand and white sand layers.

Trench 3

A similar 1m-wide trench was cut from just west of Burial Pit 5 westward for 11.9m (Fig. 4). The south profile of Trench 3 is shown in Fig. 7B. The trench floor was leveled for measurements at a depth of about 30cm below the premound midden. This midden was found to rise about 8-10cm from the western end to the eastern end of the trench. For the first 2.4m from the east end, the layer of dark midden (presumably thrown out of Burial Pit 5) dropped progressively to within 30cm of the premound midden and then disappeared. Reddish sand with clay lumps overlay the black midden lumps from Pit 5, tending to form a downward trending pattern for a distance of 4.57m westward. Then a pattern of alternate sand and clay appeared (Fig. 7B) in the remainder of the trench. White sand, sandy-clay loam, and compact red clay were found, all trending on a downward slant from the mound. For

Fig. 7.—Profiles recorded in Mound B explorations. A: SE profile, Trench 1, showing Burial Pits 1, 2 and slope of primary mound; B: south profile and floor of Trench 3 (note mixed soil of burial pits); C: south profile, Trench 2; D: N-S profile of east wall, Burial Pit 11; E: N-S profile of east wall, Burial Pit 12; F: profile of southeast wall, Burial Pit 7; G: east end of Trench 4; H: composite, hypothetical profile through center of Burial Pit 5, looking south; I: profile along decayed timber (3) from NW corner of Burial Pit 5 to center.

the westernmost 3m of Trench 3, 4 thin red layers alternated with sand layers within 0.75-1m above the premound midden.

Trench 4

A parallel trench was cut 3m north of Trench 3. It confirmed the layers described in Trench 3 profile, but unfortunately only the easternmost end of Trench 4 was recorded in a profile (Fig. 7G). This profile showed 30cm of disturbed topsoil, then 35cm of mixed reddish sand-clay fill, then a few inches (5-6cm) of dark midden lumps atop the 10cm thick black premound midden. These lumps and some of the overlying mixed sand-clay presumably derived from Pit 5.

A cross trench and profiles taken while excavating Burial Pits 11-14 confirmed the layers as shown in Trench 3 profile (Fig. 7D,E). Most of the layers were level between Trenches 3 and 4 as well as between Trenches 1 and 3. The narrow uniform layers of red clay, nearly level and only 2-5cm in thickness over the western mound slopes, appear to have been water-laid. It is unlikely that such thin layering would have resulted from wash off the mound or would have been intentionally added during mound construction. Moreover, a similar layering occurs on the eastern slope, and some of the sand deposits are typical white river sand. Deposits of these layers on the lower mound slopes suggest repeated river overflows; if so, the entire plaza must have been flooded. This would not be surprising considering the modest elevation of the site above the lower terrace.

Burial Pit 10

Trenches 3 and 4 disclosed 5 additional burial pits closely spaced under the northwestern mound slope (Fig. 4). There are similarities that suggest that these pits are related temporally and culturally: compass orientation, levels of origin, skeleton orientation, pit size, and paucity of offerings. All but one contained single burials.

Burial Pit 10 was transsected by Trench 3, 2.4m from its eastern end (Figs. 4, 7B). The pit began 18cm above the premound midden and near the level of the black midden thrown out of Pit 5. It was rectangular with rounded ends, 2.82m in length and 1.2m in width, with a floor approximately 30cm below the premound midden. The orientation was 10° east of north. Three skeletons were found with heads directed toward the N end. They were poorly preserved but 2 adults, 170 and 160cm in length, and an adolescent, 142cm in length, were identified. There were no offerings and no special treatment of the pit floor.

Burial Pit 11

Trench 3 also transsected Pit 11 about 2.74m NW of Pit 10 (Fig. 4). It was rectangular, 2.3 by 1m in dimensions, and began just above the premound midden. The floor was 30cm below the midden. Orientation was 15° E of N and the single skull was at the N end. No other bones and no artifacts were found. The teeth indicated adulthood; the anterior teeth and 4 molars were worn.

Burial Pit 12

This pit was only 46cm northwest of Pit 11; Trench 3 cut through its lower end. It almost paralleled Pit 11, with orientation 18° E of N. The dimensions were 2.59m long and 1.2 wide. The levels of origin and termination were also identical to Pit 11. The skull of an adult was found, off-center, with only traces of the shoulder girdle and 1 leg bone. All permanent teeth were erupted, and the moderate wear of the first and second molars but little of the third, suggested a young adult. On each side of the body were depressed longitudinal stains, possibly from litter poles; dark stains on the floor suggested rotted fabrics. To the right of the skull, 20cm distant, were 1 Homan and 9 Colbert arrow points (Fig. 12c), with tips directed upward. Seven were of tan chert, 2 of black chert, and 1 of mottled tan-brown chert, all locally available materials.

Burial Pit 13

This pit was immediately NW of Pit 12 and was cut by Trench 4 (Fig. 4). It was rectangular and oriented at 20° E of N. The length was 2.95m, the width 1.1m. In point of origin and depth of floor it corresponded with Pits 10-12. Only traces of 1 skull were found in the NE corner; dark stains of possible matting were below the skull at mid-pit position. No offerings were found.

Burial Pit 14

The final pit in the NW sector was transsected by Trench 4. It was almost exactly in line with Pit 11 (Fig. 4), beginning 1.2m from its N end. Pit 14 was subrectangular, 1.95m in length, 0.86 to 1.06 in width, and oriented 15° E of N. It originated about 30cm above the premound midden and ended 45cm below it. One skeleton, on the W side of the pit, had good preservation of teeth but most of the bone was absorbed; the length was about 165cm. The teeth indicated an adult.

There was congenital absence of the lateral incisors and the upper third molars; the lower third molars were horizontal (impacted) and other teeth were badly worn. There were no artifacts.

Burial Pit 15

While we were working on Burial Pit 5, heavy rains washed out fragmentary skeletal material from the upper mound fill south of Trench 1 (Fig. 4). It was too fragmentary to determine sex, age, and height and no burial placements were found.

REMOVAL AND PRESERVATION OF FRAGILE OBJECTS

The excavation, removal, transportation and preservation of certain objects in Mound 5 offered technical problems that we had not faced previously. This especially applied to fragile objects in Burial 5 that had been preserved in a wet state on or near the pit floor.

The copper plated ear ornaments in Pits 1 and 2 were not subjected to any kind of preservatives. Previous experience, especially at the Gahagan site, had shown that copper impregnation gave adequate preservation. The Gahagan objects are still in good condition after 40 years. Some of the wooden ear ornaments at Mounds Plantation, however, were in poor condition and have since deteriorated.

The cedar logs in Pit 5 were dry when found; we did not treat them because we wished to have radiocarbon and tree ring analyses. Their condition is good.

Those objects of wood, split cane matting, grass, cordage, and leather that were blanketed on the pit floor were wet and required preservatives. The wood was very soft, requiring careful removal of the soil. After brief drying *in situ*, they were removed *en bloc*, as were the sheets of matting, and were protected with damp cloths or cotton batting; long objects like the bows were transported to the laboratory in a section of metal gutter, which was used later in the preservation process.

We learned from George I. Quimby, Jr., at the Chicago Museum, and Junius Bird, of the American Museum of Natural History, that the Ciba Chemical Company had developed a preservation process for water-immersed prehistoric wooden objects in Europe, which had just become available in the United States. Ciba, through Dr. Ernst A.

Wolff, Technical Manager of its Chemical Specialties Division, was immediately helpful with a supply of Arigal and with technical advice during the preservation process.

Arigal is a water soluble synthetic resin which was developed as a protection against rotting in cotton textiles; it was subsequently found to be effective in permeating the cells of wet wood. With the addition of an appropriate catalyst and subsequent heating, Arigal polymerizes and becomes fixed in an insoluble state during evaporation of the water. Steps in the process were:

1. Soaking of the wet object in constantly running tap water for a minimum of 3 days.
2. Steeping in Arigal, 25% solution, until complete diffusion occurs, at which time the object sinks; the steeping process lasts from several days to several weeks. Ph control and renewal of solution if it becomes cloudy are essential.
3. Applying the catalyst for 24-40 hours until the Arigal shows the beginning of insoluble state by cloudy appearance of the solution.
4. Fixing in the wet state: the object is washed in hot water, wrapped in a cotton cloth soaked in distilled water, placed in a polyethylene bag which is then completely closed, and heated to 150° F. for 48 hours. This was effected for all smaller objects in a household electric oven, but we were unable to locate a sufficiently large oven for the long objects. With Dr. Wolff's advice, a longer period of fixation at room temperature or with the use of radiant heat was found to be effective.
5. Drying, recommended in a well-ventilated cupboard, with cloth wrappings removed and at a temperature of 95-105° F. for 20 hours, then at room temperature for several days to 2 weeks. In lieu of an appropriate cupboard, the senior author's small laboratory was maintained at a reasonably controlled temperature by the hot summer weather and the use of extra heat at night.

Despite these improvisions and the difficulty of watching the stages of preservation in the midst of daily professional duties, we were pleased with most of the results. Dense clay permeation of the matting layers made it difficult to secure good cleansing and preservation. Some of the smaller fragments, especially those subjected to experimentation during various stages, have curled, split or darkened. However, most of approximately 200 mat fragments, varying in sizes and layers, are well preserved after 14 years. The wooden objects are either unchanged or

show moderate shrinkage, but retain their shape and natural color (Fig. 15). Leather and cordage are satisfactory. The mat design colors are still evident, with some fading.

RADIOCARBON DATING

Sections of 2 logs in Pit 5 were submitted to the University of Texas Radiocarbon Laboratory for dating, through the courtesy of E. Mott Davis. Care had been taken to avoid contamination in removing and transporting these specimens. Log 1 came from the upper set of cedar timbers, about 50cm above the pit floor; Log 6 was nearer the center of the pit and just above the pit floor. A portion of Log 1 was also submitted to the University of Michigan Laboratory, through James B. Griffin. The dates, reported by the laboratories (Tamers, Pearson and Davis 1964; Crane and Griffin 1966), are: 860±120 radiocarbon years: A.D. 1090 (TX55, Log 1), 475±100 radiocarbon years: A.D. 1475 (TX-56, Log 6), and 900±100 radiocarbon years: A.D. 1050 (M-1446, Log 1). The datings on Log 1 are in excellent agreement and are consistent with the series of dates at Davis site (Story 1974) for the Alto focus. Dates reported by Bell (1972) and Rohrbaugh (1974) for Harlan and Spiro sites show a range between A.D. 850 and 1400, with the Alto Focus consistently between A.D. 850 and 1100 and the Spiro ceremonialism at A.D. 1100-1400.

ARTIFACTS

Ceramics

The pottery sample from Mounds Plantation consists of 5367 sherds and 19 whole or fragmentary vessels; 933 of the sherds were collected from the general surface, 440 from the Borrow Pit 1 cache, 54 from Trench 3 in Mound 5, 2471 from the surface around Mound 3, 349 from uncertain levels in Mound 3 and the remaining 1113 from the several levels in this mound (Tabs. 1,2). Almost all of the decorated sherds conformed to previously established types, and for this reason we shall not essay detailed analytical descriptions. Moreover, the ceramic types represented have been clearly associated with cultural complexes of the area, and hence we have tabulated them by cultural assemblages.

Individual attention will be given to those types that appear in more than 1 cultural complex, to a few unusual or uncertain types, and to the plain wares. Tables 1 and 2 show the sherd tabulation by numbers and by percentage composition in each sherd group.

Brief explanations about the pottery typology are in order. The Coles Creek types are as described by Phillips (1970), with local differences in paste, color and vessel shape detailed later. The Caddoan types are largely derived from the Texas Handbooks (Suhm, Krieger and Jelks 1954; Suhm and Jelks 1962), plus the senior author's descriptions (Webb 1959, 1963).

Five of the 19 whole vessels are Alto Focus types, 1 reconstructed from 161 sherds found by McKinney in Mound 3, the others from Burials 1, 5 and 8 in Mound 5; 1 plain vessel is from the terrace burial; 2 are of Bossier Focus types, incomplete vessels from the upper levels of Mound 3; and 11 are of Belcher Focus types, derived from the upper burials of Mounds 3 and 5.

Coles Creek Pottery

The Coles Creek types include Coles Creek Incised, varieties *Coles Creek, Blakely, Mott, Greenhouse* and *Hardy,* and Beldeau Incised, French Fork Incised, and Mazique Incised. Table 1 shows that these types total 837 sherds, 15% of the total and 61.6% of all decorated sherds.

The Coles Creek Incised sherds conform in decoration to the original description by Ford (1951) of Coles Creek Incised, Greenhouse Incised and Hardy Incised at the Greenhouse site, but we have followed the type-variety system of Phillips (1970). All of the varieties are characterized by parallel horizontal incised lines on the upper vessel. Under *var. Coles Creek,* we include those sherds with triangular impressions subjacent to the lowest line (Fig. 8a, c-e) or between the lines (Fig. 8b) and sherds with incised lines produced at an angle by a square-end tool ("overhanging", Fig. 8f). *Var. Blakely* (Fig. 8g-k) features a number of widely spaced horizontal lines, usually smoothed and rarely "overhanging." *Var. Greenhouse* (Fig. 81-n) shows polished black or brown surfaces and, usually, only 2 to 4 lines. *Var. Mott* (Fig. 8o-r) exhibits numerous closely spaced lines with varying degrees of "overhang". *Var. Hardy* (Fig. 8s-v) has a variable number of parallel lines, usually made with a pointed or rounded-end tool, and showing some irregularity and lack of smoothness; any subjacent punctates are

TABLE 1.—POTTERY SHERDS OF COLES CREEK AND ALTO TYPES. Read percentages vertically.

Pottery types		General surface	Borrow Pit 1 cache	Mound 5 Trench 3	Surface around Mound 3	Surface during excavation Mound 3	First habitation level Mound 3	Structure and fire pit Mound 3	Second habitation level Mound 3	Totals
Coles Creek Incised var. Coles Creek	No.	13	5	1	125	19	11	15	25	244
	%	4.58	1.14	1.85	5.06	5.44	3.86	5.60	4.46	4.54
Coles Creek Incised var. *Blakely*	No.	137	18		92	7	9	2	9	274
	%	14.58	4.09		3.72	2.01	3.16	0.74	1.61	5.15
Coles Creek Incised var. *Mott*	No.	19	4		32	2	3		3	63
	%	2.02	0.91		1.30	0.57	1.05		0.53	1.17
Coles Creek Incised var. *Greenhouse*	No.	12	3	2	14	2	2		3	38
	%	1.28	0.68	3.70	0.56	0.57	0.70		0.53	0.71
Coles Creek Incised var. *Hardy*	No.	94	25	1	60	5	4	7	14	210
	%	10.00	5.68	1.85	2.43	1.43	1.40	2.61	2.50	3.91
Baldeus Incised	No.	1			2	1		1		5
	%	0.10			0.08	0.29		0.37		0.09
French Fork Incised	No.		2							2
	%		0.45							0.04
Marique Incised	No.	1								1
	%	0.10								0.02
Subtotal	No.	307	57	4	325	36	29	25	54	837
	%	32.66	12.95	7.40	13.15	10.31	10.17	9.32	9.63	15.59
East Incised	No.	2								2
	%	0.21								0.04
Crockett Curvilinear Incised	No.	1			2	2				5
	%	0.10			0.08	0.57				0.09
Pennington Punctated-Incised	No.	5							3	8
	%	0.53							0.53	0.15
Weches Fingernail Impressed	No.					1				1
	%					0.29				0.02
Hickory Fine Engraved	No.	16			26	2	4	2	14	64
	%	1.70			1.05	0.57	1.40	0.74	2.50	1.19
Holly Fine Engraved	No.	7				1	1	1	7	17
	%	0.74				0.29	0.35	0.37	1.25	0.32
Carmel Engraved	No.				3					3
	%				0.12					0.06
Subtotal	No.	31			31	6	5	3	24	100
	%	3.30			1.25	1.72	1.75	1.11	4.28	1.86
Manchac or Dunkin Incised	No.	14			2	1				17
	%	1.49			0.08	0.29				0.32
Harrison Bayou Incised	No.	2			1	1				4
	%	0.21			0.04	0.29				0.07
Evansville Punctated var. Wilkinson	No.	13			3	1	1			18
	%	1.38			0.12	0.29	0.35			0.34
Evansville Punctated var. Rhinehart	No.	8	2		17	5	1	1	1	35
	%	0.85	0.45		0.69	1.43	0.35	0.37	0.18	0.65
Hollyknowe Ridge Pinched var. Hollyknowe	No.	5	1		8				1	15
	%	0.53	0.23		0.32				0.18	0.28
Diagonal Incised	No.	34								34
	%	3.62								0.63
Subtotal	No.	76	3		31	8	2	1	2	123
	%	8.08	0.68		1.25	2.30	0.70	0.37	0.36	2.29
Sherd sample totals		940	440	54	2471	349	285	268	560	5367

TABLE 2.—POTTERY SHERDS OF BOSSIER, BELCHER, AND TRADE TYPES; UNTYPED AND PLAIN SHERDS. Read percentages vertically.

	Pottery types		General surface	Borrow Pit 1 cache	Mound 5 Trench 3	Surface around Mound 3	Surface during excavation Mound 3	First habitation level Mound 3	Structure and fire pit Mound 3	Second habitation level Mound 3	Totals
BOSSIER TYPES	Maddox Engraved	No.				1			1	53	55
		%				0.04			0.37	9.46	1.03
	Pease Brushed-Incised	No.	21			1					22
		%	2.23			0.04					0.41
	Bossier/Plaquemine Brushed	No.	13			2					15
		%	1.38			0.08					0.28
	Sinner Linear Punctated	No.	1								1
		%	0.10								0.02
	Subtotal	No.	35			4			1	53	93
		%	3.72			0.16			0.37	9.46	1.73
BELCHER TYPES	Belcher Engraved	No.	10								10
		%	1.06								0.19
	Hodges Engraved	No.	10								10
		%	1.06								0.19
	Belcher Ridged	No.	78			4				1	83
		%	8.25			0.16				0.18	1.55
	Karnack Brushed-Incised	No.	16								16
		%	1.70								0.30
	Glassell Engraved	No.	6								6
		%	0.64								0.11
	Subtotal	No.	120			4				1	125
		%	12.80			0.16				0.18	2.33
OTHER	Haley Engraved	No.	2								2
		%	0.21								0.04
	Hempstead Engraved	No.	1								1
		%	0.10								0.02
	Other Engraved	No.	32			12				6	50
		%	3.40			0.49				1.07	0.93
	Untyped Incised	No.	6		4	3	3				16
		%	0.64		7.40	0.12	0.86				0.30
	Untyped Punctated	No.	6			4					10
		%	0.64			0.16					0.19
	Plain, bottle spouts	No.	5			1	1			3	10
		%	0.53			0.04	0.29			0.54	0.19
	Subtotal	No.	52		4	20	4			9	89
		%	5.53		7.40	0.81	1.15			1.61	1.66
PLAIN	Plain, thick Light colors	No.	39	151	10	347	43	40	31	53	714
		%	4.15	34.32	18.52	14.04	12.32	14.03	11.56	9.46	13.30
	Plain, thick Black, dark brown	No.	7	5		102	3	14		13	144
		%	0.74	1.14		4.13	0.86	4.91		2.32	2.68
	Plain, medium Light colors	No.	106	168	16	480	72	56	47	89	1034
		%	11.28	38.18	29.63	19.42	20.63	19.65	17.54	15.89	19.26
	Plain, medium Black, dark brown	No.	32	2	7	362	51	44	27	64	589
		%	3.40	0.45	12.96	14.65	14.61	15.44	10.07	11.43	10.97
	Plain, thin Light colors	No.	72	42	6	203	40	26	32	44	465
		%	7.66	9.55	11.11	8.21	11.46	9.12	11.94	7.86	8.66
	Plain, thin Black, dark brown	No.	63	12	7	562	86	69	101	154	1054
		%	6.70	2.73	12.96	22.74	24.64	24.21	37.70	27.50	19.64
	Subtotal	No.	319	380	46	2056	295	249	238	417	4000
		%	33.93	86.37	85.15	83.18	84.52	87.36	88.81	74.16	74.53
Sherd sample totals			940	440	54	2471	349	285	268	560	5367

oval or round instead of triangular. Distinguishing varieties *Hardy* and *Coles Creek* is often difficult, and doubtful sherds in our collection were placed in *Hardy* category.

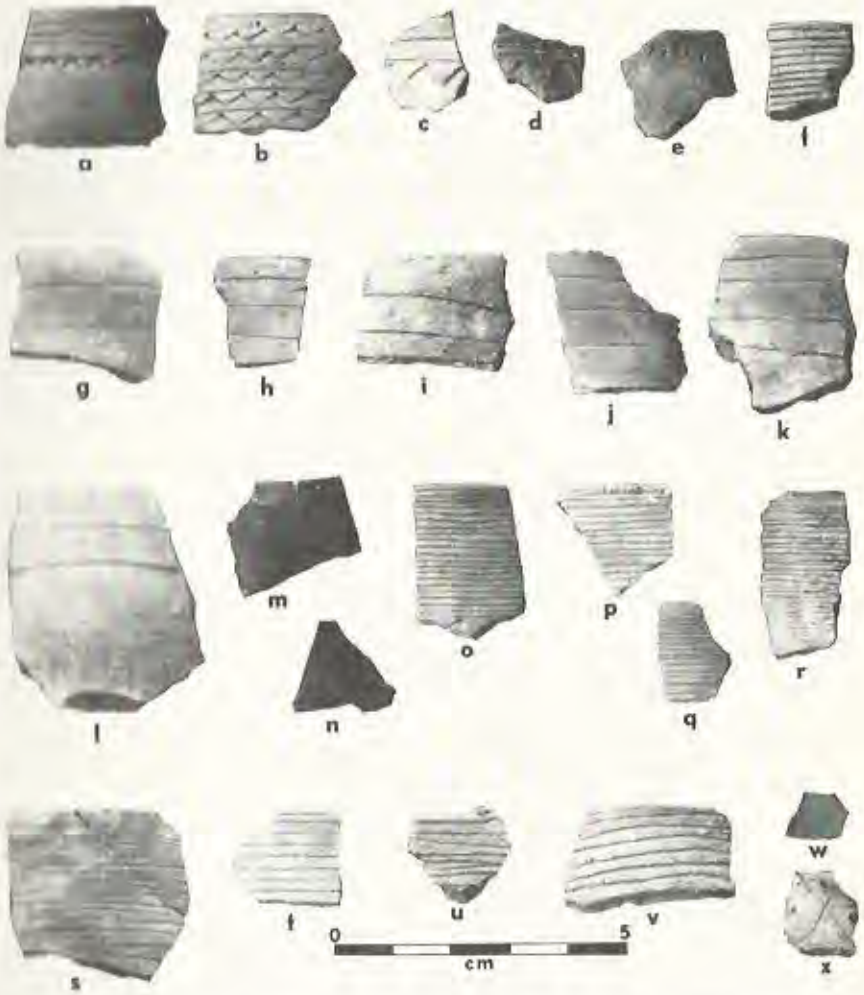


Fig. 8—Coles Creek pottery types from Mounds Plantation site. a-f, Coles Creek Incised, *var. Coles Creek;* g-k, Coles Creek Incised, *var. Blakely;* l-n, Coles Creek Incised, *var. Greenhouse;* o-r, Coles Creek Incised, *var. Mott;* s-v, Coles Creek Incised, *var. Hardy;* w, Mazique Incised, *var. Kings Point;* x, Beldeau Incised.

Beldeau Incised type (Fig. 8x) is represented by only 5 sherds which show typical punctations within cross-incised diamonds. The 2 sherds of French Fork Incised type derive from the same vessel; they are triangular rim tabs with stippled punctations on the flat upper surface. Mazique Incised type is confined to a single sherd (Fig. 8w) with smooth herringbone incisions.

The paste, firing and colors of these otherwise typical Coles Creek sherds differ from those of the Lower Mississippi. The ware is firm but the paste seems coarser and more granular. The cores are darker, more often black or dark gray. Lumps of lighter colored clay, probably ground sherds, contrast with the darker matrix. The surfaces are moderately smooth but surface polish is rare, except in *var. Greenhouse.* Surface colors range from gray through buff, brown and black; the lighter colors often have an orange or reddish tinge, in comparison with the dove gray of the Mississippi Valley. Dark colors are more frequent: 57.6% of all varieties of Coles Creek Incised at Mounds Plantation are black or mahogany brown, whereas Ford (1951) indicated that only types Greenhouse and Hardy had a preponderance of dark colors at the Greenhouse site. Coles Creek sherds at Larto Lake, collected by Gregory and Webb, show a similar predilection toward light surface colors. At Mounds Plantation the 5 varieties of Coles Creek Incised demonstrate the following percentages of dark colors: *Blakely,* 49.4%; *Coles Creek,* 54%; *Hardy,* 62%; *Mott,* 77.8% and *Greenhouse,* 96%. Moreover, the western influence on Coles Creek paste is indicated by bone tempering in 25 sherds (3%), including 5 sherds of *var. Coles Creek.*

Vessel shapes indicated by the Coles Creek Incised sherds are jars with vertical rims, "flowerpot" beakers with outward slanting walls, deep bowls and, rarely, barrel-shaped or constricted orifice jars. The majority of the 276 rim sherds have direct rims; 55% have flat lips, 28% rounded and 17% thinned, nearly half of the thinning by interior beveling. Only 2 sherds have widened lips and only 3 have an incised line on the lip. The wall thickness ranges from 4 to 11mm, with averages of 5.6 for *Greenhouse,* 6 for *Mott,* 6.67 for *Hardy,* 7.2 for *Blakely* and 7.5 for *Coles Creek* varieties, with an overall average of 6.9mm in the sample of 296 sherds.

Table 1 demonstrates a widespread distribution of Coles Creek sherds at the site, in all collection groups. They constitute nearly all of the decorated sherds in Borrow Pit 1 cache and the premound level of Mound 5, and most decorated sherds from the first habitation level of

Mound 3. We conclude that the initial and major occupation at this site was by Coles Creek peoples.

Alto Focus Pottery

A total of 100 sherds were identifed as Alto pottery types, constituting 1.86% of the total collection and 7.37% of the decorated sherds. These types occur in all collection groups (Table 1) except from the Borrow Pit cache and the deep level of Mound 5. There are also 4 whole Alto vessels, 3 from burials and 1 from Mound 3.

(a) Hickory Fine Engraved is the most prevalent alto type with 64 sherds. Most are small, thin sherds, 3 to 6mm in thickness, and approximately 80% are mahogany brown to black in surface color. The paste is fine, clay tempered with small amounts of grit, carbonaceous material, hematite and, in 2 instances, bone. Bowl rims are direct or slightly outcurving, with rounded, beveled or thin lips; none are flat. Bottle forms are infrequent at this site. Surfaces are smoothed to polished. The decoration is fine to narrow horizontal engraved lines encircling the upper body of deep or shallow bowls, and the shoulders or spouts of bottles.

Vessel 1 of Burial 8, Mound 5, is a flat bowl or platter (Fig. 9d) of Hickory Engraved type. The paste is soft to crumbly and is clay tempered. The bowl has a uniformly convex exterior with a pale red slip on both surfaces. The diameter is 17.5 cm, the height 4cm. The simple decoration consists of 4 equally spaced parallel lines encircling the outer rim, 5-6mm apart.

(b) Holly Fine Engraved sherds number 17 (Table 1). Their distribution is similar to that of Hickory Engraved. The sherds are thin, 4-5mm, and all but 1 are dark brown to black in color. The paste is as described for Hickory Engraved, with 1 bone tempered. All sherds appear to derive from bowls of the kind described below.

Vessel 1 of Burial 1, Mound 5, is a beautiful deep bowl (Fig. 9a) with vertical walls and convex base. It is made of finely textured, clay tempered paste with core and surfaces dark mahogany brown in color. The interior surface is smooth and the exterior, polished. The walls are consistently 3.5-4mm in thickness, thinning to 1.5mm at the lip; the base is 5mm thick. The height is 13.5cm, the diameter 18-18.5cm at the orifice and 17cm near the base. The decoration is effected with fine engraved lines and small excisions, all containing red pigment. Three horizontal lines are at the base and below the rim. The central panel has

a design of large spiral figures, repeated 4 times around the vessel and interconnected by diagonal bands of parallel lines, spaced almost exactly 4mm apart. Some of the spiraling lines are continuous around the vessel and produce an interlocking scroll effect. Each large spiral figure is flanked by 2 smaller spirals, to the upper left and lower right, filling the rhomboid field. This is an excellent example of the geometrically exact designs often exhibited in the Holly Engraved type.

Vessel 2 of Burial 8 in Mound 5 was reconstructed from a pile of crushed sherds which represented only about half of the original vessel,

Fig. 9.—Alto Focus pottery vessels from Mounds Plantation. a-c, Holly Fine Engraved type, a from Burial Pit 1, Mound 5, b from Mound 3, c from Burial 8, Mound 5; d, Hickory Engraved type, Burial 8, Mound 5; e, e′, e″, bowl from Burial Pit 5, Mound 5, with Crockett-Pennington design on rim, exterior and interior design: e′ interior design showing eye, finger and thumb cross design; e″ exterior basal design featuring arcs and "whirling spirals". Photographs a, d, e, e′ by Gordon Maxey.

obviously broken before placement. It is of Holly Engraved type (Fig. 9c), differentially fired to produce a buff to mahogany coloration. The vessel has a convex base, bulges in the middle, and then recurves to a vertical rim, which has the same dimension as the basal extension. The total height is 11.5cm, the maximal body diameter is 17cm, and the identical diameters of the rim and basal segments are 14.5cm. The walls are 3-4mm thick. Seven fine parallel engraved lines encircle the rim and basal segments. The outswelling body is decorated with concentric circle and arc figures, 4 times repeated, formed by fine engraved lines that are spaced about 3mm apart. Each circle is centered by a small excised disc and every 4th to 6th encircling line is cut heavily or excised; there are excised triangles between the arcs of the major figures. Red pigment fills the design elements.

The Holly Engraved bowl from Mound 3 (above Feature 1 level, Fig. 2) is a deep bowl (Fig. 9b) of mahogany brown ware with finely textured clay tempered paste. It is firm and thin walled, with smooth interior and polished exterior surfaces. Wall sherds are 4-4.5mm thick, basal sherds 5-5.5mm. The base is mildly convex and the walls are vertical, but slightly barrel-shaped. The height averages 13cm, the orifice and base are 20cm in diameter, and the midbody diameter is 21-21.5cm. The complete outer wall is decorated with fine engraved lines and excisions, with either red pigment filling or with a red underslip that shows when the brown surface is engraved. Three parallel lines, 4-4.5mm apart, encircle the rim and base. The space between these is divided into 5 panels by groups of 5 to 8 vertical lines. Each panel features concentric circles surrounding a central excised disc, with 4 to 5 circles in each figure. Above and below the central circles, tangential arcs curve laterally to the dividers, with 6 to 7 arcs in each group. Small excised triangles are in the panel corners.

(c) Carmel Engraved type is represented by only 3 sherds from the surface around Mound 3. They are bowl sherds, clay tempered with brown surfaces, and bear a decoration of curvilinear bands with ladder-like hatched engraving. The type was described by Webb (1963) from Smithport Landing site.

(d) East Incised type is shown in 2 sherds from the general surface. Both have horizontal incised lines below the rim; 1 is red filmed and the other bears part of a rim tab.

(e) Crockett Curvilinear Incised type: 4 of the 5 sherds of this type derive from Mound 3, the other from the general surface. Two

large sherds of the same vessel (Fig. 10a, b) have an incised scroll design on a bowl of moderate height, with central impressed circle and fields filled with parallel arcs. The paste is clay tempered, with dark brown to black color and good polish. A sherd from a smaller bowl (Fig. 10d) also has a diagonal scroll band, outlined by fields of arcs, alternately filled with small punctations. A fourth sherd is from a carinated bowl (Fig. 10c); vertical lines delimit fields of curvilinear incising.

(f) Pennington Punctated-Incised: 8 sherds come from the general surface and the second habitation level of Mound 3. Several sherds have punctate-filled bands outlined by smoothly incised lines (Fig. 10e), while others show triangular or diamond-shaped figures, alternately plain and line-filled (Fig. 10f).

Vessel 1 of Pit 5, Mound 5, is a bowl which has a shape and rim decoration consistent with Newell and Krieger's (1949) description of Crockett-Pennington hybrids, but it additionally has designs on the interior and exterior of the base. A full description of this vessel and discussion of its connotations in the Southern Cult has been published (Webb and McKinney 1963), but a briefer description is included here in order to relate it to the other ceramics.

This vessel is a large shallow bowl (Fig. 93, e', e") with a convex base and direct rim. Paste is clay tempered with brown to black surface coloration, except where green pigment has been inserted into the design and yellow pigment has stained part of the interior base. The orifice diameter is 29.5-30.5cm, the overall height 7.6cm and the rim height 3.6cm. The outer rim is decorated with 2 opposed discs, incised and flanked by punctate-filled vertical arcs; between the discs, rim panels are formed by vertical incisions and punctate-filled bands. In the center of each panel is a punctate-filled rectangle.

The unusual feature is the decoration of both surfaces of the base. The interior has a cross motif (Fig. 9e') formed by thumb and finger simulations. One arm of the cross is continuous, narrowed in the center, and has spatulate thumb projections to each periphery. The cross arm is formed by 2 similarly stylized finger symbols, pointing inward to the thumb bar. The nails are simulated by excised circles, the joints by excised arcs. The 4 triangular areas between the cross arms contain eye symbols, with a central orb, excised circular pupils and excised narrowing lateral apertures. Medially, the triangles between the finger columns are filled with excised triangles and curved lines.

The exterior of the base (Fig. 9e[11]) is completely filled with a complex semicircle and scroll design, effected similarly by smooth incised lines and excisions. Two accurate concentric circles at the periphery contain opposed large and small semicircles, with the larger arcs further subdivided by small arcs. Each large semicircle contains 3 scroll elements and each small arc contains 1 scroll element or central disc with opposed tangential spirals ending in triangles. Central discs, terminal triangles, and arc junctures are excised. Despite the lack of complete symmetry, it is an intricate and pleasing design, with considerable sophistication.

(g) Weches Fingernail Impressed type: 1 sherd was found near Mound 3. Horizontal incised lines have large nail impressed arcs between them.

Pottery Types Common to Coles Creek and Alto Complexes

There are 5 pottery types and 1 group of sherds that cannot be assigned with confidence to either Coles Creek or Alto ceramics, because the types have been shown at other sites to occur as components of each of these complexes (and sometimes others). These types total 123 sherds (Table 1), 1.86% of the total collection and 9% of the decorated sherds.

(a) Mazique Incised *var. Manchac* or Dunkin Incised (Fig. 10l-n): these are sherds that have nonhorizontal incisions, often in diagonal fields, herringbones or with incisions in different directions. There are 17 such sherds, all surface finds. The paste is moderately coarse, clay or clay-grit tempered, with 1 bone tempered. Colors are buff to black, a majority being dark. Sherd thickness varies from 5 to 8mm, averaging 6mm.

(b) Harrison Bayou Incised (Fig. 10o): 4 sherds from the surface have widely spaced cross-incising near the rim. The paste and coloration are as described above.

(c) Evansville Punctated, *var. Wilkinson* (or Wilkinson Punctated) (Fig. 10t, u): 18 sherds are fingernail punctated in a random fashion over the body surface. Some show smoothing over the imprints while in others, the gouging has not been smoothed and roughens the surface. Three rims are direct, with rounded lips. The paste is clay-grit, with 2 bone tempered sherds (Fig. 10u). This is a thick ware, averaging 7mm. Surface colors are buff, brown and black. About 75% of the sherds have dark colors.

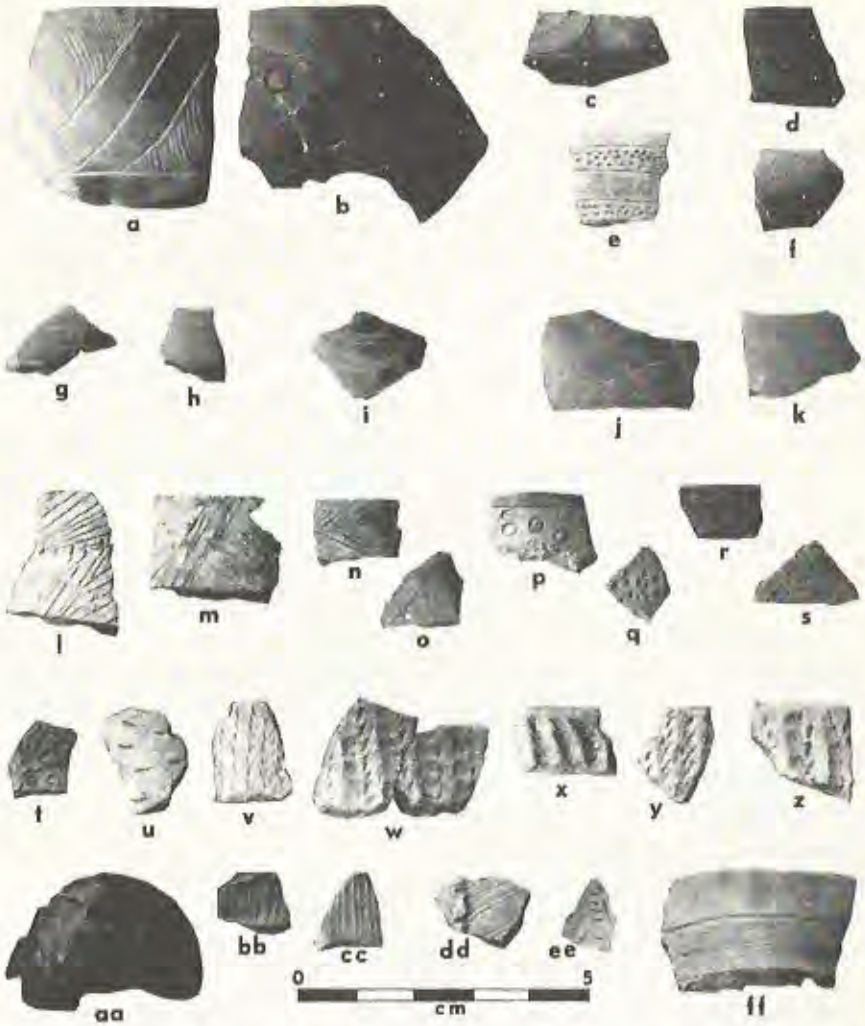


Fig. 10.—Alto, Coles Creek-Alto and later pottery types, Mounds Plantation site. a-d, Crockett Curvilinear Incised (a, b from same vessel); e, f, Pennington Punctated-Incised; g, h, Hickory Engraved; i-k, sherds with curvilinear engraved designs (i probably Haley Engraved); l-n, Mazique Incised, *var. Manchac* (or Dunkin Incised); o, Harrison Bayou Incised; p-s, Evansville Punctated, *var. Rhinehart;* t, u, Evansville Punctated, *var. Wilkinson;* v-z, Hollyknowe Ridge Pinched; aa, Maddox Engraved; bb, cc, Belcher Ridged; dd, ee, Pease Brushed-Incised; ff, untyped zone brushed.

(d) Evansville Punctated, *var Rhinehart* (Fig. 10 p-s): 35 sherds exhibit random punctations, made with a hollow circular, triangular or pointed tool, over the body surface or in a broad band around the upper vessel wall. The presence of triangular punctations on 25 of the sherds suggests that this type relates largely to the Coles Creek complex, because the companion Alto ware, subsumed by Newell and Krieger under Pennington Punctated or "random punctations", more often shows round, oval or pointed punctations. Deep and shallow bowls are indicated. The paste is granular, clay-grit tempered (1 bone), with predominantly dark colors. Sherd thickness averages 6-6.5mm.

(e) Hollyknowe Ridge Pinched, *var. Hollyknowe* (Fig. 10v-z): 15 sherds have vertical ridges formed by fingernail pinching. Formerly this treatment was included in the type Wilkinson Punctated, in both Coles Creek and Caddoan typologies, but the separation proposed by Phillips (1970) seems desirable in view of the wide occurrence of the type and the presence in later Caddoan ceramics of the type Killough Pinched (Suhm and Jelks 1962). The paste, wall thickness and coloration are similar to these attributes in type Wilkinson Punctated.

(f) Diagonal incised: a group of 34 sherds from the general surface shows diagonal incised lines in a single direction, with paste characteristics, thickness and colors similar to the above types. These sherds could derive from vessels of *Manchac* (Dunkin) variety or from Pease Brushed-Incised vessels (described below).

Table 1 indicates a distribution and frequency of these types that closely resembles those of the Alto types at the site. However, the varieties *Wilkinson, Rhinehart* and *Hollyknowe* are more widespread than *Manchac*, Harrison Bayou and the diagonal incised sherds. The varieties *Rhinehart* and *Hollyknowe* occur with Coles Creek types in the Borrow Pit cache. All are missing from the Mound 5 deep midden.

Observations about classification and the ceramic relationships between late Coles Creek and early Caddoan (Alto) complexes are necessary. The senior author had great difficulty in attempting to separate the Alto type, Davis Incised, from Coles Creek Incised sherds. Some years ago most of the sherds now classified as Coles Creek Incised, *var. Blakely* and *var. Greenhouse* were thought to be Davis Incised. Moreover, the present type Coles Creek, *var. Hardy* was termed Hardy Incised and assigned to the Alto Focus assemblage. The original descriptions of Coles Creek ceramic types by Ford (1951) and of Alto types by Krieger (Newell and Krieger 1949; Suhm, Krieger and Jelks

1954) emphasized the differences in paste and color, also the presence of Davis Incised decoration on bottles and carinated bowls. The Texas Handbook (Suhm and Jelks 1962) states that Davis Incised can be distinguished from the Coles Creek Incised varieties by greater thickness of vessel walls, coarser and softer paste, less polish, lack of thickened rims and incised lines atop the lip, and reddish or reddish brown color. Yet we have already noted that the Mounds Plantation sample does not include bottles and carinated bowls among the horizontally incised sherds. Similarly the wide lips and lip lines are rare, and the paste and color characteristics usually assigned to Davis Incised type are present in all of the incised varieties, including the distinctive *var. Coles Creek* (paste and color may depend greatly on properties of the local clays).

A review of the Coles Creek and early Caddoan ceramics from Crenshaw site (Dickinson 1936; Durham and Davis 1975) and a joint reevaluation, with Dee Ann Story, of Mounds Plantation and Davis site ceramics, leads the senior author to the following conclusions: (1) the Coles Creek ceramic complex, along the western margins of its distribution and before as well as during the Coles Creek-Alto transition, shows paste, color and vessel form (carinated bowl, recurved and flaring rims, pear-shaped bottles without spout) attributes that, heretofore, have been attributed to Caddoan ceramics; (2) the pottery type Davis Incised can readily be subsumed under Coles Creek Incised, *var. Blakely, var. Greenhouse* and *var. Hardy* (or, if purists demur, *var. Davis*); (3) those vessels, heretofore included in the Alto types Kiam Incised and Dunkin Incised, that have plain or incised bodies beneath horizontal rim incising readily fit into Coles Creek Incised, *var. Hardy* and Mazique Incised, *var. Manchac;* (4) Harrison Bayou Incised type is held in common by Coles Creek and Alto ceramics as a widespread minority type, and vessels or sherds of this type should be removed from the type Dunkin Incised, where they have been "buried"; (5) Evansville Punctated, *var. Wilkinson* and Wilkinson Punctated type, which carry on a very old tradition of fingernail decoration, are identical and constitute a significant type in late Coles Creek, early Caddoan, and Baytown ceramic complexes from East Texas across northern and central Louisiana into the Lower Mississippi Valley; (6) Hollyknowe Ridged Pinched and the ridged pinched variety of Wilkinson Punctated are also identical and have a distribution similar to Evansville Punctated, *var. Wilkinson.* Whole vessels of Hollyknowe type were

found with Burials D, J and K in Mound C at the Crenshaw site, where they occurred with Holly Fine Engraved, Spiro Engraved, Crockett Curvilinear Incised, Sanders Plain, and Smithport Plain vessels (Durham and Davis 1975); (7) late Coles Creek and Alto ceramics, therefore, have a number of types in common and are more closely related than most students of the area have been willing to acknowledge.

Bossier Focus Pottery Types

A limited number of types which are usually attributed to the Bossier Focus occur at Mounds Plantation. A total of 93 sherds (1.73% of all sherds, 7% of decorated sherds) are listed in Table 2; 49 of these belonged to 2 partial vessels of Maddox Engraved in the upper levels of Mound 3. Most of the others are surface finds.

(a) Maddox Engraved: 55 sherds included bottle and bowl forms. The paste is moderately fine, clay tempered, and shows reddish buff or black surface color. A group of 18 sherds was assembled into about half of a bottle body (Fig. 10aa). The base is a flat disc, the body subglobular, and the surface black and overfired. The decoration consists of concentric semicircles formed by engraved lines and bands of cross-hatching. A second group of 31 sherds derives from another bottle, similar to the first except that the bands are hatched in ladder fashion.

(b) Pease Brushed-Incised (Fig. 10dd,ee): 22 sherds from the general surface derive from jars or beakers with recurved rims. The paste is clay-grit tempered, except for 1 of bone. The surface colors have a full range of gray, buff, brown and black. Vertical fields of brushed or diagonally incised lines are separated by appliqué ridges, nail gouges or punctations in rows. Sherd thickness averages 5.9mm.

(c) Bossier Brushed or Plaquemine Brushed: 15 sherds from the surface have paste, color, and thickness attributes as in Pease type. The decoration is carelessly applied brushing which may be random or in varying fields. One sherd (Fig. 10ff) has a band of horizontal brushing between deep incisions.

(d) Sinner Linear Punctated: 1 small sherd from the surface features tool punctations closely placed in parallel rows.

The Bossier occupation of this site seems to have been sparse and limited to the terrace margin. The Bossier people placed one (possibly 2) burial(s) in Mound 3.

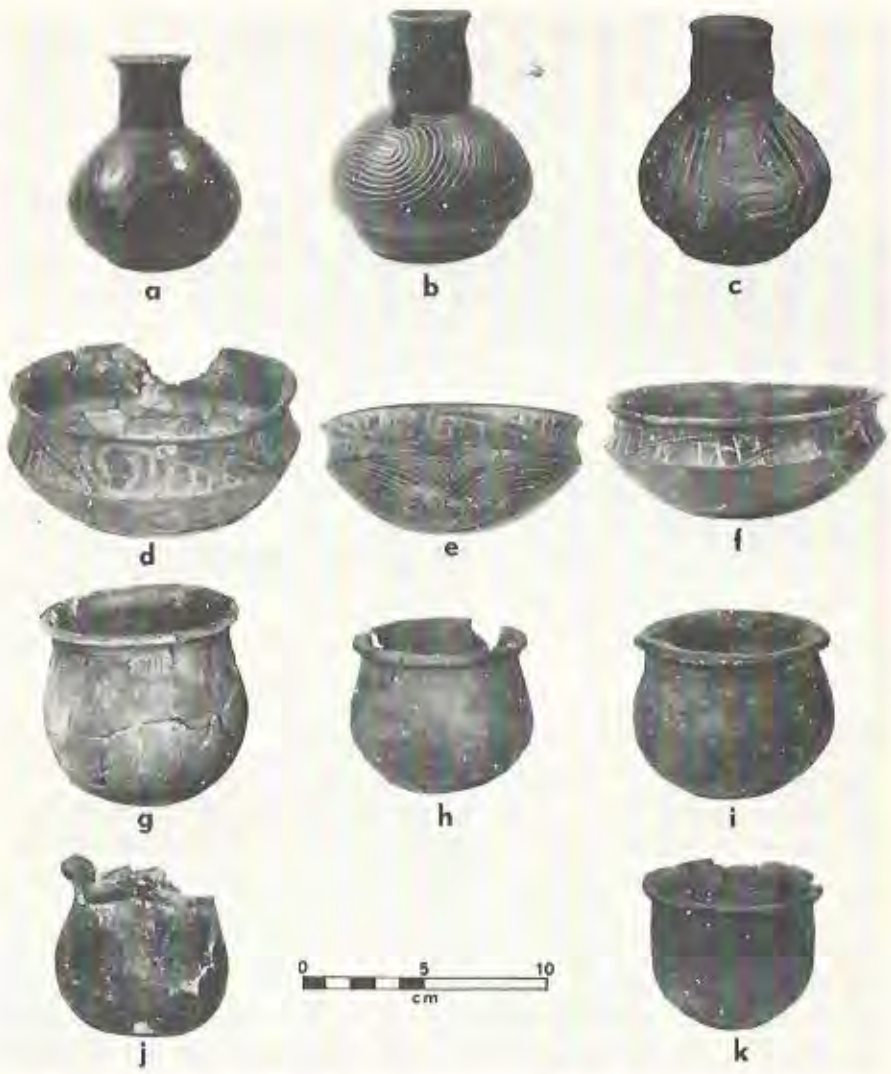


Fig. 11.—Belcher Focus pottery vessels from Mounds Plantation. a, Belcher Engraved type, Upper Burial 1, Mound 5; b, c, Keno Trailed type, Upper Burial 2, Mound 5 and Intrusive Burial, Mound 3, respectively; d-f, Hodges Engraved type, from Upper Burial 2, Mound 5 and Intrusive Burial, Mound 3; g-k, Belcher Ridged jars from Upper Burials 1 and 2, Mound 5, and Intrusive Burial, Mound 3. Scale approximate. Photographs by Gordon Maxey.

Belcher Focus Pottery Types

Sherds of Belcher types were found mostly along the terrace edge, especially around Mounds 3, 4 and 7. There are 125 sherds representing 5 types (Table 2). Additionally, 11 vessels were found in the upper (intrusive) burials in Mounds 3 and 5.

(a) Belcher Engraved: 10 sherds from the surface are from bottles and carinated bowls, corresponding to those found at the nearby Belcher Mound (Webb 1959). They are clay tempered or untempered with fine paste and brown or black surface colors. Some of the engraved lines have white or red pigment inserts. An intact bottle of the type was in Upper Burial 2, Mound 5. It is mottled light to dark brown (Fig. 11a), with polished surface. The total height is 10cm, with body height 6.5cm. The base is a flat disc, the spout cylindrical with slight rim flare. The subglobular body has engraved concentric circles around a central disc; the circles are alternately continous and interrupted. The design is repeated 4 times.

(b) Hodges Engraved: 10 sherds from the surface derive from carinated bowls. Two whole vessels are from the Mound 3 intrusive burial. Vessel I (Fig. 11f) is a carinated shallow bowl, made of fine clay tempered paste. The interior is smooth and the exterior polished; the color is mahogany brown. The height is 7.5cm, and the diameter at both rim and shoulder is 18.8cm. The convex plain base joins the concave rim at an acute carina. The external rim is engraved, with white pigment insert. The engraving forms a continuous interconnected scroll design; the diagonal scroll bands are bisected by "ticked" lines and are flanked above and below by negative discs.

Vessel 2 from Mound 3 (Fig. 11e) has shape, paste, color, and rim design characteristics similar to Vessel 1. It is 7cm in height, and 17.7cm in diameter. The scroll figures on the outer rim are repeated 5 times around the vessel. Moreover, the base is decorated with trailed line designs, with 2 large sets of 8 to 10 concentric circles; the outside fields are filled with parallel arcs.

Vessel 2 of Upper Burial 2, Mound 5, is a clay tempered bowl of Hodges Engraved type (Fig. 11d). The orifice diameter is 13.2cm, the shoulder diameter 13.5cm, and the height 7cm. The base is convex, the rim concave vertically, and the shoulder is sharply carinated. The rim has inclined interlocking scrolls with the engraved bands bisected by a "ticked" line. The triangular borders above and below the scroll bands have 5 vertical arcs each.

(c) Keno Trailed: Vessel 1 of Upper Burial 2, Mound 5, is an intact Keno Trailed bottle (Fig. 11b). It is clay tempered with polished black surfaces, a short pedestal base, small spool-shaped spout, and a subglobular body. The total height is 12.2cm, the body diameter 10.5cm, and the spout orifice 4cm. The decoration is trailed with a blunt tool; the design, twice repeated, is of interlocking scrolls outlined by continuous spirals and separated by slanting arcs.

Vessel 3 of the Mound 3 burial is a small Keno Trailed bottle (Fig. 11c) of mahogany brown ware. It is clay tempered and highly polished. The height is 12cm, of which 2cm is a pedestal base, 6.8cm the pear-shaped body, and 3.2cm the convex spout. Three trailed lines encircle the extended base and the shoulder. Between these, the body decoration is divided by vertical bands into 4 panels, each of which bears vertical interlocking scrolls formed by 3 smooth trailed lines. The fields bordering the scrolls have punctated bands with a trapezoidal negative field in the center of each punctated area. The decoration is not completely symmetrical but is pleasing in effect.

(d) Belcher Ridged (Figs. 10bb, cc; 11g-k): the sample consists of 83 sherds, all but 1 from the surface, and 5 vessels from the intrusive burials in Mounds 3 and 5. Most specimens are clay-grit tempered, but 2 are bone tempered and 9 are porous, with vacuoles in the paste suggesting burned out vegetal material. The vessel forms are small jars with semiglobular bodies, flat disc bases, and outward rolled rims. Some sherds reflect larger jars. The surfaces range from dark gray through brown to almost black. The outer surfaces are covered with closely spaced vertical ridges, apparently formed with the fingers by stroking the soft paste from the vessel base upward. Whole vessel heights range from 5.5 to 9.6cm; body diameters from 7.5 to 10cm; and orifice diameters, 7.7 to 9.5cm. Two of the vessels have narrow bands of vertical or diagonal incising below the flaring rims.

(e) Karnack Brushed-Incised: 16 sherds of this type are in the surface collections. Only 1 is a rim sherd. The paste, colors, and general appearance are similar to those of Bossier Brushed, but the sherds are thinner, averaging 4.5mm. The decoration of the body exterior consists of vertical brushing (14) or shallow incising (2).

(f) Glassell Engraved: 6 sherds from the surface represent shallow bowls of Glassell Engraved. The paste and color resemble those of Belcher and Hodges Engraved but the vessels seem to be larger and the

rims more direct. The outer rim surface bears engraved designs of rectilinear figures as described from the Belcher site (Webb 1959).

Other Decorated Sherds and Bottle Spouts

A total of 79 decorated sherds were unclassified or conformed to exotic types (Table 2). Additionally there were 10 fragments of bottle spouts. Two sherds of Haley Engraved type and 1 of Hempstead Engraved conform to the descriptions in Suhm and Jelks (1962); they are interpreted as trade objects. There were 50 engraved, 16 incised, and 10 punctated sherds which were untyped; most of them were very small.

Plain Sherds

The collections included 4000 plain sherds from all parts of the site, representing 74.5% of all sherds. The collections from the general surface were weighted in favor of decorated sherds by collection bias, but other sherd batches included all sherds. Among the latter, 17% of sherds were decorated and 83% plain. The plain sherds are tabulated (Table 2) in 6 groups, separated by thickness and coloration. Those that are less than 6mm in thickness are classified as "thin"; they number 1519 with over 66% having dark surfaces. Those between 6 and 8mm are "medium"; they total 1623 and 63.7% have light colors. Sherds between 8 and 15mm are "thick"; they number 858, of which 83.2% have light colors. There are 315 plain rims (7.8% of all plain sherds). The plain sherds tend to be thicker than the decorated sherds and the percentage of bone tempering is much higher (11% in contrast to 3% among the decorated). We infer, therefore, that the plain sherds represent (1) some undecorated portions of decorated vessels, (2) a certain number of vessel forms that are similar to the decorated but were left plain, and (3) 1 or more plain wares that tend to be thicker than the decorated wares and more often have coarse granular paste or bone tempering.

These inferences are strengthened by the cache of sherds from Borrow Pit 1, presumably from the earlier, possibly premound era. Among 380 plain sherds in this cache are numerous large ones from thick vessels with coarse, granular paste. Some are clay or clay-grit tempered, but 103 (27%) are bone tempered and 24 are rim sherds from outward flaring "flowerpot" vase forms. This ceramic group seems to fit the type Williams Plain, described originally in Oklahoma, where

it occurs from the latter part of Fourche Maline culture (Bell and Baerreis 1951) into the early Gibson period at the Harlan and Spiro sites (Bell 1972). Williams Plain also occurs in southwestern Arkansas and in East Texas. At the Resch site (Webb, Murphey, Ellis, and Green 1969) in the Sabine River drainage about 40 miles from Mounds Plantation, Williams Plain "flowerpot" vessel sherds were similar to those from the Borrow Pit cache and were tempered with clay, grit, bone, hematite and vegetal material.

A small plain clay tempered vessel was reconstructed from sherds found with the terrace burial. It is gray to brown in surface color and is smooth but not polished. From a 4cm disc base, the thin walls (4mm) expand in vase form to an orifice of 11.5cm; the height is 10cm. We suspect that it belongs in the Coles Creek or Alto period.

Clay Pipes

All pipes or pipe fragments are of the long-stemmed kind, termed Red River pipe, *var. Miller's Crossing* (Hoffman 1967). One complete specimen, badly broken but restored (Fig. 13bb) was with an adult male in Group 4, Burial Pit 5. The total length is 203mm, with stem diameter of 7.7mm and stem hole diameter 4mm; the bowl is 25mm in height and 22.5mm in orifice diameter with bowl walls only 1mm thick. The stem projected 29mm beyond the bowl and was blunted. The entire pipe was red filmed but undecorated. A second bowl and 6 stem fragments were surface finds. The thin bowl is 21mm in height and 22mm in orifice diameter. The stem fragments are 13 to 41mm in length, 7 to 8.2mm in diameter, with 3.5 to 4mm perforations. All have fine paste, are well fired, and show surface smoothing.

Hoffman (1967) has noted that this variety of ceramic pipe, when found in primary contexts, is associated with Alto Focus pottery types such as Hickory, Holly and Carmel Engraved, Pennington Punctated-Incised, and Crockett Curvilinear Incised, and with Alba and Hayes projectile points. *Miller's Crossing* pipes are reported from Crenshaw, Gahagan, Bowman, Old Martin Place, and Miller's Crossing sites on Red River; elsewhere, they have been found at Mineral Springs in Arkansas, Davis site in East Texas, and Spiro, Norman and Eufala on the Arkansas River in Oklahoma.

Perforated Sherd

One plain black sherd from Burial Pit 1 had a portion of a drilled perforation, through which it was broken. Presumably it is a fragment of spindle weight.

Baked Clay Objects and Hearth Fragments

Sixteen masses of baked clay were near the bottom of the Borrow Pit cache. They were of sandy clay and were fired to an orange color. One surface is smooth, the others rough. All were 4 to 5cm in thickness and up to 7.5cm in diameter. They are assumed to be hearth fragments; smaller similar fragments were occasional finds.

In Mound 3, there were 8 objects of firm fired sand, 2-3cm in greatest dimension, and 3 objects of amorphous baked clay, 1 about 7cm in dimension, the others smaller. None had the appearance of intentionally shaped baked clay objects.

Chipped Stone Objects and By-Products

Evidences of the chipped stone process are few, but sufficient to indicate that some lithic artifacts were made at the site. It is generally true that stone chipping was not the prominent activity at Coles Creek and Caddoan sites that it was in Archaic times in this area. On the other hand, the small numbers are partly due to the relative lack of interest in flakes, debris, and debitage in the 1930's and 1940's, when our surface collections were made. The Mound 3 trench, the Borrow Pit cache, and Burial Pit 1 of Mound 5 added some indications of stone chipping.

(a) Pebbles and pebble cores: there are 27 unaltered pebbles and 7 pebble cores between 4cm and 7.5cm in diameter. All are of local materials, 28 of tan chert and 1 each of brown chert, petrified wood, and hard sandstone. The cores have flake scars from a natural flat surface or a small prepared platform (Fig. 12 1).

(b) Pebble debitage and debris: 24 fragments of pebble debris and 12 of debitage were of similar materials. Two pieces of debris from Burial Pit 1 were broken segments of the light gray chert from which Gahagan knives were made.

(c) Flakes: 68 flakes were collected, of which 62 were unused or slightly used, 5 were prepared flake side scapers (1 edge, Fig. 12q), and 1 of quartz crystal was doubly notched as though for suspension or attachment. Recorded materials are: tan chert 23, brown chert 7, gray chert 4, red chert 2, black chert 2, novaculite 2, quartz crystal 2. All

were small, less than 3cm in diameter. Three chert flakes show moderate edge use.

(d) Flaked bifaces: 23 flaked bifaces came from surface collections, 1 from Mound 3, and 1 from Burial Pit 1, Mound 5. The latter specimen (Fig. 12k) is large, 11.2cm long, 4.2-4.6cm in width, and 8-9mm thick. It is of light gray chert, is nearly rectangular with rounded ends, and shows excellent primary flaking with good retouch around the edges. Other bifaces are small (Fig. 12m-p), between 2.2 and 4cm in greatest dimension, and show only primary flaking. They are of local materials, 20 of tan chert, 1 each of gray, red, brown and black cherts. Eleven are ovate or oval, 4 triangular, 2 rectangular, 2 irregularly elongate and 5 are broken. Some could be projectile point preforms or rejects.

Projectile Points

There are 198 objects typed as projectile points, with 1 dart and 55 arrow points from the surface and around Mound 3 and 142 arrow points from burial pits. Most points (77%) are of local pebble materials: 118 tan chert (4 with yellow speckles), 20 gray, 4 each of red and black, 2 brown, and 3 mixed tan and red (heat treatment?). Of the exotic materials, 9 are novaculite and 4 quartzite, presumably from the Ouachita-Kiamichi mountains. Two special groups of 26 and 5 points from Burial Pit 1 are of gray-brown grainy flint and smooth gray-green flint, respectively. These may also derive from the Ouachita-Kiamichi. The types are:

(a) Gary (Fig. 12a): a single broken specimen was of brown novaculite, a surface find near Mound 3.

(b) Alba (Fig. 12d-f): 64 Alba points were found on the surface and in Burial Pits 1, 2 and 5 of Mound 5. All were made of local cherts, chiefly tan, except the 2 special groups in Pit 1. Five beautifully flaked Alba points (Fig. 12d) with Skeleton 1 are of gray-green flint; they are long and keen with recurved edges, long barbs, and rectangular stems; 2 have squared bases and 3 have rounded, a variation noted at many sites. This group varies from 36 to 47mm in length, from 18 to 22mm in shoulder width, and the thickness is uniformly 2.7-3mm. With Skeleton 3 were 26 Alba points (Fig. 12e) of gray-brown grainy flint, presumably of identical origin. They are less typical of the type, are cruder than the previous group, and exhibit considerable variation in blade width and recurve. They are often serrated, and bear stems that vary from rec-

Fig. 12.—Chipped stone objects from Mounds Plantation. a, Gary point; b, Homan points from Burial Pit 6, Mound 5; c, 1 Homan, 6 Colbert points, Burial 12, Mound 5; d, Alba points, Skeleton 1,Burial Pit 1; e, Alba points, Skeleton 3, Burial Pit 1; f, Alba point, Burial Pit 5; g, Catahoula points, Skeleton 4, Burial Pit 1; h, Friley points, Skeleton 4, Burial Pit 1 and surface; i, Hayes points, Burial Pit 5; j, Scallorn points, Burial Pit 5; k, biface, Burial Pit 1; l, pebble core, Burial Pit 1; m-p, small bifaces, surface; q, flake side scraper, surface; r-cc Gahagan knives, r-t, v, x-aa from Burial Pit 2, u, w from Burial Pit 5, bb fromBurial Pit 8, cc from Skeleton 1, Burial Pit 1.

tangular to rounded (several are almost pointed). Yet their appearance, identical material, and general craftmanship suggest that they were made by the same person. They range from 24 to 40mm in length, from 13.5 to 29mm in width, and from 3.4 to 4.7mm in thickness. Other Alba points (Fig. 12f), made of local materials, tend to be smaller but are usually well made. They are 20-30mm long, 12-23mm wide and 3.2-4.8mm thick.

(c) Scallorn (Fig. 12j): 37 points seem to conform to the type description of Texas specimens; the type also incorporates the "Christmas tree" point described in association with Coles Creek and early Plaquemine cultures in central Louisiana (Ford 1951). At Mounds Plantation, as at Gahagan, Scallorn points are found in Alto burials with Alba, Hayes and Catahoula types (Table 3). Most Scallorn points are of local materials, 1 is novaculite, 1 quartzite. Basically they are corner notched, thin points with triangular or fan-shaped stems, straight bases, recurved edges, and keen tips; the flaking varies but is generally good.

TABLE 3.—PROVENIENCE OF PROJECTILE POINT TYPES AT MOUNDS PLANTATION.

Type	General Surface	Mound 3	Burial Pit 1	Pit 2	Pit 3	Pit 5	Pit 6	Pit 7	Pit 8	Pit 12	Totals
Gary		1									1
Alba	10	5	34	1		12		2			64
Scallorn	7	9				19		1	1		37
Hayes	6	1	3	4		9					23
Catahoula			2						4		6
Friley	2	2	1			1					6
Homan		1					25			1	27
Colbert										9	9
Cliffton	2										2
Bassett	2										2
Broken or untyped	8				1	12					21
Totals	37	19	40	5	1	53	25	3	5	10	198

Fig. 12.—Chipped stone objects from Mounds Plantation. a, Gary point; b, Homan points from Burial Pit 6, Mound 5; c, 1 Homan, 6 Colbert points, Burial 12, Mound 5; d, Alba points, Skeleton 1,Burial Pit 1; e, Alba points, Skeleton 3, Burial Pit 1; f, Alba point, Burial Pit 5; g, Catahoula points, Skeleton 4, Burial Pit 1; h, Friley points, Skeleton 4, Burial Pit 1 and surface; i, Hayes points, Burial Pit 5; j, Scallorn points, Burial Pit 5; k, biface, Burial Pit 1; l, pebble core, Burial Pit 1; m-p, small bifaces, surface; q, flake side scraper, surface; r-cc Gahagan knives, r-t, v, x-aa from Burial Pit 2, u, w from Burial Pit 5, bb fromBurial Pit 8, cc from Skeleton 1, Burial Pit 1.

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Scallorn	7	9				19		1	1		37
Hayes	6	1	3	4		9					23
Catahoula			2						4		6
Friley	2	2	1			1					6
Homan		1					25			1	27
Colbert										9	9
Cliffton	2										2
Bassett	2										2
Broken or untyped	8				1	12					21
Totals	37	19	40	5	1	53	25	3	5	10	198

(d) Hayes (Fig. 12i): 23 points of Hayes type derive from the surface and from Burial Pits 1, 2 and 5, where they were associated with Alba, Scallorn, Catahoula and Friley types. The smaller number of Hayes, compared with Alba and Scallorn types at this site seems to be consistent with findings elsewhere in Alto Focus; but later, especially during the Haley period, Hayes becomes dominant. Most Hayes points are of tan chert, but 1 specimen of novaculite (Fig. 12i) is keen and well made. Hayes points are generally slender, with a diamond-shaped stem, recurved edges, keen tips, and distinct barbs. Lengths are 22-44mm, widths 11-19mm, thicknesses 3-4mm.

(e) Catahoula (Fig. 12g): 6 points from Burial Pits 1 and 8 are associated with Alto pottery and Alba, Hayes, Scallorn and Friley points. Catahoula points are of local tan and gray cherts. They tend to be large with wide blades, squared shoulder tips instead of barbs, and moderately expanding stems. The lengths are 27-36mm, widths 21-25.5mm, thicknesses 4-5mm.

(f) Friley (fig. 12h): 6 points, 4 from the surface and 1 each from Burial Pits 1 and 5, are associated with Alto pottery and the above point types. They are made of tan and red cherts, except for 1 of novaculite. The distinguishing characteristic of this type is the reversed barb, curved toward the distal tip or directly outward. The stems are expanded or, occasionally, squared. They often are small; at this site, the lengths are 13-29mm, widths 9-25mm, thickness 4-5mm.

(g) Homan (Fig. 12b): 27 points are of this type, 1 from near Mound 3, 1 from Burial 12, and 25 from Burial 6. In Burial 12, their association was with the Colbert type. At the Crenshaw site, the Homan type was associated in burials with Coles Creek pottery and sometimes with Agee points. Homan points have wide blades with recurved edges and keen tips, squared shoulders, and bulbous stems. Most are made of local cherts, but 2 were of novaculite. The lengths are 23-45mm, widths 17-23.5mm, thicknesses 3.3-4.8mm.

(h) Colbert (Fig. 12c): 9 points from Burial 12 are similar to Homan, but tend to be smaller and have triangular expanding stems instead of bulbous; they differ from the Scallorn type in having wide corner notches that leave squared shoulders rather than downward pointing barbs. Technologically, however, these types are similar. All Colbert points are of local cherts, 7 tan and 2 black. Lengths are 16-31mm, widths 12-19mm, thicknesses 3.5-4.5mm.

(i) Cliffton: 2 specimens from the surface show a triangular blade and short pointed stem. They are of tan chert and are rather crude. This may be a trade type from East Texas.

(j) Bassett: 2 specimens from the surface, of tan chert, are triangular with small pointed stem. This is the resident type of Belcher Focus and, like the Cliffton points, presumably derive from the late occupation at Mounds Plantation.

Gahagan Knives

There were 12 Gahagan knives (or bifaces) of chipped flint or chert (Fig. 12r-cc) placed with individuals in Burial Pits 1, 2, 5 and 8 of Mound 5. The largest was across the chest of Skeleton 1, Pit 1. It is of lustrous, gray, waxy-looking chert or flint with mottled black patches. Large flake scars, 1 to 3cm wide, cover the faces. Moderately good edge retouch leaves the edges rough but not serrated (Fig. 12cc). The length is 30.5cm, the maximal width 6.4cm, the thickness only 8-10.5mm.

The single individual in Pit 2 had 8 smaller Gahagan knives in a bundle. One is medium in size and moderately well flaked (Fig. 12v), the others smaller, thin and beautifully worked (Fig. 12r-t,x-aa). They are slender with modest to considerable edge recurve, straight (4) or concave (4) bases, keen tips, and quite sharp edges; there are a few flat scars down the middle of the faces but most of the flaking is long, narrow and transverse and extends to or past the midline. It appears that they had been finished or resharpened shortly before placement in the burial. Five are of the gray waxy or honey-colored chert or flint. Two are slightly darker and translucent; the others showing translucency only around the thin edges. The eighth is dark brown to black. The fine edge retouch leaves the edges with almost no serration or irregularity, altogether the finest flint knapping that we have seen from a Caddoan site. The lengths of these objects range from 7.5 to 14.8cm, the widths from 1.9 to 3.3cm, the thicknesses from 5 to 6mm, except the largest, 7mm.

In Pit 5, the paramount male in Group 1 and the male in Group 2 each had a Gahagan knife alongside the left forearm with the tip directed toward the hand (Fig. 6h). McKinney thinks that the knife was carried in a sheath attached to the left arm. The knife (Fig. 12w) with the paramount male was of the same waxy-looking gray flint, with a brown band along one edge. It also showed fine workmanship with tiny edge retouch; the tip and edges are quite sharp. It is 15cm long, 3cm in

basal width, and 7.5cm thick. The knife with the male of Group 1 is of a duller gray color, similarly made but with comparatively inferior workmanship; the edges are duller, wavy and irregular. It is 12.2cm long, 3cm wide, and 6.3mm thick.

The final knife (Fig. 12bb) was in Burial Pit 8, also beside the left arm of a presumed male; other placements were pottery vessels of types Holly and Hickory Engraved. The knife is of darker gray and duller chert with a very dark band near the base. It is rectanguloid with squared base and the tip is blunted. The workmanship is similar to that of the largest Gahagan knife with large ovate flake scars meeting at the central ridge and with fine edge retouch, but the finish is superior to the larger specimen. It is 22.5cm long, 4.4cm wide, and 10.5mm thick.

For a long time it was thought that the honey colored or gray waxy material from which so many Gahagan knives are made was from the Edwards Plateau area of Central Texas. However, Larry Banks (Banks and Winters 1975) has found similar materials in Kiamichi Mountains outcrops in southeastern Oklahoma, available along the south and southeastward flowing streams that empty into Red and Little Rivers. Gahagan bifaces (knives) at the Bentsen-Clark site on Red River were made of 2 varieties of Woodford chert; also identified were Battiest, Big Fork and Ogallala cherts. Banks and Winters also point out that many of the exotic lithics that appear in the early Caddoan ceremonial burials are available on these streams, especially Glover Creek; such materials include limestone (effigy pipes, earspools), gray-black or green siliceous shale (earspools, celts), greenstone (celts), siltstone-claystone (pebble tools, points), diorite and tuff (celts), novaculite (points), quartzitic sandstone (celts) and the varieties of cherts mentioned above.

These authors quote Dee Ann Story and Harry Shafer to the effect that wear patterns on Gahagan knives at Davis site and Bentsen-Clark were confined to the high points (flake scar ridges) along the full length of the bodies and probably resulted from sheathing. A check of wear patterns on the Gahagan knives from Mounds Plantation shows the described kind of full-length, high-point polish on the knives found beside the arms of the males in Group 2, Pit 5, and in Burial Pit 8, and also on the largest knife from the cluster in Burial Pit 2. This is consistent with McKinney's theory of a left arm sheath. The barest suggestion of lower edge smoothing, such as might result from attachment to a handle, was found on 4 knives. Use scars or polish along

the edges was not observed. With 2 exceptions, these knives seem to be new or minimally used offerings.

Ground or Polished Stone Objects

The number and variety of polished stone objects are limited. A modest number came from the surface, more from the several burials.

(a) Abraders or whetstones: 13 fragments of white Catahoula sandstone were found on the surface, from Mound 3, and from Burial Pit 1. Most are flat, rectangular or elongate, and small (9cm). One or both faces show grinding use. Three fragments of brown sandstone from the surface show similar use. Two slabs of "ironstone" were in Pit 1; 1 surface of the larger slab was very smooth (Fig. 13g).

(b) Pitted stones: 1 hand-size pitted stone was a surface find. These are occasional finds at Red River Caddoan sites and were reported in Coles Creek context at Greenhouse (Ford 1951).

(c) Hammerstones: 1 small hammerstone was found on the surface and 5 were in Burial Pit 1. Two are large (15cm) rectangular quartzite cobbles and 3 are small, 4.5-5.8cm in length. One or both ends show rough pecking or hammering fractures.

(d) Polishing stones (Fig. 13o-u): these are frequent objects, with 40 in the collections from the general surface, Mound 3, and Burial Pits 1 and 6 of Mound 5. They are ovate, rectangular or trianguloid pebbles with moderate to glossy surface polish. Most are of tan chert, with an occasional banded quartzite pebble. The sizes vary from 2.6 to 9.6cm in greatest dimension. The entire group of 10 from Burial Pit 6 shows high polish, but not to the degree exhibited by 4 objects from Burial Pit 1 (Fig. 13t,u). One black stone from this burial (Fig. 13n) has additionally been ground to an ovoid shape with flat faces; possibly a pendant was planned. Four rectangular polished stones (Fig. 13o-r) also have been intentionally shaped; they vary from 4 to 9.7cm in length, 1.1-2.2cm in width, and 6.5-17mm in thickness.

(e) Chisels and celts: 2 ground and polished objects from the surface might be classified as chisels. They are rectangular, with slightly convex bits, and are made of tan and brown cherts. Measurements are 8.4x2.9x1.7cm and 8.4x3.4x2cm. A broken small brown celt was also from the surface.

There are 3 small celts from Burial Pit 1 (Fig. 13 e, f, j). All have good, moderately convex bits that show tiny use breaks. They are trianguloid with convex edges and small flat butts. One of granite is

Fig. 13.—Ground stone artifacts and unusual objects, Mounds Plantation. a, b, stone beads; c, plummet; d, pendant from broken slate gorget, all with paramount male, Burial Pit 5; e, f, i, j, celts, Burial Pit 1; h, celt of greenstone, Burial Pit 2; g, ironstone abrader, Burial Pit 1; k, kaolin, Burial Pit 1; l, pigment mass, Burial Pit 5; m, galena, Burial Pit 1; n, r, shaped and polished stones, Burial Pit 1; s, u, polished stones, Burial Pit 6; t, polished stone, Burial Pit 1; v-x, puma canines, Burial Pit 5; y, bear canine, Burial Pit 2; z, aa, bone pins or awls, Burial Pit 6; bb, long-stemmed pipe, Burial Pit 5.

7.9cm long, 4.5cm wide and 2.2cm thick; a second of compact brown stone is 6.8x4.4x1.4cm; the third, of hard brown quartzite, is 6.6x3.7x1.65cm in measurements. A larger triangular celt (Fig. 13i) from the same burial pit is of light porous green material (tuff?); it has a sharp bit that shows minimal use. The measurements are 11x5.2x2.4cm.

The final celt, from Burial Pit 2 of Mound 5, is a larger and heavier petaloid celt of hard greenstone (Fig. 13h). The bit is well ground, with polished slope; the poll end is pecked and partially smoothed. The length is 18.8cm, the width 6cm, and the thickness 3.6cm; the weight is 624 grams, compared with 60 to 70 grams for the smaller celts.

(f) Pebble rattles: 3 groups of small pebbles were at ankle positions with burials in Pit 1 and 2 were with a male in Pit 6. Traces of a turtle carapace with 1 group were consistent with their use as rattles. They were water worn pebbles of chert, novaculite, and quartzite, 6 to 12mm in size. Fifteen and 17 pebbles were counted in 2 of the groups.

(g) Polished stone beads (Fig. 13a,b): 2 large tubular stone beads were in the group of objects by the right arm of the paramount male in Burial Pit 5 (Fig. 6g). They are of red and mottled red-orange-yellow stone, well rounded in the center but slightly tapering to flat surface traces at the ends. They are highly polished. The lengths are 10 and 9.4cm, and the diameters 1.25 and 1.4cm. Longitudinal perforations were drilled from 1 end, the perforation tapering from 3.2 to 2mm on the longer bead, 4 to 2.5mm on the other.The 10cm bead has the terminus of the perforation in the exact center, a remarkable feat of stone drilling.

(h) Hematite plummet (Fig. 13c): also with the paramount male was a polished hematite plummet of the long teardrop shape seen regularly at Poverty Point site. The upper end is squared, and the lower tip bluntly rounded. A counter-drilled perforation is 9.5mm below the upper end with perforation diameters of 5mm tapering to 3mm. The plummet is 8.3cm long and 3cm in greatest diameter.

(i) Slate pendant (Fig. 13d): a flat pendant of slate, which has a polished black surface but gray core, apparently was made from an end fragment of a 2-hole gorget which broke through one of the perforations. The broken edge is smoothed and suspension holes are at the 2 upper corners. The faces and edges are very smooth but are marred by numerous superficial scatches.

It is intriguing to speculate on the reasons for placement of these 4 objects—long polished stone beads, hematite plummet, and slate pendant made from a gorget fragment—in an 11th century A.D. Caddoan burial pit, when their regular cultural context was Poverty Point or Late Archaic periods, 2000 years earlier. We interpret them as talismans or revered magic charms, probably found at the great, but then deserted, Poverty Point site and kept in the temple or a medicine bag of the tribe's ruling class. It is to be noted that objects of earlier cultures, including plummets, stone beads, bannerstones, boatstones, gorgets, and fluted or lanceolate points, have been found in Caddoan burials elsewhere, especially in early ceremonial burials at Davis, Crenshaw and Spiro sites.

Various Stone and Mineral Objects

A smooth cube of galena (Fig. 13m) was in Burial Pit 1. Lumps of hematite and 3 fragments of steatite (not vessel fragments) were in or around Mound 3. Two lumps of blue pigment, the largest 9x7.3x3cm in dimensions, were surface finds. In Burial Pit 1, polished stones were impressed into the surface of a lump of white indurated material which may be kaolin (Fig. 13k). In Burial Pit 5, 1 of the beads and the plummet were fitted into concave depressions in a similar sandy lump which seems to be a pink sandy pigment (Fig. 13 1). It is inferred that the lumps were plastic when the placements were made. No quartz crystals were in the burials, but flakes of this material from the surface demonstrate its presence.

Objects of Animal Origin

Numerous animal bones, many of them cracked or fragmentary, were in and around Mound 3, occasionally in the fill of Mound 5, and in Burial Pits 1, 3, 5 and 9. The skeleton of a bird, appearing to be a crane or egret, was in Pit 6. The most frequent and readily identifiable bones were of deer, but smaller animals, birds, fish and turtles were represented. In the large Burial Pits 1 and 5, the trait of placing animal food caches in the corners was noted.

(a) Bone pins or awls (Fig. 13z,aa): 2 bone pins or awls, made from deer bones, were in Pit 6. They are 15 and 20.7cm long.

(b) Deer mandible: 1 specimen, with broken ramus and showing considerable use polish, was found in the intrusive Belcher Focus burial of Mound 3. Its use as a sickle or corn sheller is possible.

(c) Turtle carapace: fragments were found with pebbles at ankle position. Presumably these were box turtle carapaces filled with stones to form rattles.

(d) Carnivore canine teeth (Fig. 13v-y): 4 unperforated specimens were found, 3 with the paramount male in Burial Pit 5 and 1 with Gahagan knives in Pit 2. The latter has a natural bone-enamel color but the other 3 are stained dark brown to black. All were thought initially to be bear canines, but Gregory Perino identified the 3 from Burial 5 as puma canines. The root of these three has a thick cross section, whereas that of the white canine is much flatter. The lengths are 4.6 to 5cm.

(e) Leather: fragments of leather were attached to ear ornaments in Burial Pits 1 and 2. In Burial Pit 5, there were traces of leather around the midsection of the long bow, as well as beneath or between sheets of matting. No whole objects of leather were found.

(f) Shell: tiny fragments of shell were found occasionally during the excavations, but no artifacts or whole shells were found. This absence is in marked contrast with the frequency of shells (mussel, conch, marginella) and shell ornaments or tools at Gahagan, Davis, Crenshaw, Spiro, Haley, and the later, but nearby, Belcher site.

In Burial Pit 5, we found what seemed to be a bag made of the outer covering (periostracum) of a large mussel shell.

Ear Ornaments and Copper

A badly decayed copper plated ear ornament was by the right ear of Skeleton 3, Burial Pit 1; the ornament was about 5cm in diameter. To the left of the skull was a larger circular ornament (Fig. 14a,a′) that was better preserved. It is 10.5cm in diameter and 4.2cm thick. The lenticular core is of leather-covered wood; from each face there projects a central copper boss, 3cm in diameter, and a circle of 8 smaller (9.5mm) copper bosses. Beneath the object was a badly decayed wooden container.

Circular ear ornaments were with the adult in Burial Pit 2. They were 6-7cm in diameter, with 9mm central perforations, and were made of wood plated with sheet copper (Fig. 14b,c). Each had 3 finger-like projections from the lower margin. Badly decayed traces of wood and copper were to each side of the paramount male in Burial Pit 5. Additionally, there were traces or stains of copper by 3 skulls in Pit 1,

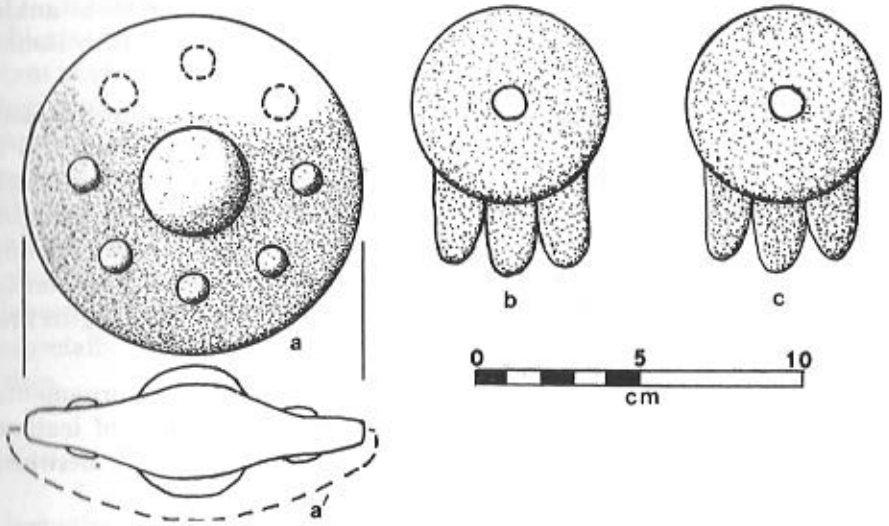

Fig. 14.—Copper plated objects from Mounds Plantation. a, presumed ornament of leather covered wood, with copper bosses, Burial Pit 1; b, c, copper plated wood ear ornaments, Burial Pit 2. The illustration of a is from a sketch by Robert Plants.

traces of a copper sheet, 8-10cm across, near a skull in Pit 3, traces to the left of a male's skull in Pit 6, and over the wrist of a female in Pit 6.

Wood and Vegetal Objects

The frame of cedar logs in Pit 5 has been described, as have vestiges of wooden frames above Groups 2 and 3 in this pit. Numerous small pieces of flat wood were found in the pit, in addition to the following objects:

(a) Wooden bows (Fig. 15 g,h): the long bow with the paramount male in Burial Pit 5 was 48.5 inches (123.2cm) in residual length, with a probable original length of 65-66 inches (165-166.6cm). The mid-section and lower half were well preserved, including the recurve at the tip, but the upper half was distorted or decayed. There were traces of leather around the middle, with an indicated midbow diameter of only 1.7cm. We assume that there was a leather handgrip. The wood was identified as bois d'arc or Osage orange (*Toxylon pomiferum*), the

famous Caddo bow wood. A replica of this bow was made by McKinney; an experienced archer estimated its pull at up to 70 pounds.

A smaller object (Fig. 15h), also of bois d'arc wood, was found with a male in Group 4. It is 31 inches (78.7cm) long, 1.5cm in midarc thickness, and tapered to each end of the bow shape. A third curved object, found with Group 3, was only 16 inches (40.6cm) in length and appears to be half of a short bow. If so, the midsection was 1.6cm in diameter. A fourth bow shape was represented by decay stains on the sand ledge at the north end of the pit. It had a similar shape and length (36 inches, 91.5cm). The purpose of such short bows is not known - possible training bows for the boys or for use as bow drills.

(b) Baton (Fig. 15i): a well preserved baton-shaped object of wood was with Group 3. Its length is 54.6cm, with handle diameter varying from 2 to 3cm as a result of some erosion. The baton head is 11cm long, 4.6cm wide, and 3.4cm thick. Other suggested interpretations are a phallic symbol or a snake symbol.

(c) Comb (Fig. 15d): also with Group 3 was a rectangular flat object, probably of cedar, with 3 finger-like prongs on 1 end. It is interpreted as a comb. It is 6.7cm long, 4.2cm wide, and 1.1cm in greatest thickness. One face is flat and the other irregularly convex. A notch in the base appears to be an accidental break or decay.

(d) Handle or knife simulations (Fig. 15a,e,f): 3 flat oblong wooden objects from Group 3 have outlines suggestive of handles or knives. There are no evidences of notches or other modification for the attachment of stone blades, hence we suspect that they are simulations for burial purposes. The faces and edges are smoothed, except where eroded. The upper surface of 2 objects is convex, the third flat; all have imprints of matting on this surface. The lower surfaces are flat and show dark stains or fragments of leather. One end of each is rounded while the opposite is narrowed to a point. The 2 shorter objects, probably of cedar, are 12 and 14.4cm in length, 3.3 and 3.4cm in width, and 12, 9.5mm in thickness. The third is longer, 21.7cm, with a maximal width of 3cm and thickness of 9mm. This object closely resembles a knife outline with handle and curved blade. It surface is brown and has a shellac-like shine.

(e) Claw simulations or perforators (Fig. 15b,c): 2 objects of wood from Group 3 are elongate with a pointed end that curved ventrally. The larger object has an outline similar to the handle simulations and bears an imprint of basketry on the top and leather stain on the

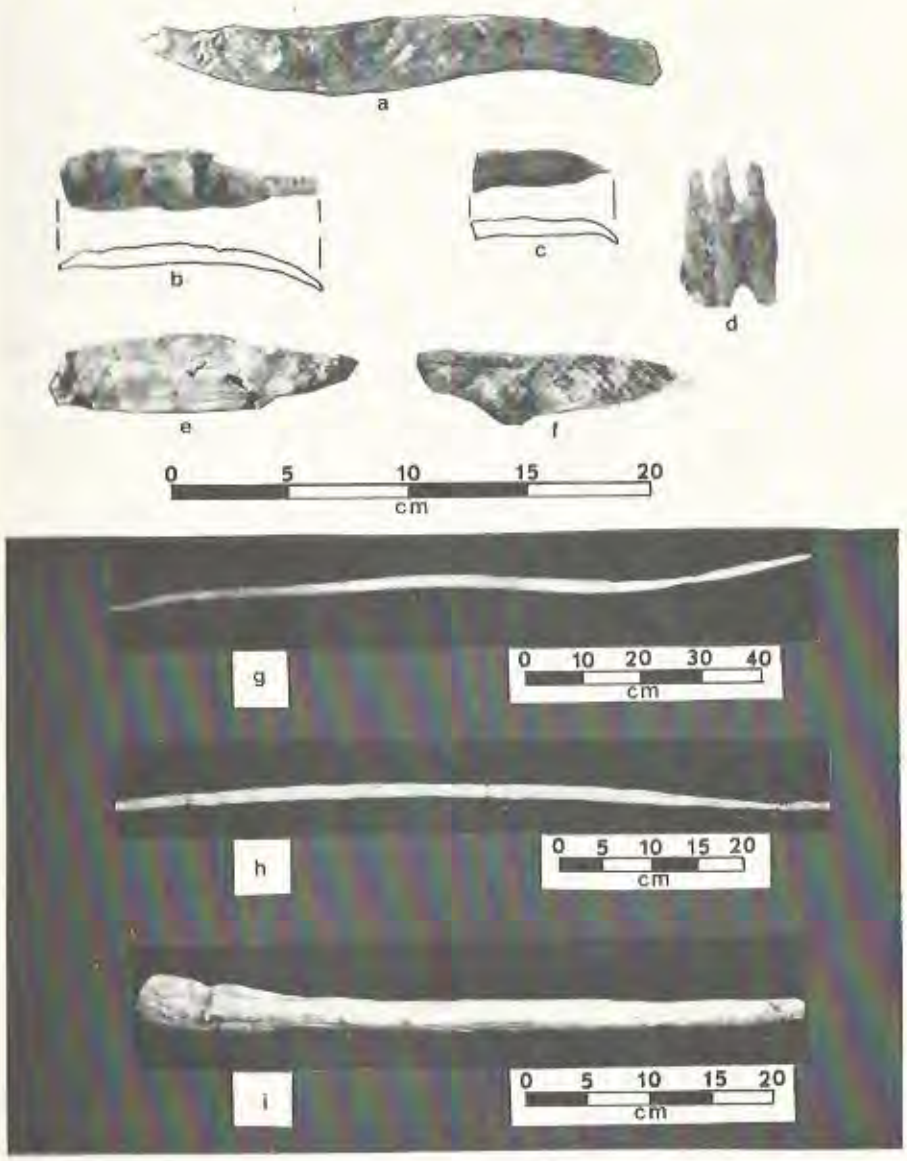

Fig. 15.—Objects of wood from Mounds Plantation. a, knife form; b, c, curved pointed forms; d, comb; e, f, handle-like objects, with cane matting imprints; g, h, bows; i, baton. All from Burial Pit 5, Mound 5.

bottom. It is 11cm long, 2.7cm wide, and 1cm thick. It differs in that the pointed end curves strongly in claw shape. The smaller object is rectangular, expanding proximally where it was cut during excavation. It has a narrow pointed tip that also curves ventrally (Fig. 15c). The accidentally cut surface has a lighter color than the general surface, which is dark brown. The object is 6cm long, 2cm wide and 7.5mm thick.

(f) Possible arrow foreshafts: 2 small cylinders of wood lay parallel to each other at the shoulder of a skeleton in Group 5. They were 8-10cm long, about 9mm in diameter, and so badly preserved that we were unable to save them. Possibly they were arrow foreshafts.

Objects of Cane

(a) Staffs: the outlines and stains of 2 cylindrical objects were found beside individuals in Group 4, Burial Pit 5. They were 43 and 44 inches (109,111.7cm) long, 3.6 and 3.8cm in diameter. They appeared to be hollow and to have joint-like enlargements, leading to the conclusion that they were cane staffs, despite our inability to dry and preserve them.

(b) Split cane matting: several pits showed stains on the floors, thought to have resulted from decayed fabrics, but the large number of cane matting fragments available for study were found in Burial Pit 5, chiefly around and between Groups 3 and 1 which lay under the log frame. More than 200 fragments, varying from 1-2cm to 33.5cm in dimensions, were found. Most of these, due to Arigal preservation, are in good condition.

The cane splits (or splints) used for the weaving are from the southern cane, *Arundinaria gigantica*, which is still used by basket weavers (Gregory and Webb 1975) and is still found in brakes in the Red River valley. The splits are 3.5 to 5.2mm in width, most often 4mm; they are paper thin, 0.3 to 0.35mm. They were long enough, in some instances, to fold at the edge and cross weave. Many of the splits were left plain, giving pattern contrasts only by differences of weave direction or by textural differences between the smooth outer and slightly rougher inner surfaces. Cane joints show infrequently; hence the weavers probably used large canes with segments as long as they could obtain.

Examples of the mat fragments are shown in Figs. 16-22. Many of the specimens show herringbone weave, most often 3-over, 3-under, but

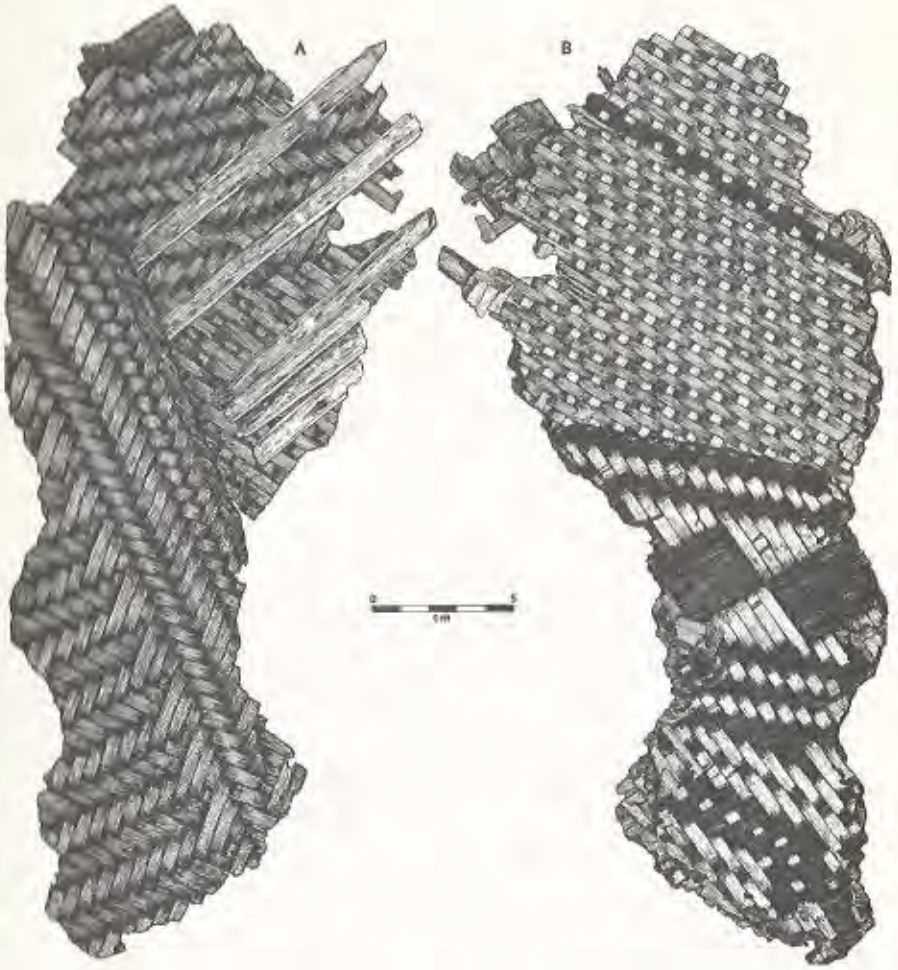

Fig. 16—Split cane matting from Burial Pit 5. Reverse sides of one aggregate, showing segments of four mats: A, two fragments of herringbone weave, one with selvage edge, also larger split cane segments; B, upper fragment with l-over 4-under weave and double line black design, lower fragment with herringbone and diamond border and beginning of bird head design effected with cane splits that have natural color on exterior and black stain on interior, reversed at selvage.

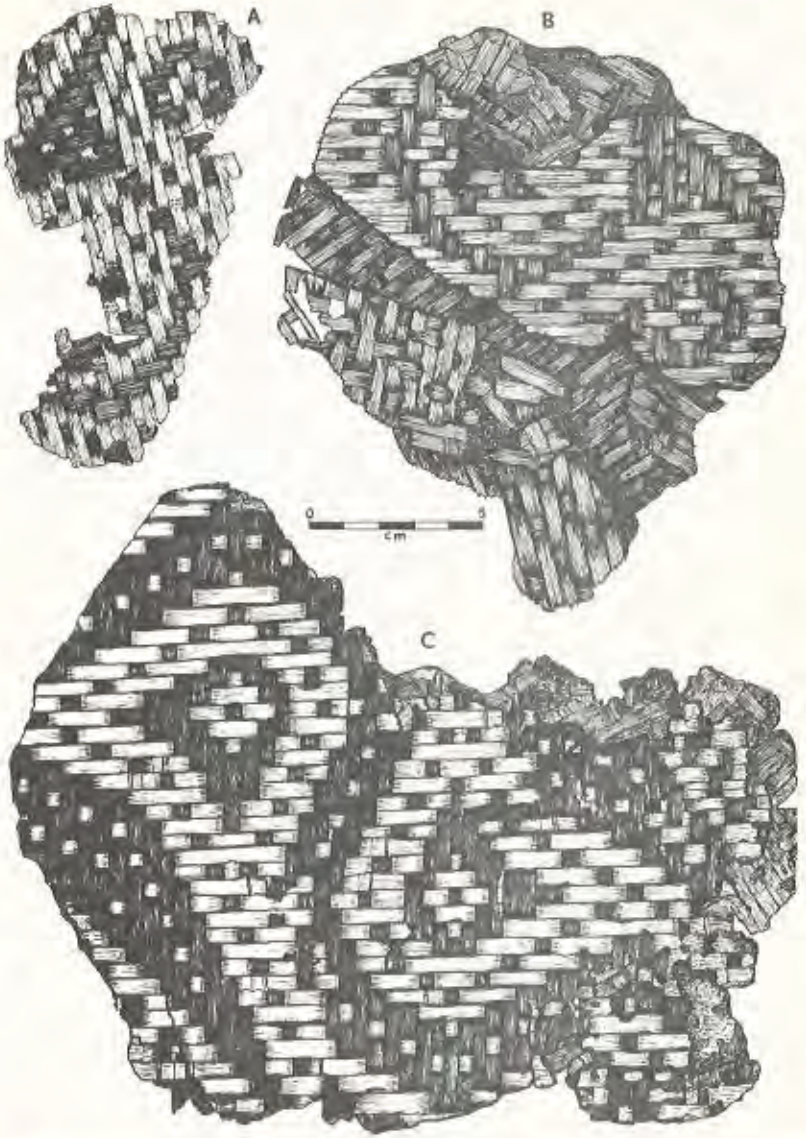

Fig. 17.—Split cane matting from Burial Pit 5. Fragments from three different mats, all showing bird head design. Note differences in width of cane splits and in eye treatment. C appears to be identical to Fig. 16B (lower) and probably derives from the same mat.

occasional lines are 2 or 4 splits wide. A combination of a row of diamonds flanked by herringbone rows (Figs 16B, 19A, B, 20, 21) seems to be a frequent border design. A second weave is 1-over, 4-under (*or vice versa*), seen in Figs. 16B, 18, 19, 22A, D. In this weave, the single squares produced by the 1-over split are never immediately contiguous to one another (do not touch at the corners in 1-down 1-over spacing) and thereby provide 45° diagonal pattern; the spacing used is 1-down, 2-over, producing 60° and 30° diagonals. This corresponds to a sateen weave often used in modern fabrics. The diamonds are usually 4 splits wide but 1 row (Fig. 16B) is 6 splits in width. A minor motif that occurs twice (Figs. 19, 20) is a band containing a central row of Z figures (S on reverse).

The more interesting fragments are those decorated with contrasting natural buff and dark stained splits. The stain was black when the matting was found in a damp state but varied from black to dark brown after drying and preserving; the color has slowly lightened over the 14 years since preservation. Three techniques were used in weaving the color into the pattern. Most often the splits were stained on both surfaces, probably by soaking in natural plant juices as is done among the Chitimacha (Gregory and Webb 1975). Weaving then was usually done with stained splits in one direction and unstained in the other (warp *vs* weft). Another technique was to insert the stained splits at given intervals, to produce straight line or rectilinear dark bands (Figs. 16B upper, 18A,B). On 1 of these, the dark band is an alternating zigzag; on the other the 1-over 4-under weave was used with stained splits introduced into both warp and woof, in such manner as to produce a continuous single black line in rectilinear pattern. The third and most unusual technique for producing color contrast, not known to the authors in modern Indian basket weaving, was to color the splits unifacially, on the rougher interior surface only, leaving the smooth exterior natural. In weaving with such splits, the split was woven to the edge, then folded over and cross woven.Thus a single split served as both warp and woof with the stained interior giving the color contrast. This seems to be unnecessarily complicated, both in staining the splits and in weaving, but the fact is established by the specimen shown in Fig. 16B (lower), in which the selvage edge (at 45°angle to the pattern) clearly shows the reversal and continuity of the split; also all split exteriors are natural, all interiors are stained.

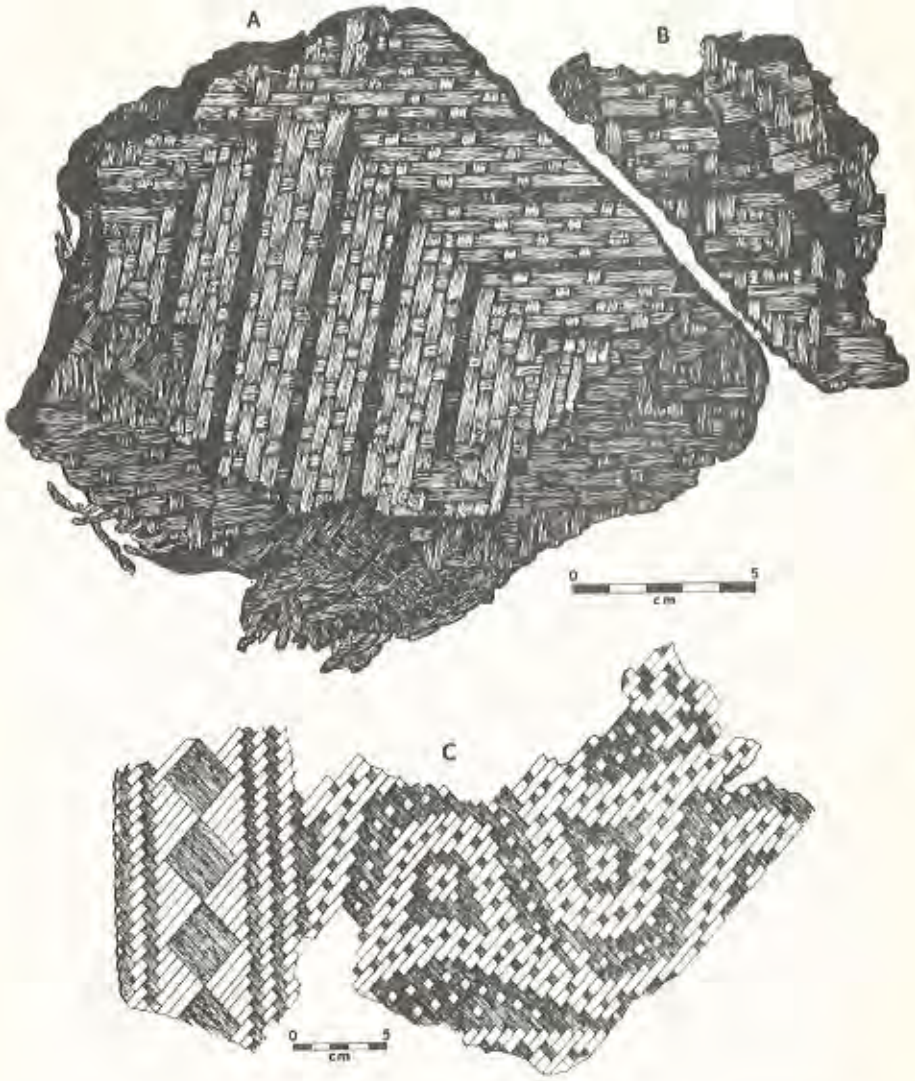

Fig. 18.—Split cane matting from Burial Pit 5. A and B, two fragments of the same mat, showing rectilinear design in black and natural colors, with 1-over 4-under weave. Note also multiple layers and fiber cordage in A. C: composite drawing of bird head mat, combining Fig. 16B (lower) and 17C.

Fig. 19.—Split cane matting from Burial Pit 5. Multiple fragments thought to derive from the same mat or identical mats, judging from glossy black coloration, size of splits and similar use of design elements in the motifs. The border fragments A, B are not certainly associated with the interior fragments C-J, but their appearance suggests this to be so. Note agglutinated herringbone fragment in A.

Opposite surfaces of all mats show identical patterns, reversed; no double weave examples are present.

The most interesting of all the mat fragments are those from 5 different mats that show alternating bird (turkey?) head designs. One large fragment (Fig. 17C) gives the key to the numerous fragments that show elements of the design. A second large fragment (Fig. 16B) ties in a border of diamonds and herringbones to the bird head interior. These 2 fragments are probably from the same mat, as the split size, weaving techniques and colors are identical, and include the unusual technique of staining only one face of the splits. Combining the designs on the 2 fragments gives the theoretical or projected design shown in Fig. 18C. There is the suggestion that the stylized bird heads are woven in interconnected bands across the mat.

The bird head designs on the fragments shown in Fig. 17A,B differ little from that of 17C, except that the cane splits are narrower and the figures therefore smaller. Fig. 17A is the reverse of B and C in orientation but not in black-tan contrast, and the black splits for 17A and B are stained on both faces. Minor details of eye treatment and space between the heads vary, hence we judge that the fragments of Fig. 17A,B,C derive from 3 different mats.

In Fig. 19 there are 2 matching border fragments and a number of interior design fragments, all possibly from the same mat judging by size and staining of the splits and the appearance of the design elements. The black color is darker, glossier, and more vivid than on other bird fragments. Four fragments (Fig. 19C,E,G,J) show portions of bird heads. If this is indeed a fourth bird mat, with diamond-herringbone border, it differs from the previous 3 sufficiently to show that the design was not stereotyped. The diamond band is multiple, a Z motif appears, and wide fields of 1-under 4-over sateen weave are used.

A similar Z motif appears in a band shown in Fig. 20B with a bird head segment, and a field of 1-4 weave. This is the only bird head mat that does not have color contrast. The opposite face of this fragment (Fig. 20A) shows a 4-split diamond band outlined by 3-over, 3-under herringbone lines, also unstained. Fig. 20A and B may be fragments of the same mat but probably are not, as the widths of the splits differ.

Fig. 21A,B are fragments with color contrast producing diamond bands between herringbone lines; a 2-under, 2-over herringbone is seen. It is not known whether these are border designs, as no selvage shows. Agglutinated to the surface of 20A is a fish bone, 6cm in length, with

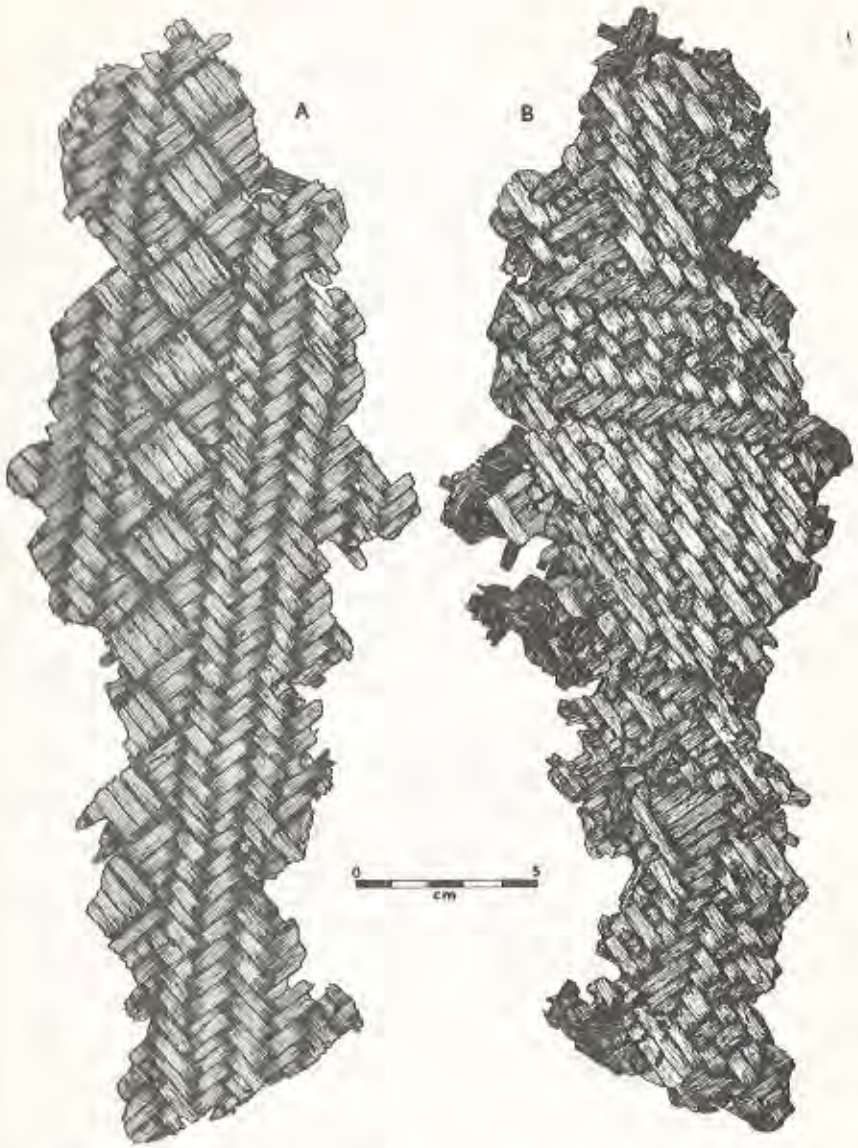

Fig. 20.—Split cane matting from Burial Pit 5. Obverse and reverse of a multiple mat aggregate. A: herringbone and diamond design in natural color. B: combination of bird head design and 1-over 4-under field, separated by band containing S-elements (reversed Z).

notched base. This could have been used in weaving, as a tool to tuck under the ends of splits at the selvage.

All of the larger and many smaller fragments have multiple thicknesses of mats, from 2 to as many as 8. Figs. 16 and 21A, for example, show parts of 4 different mats. They were so thin, fragile, and impregnated with clay that we did not dare separate the layers, except those poorly-preserved surface layers that covered more interesting or valuable designs. Otherwise we cleaned both surfaces and preserved the fragments *en masse*. The lower surfaces of some fragments had larger cane segments attached (Fig. 16A) and several had 1 or more thicknesses of hard black material that we interpreted as leather. The fragments shown in Fig. 18A, B overlie several sheets of matting, a layer of cords or string, and a bottom layer of leather.

In summary, the small part of Burial Pit 5 that was covered by the log tomb gives evidence of a sophisticated and rich technology in split cane mat weaving in the 11th century A.D. The unique preservation demonstrates how much we miss in the usual burial placements in this climate.

Our sample reveals 3 weaving techniques, used alone or in combination: herringbone in 3-over, 3-under (rarely, 2-over, 2-under) application; 1-over, 4-under weave with 1-down, 2-over sateen spacing; and zoomorphic bird head designs. Minor motifs of diamond bands and Z figures occur. Designs are accomplished with or without color contrasts and there are 2 methods of coloring the fine cane splits with 3 techniques of incorporating the color into the design. One of the latter techniques, dyeing only the interior surface of the splits and effecting the color contrast by folding over the split at the selvage and cross weaving, is rare and not in modern usage.

The excellence of the matting is consistent with the descriptions of mats among Southeastern Indians by early Spanish and French explorers (Swanton 1911:61,285,348) and narrators. Among the Hasinai, Swanton notes (1942:156-7) the frequent mention of reed mats and baskets. He quotes Margry to the effect that visitors were frequently seated on mats, and also notes Massanet's observation of "very brilliantly colored pieces of matting" and "Hidalgo was pleased with their very curious rugs of reeds of different color".

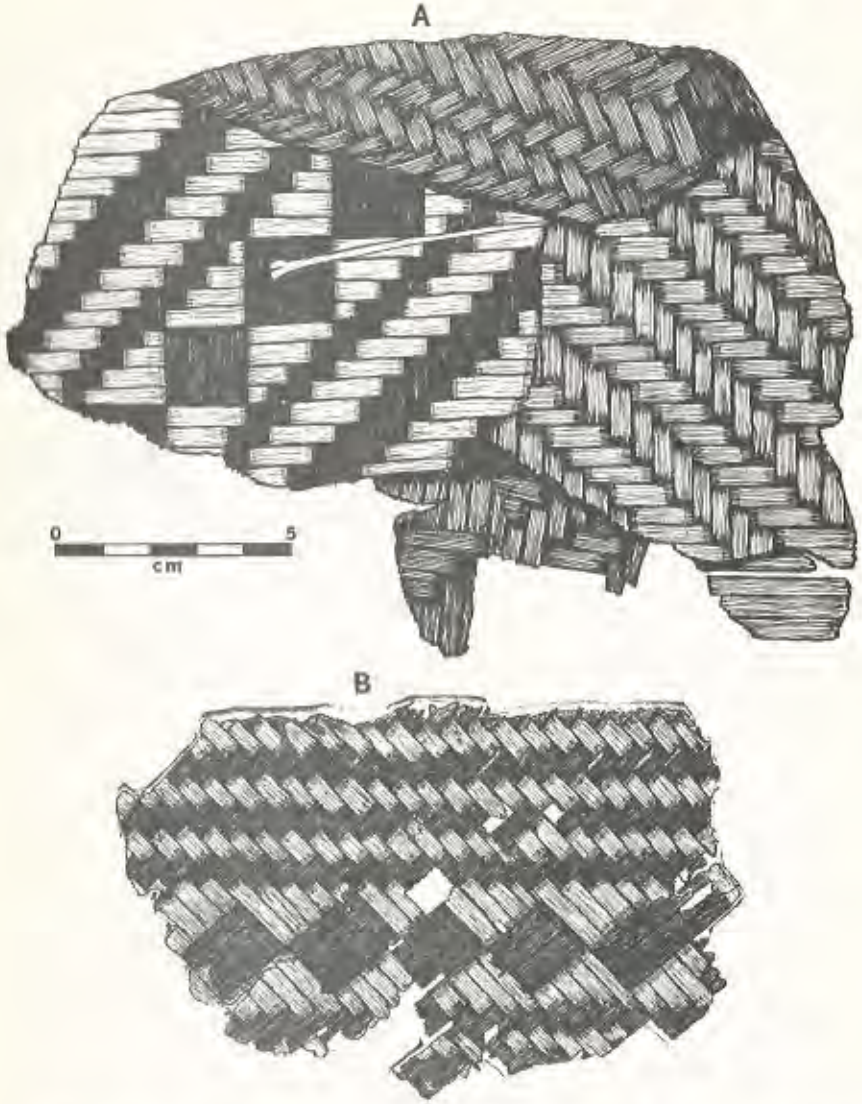

Fig. 21.—Split cane matting from Burial Pit 5. A: multiple mat aggregate, showing sections of four mats. Herringbone weave and herringbone-diamond (border?) combinations, the latter in black and natural colors, also shown in B. Note narrow 2-split herringbone in B, also attached fish bone with notched base, possibly used in weaving.

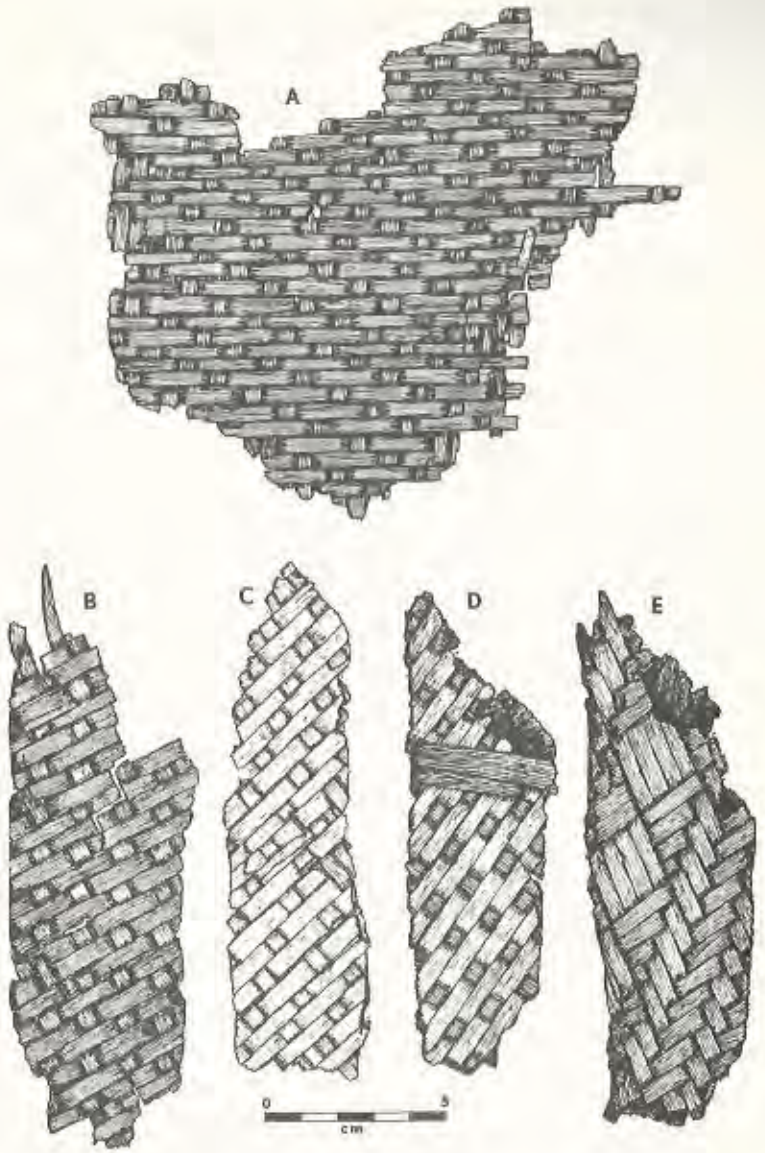

Fig. 22.—Split cane matting from Burial Pit 5. Smaller fragments showing 1-over 4-under weave in A-D, with 1-down 2-over spacing. E: herringbone-diamond combination in natural colors.

Cordage

Small pieces of cords or strings have been mentioned. They seem to be made of twisted, not plaited, grass or inner bark.

Vegetal Food Substances

(a) Maize (*Zea mays*): a fragment of charred corn cob was found in Mound 5 excavation and a larger fragment was turned up by deep plowing near the terrace edge. The latter is 4.8cm long, 1.4cm in greatest diameter, and has 6 rows of kernel pits. The longest row in the specimen has 14 pits, the largest of which measures 5 x 3.2mm in dimensions.

(b) *Portulaca oleracea:* a mass of seeds, estimated to be 250-300ml in volume, was found beside the skull and right arm of the paramount male in Burial Pit 5. A sample was examined by Pam Balogh, palynologist at Centenary College, and referred by her to C.R Gunn, U.S. Department of Agriculture, Beltsville Research Center, Beltsville, Maryland. He identified the seeds as *Portulaca oleracea* L., of the purslane family and commonly called "Spring Beauty" in Louisiana. Dr. Gunn further supplied us with a reprint of an article by Chapman, Stewart and Yarnell (1973) which documents the recovery of *Portulaca* seeds from the Salts Cave in Kentucky and of *Mollugo verticillata* L (carpetweed) seeds from the Ice House site in Tennessee. The former site dates during the first millennium B.C. and the latter, 1170 B.C. At the Salts Cave site, P. *oleracea* seeds were recovered by flotation from the midden soil in the cave vestibule and found in human paleofeces collected from the cave interior. The authors point out the presence of *Portulaca* sp. and *M. verticillata* among the 38 plant species at the fire level near the bottom of the Great Mound at Troyville (Walker 1936). Also at Troyville were gourd (*Cucurbita pepo*) and *Chenopodium* sp.

Chapman, Stewart, and Yarnell (1973) state that *Portulaca oleracea* L. has a world wide distribution with origins in Europe and western Asia, but the time and means of dispersal to the Americas is obscure. They think that it may have been exploited by aboriginal Americans as "greens" (the stems and leaves are fleshy) or valued for its medicinal properties (Helmut M. Redetzki, Department of Pharmacology, Louisiana State University School of Medicine in Shreveport, has found no record of pharmacological properties). Chapman, Stewart, and Yarnell state that the 18 bins of purslane mentioned in the Codex Mendoza as part of Montezuma's annual tribute from 371 towns

may have been amaranth or purslane. They also quote Marie-Victorin to the effect that purslane was already, on the authority of Champlain and Sagar, a weed in the gardens of corn and pumpkins among northern Indians. They speculate that purslane occurred in plots where the Salts Cave inhabitants cultivated sunflower (*Helianthus annus*), sumpweed (*Iva annua*), chenopod (*Chenopodium* sp.), squash (*Cucurbita pepo*), and gourd (*Lagenaria siceraria*).

(c) Fruit: along with the *Portulaca* seeds in Burial Pit 5 there were a few larger flat oval objects, 9mm in length, with crinkled surfaces. At first these were thought to be seeds but Balogh now thinks that they are desiccated skins of an unidentified small fruit.

DISCUSSION: HISTORICAL SEQUENCE OF CULTURES

The limited amount of excavation and the absence of studies in the plaza or village preclude any firm assumptions about occupations, house patterns, population densities, and many other social and demographic facets of the prehistoric community. However, the information that we do have enables us to draw certain conclusions about the culture history and development of the site and area, enhances our knowledge of the ceremonial and mortuary customs of the early Caddoan people, helps to place the site in the context of the surrounding area, and throws new light on a few items of food and technology.

The initial occupation of the site almost certainly was by Coles Creek people. There is no evidence of Archaic tools nor of Fourche Maline-Tchefuncte and Marksville-Bellevue-Troyville artifacts. The single Gary point and pitted stone may be fortuitous but, if not, they persist into Coles Creek culture elsewhere. Similarly, the Fourche Maline pottery type, Williams Plain, has a prolonged existence and persists elsewhere into Coles Creek and early Caddoan contexts.

The Coles Creek occupation seems to have been large, as typical sherds were found around Mounds 1, 2 and 3, as well as in the lower levels of Mound 5. Moore's (1912) observation that Mounds 2 and 5 were quadrilateral and flat-topped led to the initial assumption that they were built entirely by Coles Creek people, but this idea has been revised. We think that the site was established by Coles Creek people as a ceremonial center, that they laid out the plaza, possibly constructed Mound 2 as a quadrilateral temple substructure, and—at the opposite

end of the plaza—established a burial area where Mound 5 sits. They may have placed 1 small burial in this area, but eventually used it to place a large burial group (Burial Pit 6), presumably of one or more people of importance who were interred with sacrificed retainers and covered by the small (primary) mound. Subsequently they added a number of lesser burials (Burial Pits 10-14, and possibly Pit 4). With all of these Coles Creek burials, offerings were largely of perishable materials, even in the large pit, but the projectile points are typically Coles Creek types. Ceremonial trappings are indicated in Burial Pit 6 by a number of stains of copper ornaments.

Mound 3 and its surrounding midden filled with Coles Creek sherds, together with its possible house structure, may have been a ceremonial focal point for food preparation in Coles Creek times. Its position adjacent to the plaza and the subsequent mound construction suggest ceremonial significance of the intense culinary activity. In this process, deep bowls of Coles Creek Incised type were regularly used. If there was a house structure beneath or in the first level of Mound 3, it may have been a simple arbor for food preparation and dispensing. Whatever the significance of Features 1 and 2 in Mound 3, they seem to have been covered by Coles Creek people, whereas subsequent capping was by Alto people. We also know that the terminal mantle of Mound 5 was not built by Coles Creek people.

There is evidence in Mounds 3 and 5 of a progressive and rapid shift from Coles Creek to Caddoan (Alto) culture with little evidence of time lag and no indication of desertion and reoccupation. Unfortunately, we do not have at this site, or at Crenshaw or Spiro, where a similar transition occurred, studies of skeletal material which might show whether the acculturation occurred with or without the advent of new people. In Mound 3, the mantle above the immediate covering of Features 1 and 2 contained distinctive Alto pottery types: Holly and Hickory Engraved, Crockett and Pennington Incised, and a Holly vessel. Coles Creek sherds were also present but the evidence does not tell us whether these were accidental inclusions in the mound fill or represented a mixture of ceramics during a period of transition. Probably, however, Mound 3 was completed by people of Alto culture. Yet its significant cooking activities, begun during Coles Creek times, continued unabated, as shown by the black, sherd-filled midden atop the mantle. We have already indicated that many everyday culinary pottery types continued into Alto ceramics with little change.

In Mound 5, the small primary mound had been built by Coles Creek people to cover their large burial (Burial Pit 6) and the smaller pits 10-14. The primary mound was then used by Alto people for their initial and most important burial. The large crater of Burial 5 was placed in such way that it did not impinge on any of the prior burials, even though they were very close. This implies knowledge of previous burial locations and respect for them. Such awareness and consideration mitigates against a long time interval and favors a change in culture but not in people. Burial Pit 5 was adorned with red pigment and was used for several discrete placements of primary burials. One of these episodes involved a male of high rank whose death probably actuated the preparing of the pit, the association of retainer sacrifice (a custom already existent among the antecedent Coles Creek inhabitants), the construction of a log tomb, and the offering of sacred talismans. The prior placement of the individuals in Group 2 and their covering with the sand ledge which would serve as support for the timber ends need not have preceded the interment of the paramount individual by more than a few days or even hours. Only the time interval before interment of Group 5 needed to have been longer than a few days.

After the covering of Burial Pit 5, Mound 5 continued to be used for ceremonial Alto burials. Before the final dirt cap was placed, another large pit was dug on the southwest slope and multiple burials (Burial Pit 1), with moderately rich trappings and retainers, were placed. The mound was then completely capped and subsequent burials were made from its surface. These included the large Alto shaft tombs of Burial Pits 2 and 3 and also the smaller pits 7-9. These occurred during a sufficiently short period of time that no changes in ceramic or projectile point styles are evident.

During this time, the population of the site increased to its maximum, judging by occupation well beyond the margins of the plaza and beyond previous Coles Creek limits. Probably the small mounds 8 and 9 were built during this expansion. We can hazard no statement as to when or by whom Mounds 1,4,6 and 7 were built, but their position surrounding the plaza suggests that they were part of the Coles Creek and/or Alto occupation.

Before the end of the Alto Period, the site seems to have been deserted. There are no evidences of late Alto or Haley period occupation. After the passage of several hundred years, the site was briefly used by small numbers of Bossier and Belcher Focus people, presumably in that

order. They possibly had a limited occupation (1 or 2 houses) along the terrace front, but their presence is chiefly seen in the placement of burials in the top mantle of the deserted mounds.

OTHER NEARBY ALTO SITES: CONCLUSIONS

Mounds Plantation is almost exactly half-way (50-55 air miles each direction) between Crenshaw and Gahagan. Both Crenshaw and Gahagan are Alto ceremonial centers with antecedent Coles Creek occupation. These 3 sites (Fig. 23) are the major known early Caddoan centers in the 140 mile stretch of Red River between Natchitoches and the Fulton Bend. Upstream, between Mounds Plantation and Crenshaw, there are smaller Alto occupations on or near Red River at Belcher (Belcher I), Huckabay, Byram, and possible components at Haley and Battle. Downstream, between Mounds Plantation and Gahagan, there are lesser Alto sites at Sunny Point, Webb Plantation, and Marston. Five of these intervening sites have 1 or 2 mounds of modest size (the great mound at Battle was built after Alto times). Moreover, there are numerous village sites with Alto components on the lateral lakes and small tributaries that flow out of the uplands (Fig. 23). The better known are Swanson's Landing and Harrison Bayou on Caddo Lake; Wallace Lake mound; Pease, Sinner, and High Island near Lake Bistineau; Smithport Landing and Williams Point near Clear Lake; and Wilkinson and Allen south of Gahagan. This establishes a network of larger centers, smaller river valley sites with minor burial mounds, villages in the valley and along its margins, and probably dozens of hamlets or single family occupations in and immediately peripheral to the valley.

Whether or not the large Alto ceremonial centers were self-supporting, which is a debatable point, there are ample supporting satellite settlements in this complex along Red River. There seems little question that the major centers were in frequent communication with each other; in fact, one of the significant findings demonstrated by ceremonial burial placements of the early period, throughout the Caddoan area, is the evidence of trade and ceremonial intercommunication over distances of hundreds of miles.

We will not indulge in speculations about the ecological background, the relative importance of gathering and agriculture, and

Fig. 23.—Red River valley and contiguous areas in northwestern Louisiana and southwestern Arkansas, showing location of Gahagan, Mounds Plantation and Crenshaw sites, also known or probable sites of Alto and Coles Creek cultures.

the details of societal organization during this period. Our data are scarcely appropriate. The data do support previous assumptions that early Caddoan cultures were organized with an hierarchical structure, presumably on the chiefdom level; that plaza and mound structures were involved in their ceremonial life; that a strong burial complex was involved, complete with retainer sacrifice; that trade was brisk with certain trade items, controlled by the hierarchy, and important in the burial complex; that many of these trade objects were disseminated in finished form; and that communications between the rulers were excellent.

The findings at Mounds Plantation, Crenshaw and Gahagan, along with those on Red and Little Rivers above the Big Bend, contribute to our previous beliefs that the Red River Valley was the center of early Caddoan development, that early Caddoan origins were closely tied to the antecedent Coles Creek developments, and that Coles Creek-Alto transition occured primarily along Red River.

Hopefully our report has contributed bits of knowledge about food sources and technology in wood-working and split cane weaving in the Alto period. The advanced technology in weaving and the use of long bows of bois d'arc, as well as items of carved wood, extends our knowledge backward a half millenium before the historic accounts from which we have extrapolated heretofore. These details may be of value to the future students who, hopefully, will delve into the details of everyday life and mundane customs of the early Caddoans, rather than into the ceremonies and mortuary eccentricities of their ruling class.

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ERRATA

The article, "Big Oak and Little Oak Islands: Excavations and Interpretations", by J. Richard Shenkel (*Louisiana Archaeology* 1:37-65), bears a significant omission. On page 47, a whole line of type was left out. In the third paragraph, after the line reading, ". . . 835), or 790 B.C. (Anonymous 1965:339).", the following sentence should be inserted:

> Another date within this time range was taken by Quimby on a marine shell and gave a date of 2700 ± 90 radiocarbon years B.P. (UCLA-687) or 750 B.C. (Anonymous 1965:339).

The Editor

The Poverty Point Site: North Sector Test Excavations

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ABSTRACT

Test excavations in the north sector of the Poverty Point site are described and the artifactual materials recovered are summarized. Excavation results indicate spatial differentiation of activity areas and 3 phases of occupation and construction.

INTRODUCTION AND AIMS

In the last 15 to 20 years, the Poverty Point culture has emerged from a Late Archaic phenomenon which was confined to the type site to a widely recognized complex now known from numerous sites in the Lower Mississippi River Valley and other regions. Several different types of sites, ranging from coastal shell middens to the Poverty Point site with its mounds and large, extensive earthworks are well documented, and the artifact assemblage has been defined and described in some detail (Ford, Phillips and Haag 1955; Ford and

Webb 1956; Gagliano and Saucier 1963; Gibson 1973; Phillips 1970; Webb 1968; Webb, Ford and Gagliano n.d.; Webb 1976).

The distribution and artifact content of the presently known Poverty Point sites suggests what may have been a complex social and economic system spread throughout the Lower Mississippi Valley with widespread contacts or outposts in parts of the Southeast and Midwest. Several studies have examined the intrasite variation of the artifact inventories, site sizes and locations, and types of components that are generally accepted as Poverty Point and provide an excellent data base from which to develop research designs for future work on Poverty Point components (e.g. Gibson 1973; Webb 1968).

Despite the vast amount of work that has been done on Poverty Point sites and artifact inventories, there is still a critical need for specific types of information from most of the components, particularly from the type site, which are now not generally available. For example, there are no comprehensive data on the subsistence base, on the exact nature of the relationships between the major Poverty Point sites and their satellites, on the various trade and economic networks that were certainly an important, if not determining feature of the cultural system, and on the nature of the non-artifactual assemblage of the Poverty Point complex.

On the basis of the extant information, mostly from surface collections, Gibson (1973) has developed several models for the social and economic systems of the Poverty Point interaction basin. This includes the type site and cluster of satellite communities around the type site on Macon Ridge and along Joe's Bayou in the adjacent floodplain. He has also developed several temporal phases for the Poverty Point site (Gibson 1973, 1974). These points are discussed in the appropriate sections below, but the data presented in this report may be used for partial verification of some of the ideas that have been proposed. Most important, however, is the qualitative and quantitative information presented here which suggests differential use of the ridges, slopes and swales. While the data in this report are limited, they do serve as guidelines for constructing future research designs which could have a direct bearing on understanding the social and economic systems of the Poverty Point complex as well as the spatial utilization and variability at the type site.

The major purpose of this report is to provide a brief summary of the excavations that were carried out by this author and others at the

Poverty Point site between December 27, 1972, and January 15, 1973. It presents the stratigraphic details, a summary of the artifactual materials recovered, and an interpretation of the depositional history of the area tested in the north sector of the site. Certain revisions are expected, and detailed descriptions of the artifactual materials will be presented in a more complete report now in preparation.

This project was originally intended to sample the Poverty Point site and the Copes site, 1 of its satellites. The primary objective was to recover a sample of the faunal and floral remains from each of the 2 sites which are situated in different physiographic or resource zones. This would have provided some basic subsistence data for the Poverty Point culture as well as information on the dynamics of the economic system. Subsistence data from these 2 sites, situated on the Macon Ridge and in the Mississippi floodplain, would shed some light on whether or not the satellites were the support base for the type site, whether the 2 major resource zones were being exploited differentially, and whether subsistence resources were being moved between the sites in question. At the same time, a quantifiable or comparable sample of the different classes of artifacts and cultural debris would have been recovered. This would possibly have provided a means of determining the flow of goods such as exotic raw materials and finished products between the 2 sites. Due to poor weather conditions which hampered the excavations at the type site and prevented access to Copes site, as well as the lack of well preserved faunal remains at the Poverty Point site, the original goals of the project were largely unrealized. However, the recovery of broad range of cultural debris in the areas tested was relatively more successful.

Three test units were excavated in the north sector in ridges 2 and 3, adjacent to the profile trench excavated by William Haag in August of 1972 (Figs. 1,2). Because of the artifact-rich nature of the midden and the detailed stratigraphic data assembled by Haag, he suggested that we place our tests in the same area. It was further decided to place test units on the crest, the slope, and the low point between 2 of the ridges. In addition to obtaining samples of cultural debris from these 3 different areas, a further confirmation of the stratigraphy, construction, and deposition in these areas would be provided. Recovery of a relatively complete sample of debris from each of the locations tested would provide information with which to determine the nature of the activities that were being carried out in the different parts of the earthworks. No

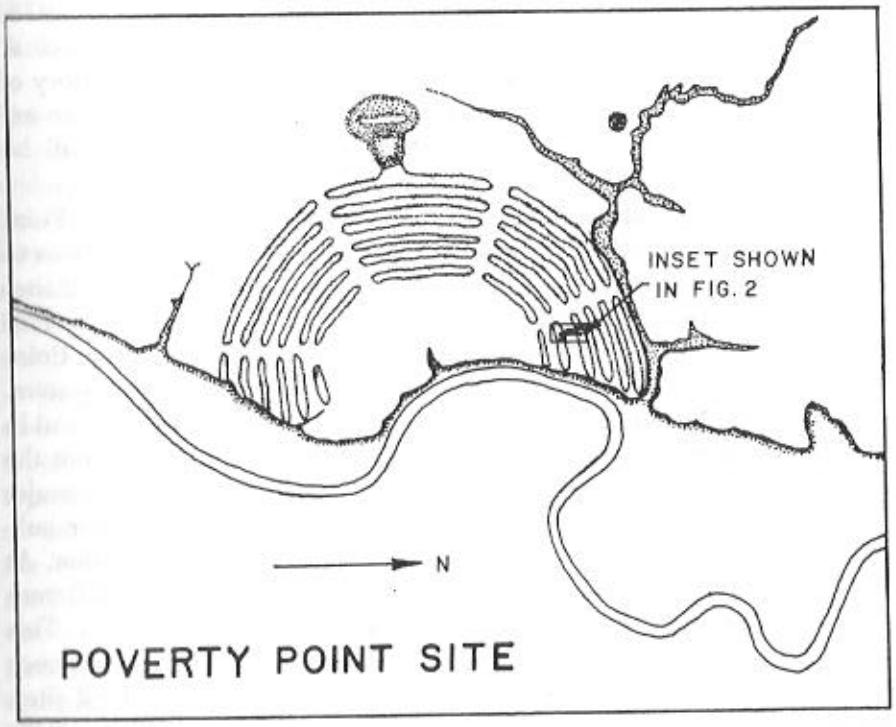

Fig. 1—Plan of Poverty Point site showing locations of 1972-1973 excavations. Adapted from Ford and Webb 1956.

effort was made to determine differential activity areas along the long axes of the earthworks. This however, would be an important adjunct to this project and should eventually be incorporated into future research at the site.

CLASSIFICATION OF MATERIALS

The artifactual materials recovered from the excavation units are tabulated in Tabs. 1-4. The majority of the materials were classified according to the nomenclature generally used in the Poverty Point literature (e.g. Ford, Phillips and Haag 1955; Ford and Webb 1956;

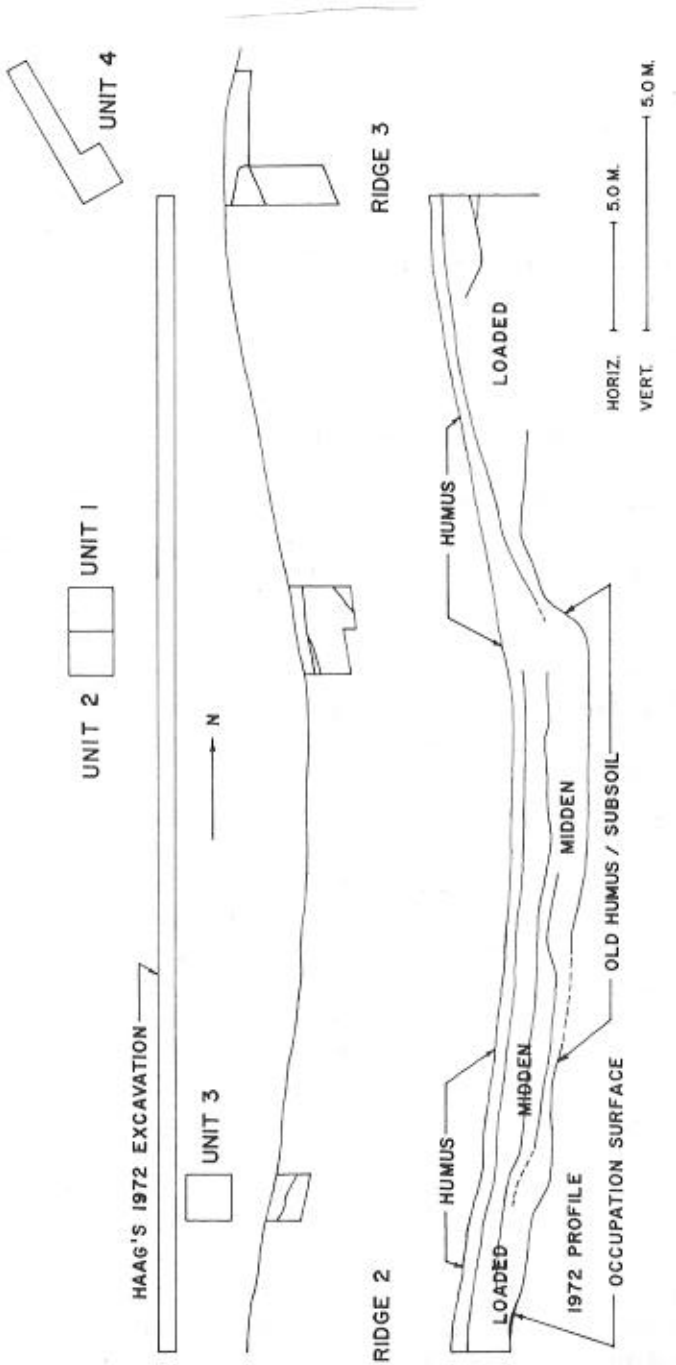

Fig. 2.—Plan and profiles of excavations including Haag's 1972 profile. Courtesy of Dr. William G. Haag.

Webb 1968; and Webb, Ford, and Gagliano n.d.). An exception to this is the classification of the chert tools other than projectile points and other bifaces. The classification for those tools is adapted from that of Hole and his collegues for the Near East (Hole 1961; Hole, Flannery and Neely 1969). It is designed to describe the modifications, either through use or deliberate retouch (undifferentiated in this report) of cores, blades, and flakes which are the 3 fundamental groups of debitage resulting from chipped stone work. In addition to the counts, gram weights are given for the exotic materials.

An attempt has been made to assemble the several artifact categories into functional groups, although this has not been done as rigorously as would be ideal. Basically, the inventory has been divided into 10 groups. The first contains Poverty Point objects, their fragments, and daub. The latter is a minority grouping of fired clay materials that are thought to have been derived from the firing of wattle and daub house walls, prepared clay floors, or hearths. A re-examination of the fragmentary Poverty Point objects will probably amplify the latter category, as much of the fired clay that was tabulated as unidentifiable Poverty Point objects may have been derived from hearths, fire basins and possibly house wall materials. Wall fragments indicate structures; the remainder of this grouping results from domestic activities, particularly those related to cooking.

The second major category of materials also relates to the cooking, storage, and/or processing part of domestic activities and consists of various containers, including those made of nontempered pottery, fiber-tempered pottery, steatite, and sandstone. An important observation is that these materials, while infrequent, are generally found in all of the units excavated and are distributed throughout nearly all levels. These data show rather conclusively that ceramic and stone vessels were in use at the same time and probably throughout the sequence represented in these particular units. The only exception to this is unit 4 where they were confined to the midden zone above the construction fill. Nontempered pottery, fiber-tempered pottery, steatite vessels, sandstone vessels, and Poverty Point objects were part of the artifact complex from the time that these midden levels were initially deposited; hence are associated with the Poverty Point complex at this site.

Figurines and gorgets have been grouped together in an ornamental/symbolic category which would also include other lapidary materials if they had been found. The 4 figurines that were found

generally conform to the solid body types that are described and illustrated by Webb, Ford, and Gagliano (n.d.:108-111, Figs. 22,23). They were found in unit 1 in the swale and zone A in unit 3. The gorgets, which were all fragmentary, were made of slate and greenish schist and occurred in zone B in units 1 and 3.

Unworked hematite, hematite plummets and fragments, galena, ochre, and quartz have been grouped together not strictly as a functional group but as a grouping of exotic materials. With the exception of the plummets and a few pieces of slightly modified hematite, these materials were unworked. They were found predominantly in the lower excavation levels (zone B) of units 1, 2, and 3, and to a much lesser extent in zone A of units 1, 2, and 3, and in the midden overlying the platform in unit 4.

The various chipped stone tools are divided into projectile points, reaming or piercing tools, and cutting or scraping tools. The cutting and scraping tools are further divided into those groups that correspond to modifications of flakes, blades, and cores. The projectile points recovered included the following types: Delhi (1), Ensor (2), Gary, (4), Marcos (1), Marshall (1), Motley (2), Pontchartrain (1), and unidentified and fragmentary (16). They were located in the midden zones of units 1, 2, and 3 on the slope and swale (predominantly in zone B of those units). The various chipped stone tools are generally found throughout the units, but by far the largest number come from units 1 and 2 at the base of the swale, with lesser numbers from units 3 and 4, respectively. The bulk of the materials was derived from zone B in the swale and slope of ridge 2.

Abrasive tools are represented by reasonably large numbers of sandstone whetstones and abraders and 1 polishing stone, a large pebble with a high sheen on several surfaces. It is assumed that this pebble may have functioned in the lapidary or woodworking industries and been used for smoothing and for putting a final finish on other artifacts.

Hammerstones and fragments have been listed as a separate functional category and are generally characterized by heavily pecked cortex surfaces on otherwise unmodified pebbles. Because of the pitting of the cortex, it is assumed that the hammerstones were used on relatively hard materials and are probably related to the stone chipping complex.

A small number of flakes showed a high sheen on 1 of the flat surfaces comparable to that on flint hoes of later periods. These flakes are probably the waste material resulting from the reworking of chipped

flint hoes, adzes, or celts. One category of note is that of flakes with a polished edge. They are characterized by some use retouch along 1 or more edges, but primarily by polishing, or smoothing, of the sharp edges. This type of wear may have been the result of scraping of soft materials such as hides.

The last group of materials tabulated is that of the debitage resulting from the various stone-chipping activities. This material provides an important quantifiable sample of the local and exotic cherts that were being utilized at the Poverty Point site. Pending further study and identification of the materials, they have been grouped into 4 classes, 3 of which are exotic and 1 local (Tab. 1). The local cherts include the various tan, red, brown, and yellow cherts and are generally separable by the presence of pebble cortex on the majority of the waste flakes, cores and blades. The exotic white chert was derived from the Ozark region or the St. Louis area. This material was apparently brought in predominantly as nodules rather than preforms as evidenced by a large number of cores and flakes with remaining cortex. The exotic tan and gray cherts were imported from the Tennessee River Valley, the Dover flint quarries, and probably from the southern Illinois and Indiana flint sources. The final category contains several minority types of chert which have not yet been identified as to source.

Among the excavation units, the percentages of the local and exotic cherts were surprisingly constant. Local cherts made up between 29 percent (unit 3) and 39 percent (unit 4) of the total. Corresponding figures for the exotic white chert ranged between 52 and 61 percent, or more than half of the total in all units. The other exotic cherts ranged between 6 and 19 percent of the total. They were missing in unit 4 where only local cherts and exotic white cherts were recovered. It will be interesting to follow up this separation with a similar classification of the tools as to chert type in order to determine if there was a preference for manufacturing certain tools from certain types of flint and if the percentages of local and exotic raw materials correspond to those of the debris. Another important study would be the comparison of the composition of this sample with samples from other sectors of the type site, as well as its satellites.

EXCAVATIONS

Units 1 and 2 were contiguous 2.0m squares located at the base of the swale between ridges 2 and 3, 2.0m west of Haag's 1972 cut (Figs. 2,3). Unit 1 was excavated to a depth of 1.4m and unit 2 to a depth of 1.0m in 20cm levels. Only in unit 1 was the subsoil encountered. Excavation of the midden deposits overlying the original surface was not completed due to wet conditions that prevailed in the swale causing those squares to fill with water overnight during the excavation period.

Two major stratigraphic zones were defined (Fig. 3). Zone A (excavation levels 1 and 2) consisted of a light brown soil with numerous small and fragmentary remains, particularly lithic debris and clay ball fragments. Zone B (levels 3-7 and 3-5 in units 1 and 2, respectively) consisted of a rich dark brown to black midden with large quantities of nearly all classes of cultural debris. In unit 2, these 2 zones were separated by a lens of light gray sandy soil containing relatively few cultural materials. This lens was probably formed by erosion from the ridges.

The stratigraphy in this square and correlations with Haag's profile for the area is interpreted as follows. The sterile subsoil encountered in unit 1 was the original surface after prehistoric excavation of the swale and the construction of the adjacent ridges. The dark

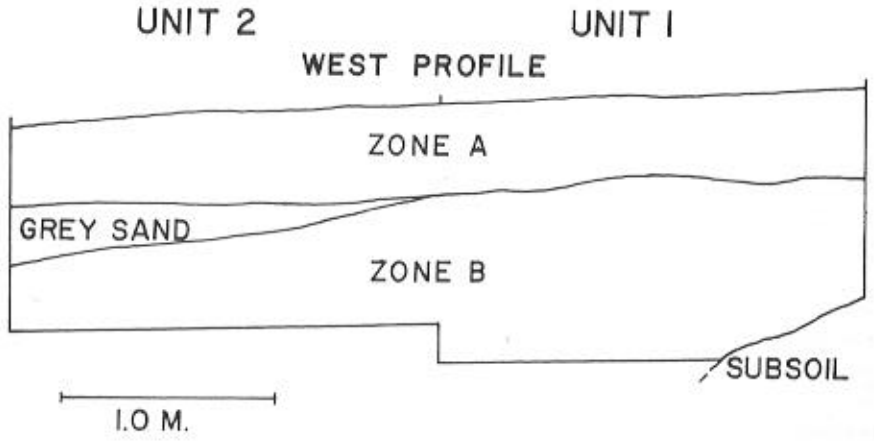

Fig. 3.—West profile of Units 1 and 2.

midden zone immediately above the original surface consisted of a primary midden deposit, resulting from the use of the area for cooking, processing, and refuse disposal.

The gray sandy layer separating zones A and B in unit 2 is unique but is thought to have resulted from rapid erosion from the adjacent ridges, possibly indicating an abandonment of the swale between the deposition of zone B and the later zone A. Zone A is interpreted as materials eroded from the adjoining ridges after their abandonment and may have been derived from a later utilization of the ridges after the occupation which deposited zone B. It is probably the result of natural erosion after the site was abandoned and of the accelerated erosion of the ridges and slopes from cultivation of the ridges during the earlier part of this century. The idea that this zone contains eroded material (contrary to zone B which is interpreted as an in-place or primary midden) is based on a comparison of some of the materials from each of these zones. There were very few large pieces of chert or intact Poverty Point objects in zone A, whereas they were recoverd in large quantities from zone B. This also held true in unit 3 although not nearly so dramatically as in units 1 and 2.

Unit 3 consisted of a 2m square located approximately half-way down the outside slope of ridge 2, 0.5m east of Haag's trench (Figs. 2,4). It was excavated in 20cm levels to a depth of 80cm. Two stratigraphic zones were defined. The upper one, zone A, varied in depth

TABLE 1
UNIT 1 ARTIFACTS

Artifact Categories	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Totals
	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)
Poverty Point Objects/frags	441	205	481	3059	2349	1066	312	7913
Daub/Fired Clay		3	3	16	23	30	24	99
Clay/Nontempered Pottery	1			1	5		1	8
Fiber Tempered Pottery				3				3
Steatite Sherds	3 (31.4)	1 (4.8)	2 (18.9)	12 (358.9)	6 (176.2)	3 (152.2)	2 (91.6)	29 (834.0)
Sandstone Bowl Fragments				2 (147.0)	10 (289.1)	2 (102.2)		14 (538.3)
Figurines				1			1	2
Gorgets/frags			1	1		1		3
Unworked Hematite			1 (11.1)	2 (117.2)	3 (25.5)			6 (153.8)
Hematite Plummets/frags				2 (15.4)		1 (105.5)		3 (120.9)
Galena								0
Ochre	1 (1.4)			5 (123.7)	2 (67.4)		2 (107.2)	10 (299.7)
Quartz								0
Projectile Points	4		1	2	3	3	1	14
Needles								0
Double Ended Pieces								0
Beveled Pointed Pieces								0

TABLE 1—Continued

Artifact Categories	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Totals
	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)
Bifaces	1	1		5	8	1		16
Retouched/Utilized Flakes	26	3	3	41	23	2		98
Alternately Chipped Flakes				2	1			3
Flakes w/Reverse Chipping				1				1
Flake End Scrapers								0
Flakes w/Polished Use Edge	1			2		1		4
Notched Flakes	5	1		3		3		12
Retouched/Utilized Blades		1		6	3	1		11
Nibbled Bladelets	1							1
Backed Bladelets								0
Backed Blades	1							1
Core Fragment End Scrapers								0
Various Utilized Cores	5		3	24	22	2		56
Notched Core Fragments	1							1
Choppers								0
Whetstones /Abraders	1					4	1	6
Polishing Stones								0
Hammerstones					1	1	2	4
Flakes w/Sheen					1			1
Waste Cherts								
Local Tan/Brown/Red/Yellow	80 (161.4)	38 (166.3)	19 (280.0)	49 (528.0)	46 (395.9)	5 (39.5)	1 (30.6)	238 (1601.7)
Exotic White	222 (335.4)	46 (61.2)	61 (224.5)	179 (1506.3)	181 (853.3)	22 (253.2)	4 (84.3)	715 (3318.2)
Exotic Gray/Tan	64 (90.4)	13 (38.8)	3 (22.5)	25 (174.4)	31 (393.2)	2 (6.5)	1 (4.9)	139 (731.2)
Other Exotic	27 (41.2)	6 (5.5)		4 (8.6)	2 (4.2)	2 (11.7)		41 (61.2)

from 20cm to 50cm and consisted of a tan midden zone with numerous small artifacts and debris. It is thought that this upper zone was also the result of erosion as in units 1 and 2. Zone B was a dark brown to black midden zone with large quantities of various classes of cultural debris. This zone varied in thickness from 35cm to 60cm and was resting on a mottled gray clay surface. The excavation of this unit was terminated at the gray clay.

An additional 25cm block was removed from the entire east wall of unit 3. This block was excavated in stratigraphic zones and materials saved accordingly. All materials were screened through .25 inch mesh and 2 flotation samples were saved, 1 from each level. The artifacts from this control block are tabulated separately in Table 3 as levels A and B.

The stratigraphy of this unit correlates with Haag's profile. It is interpreted as follows: the mottled gray clay at the base of the excavation was the original construction of the ridge, zone B was the primary midden deposited on the surface of the ridge during its occupation and use, and zone A was the result of erosion and weathering of higher parts of ridge 2.

Unit 4 began as a 2m test square in the top of ridge 3. A 1m x 5m extension was later excavated to the north in order to follow what was thought to be a platform surface. The originial 2m square was excavated in part to a depth of 2.7m and was terminated at the top of the old humus zone. No artifacts were recovered from the old humus surface, although some charcoal flecks were noted.

Immediately above the old humus were a series of lenses of loaded soils which varied in color from reddish-brown to reds and grays. The major lenses and some of the loading is shown in Figs. 5-7A. The major lenses are unexplained except that they probably represent successive stages in the deposition of the fill. It is assumed that the fill was composed at least in part of earth removed from the trenches between the ridges. The old humus level in the base of this excavation unit correlates very well with the upper level of the sterile subsoil in unit 1 and the base

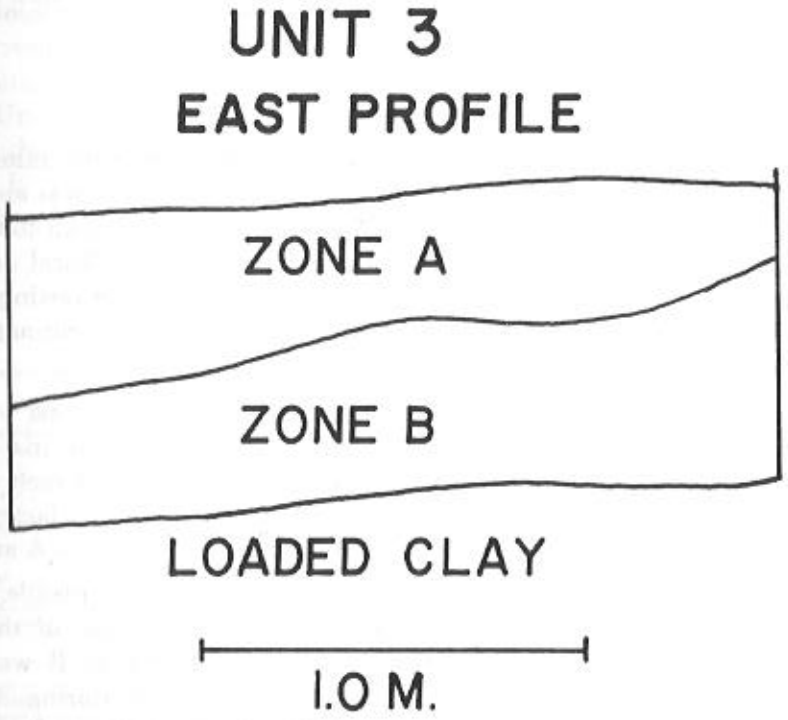

Fig. 4.—East profile of Unit 3.

TABLE 2

UNIT 2 ARTIFACTS

Artifact Categories	Level 1	Level 2	Level 3	Level 4	Level 5	Totals
	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)
Poverty Point Objects/frags	737	67	515	1342	1397	4058
Daub/Fired Clay				21	19	40
Clay/Nontempered Pottery	1			3		4
Fiber Tempered Pottery				1		1
Steatite Sherds	1 (4.2)		1 (15.1)	2 (55.3)	1 (68.7)	5 (143.3)
Sandstone Bowl Fragments	2 52.0			1 (26.5)	1 (23.3)	4 (101.8)
Figurines						0
Gorgets/frags						0
Unworked Hematite			1 (38.1)	6 (140.7)		7 (178.8)
Hematite Plummets/frags					2 (25.5)	2 (25.5)
Galena						0
Ochre				2 (35.8)	2 (33.4)	4 (69.2)
Quartz						0
Projectile Points	1		2		5	8
Needles						0
Double Ended Pieces				1		1
Beveled Pointed Pieces	1					1
Bifaces			1			1
Retouched/Utilized Flakes	11	1	11	46	69	138
Alternately Chipped Flakes	1				2	3
Flakes w/Reverse Chipping				1		1
Flake End Scrapers					1	1
Flakes w/Polished Use Edge		2	3		4	9
Notched Flakes					6	6
Retouched/Utilized Blades				1	1	2
Nibbled Bladelets						0
Backed Bladelets						0
Backed Blades			1			1
Core Fragment End Scrapers	1					1
Various Utilized Cores	3	1		6	27	37
Notched Core Fragments					1	1
Choppers						0
Whetstones/Abraders		1		6	1	8
Polishing Stones						0
Hammerstones						0
Flakes w/Sheen			1	2		3
Waste Cherts						
Local Tan/Brown/Red/Yellow	61 (120.7)	12 (40.5)	60 (388.4)	68 (498.8)	25 (71.8)	226 (1120.2)
Exotic White	128 (195.8)	38 (69.1)	95 (321.0)	93 (457.0)	166 (852.8)	520 (1895.7)
Exotic Gray/Tan	33 (39.4)	4 (6.3)	6 (36.2)	38 (227.6)	8 (37.2)	89 (346.7)
Other Exotic	9 (13.2)	5 (16.0)	5 (22.2)	1 (1.4)	6 (18.6)	26 (71.2)

of the old humus zone in Haag's profile (Fig. 2). At the top of this construction of loaded fill was a sloping, hard-packed brown lens (Figs. 5-7B). The upper surface of this lens was smooth and well packed, and the overlying deposits separated from it easily. This surface sloped upward toward the north edge of unit 4 at which point it leveled out and became less hard-packed (Figs. 5, 7B). This loaded construction with horizontal top and sloping surface is interpreted as a primary platform

constructed on the original surface to a height of 1.5m. The loaded construction fill was completely devoid of artifacts.

The top of this platform was followed north for 5.0m in a 1m wide trench. One postmold, feature 5, was located at the point where the platform begins to slope downward (Fig. 5). Approximately 2.25m north of the edge of the platform, a small fire basin or hearth, feature 1, measuring 40cm north-south, 35cm east-west, and 10cm deep, was defined. It contained some charcoal and the edges were red and fire-hardened. North of the fire basin were 4 irregular depressions in the surface, features 2,3,4, and 6, which were filled with the same black midden that covered the top of the platform.

The sloping surface on the south side of ridge 3 was covered with a yellow clay fill which extended up to the edge of the original platform. This zone as well as the top of the platform were in turn covered with a layer of dark black midden. All artifacts tabulated from this unit (Tab. 4) were derived from the top 40cm of the 2m square or from the midden above the top of the platform.

INTERPRETATIONS

On the basis of the data presented in the preceding sections, several important observations concerning the north sector can be made. They are somewhat speculative because of the limited area that was excavated. However several possible guidelines and suggestions for future testing in the area can be pointed out. The following is a summary of the stratigraphic situation and the relationship of that stratigraphy to the phases that Gibson (1973: 72-87, 1974) has proposed for the Poverty Point site. Also discussed are the differential domestic uses of the ridges and swales.

In general, the construction and depositional history of ridge 3, the backslope of ridge 2, and the intervening swale appears to have been rapid and to have comprised possibly 3 occupations. The probable sequence is: (1) a short-term occupation of the original surface of Macon Ridge; (2) a rapid excavation of the swale between ridges 2 and 3 and construction of those ridges; (3) the use of the top of the ridge for domestic structures, and the deposition of substantial midden in the base of the swale and slopes of the ridges; and (4) the deposition of a later midden over the top of the ridge.

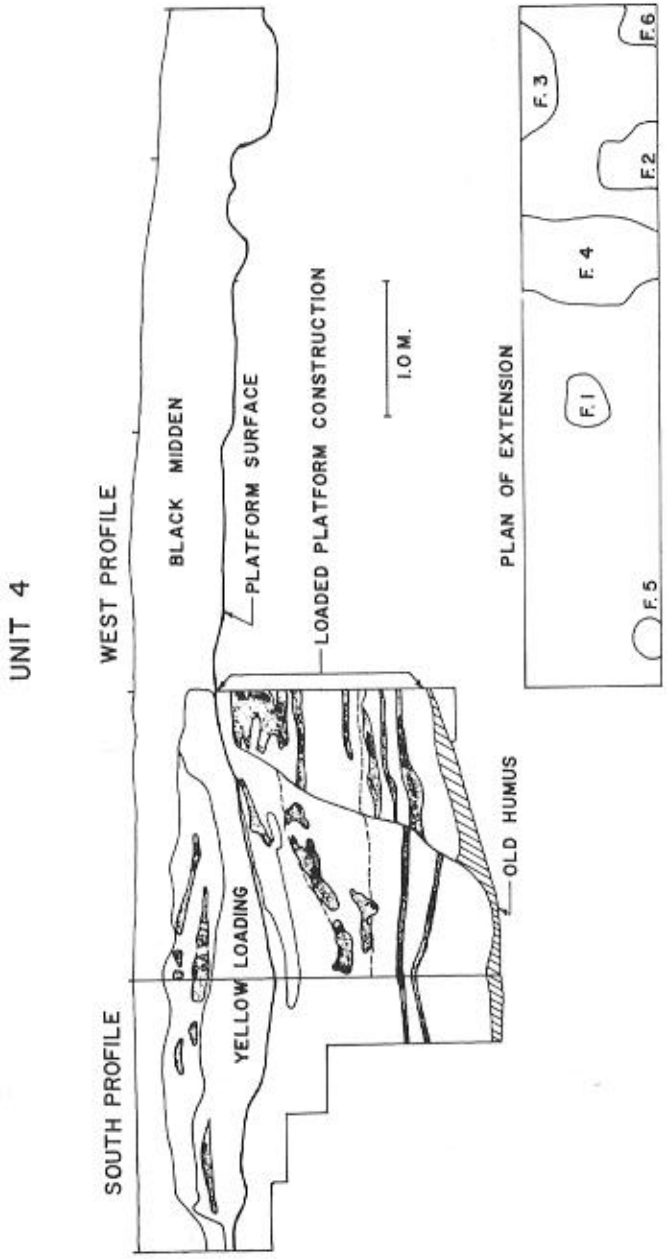

Fig. 5.—South and west profiles of Unit 4 and plan of extension trench.

TABLE 3
UNIT 3 ARTIFACTS

Artifact Categories	Level 1	Level 2	Level 3	Level 4	Level A	Level B	Totals
	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)	No. (gr)
Poverty Point Objects/frags	91	1135	1138	1042		560	3966
Daub/Fired Clay		22	27	59			108
Clay/Nontempered Pottery	1	4	1			1	7
Fiber Tempered Pottery		1		1		1	3
Steatite Sherds	2 (42.8)	3 (37.3)	1 (19.5)	1 (14.7)	1 (30.7)	2 (30.3)	10 (175.3)
Sandstone Bowl Fragments		2 (74.0)	2(224.8)	2 (37.1)			6 (335.9)
Figurines	1	1					2
Gorgets/frags				1			1
Unworked Hematite				1 (10.4)	1 (75.8)		2 (86.2)
Hematite Plummets/frags				2 (97.3)		1(143.8)	3 (241.1)
Galena		1 (9.6)	1 (3.5)	1 (53.2)		1 (10.4)	4 (76.7)
Ochre		1 (3.3)		1			2 (3.3)
Quartz	1						1
Projectile Points		2		3		1	6
Needles		2					2
Double Ended Pieces							0
Beveled Pointed Pieces							0
Bifaces	2	4		1		1	8
Retouched/Utilized Flakes	8	15	8	10	4	1	46
Alternately Chipped Flakes	1						1
Flakes w/Reverse Chipping							0
Flake End Scrapers		2					2
Flakes w/Polished Use Edge				1	1		2
Notched Flakes				1	2		3
Retouched/Utilized Blades	1	5			1		7
Nibbled Bladelets							0
Backed Bladelets		1	1				2
Backed Blades		2			1		3
Core Fragment End Scrapers		1	1				2
Various Utilized Cores	2	4	7	8	2	5	28
Notched Core Fragments	1					1	2
Choppers							0
Whetstones/Abraders	1	1	4	2			8
Polishing Stones				1			1
Hammerstones				1			1
Flakes w/Sheen			1			1	2
Waste Cherts*							
Local Tan/Brown/Red/Yellow	15 (151.5)	30 (148.1)	10 (91.8)	27 (149.8)	14 (63.4)	10 (130.8)	106 (735.4)
Exotic White	31 (158.0)	89 (538.0)	31 (355.3)	37 (126.2)	40 (117.3)	35 (185.5)	283 (1280.3)
Exotic Gray/Tan		29 (68.5)	27 (95.5)	32 (107.8)	15 (74.3)	21 (39.0)	115 (385.1)
Other Exotic		16 (23.4)	6 (9.2)	6 (7.4)	4 (12.0)		32 (52.0)

The only area of original humus was encountered at a depth of 2.7m at the base of unit 4. No artifactual materials were recovered from the small exposed area of this surface; however, a few flecks of charcoal were noted. An occupation of this surface by Poverty Point people prior to the construction of ridge 3 would be pre-Florescent phase and date prior to 1000 B.C. Haag also located an old humus zone beneath the construction fill of ridge 3 and an occupation on the pre-ridge surface below the north slope of ridge 2 (Fig. 2). What was apparently a similar

TABLE 4
UNIT 4 ARTIFACTS

Artifact Categories	Level 1	Level 2	Extension	Totals
	No. (gr)	No. (gr)	No. (gr)	No. (gr)
Poverty Point Objects/frags	74	520		594
Daub/Fired Clay		4		4
Clay/Nontempered Pottery			1	1
Fiber Tempered Pottery			1	1
Steatite Sherds	1 (4.9)	2(115.4)	3 (50.9)	6 (171.2)
Sandstone Bowl Fragments				0
Figurines				0
Gorgets/frags				0
Unworked Hematite	1 (6.2)	1 (35.1)		2 (41.3)
Hematite Plummets/frags				0
Galena			1 (17.9)	1 (17.9)
Ochre		1 (15.1)		1 (15.1)
Quartz				0
Projectile Points				0
Needles				0
Double Ended Pieces				0
Beveled Pointed Pieces				0
Bifaces	1	2		3
Retouched/Utilized Flakes	4	5		9
Alternately Chipped Flakes		1		1
Flakes w/Reverse Chipping				0
Flake End Scrapers	1			1
Flakes w/Polished Use Edge			1	1
Notched Flakes				0
Retouched/Utilized Blades	1			1
Nibbled Bladelets				0
Backed Bladelets				0
Backed Blades				0
Core Fragment End Scrapers				0
Various Utilized Cores	1	6	1	8
Notched Core Fragments	1	1		2
Choppers		1		1
Whetstones/Abraders				0
Polishing Stones				0
Hammerstones	1		1	2
Flakes w/Sheen				0
Waste Cherts				
Local Tan/Brown/Red/Yellow	18 (79.0)	15 (156.0)	11 (229.0)	44 (464.0)
Exotic White	14 (87.0)	103 (529.0)	19 (111.5)	136 (727.5)
Exotic Gray/Tan				0
Other Exotic				0

zone was noted by Ford at the base of cut 1 in ridge 5 (ridge 4 on Ford and Webb's Figure 6) in the north sector of the site (Ford and Webb 1956: 22-23); a charcoal stain on that surface represented the only evidence for pre-ridge occupation in that area. Additional information on this zone would certainly be desirable for a more complete definition of the Developmental phase and other earlier occupations. This is only to point out that the zone where these materials may be expected is preserved below the construction fill of at least some of the ridges in the north sector; albeit very difficult to expose because of the depth of the overlying deposits.

Subsequent to occupation of the original surface in this area, there appears to have been a rapid construction of a platform. Similar construction is probably also present in ridge 2 as evidenced by the loading noted in Haag's cut overlying an initial occupation on the original surface (Fig. 2) and the presence of relatively sterile deposits underlying zone B in unit 3 (Fig. 4). It is believed that most of the construction fill used in these ridges was excavated from the adjacent swales. No old humus was noted at the base of unit 1 where the excavation was carried to the underlying subsoil. In fact, the midden deposits were lying directly on the slope of the subsoil clay. The steep slope of the subsoil clay is thought to be the configuration of the surface after the removal of earth from that area for construction fill on the adjacent ridges.

Ridge 3 construction as evidenced in unit 4 consisted of a loaded fill of sterile clay. Several stages of construction were noted in the platform fill (Figs. 5-7B), but these are interpreted as relatively brief interruptions in the construction rather than occupation zones since there were no artifactual materials associated with the upper surfaces of these zones. This assertion should be verified by a larger horizontal exposure of the various lenses.

After the construction of the ridges, there was an intense occupation of the area. Poverty Point objects and other artifacts were lying directly on the sterile subsoil at the base of unit 1, and a relatively homogeneous midden nearly a meter thick lay between the subsoil and the base of zone A. On the basis of Haag's profile, this dense midden appears to fill the swale between ridges 2 and 3 and gradually thins as it approaches the higher parts of the ridges. Unit 3 (Fig. 4) has a layer of primary midden deposits (zone B) overlying the construction fill of ridge 2. It is somewhat thinner than that noted in the swale, varying between

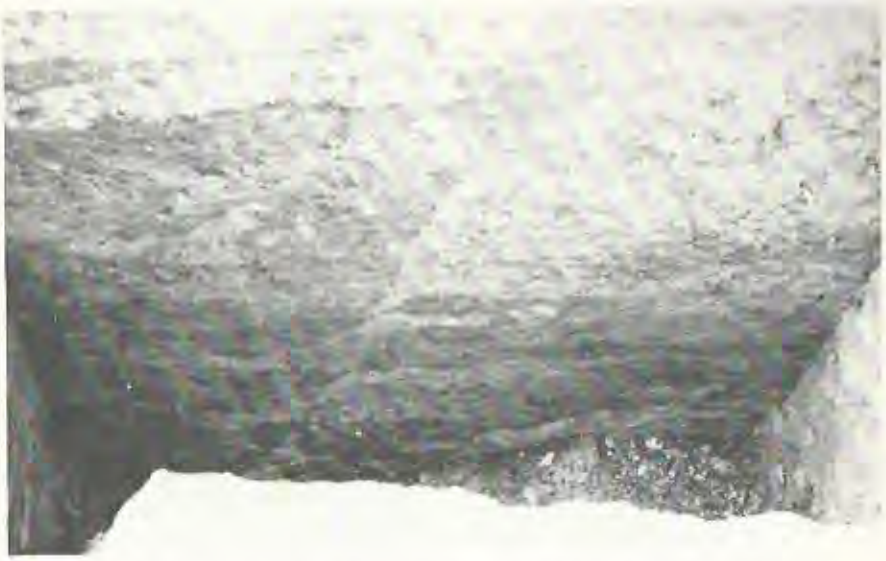

Fig. 6A.—Unit 4 showing loading of platform in west profile.

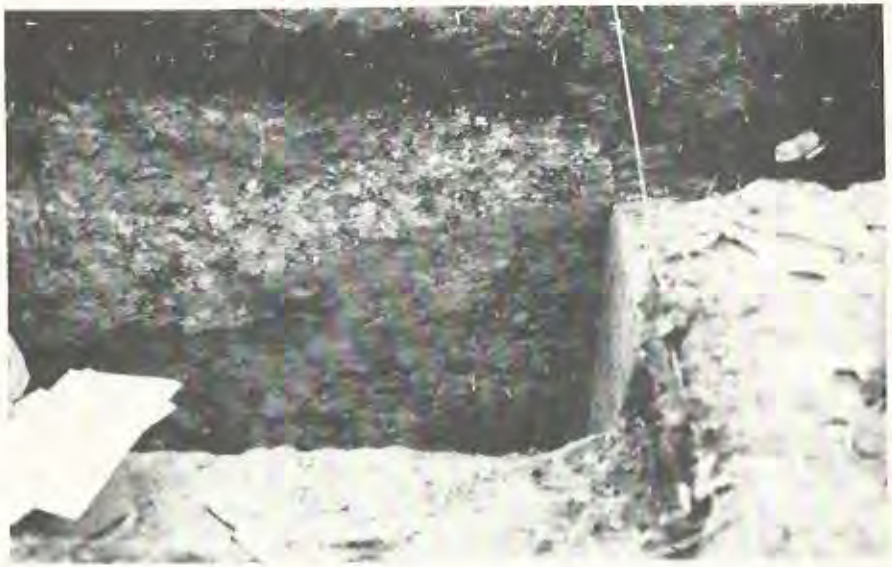

Fig. 6B.—West profile of Unit 4 showing sloping surface of platform, loaded clay above platform and overlying midden.

Fig. 7A.—Unit 4 showing loading of platform, yellow clay over platform, and overlying midden in south and west profiles.

Fig. 7B.—View north along extension from Unit 4 showing top of platform and overlying midden.

35cm-60cm, and is buried beneath zone A which is composed of eroded materials, a later occupation, or both.

The top of the primary construction of ridge 3 was relatively level in the areas exposed in the extension trench from unit 4. The sloping surface of the platform on the south side of the ridge was hard-packed in contrast to the top of the platform. One small fire basin, feature 1, and 1 postmold near the break between the top of the platform and its south slope (Fig. 5) are the only evidences that houses may have been placed on the top of the ridges. Ford and Webb (1956: 32) assumed that the ridges were for the placement of dwellings but could find no direct evidence for them. Further exposure of the platform surface in the

vicinity of unit 4 or ridge 3 might provide some conclusive information on that crucial problem.

The ridge and swale construction and the immediately overlying midden can be correlated with Gibson's *Florescent* phase, *circa* 1000-800 B.C., which he has characterized by massive earthwork construction (Gibson 1973: 82-84). This phase would be represented in these excavations by the platform fill in unit 4, the loaded materials at the base of unit 3, and zone B in units 1, 2, and 3. The deposition during this phase is interpreted here as follows: Ridges 2 and 3 were constructed over the original humus and/or *Developmental* phase occupation by excavation of sterile fill from the intervening swale. Occupation of the area was characterized by habitation structures along the crest of the ridges with various domestic activities, such as cooking, processing, and manufacturing, taking place on the slope of the ridges and the base of the swale. Alternately, most of the domestic activities could have been confined to the slopes of the ridges with the swale used primarily as a refuse dump. This model of the occupation needs to be clarified by further horizontal exposure of the different areas and the location of various subsurface features which would verify the spatial differentiation of domestic activities. A correlational analysis of the horizontal distribution of artifacts and cultural features would add greatly to this study.

In unit 4, there is a yellow clay zone overlying the prepared slope of the platform and a dark midden zone capping that clay as well as the surface of the platform. The clay zone may represent further modification of ridge 3 and subsequent occupation of that area some time after the termination of the original habitation of the primary ridge construction. If this is in fact a secondary occupation of this area, then it may be ascribed to the *Post-Florescent* phase, *circa* 800-600 B.C., which is thought to have been confined to the northern and southern sectors of the Poverty Point site adjacent to Bayou Macon (Gibson 1973: 85-87). The excavation units that might be correlated with this phase would be the loaded fill above the sloping platform surface, the overlying midden deposit in unit 4, and zone A, in units 1, 2, and 3 or excavation levels 1 and 2 in those units. An interlude between the *Florescent* phase and the *Post-Florescent* phase materials may be indicated by the presence of a gray silt zone separating zones A and B in unit 2 (Fig. 3).

In summary, the test excavations in the north sector of the Poverty Point site provide information on several aspects of that area. The depositional history of the area appears to have consisted of at least 2 and possibly 3 episodes of habitation and construction. These include an occupation on the original surface of Macon Ridge, the construction and utilization of the earthworks, and lastly a secondary occupation of the ridges. The construction features and artifact inventories show a differential use of the various parts of the earthworks and swales. House structures are expected along the crests of the ridges; cooking, processing, and other manufacturing activities are probably confined to the slope and swale areas of the earthworks, with the swale being the main repository for refuse. These interpretations need to be further tested, but this information, used in conjunction with other surface and excavation data, should serve as guidelines for developing future research.

ACKNOWLEDGEMENTS

I would like to express my appreciation to Drs. William G. Haag, Clarence Webb, Jon Gibson, and others for their encouragement and support, as well as Ellen B. Moore of the State Land Office for permission to excavate at the Poverty Point site. Sincere thanks go to the field crew, to Mike O'Brien who did the chipped stone analysis, and to Jenna for her encouragement, support, and criticism.

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The Poverty Point Culture, As Seen From Southeastern Texas

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ABSTRACT

Southeastern Texas shared a common Archaic heritage with Poverty Point but did not participate in the sophisticated cultural and technical achievements of Poverty Point culture. It is possible that the Texas Gulf Coast was a corridor through which Mesoamerican influences were transmitted to Poverty Point.

INTRODUCTION

Webb (1968: 318) has described the Poverty Point culture as being part of the well developed southeastern Archaic tradition with an overlay of external traits, perhaps several from Mesoamerica. This article will describe some recent information from the upper Texas coast, which tends to reinforce the view of the basic Archaic nature of

the Poverty Point culture, without eliminating the possibility of some external influences for the more sophisticated Poverty Point traits. There are a number of Archaic traits present in the Poverty Point culture which have a wide distribution along the eastern Gulf Coast and extend into southeastern Texas. Trait lists given by Webb (1968: Tab. 2) for the Poverty Point culture will be compared with materials from the middle and late Archaic periods of southeastern Texas. While southeastern Texas does not appear to have greatly influenced the development of the Poverty Point culture, a common Archaic background is shared by the 2 areas, and southeastern Texas can give perspective to a western limit of the Poverty Point culture.

Gibson (1974) sees not only an Archaic background for the Poverty Point culture but proposes an almost entirely local development based on unique environmental/geographical factors with little influence from Mesoamerica. Gibson's development model is well presented and certainly applies to the fact that each culture develops in its own context, but I feel that caution should be exercised before dismissal of Mesoamerican influences. While the "new" archeologists recognize the possibility of diffusion, the current trend toward processual studies tends to deemphasize possible parallel studies concerning diffusion. As Willey (1974: 331) has recently observed, archeology must subsume diffusion as well as local innovation to be meaningful. Ford's (1969) theories may be extreme in seeing all good things as coming from Mesoamerica, but the diffusion of some cultural traits from this region to Poverty Point remains a possibility.

TRAIT DISTRIBUTIONS

In examining possible Mesoamerican influences on Poverty Point, there need not be a mile-by-mile trail of similar traits from Mexico to Louisiana. Willey (1966:336) makes a good case for rapid diffusion of agriculture from Mesoamerica with little influence on the intermediate Texas area. A good example of this is the distinctive Toyah arrow points of the Trans-Pecos region of Texas and of northern Mexico, that are found occasionally in southeastern Texas (Patterson 1974b: Tab. 1). There is a gap of several hundred miles in the distribution. As an historical parallel, there is not a complete record of dispersal of the European horse in North America, but the impact of the horse on late

development of plains Indian cultures is of great importance. The basic knowledge of a diffusion mechanism operating in this case certainly adds to our overall understanding. Projectile point distributions along the western Gulf Coast show a continued pattern of possible diffusion of ideas over a long time period. I have shown (Patterson 1973: Tab. 4) the common distribution of projectile point types from Avery Island, Louisiana, to Sierra de Tamaulipas, Mexico, and Tolstoy (1971) shows similar point types even further south in central Mexico. Griffin (1966: 115) has earlier noted this broad distribution of similar projectile points. What is required is an examination of each trait on an individual basis to attempt to ascertain the importance of local development versus external influence. Of course, even if external influences are detected for Poverty Point traits, there is no reason to presuppose a single Mesoamerican source, as will be discussed in detail for prismatic blades.

One of the primary traits generally mentioned for the Poverty Point culture is microblade technology. There are 2 aspects that should be considered, one of which is uniqueness and the other is the ultimate source of this technology. Textbooks, such as Jennings (1968: 214), mention Poverty Point microblades as being unique in the southern United States. Morse (1976: 15) has recently pointed out that prismatic blade technologies are widespread in North America. Information is available to confirm this for the Archaic period in the south-central and eastern United States. I have summarized (Patterson 1974a) a wide distribution of prismatic blade technologies in Texas, particularly the small blade technologies (Patterson 1973) in southeastern Texas. The Paxton site (Phillips 1970: 398), which may not be a Poverty Point site, even though close to Jaketown, has blade cores atypical of the Poverty Point culture. To the northeast, there is a possible example of Archaic small blade technology in Ohio, prior to Hopewell (Patterson 1975b); and Ritchie (1962:Pl. 1) illustrates prismatic blades for the Archaic period in New York. Microblades are also found in Archaic contexts in Florida (Watson 1974).

The other consideration of Poverty Point microblade technology is the ultimate source, if local invention is discounted because of widespread distribution of small blade technologies. Originally, opinions concentrated on Asiatic Mesolithic sources, such as Ford, Phillips, and Haag (1955: 145-150) and Griffin (1966b: 287). Then the pendulum swung to a Mesoamerican source (Ford 1969: 48; Webb 1968:312). Ford sees Poverty Point microblade technology as evolving from Paleo-

Indian blade technology in Mesoamerica. I do not agree with this proposal. The large Paleo-Indian blades, which are generally over 20mm wide, are quite distinctive from blades produced by microblade techniques (Converse 1973: 14; Hammatt 1969; Kraft 1973). Replicative experiments (Sollberger and Patterson n.d.) show that Paleo-Indian blades may have been made by direct percussion, while later small blade technologies employed indirect percussion and pressure techniques. Further, MacNeish (1958, 1967) shows that small blade technology in Mexico starts in the middle Archaic period of 4000 - 2000 B.C., or at the same time that small blade technology starts farther north in the United States. I have recently proposed (Patterson 1973) a return to the interpretation of post-Pleistocene small blade technology diffusing from Asia to the eastern United States. Information by Borden (1969), Sanger (1968), and Patterson (1973) outlines a possible diffusion route and chronology, which favors Middle Archaic movement of small blade technology to the eastern United States and northern Mexico from the northwest.

What is really unique about Poverty Point microblade technology is not the presence of microblades, but the fact that they were overwhelmingly transformed into a single artifact type, the Jaketown perforator. It would appear to me that the Poverty Point microblade industry, with its high use of semi-conical blade cores and Jaketown perforators, is a local adaptation of a more generalized widespread Archaic small blade technology in the same manner that Cook (1971) sees the Denbigh microblade tradition in Alaska as being a localized adaptation of a more generalized technology. Griffin (1966: 120) has expressed the opinion that the Poverty Point microblade industry is a local response to a particular ecological situation. Jaketown perforators are found in southeastern Texas (Patterson 1973) from the Archaic to late prehistoric periods but are never very numerous. Small prismatic blades, ranging in width from 4.0mm-20mm, in southeastern and south-central Texas were used to manufacture a variety of tools, such as: gravers, possible compound arrow points, scrapers, and knives. By comparison, Phillips (1970:399) states that 45 percent and 79 percent of microblades at Jaketown and Poverty Point, respectively, were used for the manufacture of the Jaketown perforator. Perforators made on microblades are also found in Florida (Watson 1974). Jon L. Gibson (personal communication) has informed me that similar artifacts have been found in a late Paleo-Indian context at Vatican, St. Landry Parish,

southwestern Louisiana, but that the debitage indicates bipolar technology, which is different from the prepared core technology discussed in this article.

The Poverty Point culture is distinctive in its high use of a single blade core type, which is semi-conical with an acute angle striking platform that has been formed by a single facet (Ford, Phillips, and Haag 1955: Fig. 55). This type of blade core is found in southeastern Texas, with both single and multifaceted striking platforms, and is only one type among many (Patterson 1973). Here again is an indication of a specific local adaptation at Poverty Point from a more generalized, available technology. While the Poverty Point culture has a high use of a single blade core type, both Clarence H. Webb and Jon L. Gibson have informed me (personal communications, 1975) that other core types are present, including semi-conical cores with multifaceted platforms and double platform cores. These give an indication of the background of a more generalized blade technology.

Most of the projectile points types mentioned by Webb (1968: 311) as being of importance to Poverty Point sites are also found in the southeastern Texas Archaic period; these include Gary, Ellis, Kent, Carrollton, and Desmuke. Perino (1971:22) notes that Delhi points of Louisiana probably equate to the Bulverde points of Texas. Macon points (Gagliano 1967:54) of Louisiana are similar to Yarbrough points (Suhm and Jelks 1962: 261) common in east Texas, although Clarence H. Webb (personal communication) does not feel that Gagliano's examples are typical. Out of the 10 major point types listed by Webb (1968), only Motley and Pontchartrain appear to be types not frequently occurring in southeastern Texas, and the Epps type mentioned by Webb does not occur frequently in the literature anywhere. Point types found in the southeastern Texas Archaic also occur in northeastern Texas (Johnson 1962). Other projectile points mentioned by Webb (1968) in connection with Poverty Point sites, and shared with the Texas Archaic period, are Marcos, Palmillas, and Wells.

Huxtable, Aitken, and Weber (1972: 269) have noted the long time duration of clay balls, predating and outlasting the Poverty Point culture, and Webb (1968) has noted the wide geographic distribution along the Gulf Coast. The use of clay balls at Poverty Point is distinctive because of the large numbers and special shapes. Clay balls in southeastern Texas are reported frequently, especially in areas where there is no natural rock supply that could have been used for cooking.

Examples have been given by Aten (1967), Ambler (1967), Shafer (1968) and Patterson (1975a), and clay balls seem to be used over a long period of time (Patterson 1974b). Recently, Clarence H. Webb has examined some clay balls from a predominantly late Archaic site, 41HR184, in Harris County, Texas, and has informed Brent Smith (personal communication) that there appear to be biconical as well as amorphous forms. Baked clay balls in southern Texas are generally of amorphous shapes with a large number of Harris County examples having distinct grooves.

In examing Webb's (1968: Tab. 2) trait list for Poverty Point, the primary traits also occurring in southeastern Texas include clay balls and microflints. Tubular pipes, clay figurines, stone vessels, greenstone celts, hematite plummets, and fancy lapidary work seem to be absent in southeastern Texas. Secondary traits discussed by Webb for Poverty Point that are also present in southeastern Texas are: choppers, bifacial knives, thick bifaces, drills, scrapers, gravers, spokeshaves, and pendants; all common to the general Archaic in the southern United States. Most of these artifact types are found as early as the Paleo-Indian period (Kraft 1973). Pendants that I have found in southeastern Texas (sites 41HR184, 41HR210) are simply flint flakes with single drilled holes, having no advanced lapidary work as on Poverty Point sites. Simple stone pendants are found throughout the area and time of eastern Archaic tradition, such as Tennessee (Lewis and Lewis 1961: Pl. 29) and New York (Ritchie 1969: Pl. 39).

Tertiary traits discussed by Webb for the Poverty Point culture that are also present in southeastern Texas are mortars and sand-tempered sherds. There is a lack of ground stone artifacts, such as celts and grooved axes, in southeastern Texas, although some occur in northeastern Texas (Johnson 1972: Fig. 12) during the late Archaic stage. An occasional ground atlatl weight is found in southeastern Texas (Wheat 1953). Mortars have been found in southeastern Texas in both Archaic (site 41HR184) and Woodland (site 41HR244) contexts in Harris County. Wheat (1953: 230) also noted this artifact type in this area, but it is not common. It should be noted that sand-tempered pottery in southeastern Texas may start later than at Poverty Point (Aten 1971: Fig. 10). Clarence Webb (personal communication, 1975) no longer feels that sand-tempered pottery is an important Poverty Point trait.

Few exotic materials, such as quartz crystals and galena, are found in southeastern Texas. Local Indians seem to have been too busy with subsistence problems to bother trading in luxury items. No complex social organization is detectable in southeastern Texas, which is to be expected from a simple hunting and gathering lifeway that lasted until historic times. The more elaborate traits of Poverty Point did not move into the upper Texas coast, and later nearby Caddo Indian traits were not influential either, although Caddo Indians used similar projectile point types.

SUMMARY AND CONCLUSIONS

In summary, southeastern Texas shares much of the general Archaic background of Poverty Point, as does much of the Gulf Coast, but southeastern Texas did not share in further cultural development, agriculture, or technical achievement. The Texas Gulf Coast remains a possibility as a corridor for transmittal of Mesoamerican traits to Poverty Point, even though no significant local effects are evident. Willey (1966: 336) refers to the Texas coastal plain and the parallel "Gilmore Corridor" slightly farther north, which were used by historic Indians, as likely routes for Mesoamerican contacts with the southeastrn United States. Both of these routes cross southeastern Texas. The following are reasons to continue consideration of the Texas coastal plain as a likely avenue for Mesoamerican influences:

1. If the irregular Gulf coastline is avoided, there are no particular physical problems to travel on the coastal plain.
2. The Texas coastal plain is the 1 route to Mesoamerica where a consistent projectile point distribution has been established (Patterson 1973: Tab. 4) to indicate the possibility of travel and/or diffusion.
3. The Texas coastal plain is the shortest land route to northeast Mexico.
4. Historical Indian examples are available for the use of this route.

ACKNOWLEDGEMENTS

Appreciation is expressed to Clarence H. Webb and Jon L. Gibson for helpful comments, but final responsibility for conclusions remains with the writer.

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Prehistoric Settlement Patterns Of The Young's Bayou Drainage, Natchitoches Parish, Louisiana

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ABSTRACT

The purpose of this study is to determine the extent and form of prehistoric settlement in the Young's Bayou drainage in Natchitoches Parish, Louisiana. A model of the contemporary ecology was constructed through the survey of floral and faunal resources in local microenvironments. This contemporary ecological model was correlated with evidences of prehistoric technological exploitation from 9 sites. Data from these sites were gathered through surface survey at 8 sites and through excavations at the Young's Bayou site. An intrasite analysis through horizontal plotting of artifacts was done for the Young's Bayou site in order to determine the vertical and horizontal parameters of the site and to delineate activity areas. A relative local chronology was

constructed for the Young's Bayou area through the method of artifact cross-dating. This culture history framework was utilized in the development of a settlement pattern sequence for the area. A change in population density and distribution from the Lithic stage through "Late-Formative stage" times was demonstrated. A semi-sedentary settlement pattern was modeled for the Archaic.

INTRODUCTION

The purpose of this research is to determine the extent and form of prehistoric settlement in the Young's Bayou drainage of Natchitoches Parish, Louisiana (Fig. 1). The concern here is with the macro-settlement pattern, or the arrangement of settlements across the landscape. The goals of this study can be viewed in terms of Steward's (1955:40-41) 3 fundamental procedures of cultural ecology:

> First, the interrelationship of exploitative or productive technology and environment must be analysed. . . . Second, the behavior pattern involved in the exploitation of a particular area by means of a particular technology must be analysed. . . . The third procedure is to ascertain the extent to which the behavior patterns entailed in exploiting the environment affect other aspects of culture.

Any study of prehistoric settlement patterns should be first concerned with understanding the local microenvironments as potential resource areas for past procurement systems (Coe and Flannery 1964). Such areas offered the people economic choices which were reflected in their socio-economic patterns. This can be understood by modeling the present ecology and correlating it with evidence of prehistoric technological exploitation at each site.

Data-gathering for this research concentrated on 3 different activities: ecological surveys, site surface surveys, and the intensive testing of 1 site: the Young's Bayou site. Surveys for local contemporary animal and plant resources were done by Lee Wood and William Verret (Northwestern State University of Louisiana) to initially define the plant and animal species existing in the local microenvironments of the drainage area (Smith, Verret and Wood 1975). In this study, the term

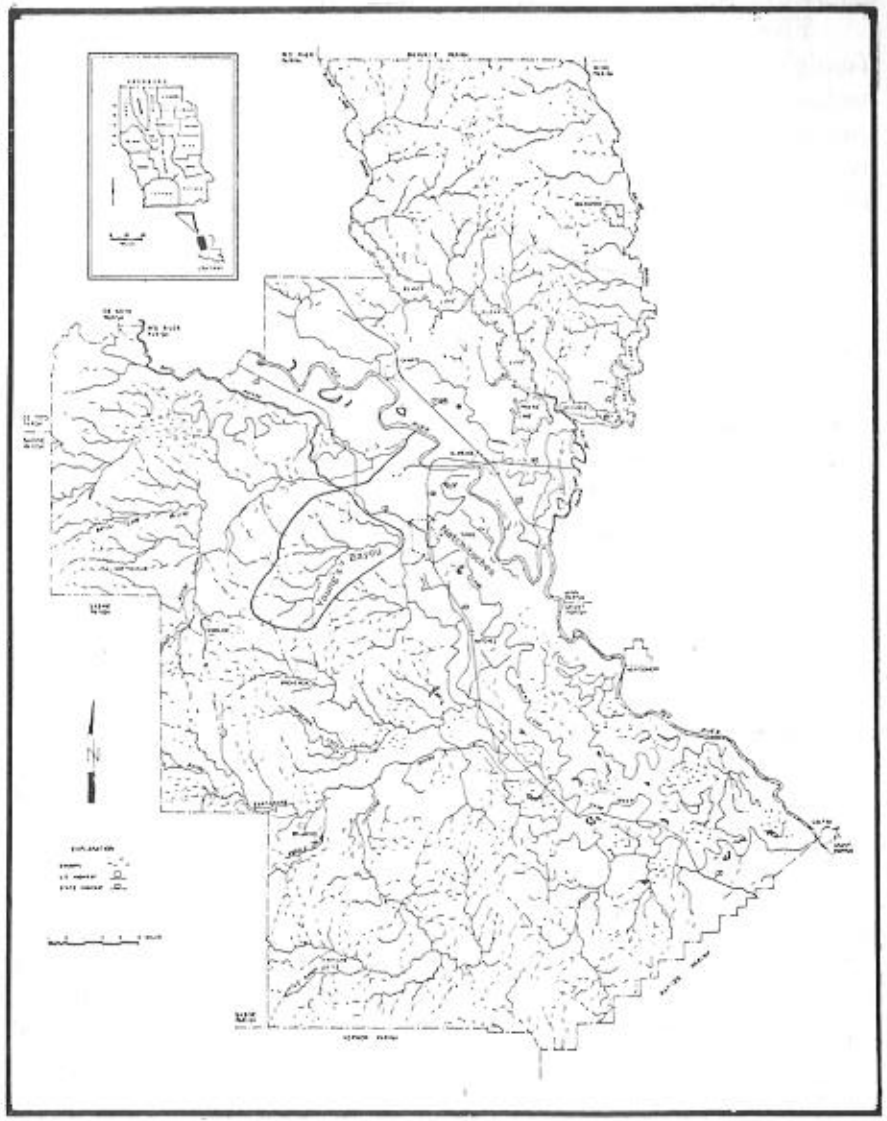


Fig. 1.—Location Map, Young's Bayou drainage, Natchitoches Parish, Louisiana.

"microenvironment" is used to describe a physiographic unit which has distinctive floral and faunal associations.

Five microenvironments have been defined for the immediate Young's Bayou area: Young's Bayou, batture, natural levee, backswamp and terrace (Fig. 2). Two hundred and seventeen animal species and 89 plant species were tabulated according to their location by microenvironment (Smith 1974: 12-20; Smith, Verret and Wood 1975). Later a literature survey was done to gain information on seasonal resource availability for each plant species.

SITE SURVEY DATA

The second focus of the data-gathering was on the survey and surface collection of sites in 1 portion of the Young's Bayou drainage area (Fig. 1). Specific site locations are provided only in a very general manner in the text. Nine sites were located by local amateur archaeologists (Clint Pine, personal communication, 1974). Available surface materials were collected from each site (Figs. 3-8). All 9 sites are located in ecotones, or edge areas between microenvironments.

The Round School Site (16Na50)

The Round School site is located on the Northwestern State University campus under the west lawn of the Teacher Education Center or Round School Building. The site was partially destroyed during construction of the Round School Building. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris, and debitage (Smith 1975).

The Women's Gym Site (16Na51)

The Women's Gym site is located on the Northwestern State University campus under the south lawn of the Health, Physical Education and Recreation Majors Building. The site was partially destroyed during construction of the Women's Gym. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris, and debitage.

The Bossier Hall Site (16Na52)

The Bossier Hall site is located on the Northwestern State University campus under the present location of Bossier Hall. The site

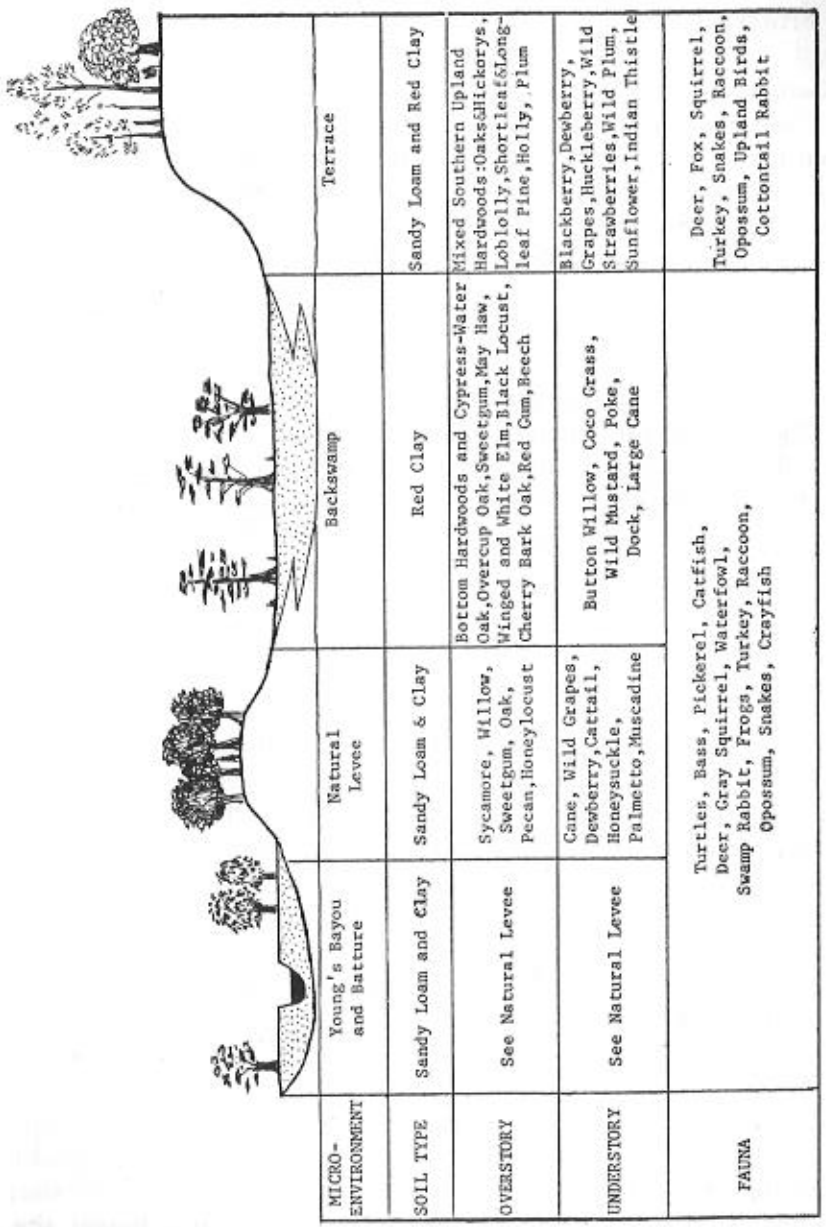


Fig. 2.—A diagrammatic sketch of the Young's Bayou area.

was partially destroyed during construction of Bossier Hall. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris, and debitage.

The Sammy's Pasture Site (16Na53)

The Sammy's Pasture site is located approximately 0.5 mile north of Louisiana Highway 6 and about 8 miles west of Natchitoches. The site is a multi-component midden site, composed of at least 3 archaeological components. The occupations represented include Lithic state, Archaic stage, and at least 1 "Late Formative" occupation.

The Settle's Camp Site (16Na54)

The Settle's Camp site is located immediately adjacent to the south side of Louisiana State Highway 6 near the intersection of the Louisiana State Highway 1 North Bypass. The site was partially destroyed during the recent widening of Louisiana State Highway 6. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris and debitage.

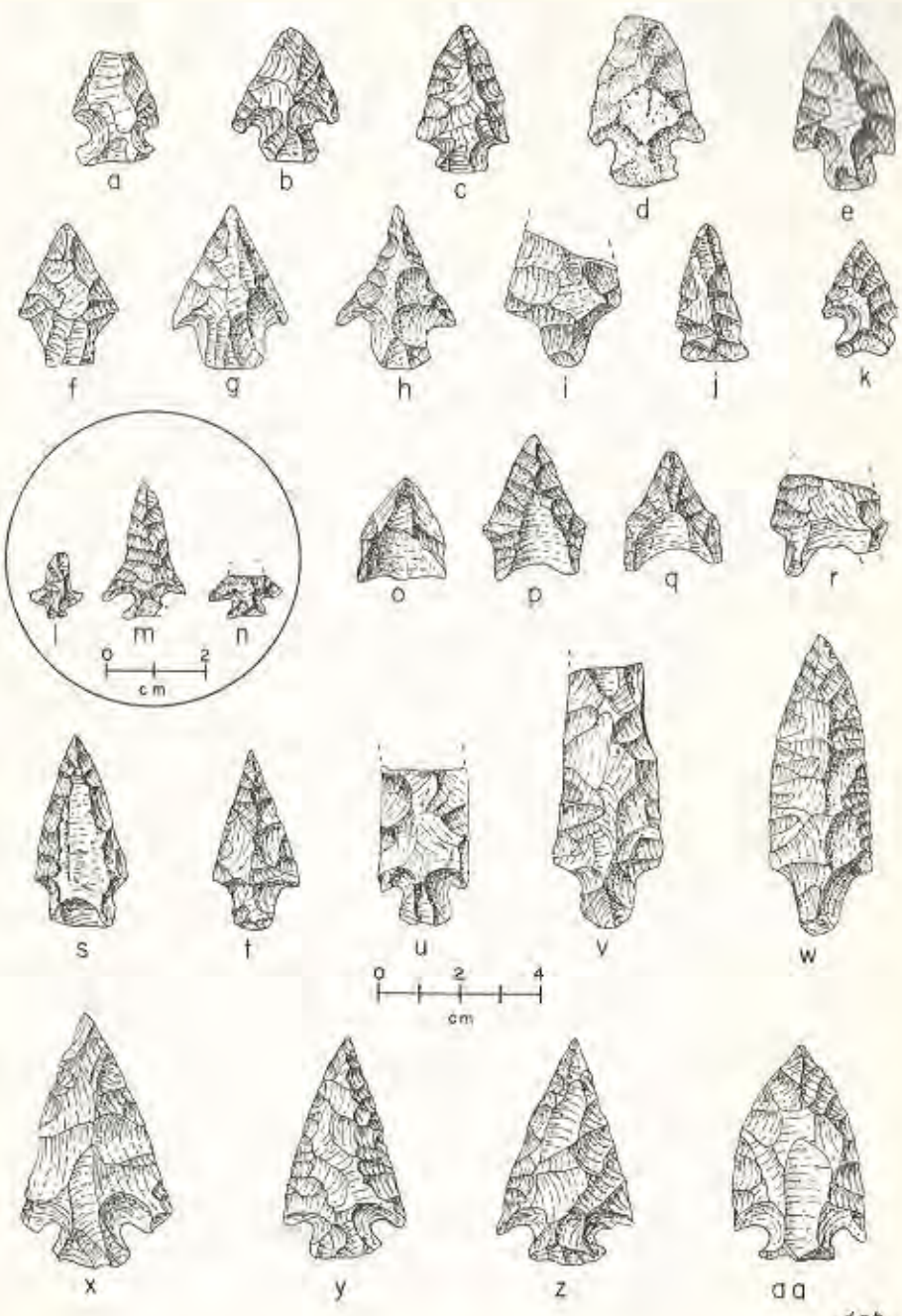
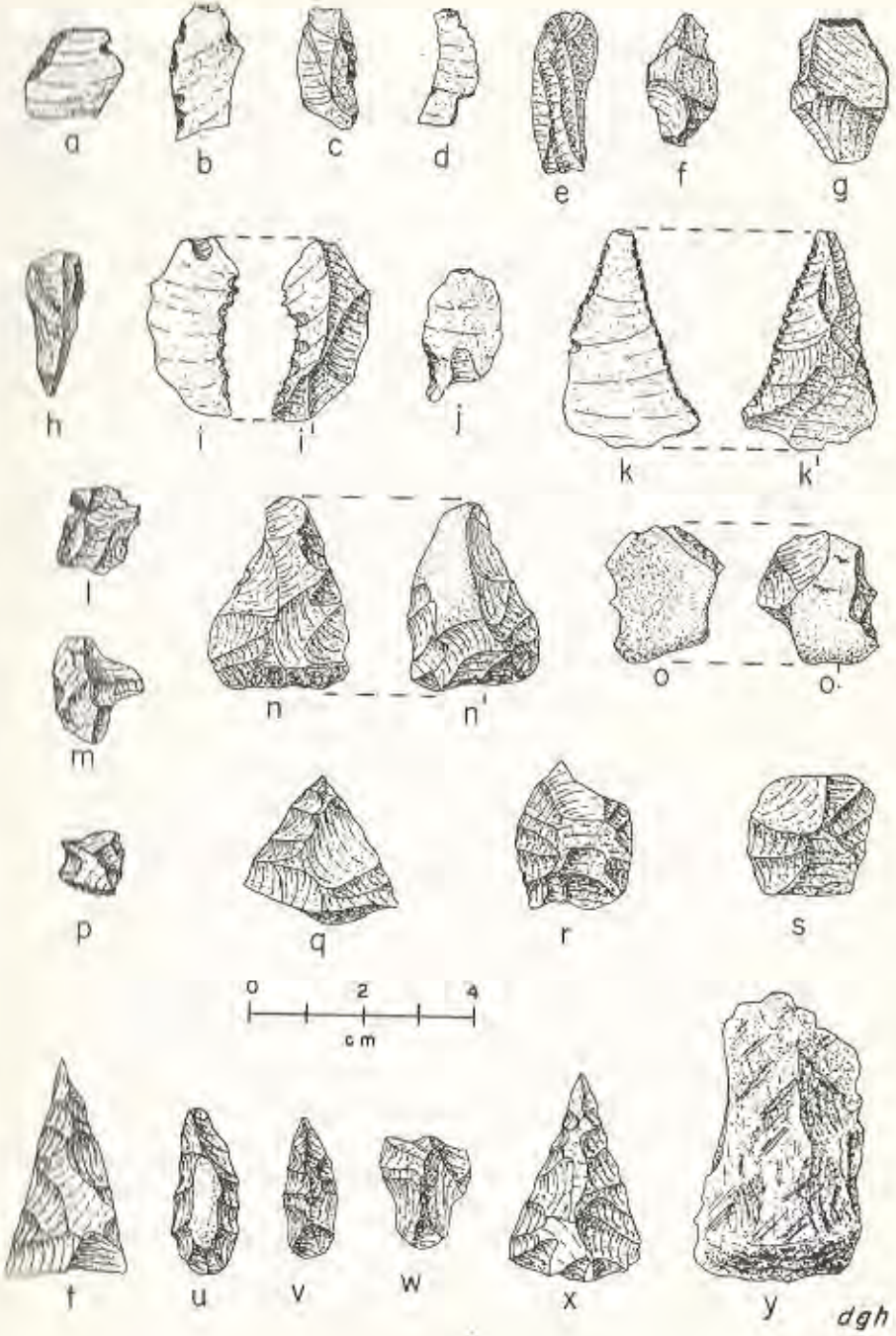


Fig. 3.—Projectile points from the Young's Bayou sites. a. Ensor, Young's Bayou site, surface; b. Ellis, Lime Kiln Road site; c. Ellis, Young's Bayou site. Unit "O"; d. Ellis, Young's Bayou site, surface; e. Palmillas, Young's Bayou site, surface; f. Carrollton, Young's Bayou site, Unit "K"; g. Carrollton, Young's Bayou site, Unit "L-l"; h. resharpened, Young's Bayou site, Unit "D-l"; i. Gary typical, Lime Kiln Road site; j. unstemmed side notched, Round School site; k. Ellis, Young's Bayou site, Unit "D-1"; l. Friley, Young's Bayou site Unit "K"; m. Colbert, Young's Bayou site, Unit "K"; n. Colbert, Young's Bayou site, Unit "L-2"; o-q. San Patrice, var. *hope*, Sammy's Pasture site; r. San Patrice variety *hope*, Young's Bayou site, surface; s. Kent, Round School site; t. Gary typical, Round School site; u. Pontchartrain, Lime Kiln Road site; v. Pontchartrain (burin on a break), Young's Bayou site, Unit "L-l"; w. Pontchartrain, Round School site; x-y. Williams, Round School site; z. Williams, Young's Bayou site, surface. aa. Marshall, Young's Bayou site, surface.



The Keg Site (16Na55)

The Keg site is located west of the Louisiana State Highway 1 Bypass and the present location of the Keg (Bar). The site is presently being partially destroyed by construction activities. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris and debitage.

The Gunflint Site (16Na56)

The Gunflint site is located east of the Louisiana State Highway 1 North Bypass on Northwestern State University property. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris and debitage.

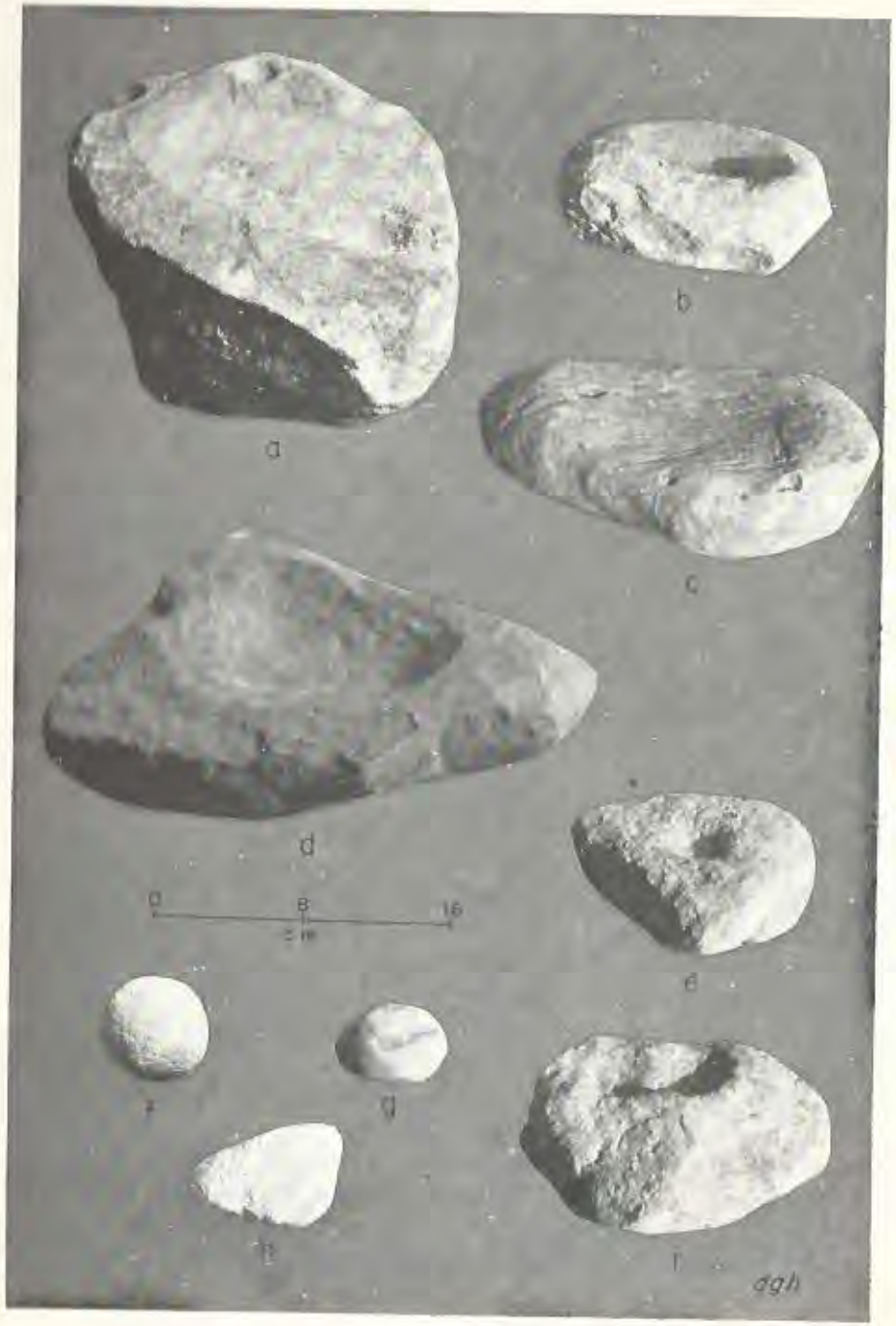
The Lime Kiln Road Site (16Na57)

The Lime Kiln Road site is located on Lime Kiln Road, south of Louisiana State Highway 6, near Natchitoches. The site is an Archaic midden, the surface expression of which was a scatter of lithic artifacts, debris and debitage.

The Young's Bayou Site (16Na58)

The Young's Bayou site was located on the Northwestern State University Campus, west of the Louisiana State Highway 1 North

Fig. 4.—Chipped stone tools from the Young's Bayou sites. a,c. single edge side scraper, Round School site; b, k. double edge side scraper, Young's Bayou site, surface; d,l. notch, Round School site; e. bladelet, Young's Bayou site, surface; f. double edge side scraper, Round School site; g. combination end and side scraper, Young's Bayou site, surface; h. Jaketown perforator, Young's Bayou site, surface; i. denticulate, Round School site; j. Jaketown perforator, Round School site; m,p. single edge side scraper, surface; n,r,t. biface, Round School site; o. denticulate, Young's Bayou site, surface; q. biface fragment, Round School site; u. ovoid scraper, Young's Bayou site, surface; v. drill, Young's Bayou site, Unit "O"; w. snapped projectile point preform, Young's Bayou site, surface; x. biface, Round School site; y. gouge, Young's Bayou site, surface.



Bypass. The site was destroyed with the construction of the new University Recreation Center, but only after it was sampled through excavations conducted by Northwestern State University faculty and students. Bulldozing operations at the site were observed and supervised by University archaeologists. During this operation, the entire site area was taken down by small 4 to 8 inch vertical levels for the primary purpose of uncovering archaeological features. No features were observed at that time, but an additional artifactual sample was acquired,

The site is a multi-component midden site, composed of at least 5 distinct archaeological components. The occupations represented include Lithic, at least 2 Archaic occupations, and at least 2 later "Late Formative" occupations.

EXCAVATION DATA

The third focus of this research was the excavation of 1 site, the Young's Bayou site (Figs. 9-10). Originally, the Young's Bayou site was discovered by anthropology and geology students at Northwestern State University in October, 1973. Excavations at the site were begun to salvage data that were to be destroyed with the construction of a new University Recreation Center. Standard salvage techniques were used. These included a 10 foot grid system, horizontal stripping by units, arbitrary level excavation units, scatter pattern diagrams and vertical profiles (Fig. 11).

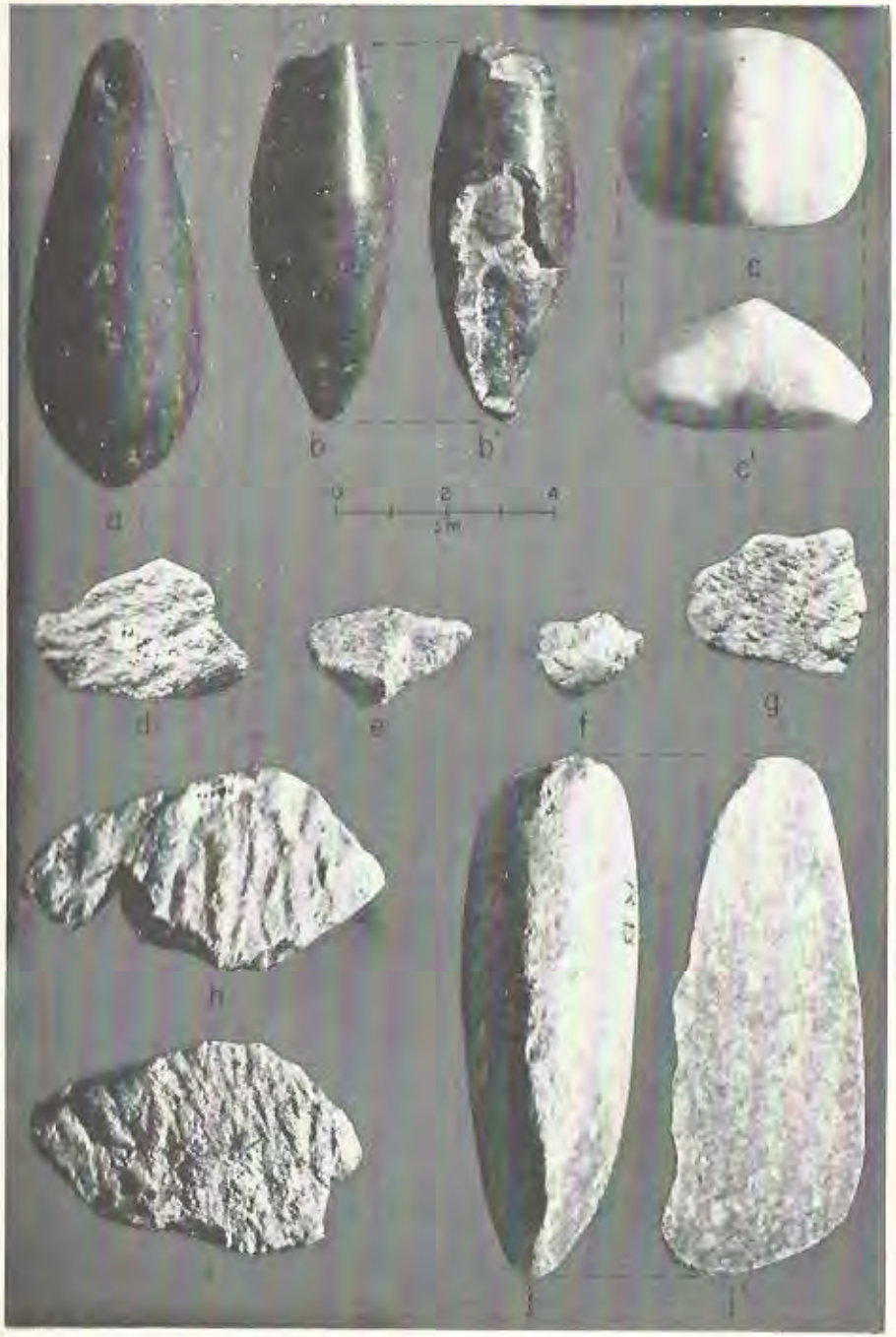
The excavation of the Young's Bayou site uncovered 9 archaeological features. Six of these were defined as pits. These were round, elongated dark-stained areas that were dug from the midden

Fig. 5.—Ground stone tools from the Young's Bayou sites. a,d. mortar, Young's Bayou site, surface; b,c. mortar, Young's Bayou site, Unit "L"; e. nutstone, Sammy's Pasture site; f. quartzite hammerstone, Young's Bayou site, Unit "F"; g. quartzite hammerstone, Young's Bayou site, surface; h. mano, Young's Bayou site, surface; i. nutstone, Young's Bayou site, Unit "L".

zone into the red basal clay during prehistoric times (Features 1-3, 5-7). Only negligible artifactual material was found in these, with 2 having some hickory shell remains. One feature was defined as a food preparation area due to the association of a mortar, burned hickory shell fragments and several sherds of undecorated, grog-tempered ware (Feature 4). Another feature was defined as an Archaic rock-lined hearth (Feature 8). Siltstone and ferruginous sandstone cobbles formed a semicircular arrangement, with dimensions of 24 inches by 22 inches. These cobbles were immediately on the top of the third stratigraphic layer, the red basal clay, between 13 and 16 inches below ground surface. Unfortunately, only a very small amount of decomposed charcoal and 2 specimens of lithic debris were found in direct association. No post-Archaic artifacts seem associated.

In 1 excavation unit, a lithic activity area was defined by plotting each specimen of lithic debitage and debris. Originally, 1 quartzite hammerstone and 4 biface thinning flakes were found in direct association. Each specimen was marked with a felt-tipped pen, plotted horizontally and vertically, and the scatter pattern diagrammed for the unit (Fig. 12). The high percentage (82 per cent) of interior and biface thinning flakes and chips seems to indicate either biface or projectile point manufacture, or both. Raw material types from this excavation unit were sorted into local white and local buff cherts, which probably represented the reduction of 2 cores. Of the flakes and chips, 16 per cent were fire-reddened, suggestive of heat treatment during lithic manufacture.

Fig. 6.—Ground stone tools from the Young's Bayou sites. a. notched net sinker, Young's Bayou site, Unit "N"; b. mano, Young's Bayou site, surface; c. pecked stone, Young's Bayou site, surface; d. notched net sinker, Young's Bayou site, Unit "M"; e. hammerstone, Young's Bayou site, surface; f. quartzite hammerstone, Round School site; g. sandstone hone, Young's Bayou site, Unit "K".



CULTURE HISTORY OF THE YOUNG'S BAYOU AREA

Prehistoric settlement of the Young's Bayou area can be categorized within the framework of 3 of Willey and Phillips' (1958) stages of economic development: the Lithic stage, the Archaic stage, and the Formative stage. These stages have been defined as follows (Willey and Phillips 1958: 200-202):

> *Lithic Stage:* Our earliest stage, the Lithic, is characterized by chipped stone tools and weapons. These artifacts are found in environmental contexts of the late Pleistocene, under conditions indicating a climate quite different from that of the present and often with remains of extinct fauna . . . Subsistence was based upon hunting and gathering, with emphasis varying according to environmental conditions.
>
> *Archaic Stage:* Our next stage, the Archaic, sees the continuation of hunting and gathering cultures into environments approximating those of the present. There is a dependence upon smaller and perhaps more varied fauna than in the Lithic Stage and, in many places, an increase in the preparation of wild vegetable foods first appears in this stage.
>
> *Formative Stage:* We have defined the Formative Stage for the New World by the presence of agriculture, or any other subsistence economy of comparable effectiveness, and by the successful integration of such an economy into well-established sedentary village life . . . The agriculture-based Formative cultures are characterized by the abundant use of ceramics. . . . Site occupation tends to be stable and of long duration.

Fig. 7.—Polished stone tools from the Young's Bayou sites, a. magnetite plummet, Young's Bayou site, surface; b. hematite plummet, Young's Bayou site, surface. c. banner weight. Round School site; d. steatite sherd, Young's Bayou site, Unit "H"; e,i. steatite sherd, Young's Bayou site, surface; f. steatite sherd, Young's Bayou site, Unit "O"; g. steatite sherd, Young's Bayou site, Unit "A"; h. steatite sherd, Young's Bayou site, Unit "N"; j. celt, Round School site.

Events that occur during "Late Formative stage" times in the southeast are poorly modeled. Ford (1969) would put chronological parameters on the Formative, but usually it is divided into 2 major periods: Woodland and Mississippian (Willey 1966). The Woodland period is broadly defined for the Eastern United States ". . . by its characteristic cord-marked and fabric-marked ceramics, by the construction of burial mounds and other earthworks and by at least the beginnings of agriculture" (Willey 1966: 267). The Mississippian period is defined by the following characteristics (Sanders and Marino 1970: 97):

> . . . construction of large, terraced, earth platforms grouped around plazas and serving as substructures for temples, elite residences, and council buildings; a tendency for settlements to occur on or immediately above the floodplains of major rivers; a much greater reliance on agriculture, now based on maize, beans and squash; and wide diffusion of a number of ceramic forms and techniques of decoration, some new, others derived from the Gulf and Northern traditions. Settlement patterns were of two types: large, compact stockaded villages directly associated with civic centers, and dispersed settlements loosely clustered in the vicinity of centers.

→

Fig. 8.—Ceramics from the Young's Bayou sites. a. Coles Creek Incised, var. *Coles Creek*, Young's Bayou site, surface; b. Coles Creek Incised, var. *Hardy*, Young's Bayou site, Unit "K-1"; c. Coles Creek lug, Young's Bayou site, Unit "D-1"; d. Coles Creek var. *Stoner*, Young's Bayou site, Unit "G-1"; e. Coles Creek var. *Hardy*, Young's Bayou site, surface; f, m. Pease Brushed/Incised, Young's Bayou site, surface; g. Pease Brushed/Incised, Young's Bayou site, Unit "G-1"; h. Pease Brushed/Incised, Young's Bayou site, Unit "A"; i. Pease Brushed/Incised, Young's Bayou site, Unit "C-1"; j. Pease Brushed/Incised, Young's Bayou site, Unit "L-1"; l. unidentified decorated sherd, Young's Bayou site, surface.

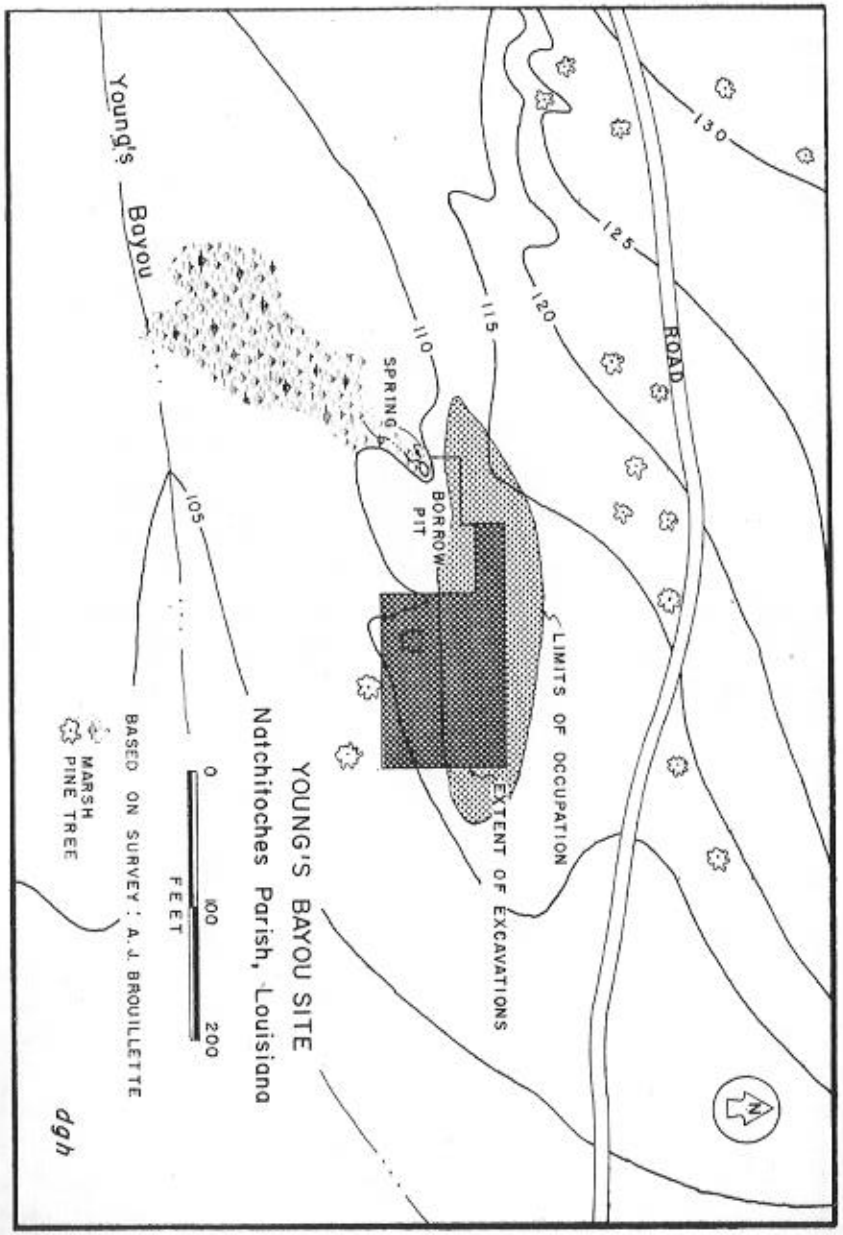


Fig. 9.—Topographic map of the Young's Bayou site.

TABLE 1.—ARTIFACT TRAIT SUMMARIES FOR SITES IN THE YOUNG'S BAYOU DRAINAGE AREA. Presence of traits marked by an "X".

	Young's Bayou	Settle's	Round School	Women's Gym	Bossier Hall	Keg	Lime Kiln Road	Gunflint	Sammy's Pasture
Debris and Debitage	X	X	X	X	X	X	X	X	X
Blades	X		X						X
Cores	X								X
Preforms	X		X		X	X			
Side Scrapers	X		X			X			
Notches	X		X						X
Denticulates	X		X			X			X
Ovoid Scrapers	X		X						
End Scrapers	X		X						
Drills	X								
Jaketown Perf.	X		X						
Burins	X		X						
Bifaces	X	X	X						X
Gouges	X						X		
Notched Net Sinkers	X								
Plummets	X								
Bar Weights			X						
Bannerstones			X						
Celts			X						
Nutstones	X	X							X
Mortars	X	X							X
Manos	X								
Hammerstones	X	X	X						
Steatite Sherds	X								
Tubular Beads	X								

Lithic Stage

Archaeological components at 2 sites in the drainage area: the Young's Bayou site and the Sammy's Pasture site, can be categorized as Lithic stage occupations. Artifactual evidence alone supports this assumption (cf. Tab. 1-2). This consists of surface finds of San Patrice projectile points: 3 from the Sammy's Pasture site and 1 from the Young's Bayou site. All 4 specimens conform to the variety *hope* (Webb, Shiner and Roberts 1971: 12). The Wood Pit site in East Texas has yielded an assay of 5,930 ± 200 radiocarbon years: 3,980 B.C. in association with San Patrice and Plainview points (Campbell 1959).

TABLE 1 (continued)

	Young's Bayou	Settle's	Round School	Women's Gym	Bossier Hall	Keg	Lime Kiln	Gunflint	Sammy's Pasture
Sandstone Hones	X								
Pecked Stone	X		X						
Amorpheus Clay	X								
Plain Sherds	X	X	X						X
Belcher Ridged	X								
Pease Brushed / Incised	X	X							X
Coles Creek var. Coles Creek	X								
Coles Creek var. Stoner	X								
Coles Creek var. Hardy	X								X
Coles Creek Lug	X								
San Patrice Dart Points	X								X
Late Archaic Dart Points	X	X	X	X	X	X	X	X	X
Arrow Points	X		X			X		X	X

Webb, Shiner and Roberts (1971:47) feel that San Patrice associated cultures may, however, precede this date:

> The technology of the San Patrice socio-cultural unit as reflected at this site (the John Pearce Site) is closer metrically and morphologically to that reported for the Paleo-Indian complexes of the Plains than to the Archaic of East Texas and the Southeastern United States. There is one piece of evidence that this industry existed prior to 4,000 B.C. and it seems probable, from extraneous comparisons, that it was not later than 6,000 B.C.

Since these isolated finds were not in direct stratigraphic association with other cultural material, the Lithic stage occupations at the Sammy's Pasture and Young's Bayou sites are very tentatively defined as temporary hunting (and, possibly, gathering and fishing) camps (Tab. 3). These sites may have been occupied seasonally, dependent on the location and availability of the local resources which were being procured.

Archaic Stage

Archaeological components at all 9 sites in the drainage area can be categorized as Archaic stage occupations. Young's Bayou projectile point types are corner-notched and stemmed forms which are also common at the Poverty Point (16WC5) type site (Ford and Webb 1956).

Other Archaic traits at the Young's Bayou sites include the presence of ground stone, indicative of a probable increase in gathering activities. Also found were polished stone artifacts used in hunting and fowling, such as plummets, bar weights, and bannerstones (Ford and Webb 1956) and ground stone notched net sinkers, used in fishing or fowling activities. Additionally, steatite sherds at the Young's Bayou site suggest the use of stone vessels in food preparation, as has been noted for the Poverty Point culture (Ford and Webb 1956). Artifacts were frequently made from stone imported from foreign sources. Such exotic stone consists of the following types: steatite, novaculite, gray chert, white chert, pyrite, magnetite, hematite, greenstone, and galena. Several novaculite projectile points from the Young's Bayou site have been identified as being similar to novaculite from the Eastern Ouachita Mountains, near Hot Springs, Arkansas (Larry Banks, personal communication, 1974). Prehistoric novaculite quarry sites are known to be as geographically close to the Young's Bayou drainage area as DeQueen, Arkansas (S. D. Dickinson, personal communication, 1974). One projectile point from the Young's Bayou site was, however, identified as being similar to white chert from the Ouachita Mountains, south of McAllister, Oklahoma (Larry Banks, personal communication, 1974). Similar white gray to white fossiliferous chert is known from the Ozark Mountains of Arkansas (Webb 1975).

Winters (1968: 218) and more recent authors (Webb, Ford, and Gagliano n.d.; Webb 1975; Gibson 1973, 1974; and Brasher 1973) consider the Poverty Point site as an example of a redistribution center which provided raw materials or finished products for a number of other groups of people. Winters (1968: 219) also states that, "Perhaps similar minerals (to the ones being traded to and from Poverty Point) were important in the chertless areas of the deep South long before Poverty Point became an important focus of exchange activities." Evidence from the Young's Bayou area supportive of such a hypothetical "Archaic interaction sphere" appears in Archaic stage lithic raw materials (Tab. 4, Fig. 13).

TABLE 2.—
PROJECTILE POINT PROVENIENCE DATA FOR YOUNG'S BAYOU SITES.

	Young's Bayou	Settle's	Round School	Women's Gym	Bossier Hall	Keg	Lime Kiln Road	Gunflint	Sammy's Pasture	Totals
DART POINTS										
San Patrice	1								3	4
Delhi								1	1	2
Gary Large								1		1
Gary Typical			3			1	1			5
Palmillas	1							1		2
Kent	1							1		2
Pontchartrain		1	1	1	1			1		5
Carrollton	2	1							1	4
Macon							1	1	3	5
Marshall									1	1
Bulverde		1								1
Williams	1		2							3
Ensor	1	1							2	4
Ellis	3	2					1	1	1	8
Unidentified Dart Points	8	1	1				1		5	16
ARROW POINTS										
Alba								1		1
Fresno								1		1
Friley	1					1				2
Hayes				1						1
Frio									1	1
Colbert	2									2
Unidentified Arrow Points	1									1
GRAND TOTAL										72

"Early Formative Stage"

Recent papers (Webb 1968, 1975; Webb, Ford, and Gagliano n.d.; and Ford 1969) differentiate the Poverty Point site and culture as manifestations of the Formative stage. Unfortunately, there has not been any excavated site with clearly stratigraphically differentiated Late Archaic and Poverty Point components, not even the Poverty Point type site. The suggestion here is that it is extremely difficult, in fact, very tenuous, to classify archaeological components as distinctly Late Archaic or Poverty Point in most areas. Webb (1968: 305) lists 8 primary diagnostic Poverty Point traits: Poverty Point (clay) objects, tubular pipes, clay figurines, stone vessels, microflints, rough green hoes and

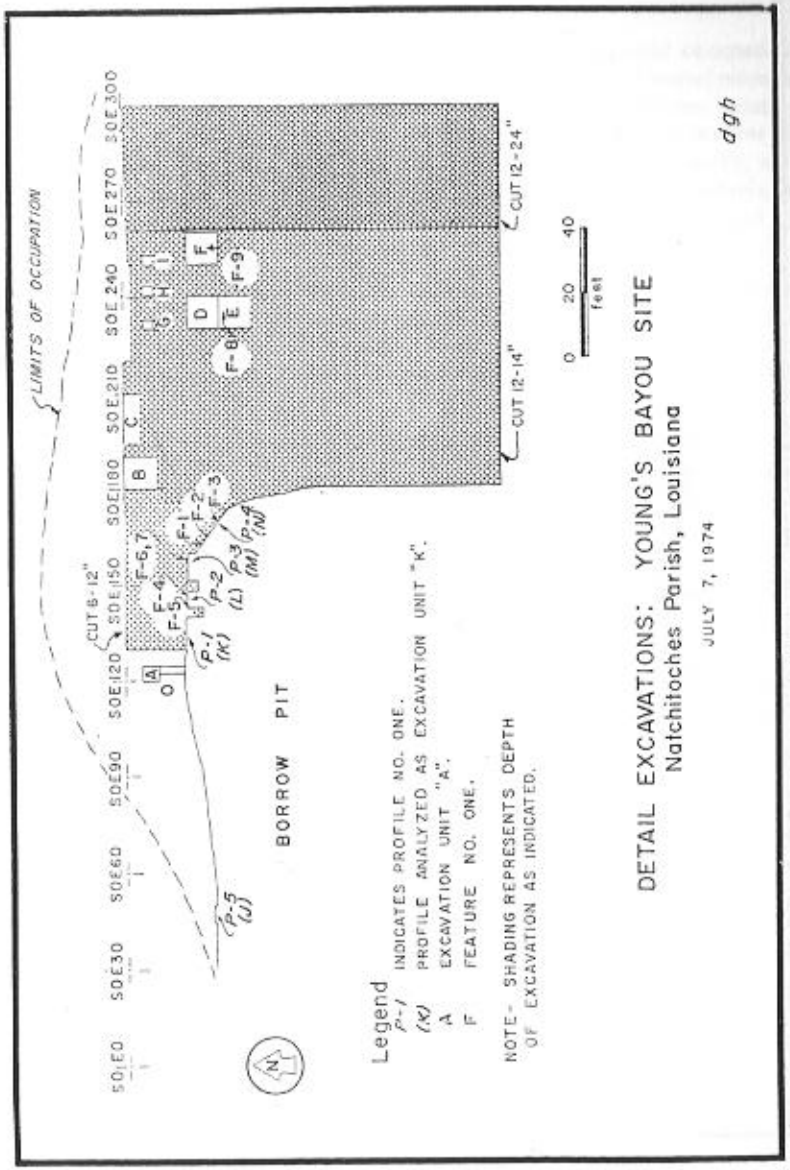


Fig. 10.—Detailed map of the excavated area of the Young's Bayou site.

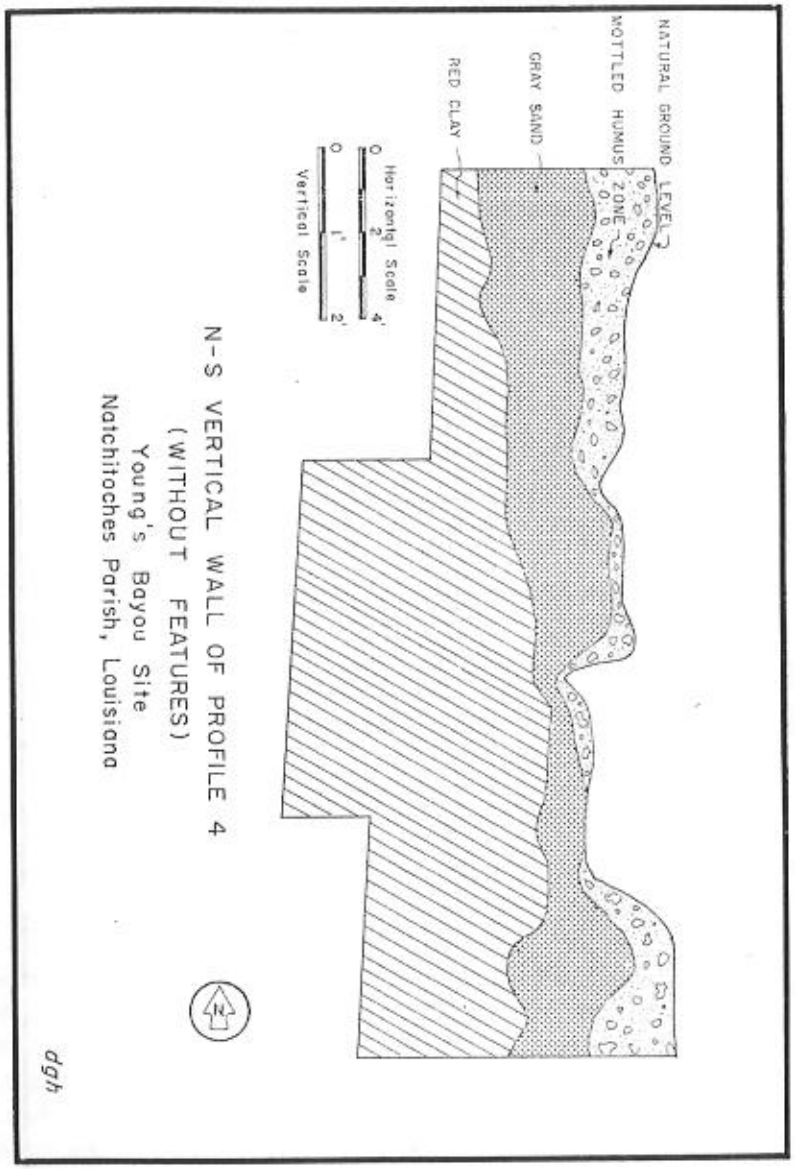


Fig. 11.—Illustration of profile 4 vertical wall, Young's Bayou site.

TABLE 3.—
SETTLEMENT TYPES*

1. *Central or Seasonal Base Camp:* Year-round or seasonal occupation over a relatively long period of time; seasonality evidenced by floral and faunal remains; focus of subsistence, socio-economic, political, and religious activities over a wide geographical area; probably located on an ecotone, an "edge environment" between two or more microenvironments; high population density; high density of cultural debris; relatively equal number of male-related and female-related artifacts, although perhaps more female-related artifacts, such as manos, grinding stones and nutstones since the males would have been hunting primarily at other camps.

2. *Seasonal Hunting and Gathering Camp:* Seasonal occupation, dependent on the seasonal availability of the plants and animals being exploited; floral, pollen, and faunal remains indicate the species being exploited; higher population and artifact densities than the seasonal gathering camp, but lower than the central or seasonal base camp; relatively equal number of male and female-related artifacts.

3. *Seasonal Gathering Camp:* Seasonal occupation, dependent on the seasonal availability of the plants being exploited; floral and pollen remains indicate the species being gathered; higher population and artifact densities than the seasonal hunting or fishing camps, but lower than the seasonal hunting and gathering camp; considerably higher number of female-related than male-related artifacts; the number of large, not-easily-portable manos or grinding slabs may approximate the number of family units at the camp.

4. *Seasonal Hunting Camp:* Seasonal occupation, dependent on the seasonal availability of the animals being hunted; faunal remains and bone artifacts indicate which species were being hunted; low population and artifact densities; predominantly male-related artifacts, such as projectile points, bifaces, scrapers, and lithic debitage and debris.

5. *Seasonal Fishing Camp:* Seasonal occupation, dependent on the seasonal availability of the species; faunal remains indicate which species were being exploited; low population and artifact densities; predominantly male-related artifacts, such as net sinkers, projectile points, bifaces, scrapers, and lithic debitage and debris.

6. *Temporary Chipping Station:* Temporary occupation, as evidenced by the relative sparcity of cultural debris; predominantly male-related artifacts, such as projectile points, bifaces, scrapers, hammerstones, cores, preforms, and lithic debitage and debris.

*For other settlement typologies, see also Anderson (1972), Beardsley (1956), Faulkner (1973), Skinner (1971), Struever (1968), Winters (1963, 1968a, 1968b).

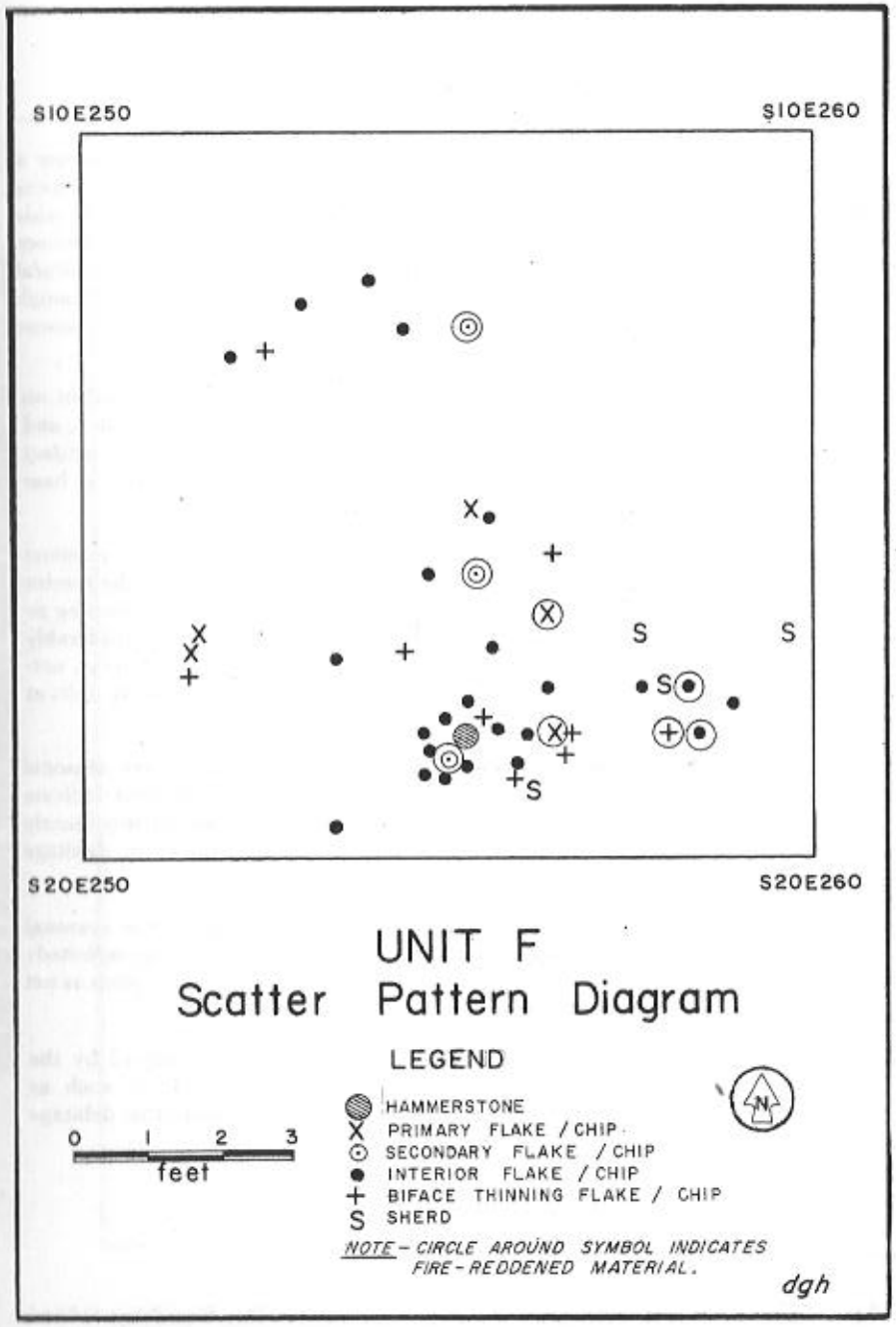


Fig. 12.—Scatter pattern diagram of feature 9, unit "F".

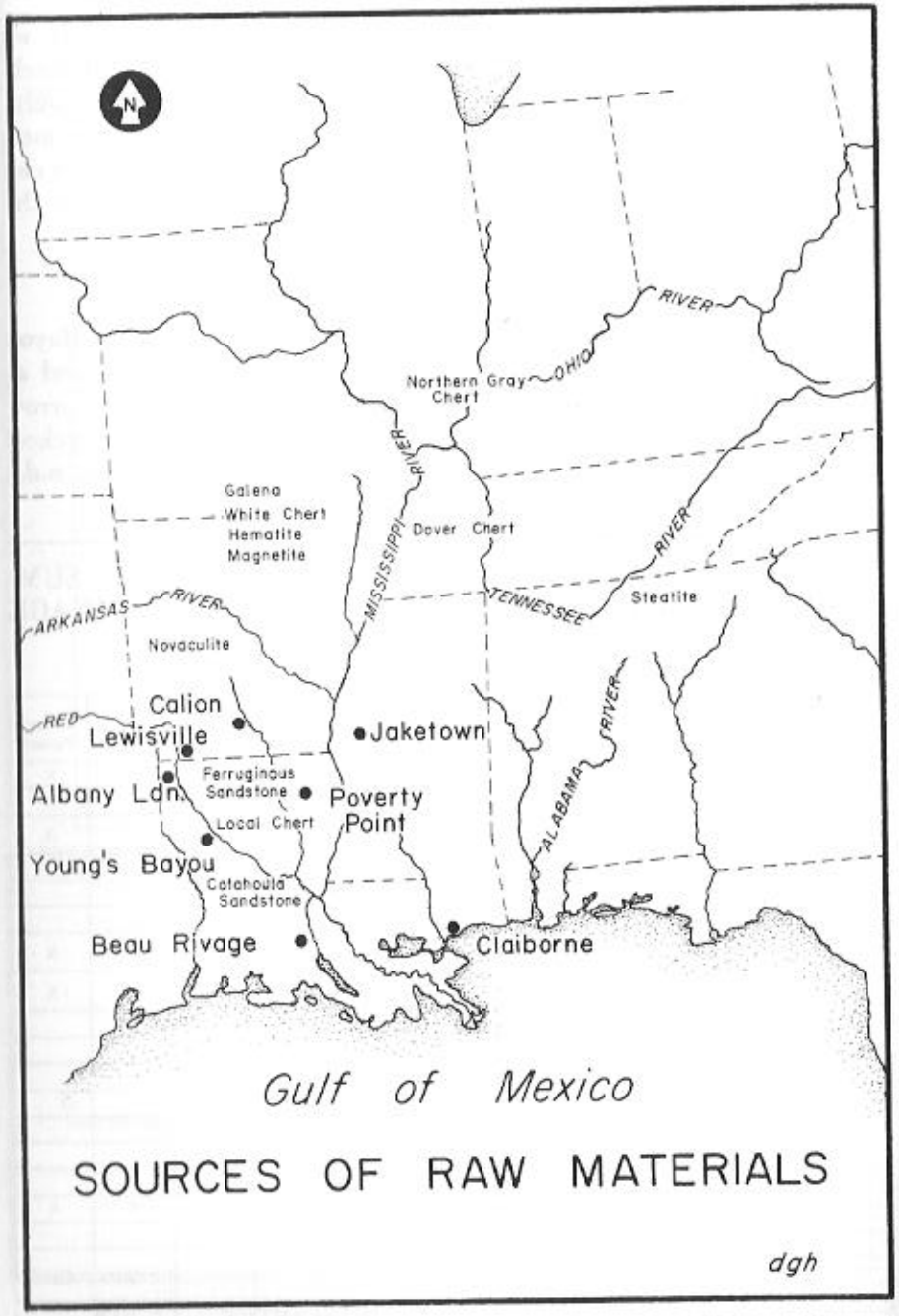
celts, hematite plummets, and jasper beads and ornaments. If we subtract those traits which have been found in association exclusively with predominantly Late Archaic components, 5 traits remain: Poverty Point decorated clay objects, tubular clay pipes, clay figurines, microflints, and rough green hoes and celts. Using this criterion, we can assume that there are no known Poverty Point occupations in the Young's Bayou area.

"Late Formative Stage"

Archaeological components at all of the sites in the Young's Bayou drainage area, except for the Bossier Hall site, can be categorized as "Late Formative" occupations. The presence of either pottery or arrow points or both at these sites supports this assumption (Davis, Wyckoff and Holmes, 1971; Bell, Webb, Davis, McGimsey and Davis, n.d.;

TABLE 4.—LITHIC RAW MATERIAL TRAIT SUMMARIES FOR SITES IN THE YOUNG'S BAYOU DRAINAGE AREA. Presence of traits marked by an "X".

	Young's Bayou	Settle's	Round School	Women's Gym	Bossier Hall	Keg	Lime Kiln Road	Gunflint	Sammy's Pasture
Local tan cherts	X	X	X	X	X	X	X	X	X
Local palm wood	X		X	X					X
Local other fossil wood	X		X						X
Local gray cherts	X		X			X		X	
Local black cherts	X	X							
Local white cherts	X	X	X			X		X	
Local ferruginous sandstone	X	X							X
Local Catahoula sandstone	X	X							X
Local grainy cherts	X	X	X						
Local quartzite	X	X	X					X	
Local granite	X								
Exotic hematite	X								
Exotic magnetite	X								
Exotic steatite	X								
Exotic novaculite	X		X						
Exotic gray cherts	X	X	X					X	X
Exotic white cherts	X	X	X						
Exotic galena		X							
Exotic pyrite	X								
Exotic greenstone			X						



Webb, personal communication, 1974). The sequence in the Caddo area has recently been broken down into 5 parts (Davis 1968): Caddo I-V Archaeological components in the Young's Bayou area are related to the Bossier focus within Caddo III and the Belcher focus within Caddo IV. Radiocarbon dates from the Bossier component of the Belcher Mound would place this focus at about 1390 A.D. (Webb 1959). We can assume that the Bossier focus extends to about 1500 A.D. and the Belcher focus extends from about that date through the seventeenth century (Davis 1968).

Bossier-Belcher components are at the following 6 sites in the Young's Bayou drainage: the Young's Bayou site, the Settle's site, the Sammy's Pasture site, the Keg site, the Women's Gym site, and the Gunflint site. A Bossier-Belcher component may also be present at the Round School site, where only undecorated grog-tempered sherds were collected. Possibly, trade, migration or stimulus diffusion by the Coles Ceek and Plaquemine cultures is evidenced by the presence of Coles Creek Incised, vars. *Coles Creek*, *Hardy* and *Stoner* and a Coles Creek lug at the Young's Bayou site and Coles Creek, var. *Hardy* at the Sammy's Pasture site (Phillips 1970).

PREHISTORIC SUBSISTENCE AND SETTLEMENT ON YOUNG'S BAYOU: A MODEL

The archaeologist can provide models of cultural patterns as reflected in the material culture assemblages that he analyzes. Models, however, are *not* explanations, but merely a means for conceptualizing the data and for use as guidelines for further testing. The goals of this study have been to provide a "model" of what prehistoric settlement and subsistence were like during each occupation at each site, within the limitations of the data.

Fig. 13.—Map of possible sources of lithic raw materials during the Archaic and Formative stages. Archaic sites having exotic raw materials include Young's Bayou, East Albany Landing, and Lewisville (Johnny Ford). Possible Poverty Point redistribution centers include Poverty Point, Jaketown, Claiborne, Calion and Beau Rivage.

Subsistence Patterns

One aspect of this study was the use of the contemporary ecological model in conjunction with floral and faunal remains from the Young's Bayou site excavations. Through the study of the present and the past ecology of an area, past systems of subsistence, settlement, and procurement can be modeled (Evidences of the potential floral and faunal resources are provided in Fig. 2). We can then imply the seasonality of site occupation through a knowledge of which plants and animals were available primarily during the fall. For example, most of the nuts were available in the fall and the winter after about middle October (C. Viers, personal communication, 1974). Excavations provided no identifiable faunal remains, but fragments of 3 species of hickory nuts (black hickory, swamp hickory and mockernut hickory) were evidenced from several units in the site (C. Viers and D. Sanders, personal communication, 1974). We can then state that the Young's Bayou site was occupied at least during the fall of the year on the basis of past and present ecological evidence.

In a recent study, Burns and Viers (1973: 586) have provided the caloric values of a good many of the plants in the Young's Bayou drainage. Samples for their study were taken from the Natchitoches area. It is interesting to note that the caloric values for the fruits of the hickories and pecans, and in fact for all of the species evaluated in the Young's Bayou drainage, are considerably higher than for corn (Tab. 5). This suggests that by settling in ecotones, as was the case for all of the Young's Bayou sites, a maximum ecological efficiency (Caldwell 1958, 1965; Gregory 1965) could have been possible without the integration of an agricultural economy. We can stress that these sites were occupied because of the maximum biomass potential of settlement in locations where the utilization of a number of microenvironments was possible.

Male/Female Ratio

Another aspect of this study was the application of artifact classes to demographic problems. By associating certain finished artifact types and classes as male-related and others as female-related, we can model the general pattern of site population composition and settlement type. Winters (1968: 205), in a discussion of the Indian Knoll culture—a Late Archaic culture in Kentucky, assesses a number of artifact classes as being predominantly associated with either males or females in a

TABLE 5.—COMPARISON OF THE CALORIC VALUES OF DIFFERENT SPECIES OF MAST AND FRUITS OF THE YOUNG'S BAYOU AREA. Corn is included for comparison between nut-gathering and agricultural economies.

SPECIES	CALORIES/GRAM
Black Hickory (*Carya texana*)	8106
Pecan (*Carya illinoensis*)	7860
Mockernut Hickory (*Carya tomentosa*)	7379
Bitter Pecan (*Carya aquatica*)	6110
Swamp Hickory (*Carya leidodermus*)	6026
Dogwood (*Cornus florida*)	5361
Willow Oak (*Quercus phellos*)	5296
Southern Red Oak (*Quercus falcata*)	5289
Yaupon (*Ilex vomitoria*)	5224
Sumac (*Rhus glabra*)	5148
Water Oak (*Quercus nigra*)	5095
Honeysuckle (*Lonicera japonica*)	4419
Burr Oak (*Quercus macrocarpa*)	4266
Crabapple (*Pyrus angustifolia*)	4246
Overcup Oak (*Quercus lyrata*)	4076
Cow Oak (*Quercus prinus*)	4072
White Oak (*Quercus alba*)	3907
Corn	3380*

*Albritton 1954:134; all other values: Burns and Viers 1973:586.

burial context. Artifacts solely associated with males included woodworking and flint-working tools. Predominantly in male association, but also found with females were weapons or components thereof (projectile points, atlatl weights), general utility tools (bifaces, scrapers), and fabricating and processing tools (drills, others). For females, among the definitely linked items were domestic equipment (nutting stones). Manos (domestic equipment) were predominantly associated with females.

In spite of the fact that similar artifact classes were present at Young's Bayou sites, it must be pointed out that the association of general utility tools with males exclusively is not favored here. General utility tools are considered here to be associated with either male or female-related activities. One additional alteration must be made in order to include "Late Formative" occupations into this analysis; ceramics are considered here to be domestic equipment which is related to female activities. For the purposes of this analysis, 1 pot is considered to be approximately 50 sherds. Applying this model of male and female-associated activities and artifacts to the Young's Bayou Site, a ratio of approximately 1:1 males/females is obtained for the Archaic component. By lumping the "Late-Formative" artifacts for the components a ratio of approximately 1:8 males/females is obtained. The ratio for the Archaic component seems reasonable for a seasonal base camp, where a wide range of activities relative to hunting, fishing, and gathering were going on during certain seasons of the year. The ratio for the "Late Formative" components is highly suggestive of a specialized gathering camp, where we would expect a large number of female-related activities during the fall, when nuts are available in several of the microenvironments in the immediate area. For the Archaic component at the Round School site, the ratio is 20:1 males/females. This is highly suggestive of a specialized hunting (and possible fishing) camp.

In terms of the horizontal distribution of artifacts at the Young's Bayou site, it can be stated that male and female-related activities occurred within most of the site area during both the Archaic and later "Late Formative" occupations. Notable male-related activity areas are the lithic activity areas (e.g. Fig. 12). The only definite female-related activity area is the "Late Formative" food preparation area in unit "L" (Feature 4), namely a nut-processing activity.

Settlement Patterns

Patterns of prehistoric settlement within the Young's Bayou drainage area have already been discussed for the Lithic stage components. To reiterate, Lithic stage occupations at the Young's Bayou and Sammy's Pasture sites were very tentatively defined as temporary hunting (and possible gathering and fishing) camps.

Settlements during the Archaic stage on the Young's Bayou drainage were considerably more widespread and more densely populated than during the earlier Lithic stage. Population densities were still low, however, as is evidenced by the generally thin middens and sparsely scattered surfaces at this site. A population estimate was attempted only for the Young's Bayou site, since it is the only site which has been adequately sampled. If the number of Archaic-associated mortars is used as an indication of the number of females at the site, it can be estimated that 6 family units were present during the Archaic. Allowing an average of 5 members per family unit, a population of 30 is suggested: a good size for a small band (Steward 1955: 135, 140). "Late Formative" population estimates for the site seem to be considerably lighter than for the Archaic. Smaller extended family units are probably represented, but artifact associations are not precise enough for good estimates. However, since approximately 1/3 to 1/2 of the Young's Bayou site had already been destroyed prior to sampling, it must be assumed that population estimates for all components are conservative figures and that the maximum population during Archaic times would approximate 60 people. However, since several phases of occupation were probably represented during Archaic times, this latter figure may be correspondingly too high.

As has been stated previously, several types of settlements appear to be represented for the Archaic Stage. At the Young's Bayou site a wide range of activities seems to represented, indicative of a possible seasonal base camp. Seasonality is evidenced for the fall and the relative sparcity of cultural debris suggests that a more sedentary occupation throughout the year is not represented there. Ground stone, indicative of women's activities, is present at the Settle's and the Sammy's Pasture sites. These sites may also be seasonal base camps, one of which might be a central base camp. This suggestion is, however, very tenuous, since these sites have not been adequately sampled. Based on the available data, we can model a semi-sedentary settlement pattern for the Archaic. Seasonal camps are possibly represented for the Young's Bayou, Settle's

and Sammy's Pasture sites. Specialized seasonal hunting camps and chipping stations are represented for the remainder of the Archaic components.

Settlements during the "Late Formative" are less widespread and less densely populated than in the previous Archaic Stage. The "Late Formative" component at the Young's Bayou site probably represents a specialized seasonal gathering camp. Specialized seasonal hunting camps and chipping stations are probably represented for the remainder of the "Late Formative" components. Evidences for "Late Formative" seasonal or central base camps in the area are insufficient.

CONCLUSIONS

Cultural ecology has been used here as a methodological tool in construction of a model of the prehistoric patterns of settlement of the Young's Bayou drainage. The first of Steward's (1955) procedures has been utilized through the analysis of covariation of the archaeological data and the contemporary ecological model. Through the study of the present and past ecology and the past technological exploitation of these microenvironments, we can posit that the highest energy levels were reached for the Archaic and "Late Formative" stages. Past behavior patterns are reflected in the associations of material culture assemblages. We cannot, however, state that these patterns were modal during their respective chronological periods without further excavation of other sites. Behavior patterns and their effect on other aspects of culture can be elucidated through further testing of the model. Still, the combined occurrence of certain classes of artifacts and the ecological data suggest that these areas were important exploitative areas for 2 separate and disparate cultural manifestations. Certainly a case for exploitative continuity can be made.

ACKNOWLEDGEMENTS

I would like to thank the members of my thesis committee, William Knipmeyer, George Stokes, and especially my major professor. Hiram "Pete" Gregory.

Thanks also go to Robert Wilson, Northwestern State University Student Union Director, for arranging for clearance for excavations at the Young's Bayou site. I am also grateful to the Louisiana Army National Guard, 769th Engineering Batallion, Company "B", for providing labor and equipment for horizontal stripping at the Young's Bayou site. Thanks also go to A. J. Brouillette for providing topographic data from which the topographic map of the Young's Bayou site was based.

I would also like to thank members of my Anthropology 201 class and Gregory's 302 and 406 classes at Northwestern State University for their participation in the excavations and the laboratory work at the Young's Bayou site.

I am especially thankful to Clint Pine and Mr. and Mrs. A. L. Pine of Natchitoches for providing site survey data for 8 of the sites in the drainage and for the temporary loan of their collections from these sites.

I am also appreciative to Lee Wood and Bill Verret for their meticulous field and library research of local plants and animals. Thanks also go to faculty members of the Biological Sciences Department at Northwestern State University (Ray Baumgardner, Dana Sanders, Richard Stalling, and Charles Viers, Jr.) for their corroborations and additions to the floral and faunal data.

I would also like to thank Clarence Webb for permission to quote from two recent unpublished manuscripts (Webb 1975; Webb, Ford and Gagliano 1975), for discussions concerning Late Archaic and Poverty Point sites in northwestern Louisiana and for critically reviewing my master's thesis. I am also grateful to Larry Banks, archaeologist for the U.S. Army Corps of Engineers District in Tulsa, Oklahoma, for the identification of certain lithic raw material sources and to Sam Dickinson for discussions concerning novaculite quarry sites in southern Arkansas. I am also thankful to Frank Schambach of the Arkansas Archaeological Survey for discussions concerning Late Archaic sites and exotic lithic raw materials in southwestern Arkansas.

Lastly, I would also like to gratefully acknowledge the drafting and photographic abilities of Donald Hunter and the typing of the manuscript by Ms. Nancy Goodwin.

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Fire Pits At Mount Bayou (16CT35), Catahoula Parish, Louisiana

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ABSTRACT

Several fire pits containing baked clay objects, fish bones and scales, and post-molds have been found at the Mount Bayou site in Catahoula Parish, Louisiana. Comparison with fire pits from other probably contemporary sites of the 1500-600 B.C. time period indicates that the Mount Bayou pits are significantly different and probably incorporated a smoking-preserving function in addition to normal baking. It is suggested that the differences among fire pits from the various sites are indicative of local cultural differences and reflect locality-specific adaptations of a generalized cooking method.

INTRODUCTION

Ford, Phillips, and Haag (1955:39) gave the name Poverty Point objects to the small, hand-molded artifacts of baked clay so common on

some Southeastern and Midwestern sites of the first pre-Christian millennium. Their function has long been the center of debate, and the objects have been variously identified as gaming stones, slingshot projectiles, and pot supports (Moore 1913:73-74), or as ceremonial objects, netweights, and stone boiling objects (cf. Webb, Ford, and Gagliano n.d.), or most convincingly, as heating elements for earth ovens (Ford and Webb 1956:44; Webb, Ford, and Gagliano n.d.). Discoveries of these objects in undisturbed contexts over the past quarter century have dispelled most doubts that the objects functioned in situations other than in earth ovens. Earth ovens, usually small cylindrical pits containing Poverty Point objects, and sometimes ash and charcoal, have been found at Poverty Point (Ford and Webb 1956:44; Webb, Ford, and Gagliano n.d.), Terral Lewis (Gregory, Davis, and Hunter 1970), Linsley (Gagliano and Saucier 1963), Claiborne (Webb, Ford, and Gagliano n.d.), and Shoe Bayou (Hunter 1970). There is now little doubt that Poverty Point objects were used in pit baking, a mode of cooking common to the period between 1500-600 B.C. in the Lower Mississippi Valley and contiguous areas.

The purpose of this report is to describe another occurrence of Poverty Point objects in a pristine situation. However, more than being merely additive, the Mount Bayou facilities illustrate some note-worthy differences from previously described earth ovens.

THE SITE

The Mount Bayou site (16CT35) lies on the south bank of Mount Bayou about 950m upstream from its junction with Cross Bayou in Catahoula parish, east-central Louisiana. It was discovered by W. S. Baker in 1971 following levee-building activities on the Louisiana Delta Plantation. Had it not been for levee construction, the site would have remained undiscovered indefinitely for it lay under a 50-60cm blanket of backwater alluvium. The alluvium had sealed the site and preserved its contents virtually as they had been at the time of abandonment.

The extent of the site has not been determined but it does extend linearly along the bayou bank for a distance of at least 70-80m. Cultural materials, other than those associated with fire pits, are rare and consist primarily of Poverty Point objects and fragments, potsherds, projectile points, flakes and other lithic debris (Tab. 1). There are no stratigraphic or sound typological reasons to believe that this assemblage represents anything but the coherent artifactual inventory of a social group whose singular activities are represented at Mount Bayou.

TABLE 1.—
SURFACE MATERIALS FROM MOUNT BAYOU, NOT ASSOCIATED WITH DESCRIBED FIRE PITS

ARTIFACTS	NUMBERS
Baked Clay Objects:	
biconical, typical, fragments	28
biconical, flattened, whole	4
biconical, flattened, fragments	15
biconical, tool-notched carina, fragment	1
fragments with one smoothed surface (probably biconical)	11
amorphous and unclassified fragments	84
burned earth (irregular, angular fragments, probably fire pit wall fragments)	2
Projectile Points (local cherts unless otherwise specified):	
initial bifaces (preforms, rejected during manufacture because of faulty materials or accidents)	5
bifacial foliates (rejected projectile point preforms)	2
Gary preform	1
Gary, typical (4 missing distal ends)	5
Gary, shouldered (1 missing distal end)	4
Kent	1
Pontchartrain	1
Epps	1
Macon (2 missing distal ends)	2
unidentified (1 missing proximal stem, the other of orthoquartzite)	2
medial fragment	1
distal fragment (with end modified to form dihedral burin)	1
Drills (local cherts):	
flaring base (2 missing distal ends)	2
pencil- or rod-shaped drill preform	1
reworked projectile point (with abraded proximal end)	1
Other Lithics (local cherts unless specified otherwise):	
scraper, small, round, bifacial	1
hammerstones, chipped, globular	2

TABLE 1.—Continued . . .

celt, ground (petrified wood, bit resharpened by percussion)	1
unmodified pebble	1
sandstone lumps (Catahoula sandstone, unmodified)	2
sandstone (Catahoula) abraders	2
steatite sherd	1
debris (fire-cracked)	6
debris (chipped, blocky or angular; 1 orthoquartzite)	9
flakes, primary	25
flakes, secondary (1 orthoquartzite)	38
flakes, tertiary (2 orthoquartzite)	39
flakes, *eclat de taille* (3 novaculite)	32
chips (2 orthoquartzite)	14
Potsherds:	
plain body	126
plain rim	3
plain simple circular base	6
plain annular base	1
Tchefuncte Stamped, var. *Russell Landing*	2

In other words, the site represents a single component; the pottery and the Poverty Point objects were made by one and the same people. The pottery, which is overwhelmingly plain with a contorted fabric containing tiny fragments of bone, is reminiscent of the Tchefuncte ceramics found at the nearby Cross Bayou site and no doubt represents an early, if not the earliest, phase of ceramic manufacture in the area. There, unfortunately, are no radiometric dates to confirm this suspicion. Hunter (1970), who has worked in the same region, has argued for a temporal separation between components bearing Poverty Point objects and those with Tchefuncte-like pottery. This is certainly the case at a number of sites in the vicinity, but our newer evidence strongly indicates the existence of a period of unknown duration during which both earth oven and ceramic vessel cooking methods were used. Such a relevation is not surprising and is rendered quite credible by the undeniable association of Tchefuncte-like ceramics and baked clay objects at Poverty Point (Ford 1969: Webb, Ford, and Gagliano n.d.; Webb 1976; Kuttruff 1975).

Mount Bayou is a component of the Caney phase (cf. Gibson 1973:40-42, 371), an archaeological manifestation confined to that part of the Lower Tensas Basin roughly bounded by Black River on the east, French Fork on the north, Red River on the south, and the Saline surface on the west. It is contemporary with the Poverty Point phase of the Macon Ridge region; thermoluminescence assays on baked clay objects secured by Donald Hunter from the Shoe Bayou site, a neighboring component of the Caney phase, yielded 6 ages ranging from 1510 ± 220 B.C. to 292 ± 150 B.C., an average age of 1090 B.C. (Huxtable, Aitken, and Weber 1972: Tab. 2). Though contemporary, the Caney phase, in spite of opinion to the contrary (Webb 1968:300-301; Phillips 1970:872-874; Hunter 1970), should probably not be considered as a manifestation of Poverty Point culture. The material cultural differences, which cannot be detailed here, are simply too extreme; the participation of Caney phase people in the widespread commerce network which centered at the large Poverty Point chiefdom, some 350km to the north (Gibson 1974), was minimal; and the developmental sequence of the Caney phase, which is only beginning to be understood, can be best appreciated as a consequence of local evolution, local adaptation, and local culture change inspired little, if at all, by extraneous contacts or stimuli. (So that there is no misrepresentation or confusion generated by my attribution of Mount Bayou, Shoe Bayou, and other contemporary sites to the Caney phase, let me simply say that I consider the Caney phase and the Catahoula phase, in which some investigators might place these components, to be distinctive typologically, chronologically, and geographically. There has been a tendency of late to include so many variable components in the Catahoula phase, components that bear such little resemblance to the original slate of Catahoula sites (Gibson 1968:1-17), that the typological-communicative utility of the term has been lost; hence, my use of the Caney phase).

THE FIRE PITS

A number of fire pits were disturbed by artificial levee construction, but at least 2 pits, which retained most of their *in situ* characteristics, were found and excavated; 1 by W. S. Baker and the author and the other by Clarence Webb, Baker, and the author. Fire pit A lay about 20m from the low water level of Mount Bayou, and fire pit B was about 15m from the first pit and around 35m from the bayou. The latter pit was positioned near the high bankline of the bayou. Both pits had been dug into reddish-brown clayey silt. This alluvium was

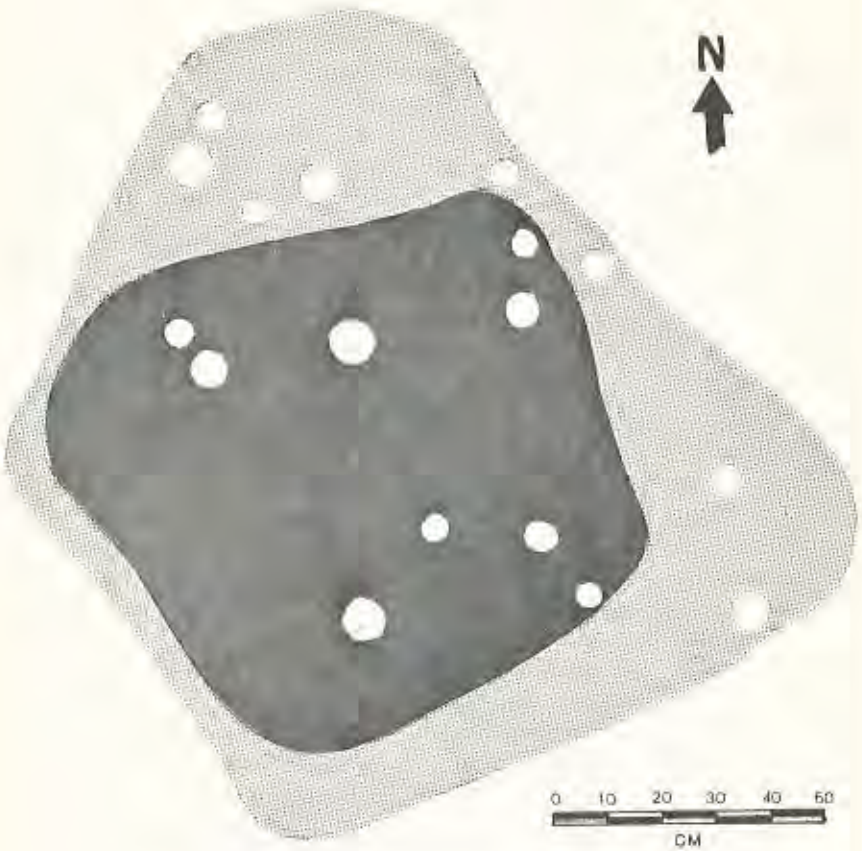

Fig. 1.—Fire pit A at Mount Bayou.

evidently deposited by a stream, ancestral to modern Mount Bayou, whose old channel is now followed by Cypress, Mount, Cross, and Saline bayous. The meander radii and alluvial composition of this ancient course conform to characteristics of the Arkansas River, and the course was no doubt formed by that river (Fisk 1944:Pl. 15, Sh. 3). The fire pits were covered by a thick veneer of stiff clay, a product of centuries of backwater alluviation which transpired after the Arkansas River abandoned its course through the area.

At the time the pits burned, they were on the gentle foreslope of the natural levee bordering the stream along an extended reach. Since this

is in the zone of drastic water fluctuations (inside the levee crest), it is quite probable that the river bank here was largely devoid of vegetation except possibly for a willow fringe at the immediate normal low water line. Also implicit in the location of pits within this zone is the probability of seasonal use. This zone is normally covered with water of varying depths in all but the period of summer low water. Spring flooding and inundation normally begin to subside in June or July, and water levels reach their lowest stands about August and begin to gradually rise again in November or December. On this basis, it would appear that the activities manifest at Mount Bayou must have taken place during the summer months.

Fire Pit A

Description. This feature was a shallow, slightly curving sided, rectangular basin, measuring 81cm x 89cm x 30cm in maximum dimensions (Fig. 1). The walls of the basin were fire-hardened and-reddened but showed no evidence of having been puddled or otherwise prepared. The pit fill was a black silty clay impregnated with flecks of charcoal, Poverty Point objects—whole and fragmentary (Fig. 2), and tiny pieces of calcined bone and fish scales (Tab. 2). Reddened, indurated earth surrounded the pit on all sides, but was especially pronounced on the northern and eastern edges where lobes of this material extended beyond the pit perimeters for 30cm to 40cm (Fig. 1). But the most unusual feature of this fire pit was the large number of circular post- or stake-molds which occurred, without apparent pattern, throughout the pit itself and in the burned earth which enveloped the pit (Fig. 1). The molds ranged from 5.0-10cm in diameter and in depth. Profiles of the larger ones terminated in an elongated cone indicating that the posts (stakes) had been sharpened to a point before being driven into the ground. The molds originated at the top of the pit; there is no evidence to suggest that they were driven into the pit from a superior level and thus reflect subsequent activities unrelated to pit-side activities. Similarly, no post-molds were discovered in the space intervening between fire pits indicating that their association with the fire pits is a definite one.

Immediately surrounding the fire pit and evidently produced by pit-side activities were a few plain potsherds, some flakes, and a broken biface (Tab. 2).

Interpretation. The pit represents a shallow earth oven in which Centrarchidae (sunfish family) fishes had been baked and subsequently removed. The pit had been opened and its contents taken out from the northeastern corner. Other types of fish or other foods may have also

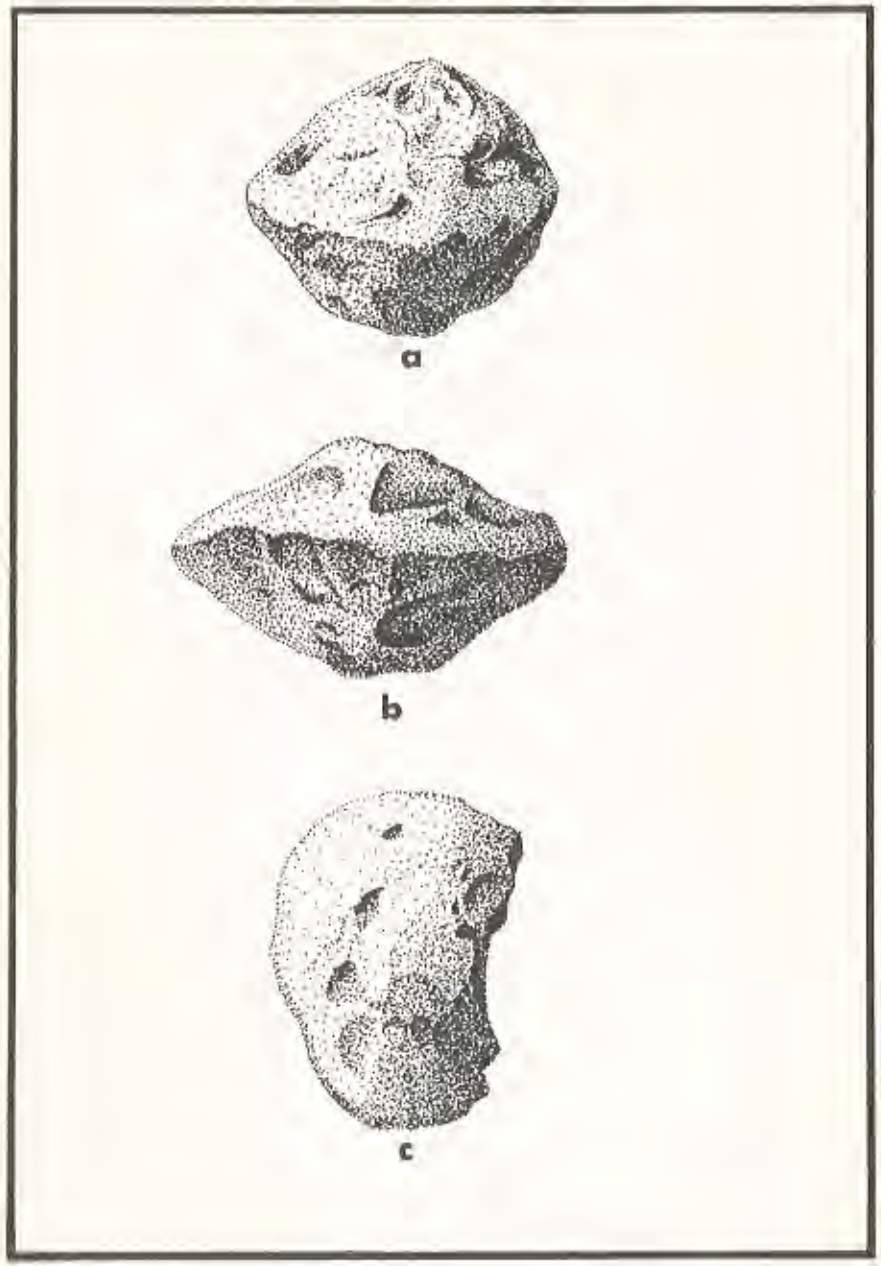

Fig. 2.—Biconical baked clay objects from fire pit A. Scale, actual size.

been cooked but the tiny fragments of burned bone have defied identification. The function of the small posts or stakes is undetermined, but it is quite possible that they might have formed a sort of grillwork on which fish, suspended over the smoky pit, were smoked and dried. A well-known lithograph by John White shows a group of sixteenth century Virginia Indians preparing fish in a fashion comparable to that imagined for the Mount Bayou site. A contemporary reconstruction is presented in Fig. 4.

Fire Pit B

Description. This fire pit was larger and more irregular than fire pit A. It was roughly elliptical in outline (Fig. 3). Its maximum width was 137cm, its remaining length along the long dimension, 152cm (but the northern edge of the pit had been removed by erosion). The pit profile revealed that the eastern two-thirds of the pit was over 3 times deeper than the western third, reaching a maximum depth of 21cm. This deeper portion of the pit had fairly steep walls and a flat bottom. The earth surrounding this pit, as in the first pit, was indurated and reddened by proximity to heat. Its matrix and artifactual content was also similar to fire pit A; a black silty clay containing charcoal, Poverty Point objects and fragments, and small pieces of bone. Additionally present were a burned chert pebble and a burned circular slab of Catahoula sandstone. Interspersed throughout the pit were numerous small post-molds (Fig. 3).

Interpretation. Fire pit B also represents an opened earth oven presumably used to bake, and possibly smoke, fish (Fig. 4). No fish scales were found during visual inspection of the matrix, but it is suspected that at least some of the bone fragments are fish of unidentified species.

COMPARISONS AND INTERPRETATIONS

Fire pits containing baked clay objects have been discovered at several sites within a 20km radius of Mount Bayou: Shoe Bayou and Old Saline Camp (Hunter 1970) and Wild Hog Mound and Red and White Pipe. Additionally, several nearby sites have yielded baked clay objects but no certain evidence, as yet, of earth ovens. This group of components, which forms the nucleus of the Caney phase, is the largest geographical cluster of sites known for the 1500-600 B.C. period. Caney phase components include Caney Mounds, Cross Bayou, Lick Bayou, Big Bayou Pumps, Four Pipes, Big Slough, Big Slough Pipe

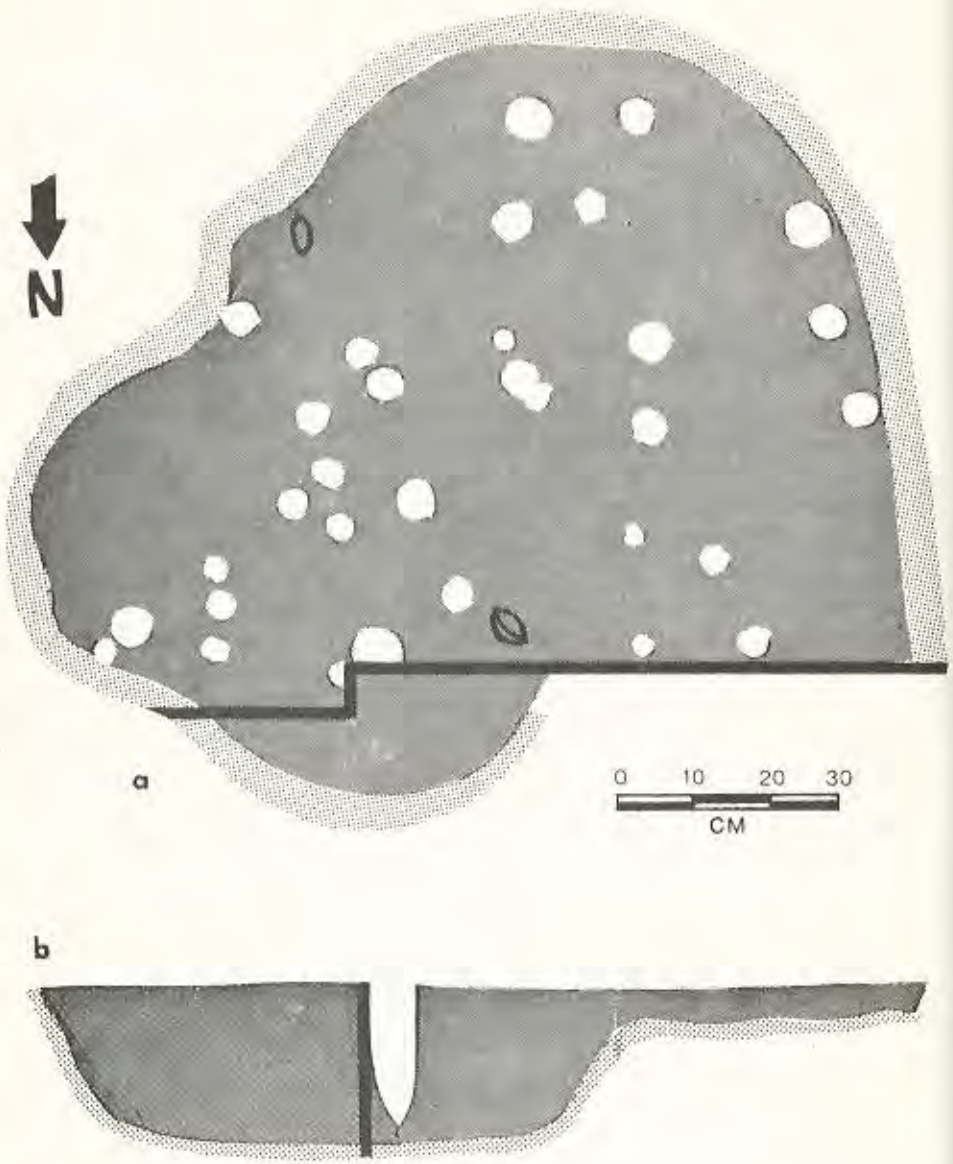

Fig. 3.—Fire pit B at Mount Bayou.

TABLE 2.—
CONTENTS OF THE FIRE PITS

ITEMS	NUMBERS
Fire Pit A:	
Poverty Point Objects:	
biconical, typical, whole	1
biconical, typical, fragments	11
biconical, flattened, whole	3
unclassified fragments	7
Baked Clay Pit Wall Fragments (immediately surrounding fire pit A)	3
Pottery, plain	6
Lithics:	
flake, secondary (local chert)	1
flake, tertiary (white sandstone)	1
flake, *eclat de taille* (orthoquartite)	5
biface, broken distal (orthoquartzite)	1
Fire Pit B:	
Poverty Point Objects:	
biconical, typical, whole	1
biconical, typical, fragments	7
biconical, miniature, whole	1
biconical, extruded carina and poles, fragment	1
biconical, flattened, fragments	4
amorphous	8
unclassified fragments	7
Baked Clay Pit Wall Fragments	11
Lithics:	
burned pebble	1
burned circular white sandstone slab	1

Southeast, Big Slough Pipe Northeast. Honey Brake West, Baker's Overcup, Baker's Field, Baker's Ridge, Royd's Field, Paul's Camp, Hog Back Ridge, Long Branch Structure, Island Bayou North, Cowpen Slough, and Reeves Woods.

There appears to be a great deal of variation among fire pits. The fire pit from Shoe Bayou, exposed in a bankline profile, was a stratified earth oven of undetermined size and shape (Hunter 1970). The matrix of this pit was reddish-brown and contained flecks of charcoal and bone and baked clay objects (59 amorphous objects, 4 biconical fragments, and 28 unidentifiable fragments) (Hunter 1970).

At Old Saline Camp, a bankline profile transected an oval pit measuring about 120cm in length and 60cm in depth (Hunter 1970). The tannish-gray matrix contained charred sandstone and baked clay objects (Hunter 1970).

The fire pit from Red and White Pipe, excavated by W. S. Baker, was a shallow (6.0-8.0cm deep), circular basin about 45-50cm in diameter. The matrix was a black silty clay and yielded, in addition to flecks of charcoal, a total of 186 amorphous and unidentifiable fragments of baked clay objects (W. S. Baker, personal communication, 1973).

In 1972, Clarence Webb, W. S. Baker, and I salvaged a fire pit eroding out of the side of a drainage ditch at the Wild Hog Mound. This pit was basin-shaped in profile and probably circular in plan view. It was about 90cm in diameter and about 35cm deep. A thin, black, charcoal-enriched layer lined the bottom and sides of the basin. The fill of reddish-brown clayey silt contained lumps of baked clay (but no identifiable baked clay objects) and potsherds of Caney or Cross Bayou (the local Tchefuncte phase) derivation.

Several earth ovens have been found at Poverty Point. Ford and Webb (1956:30, 44) described 2 such features; 1 was circular, 32cm in diameter and 30cm in depth, with a rounded bottom lined with charcoal (Ford and Webb 1956:30). A total of 34 clay objects of unidentified forms filled the pit (Webb, Ford, and Gagliano n.d.:68). These objects were embedded in ash, and those lying along the pit bottom were fire-cracked.

The other pit, disturbed by erosion, was an oval basin, with probable dimensions of 53-55cm (diameter) and 40-43cm (depth) (Ford and Webb 1956: 44). Although the pit fill was darker than the surrounding soil, it contained no charcoal or ash. A layer of charred leaves indicated that the sides of the pit had been lined prior to use. Baked clay in the pit totalled 10,272g in weight of which 503g were unclassified fragments and scrap; identifiable clay objects included

spheriods (9), plain bicone (1), bicones with pinched ends (3), grooved cylinders (22), cross-grooved (2), melon with end grooves (1), biscuits (45), and amorphous (61) (Ford and Webb 1956:44).

Additional pits included: a) an oven, measuring 60cm x 60cm, with fired walls containing 5 grooved cylinders, 3 cross-grooved objects, 30 amorphous forms, a triangular biface, a Gary projectile point, 2 proximal portions of points, a lump of sandstone, and a hematite plummet (Webb, Ford, and Gagliano n.d.:68-69); b) a similar oven containing an undisclosed number of spheriodal objects with circular cane impressions (Webb, Ford, and Gagliano n.d.:69); c) a fire pit about 35cm in diameter containing clay ball fragments (Webb, Ford, and Gagliano n.d.:69); d) another pit of uncertain size which yielded 11 cross-grooved objects, 3 grooved cylinders, and 1 melon-shaped object with end grooves (Webb, Ford, and Gagliano n.d.: 69); and e) an oven measuring 35cm in diameter and 46cm in depth with rounded, ash-lined, well-fired bottom and walls containing an estimated 300 objects (most were fragmentary, of biscuit [80-85 percent] and cylindrical grooved shapes) (Webb, Ford, and Gagliano n.d.:69-70).

The Terral Lewis site, lying about 18km southeast of Poverty Point, was contemporary with the *Developmental* and *Florescent* occupation phases at the Poverty Point site. Excavations disclosed several earth ovens including: a) 1 about 30cm in diameter and 23cm in depth containing 7 cross-grooved objects, 2 melon-shaped forms, 1 melon with end-grooves, 2 amorphous forms, and numerous unclassified fragments, but no charcoal or ash (Webb, Ford, and Gagliano n.d.:70); another of similar size filled with 11 cross-grooved objects, 6 melon-shaped, 2 dimpled spheriods, and 1 grooved bicone (Webb, Ford, and Gagliano n.d.:70) and a third, larger than the first 2, containing 360g of unclassified fragments and 11 grooved bicones, 10 melon-shaped forms, 7 cross-grooved objects, 2 plain bicones, and 9 amorphous lumps (Webb, Ford, and Gagliano n.d.:70). Clusters of clay objects in other areas of the site were noted but pits could not be discerned because of the dark, homogeneous nature of the midden.

Undescribed fire pits have also been found at Linsley near Lake Pontchartrain and at Claiborne on the Pearl River estuary.

The variation noted in size, shape, content, and presence or absence of a superciliary framework of fire pits of Poverty Point and contemporary cultures is probably indicative of differences in food preparation from area to area. While baking was almost certainly the primary function of earth ovens, some of the pits suggest auxiliary uses as food smoking-drying-preservation installations and others as trash repositories or storage pits after cooking was completed.

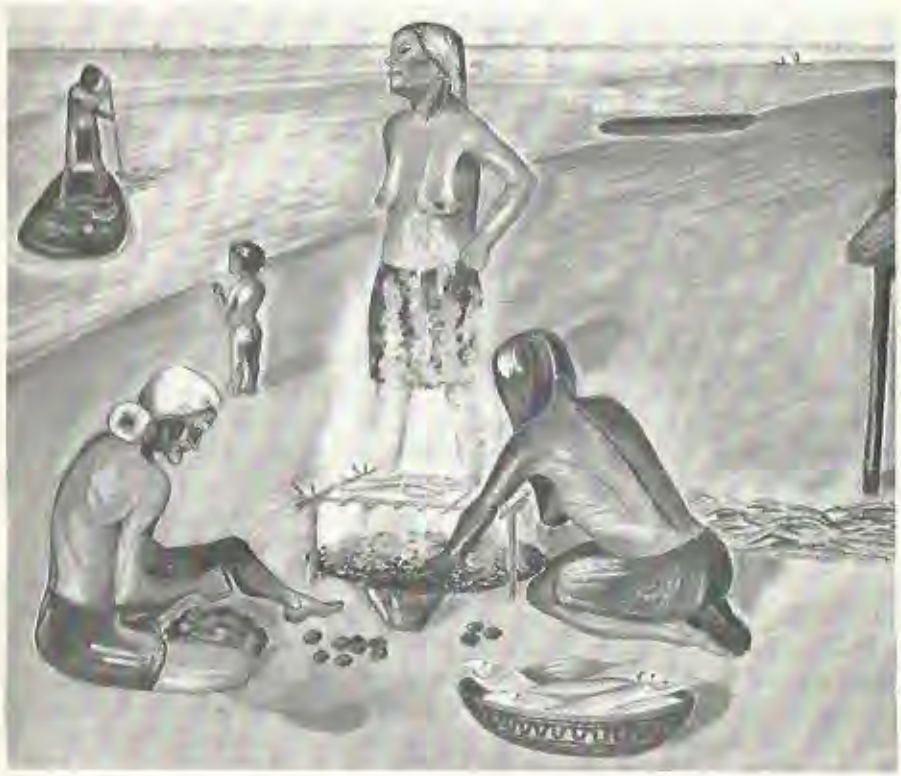

Fig. 4.—Artist's reconstruction of fire pit cooking at Mount Bayou. Pastel by Jon Gibson.

The size, shape, and content of the pits influence the heat conducting and radiating properties of the ovens; bigger, shallower pits probably lose heat much more rapidly than smaller, deeper ones. The presence or absence of combustible materials in the pits must have also affected baking capabilities as well as the amount of smoke produced. Where quantities of smoke were apparently desired, such as at Mount Bayou, pit matrices are black and impregnated with charcoal. The small number of clay objects in the Mount Bayou pits was certainly insufficient to maintain a high pit temperature for any length of time and firewood must have been added periodically. A prodigious quantity of smoke would have been produced (Fig. 4). This would have created a

situation conducive to food preservation, and I have previously suggested that the apparent grillwork over the Mount Bayou pits probably was a frame on which fish were smoked and dried (Fig. 4). Food for immediate consumption could have been baked in the pit at the same time. Thus, the Mount Bayou fire pits are viewed as a very efficient means of satiating immediate nourishment needs for a work force whose principal tasks may have been devoted to fishing and fish preservation for future consumption.

No evidence of framing over ovens at other sites has so far emerged, and I suspect that the function of these plain ovens was confined to preparing food for immediate consumption. The advantage of earth ovens, over other types of cooking facilities, is that once the pit was operational, cooking simply required heating of the clay objects and placing them around the food to be cooked. The oven could then be left unattended, while the cook went about other duties.

If the ovens did not have to be constantly monitored, then it is a foregone conclusion that they must have had an internal regulating mechanism. Lacking automatic timers, clocks, and other aids to let the cook know when food was done, the ovens themselves would have to have been self-regulating, providing the cook with assurance that food would cook only until done and would not burn. I have previously mentioned that size and shape of the ovens, as well as presence or absence of combustible materials, had an influence on pit cooking capabilities. The extent of influence of these factors has, however, not been specified through actual experimentation. On the other hand, controlled experiments, conducted by students at the University of Southwestern Louisiana under my direction, have repeatedly demonstrated that in cylindrical ovens, averaging 45cm in diameter and depth, the type of baked clay object used determined the intensity and duration of cooking temperatures when all other variables were held constant. While the results of these experiments are the subject of a forthcoming paper and will not be detailed here, it is sufficient to say that the type of clay objects used (whether biconical, cross-grooved, cylindrical, melon-shaped, or others) was no doubt conditional on the kind of food being cooked. With the proper choice of heating elements, the food in the earth oven would have absorbed enough heat to get done but not to overcook because pit temperatures would have cooled to the point where heat was no longer transmitted to the food. The cook could have then opened the oven at her leisure and removed the contents when needed, confident that the food was well-cooked.

Years of experience in earth oven-clay object cookery no doubt gave the cook the knowledge of types and numbers of clay objects

necessary to prepare various kinds and amounts of food. As long as other variables, such as pit size, shape, construction details, and quantities of combustibles, remained nearly constant, successful, effortless cooking would have been largely dependent on the inherited mastery of traditional recipes. Had fire pit details been allowed to fluctuate independently of the nature of foods and number and types of heating elements, each cooking episode would have been a new, unpredictable experience requiring constant pit monitoring. This certainly is counter to the principle of least effort and runs agains the grain of human experience. This leads me to suggest that fire pits from the many localities where people of Poverty Point and contemporary cultures were residing differ because of long-standing local traditions. It is true that most of these groups shared the earth oven-clay object culinary method, probably a result of simple stimulus diffusion, but the striking differences from area to area suggest that actual cultural contacts were minimal and that food preparation was entirely a product of local traditions. Culture is integrated on many levels. Among peoples of the 1500-600 B.C. time period, earth oven-baked clay object cookery was a widely used technique, but it by no means linked them culturally, only technologically. Individual cultures are integrated on a more familiaristic level. The people who lived and worked at the Mount Bayou site were a constituency of a localized culture confined to a part of the lower Tensas Basin, a culture which traced a developmental path, for the most part, quite independent of surrounding groups of people who themselves participated only in varying degrees in the sphere of interactions known as Poverty Point culture.

ACKNOWLEDGEMENTS

Thanks are extended to W. S. Baker, Jr. and Clarence H. Webb whose pleasurable company facilitated the fieldwork and afforded an opportunity to learn much about Delta Plantation archaeology. Several semesters of archaeology students at USL conducted the earth oven experiments and though simple acknowledgement is by no means adequate compensation for their labors, my gratitude to all of them is sincere and heart-felt.

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The Cicada In Southeastern Archaeology And In Coushatta Tradition

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in colloboration with
Bel Abbey, Nora Abbey, and Louisa Wilson

ABSTRACT

Cicada effigies are found in archaeological contexts in the southeastern United States. Ethnographic information from the Coushatta Indians illustrates that the cicada remains a subject of aboriginal tradition.

INTRODUCTION

The cicada held an important place in aboriginal folk traditions in the southeastern United States. This tradition appears to have been of extreme antiquity, as stone effigies of the cicada have been found dating from the Archaic and Poverty Point periods (Webb 1971: 105-114). They are also found in the southern Hopewellian manifestation, Marksville (Ford and Willey 1940: 114). The continuing interest in this insect in later cultural periods can not be substantiated. However, the

author collected an interesting Coushatta tradition concerning the cicada in 1974.

THE CICADA IN THE ARCHAEOLOGICAL RECORD

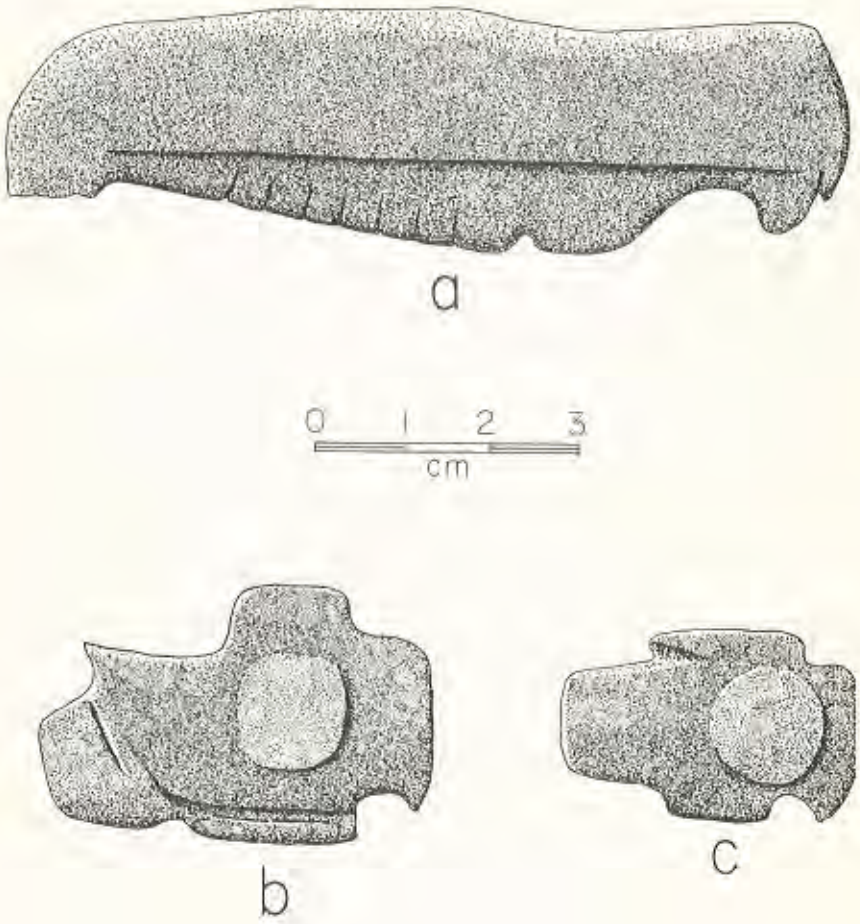
Webb (1971: 105-114) describes a certain class of polished stone artifacts from sites of the Archaic and Poverty Point complexes in the southeastern United States. These are the supposed zoomorphic effigies of the cicada or the grasshopper (Fig. 1b-c). Webb describes 13 objects; most are small, averaging about 5cm in length, are drilled laterally for suspension, and are generally void of explicit detail except for a portion of the thoracic region which is usually enlarged or exaggerated.

Webb (1971: 112) states that the unusually large area in the thoracic region probably represented the auditory membrane in the cicada. Its large size probably showed "a tendency to exaggerate those features that the artist wants to emphasize" (Webb 1971: 112). This appears to be a common technique throughout much of the so-called "primitive" art. Webb (1971: 113), therefore, induces that the sound produced by the insect may have been significant to the artisan and likely of magical importance.

These effigies appear later in the southeastern cultural continuum. They are found in the Southern Hopewell, Marksville (Fig. 1a). Three specimens were excavated at the Crooks site in LaSalle Parish, Louisiana (Ford and Willey 1940: 114). These differ from earlier specimens because of the absence of the enlarged thoracic region (Ford and Willey 1940: Fig. 51f-g). The subsequent disappearance of the cicada effigies in later cultures in the area can be viewed merely as a function of the decline of the lapidary industry. The absence of this material culture trait may not necessarily reflect the loss of folk traditions concerning the insect.

THE COUSHATTA

The Coushatta (pronounced Koasati by the Indians) belong to the Alabama branch of the Muskogean linguistic stock (Gatschet 1884: 52). At contact, the Coushatta were members of the Creek Confederacy who inhabited portions of what is now Alabama. In 1795, the Coushatta



withdrew from the Creek Confederacy and moved into Louisiana (Stiggens n.d.: 204). They took up residence at their present location on Bayou Blue near Elton in southwest Louisiana in 1884 (Jacobson 1954: 14).

Coushatta Tradition Concerning the Cicada

The Coushatta name for the cicada or locust, as it is called locally, is *šo-we šo-we*. The name is imitative of the insect's sound. In Coushatta tradition, the cicada is associated with agriculture. It is the initial sounds of the cicada in late spring or early summer that indicate the ripening of the crops. Mr. Bel Abbey related that his grandmother would forecast when the roasting ears (green corn) were ready to harvest by the first sounds of the cicada. Today the cicadas' shrill sounds begin in late June or early July, coinciding with the ripening of local corn crops. The maturity of the corn appears to have been at approximately the same time as that of contemporary hybrid strains. Adair (1775:436) states that planting in the Southeast usually commenced in early May and the green corn was harvested in July. Capron (1953:177) also notes that the Busk among the Seminole, celebrating the ripening of the green corn, was held in late June or July. In this sense, the cicada may have been associated with this socio-religious activity among the Coushatta.

Mrs. Nora Abbey and Mrs. Louisa Wilson independently associated the first sounds of the cicada as a sign to harvest "snap beans." Today "snap beans" and the "green corn" are harvested at about the same time. Regardless of the crop, the traditional Coushatta associated the cicada with agriculture.

CONCLUSIONS AND SPECULATIONS

The function of the cicada effigies in the Archaic, Poverty Point, and southern Hopewellian cultures will probably never be known. It would be pure speculation to suggest that these early peoples' beliefs concerning the cicada also centered around the maturity of the crops. A model such as this would be extremely difficult, if not impossible, to test.

Additionally, there is no clear evidence of agriculture in these archaeological cultures. No domesticated plant remains, such as corn, beans, or squash, have been found in sites of these cultures. The only exception is at Marskville where Gerard Fowke excavated a small vessel

which reportedly contained remnants of corn and squash (Fowke 1928: 420). Maize and beans are known to have been grown in the related northern Hopewellian contexts (Griffin 1960: 22-23). Some evidence suggests that the northern Hopewellians also grew *Chenopodium* (Struever 1962).

Only inferential evidence is available on agriculture on the Poverty Point time level. The most popular implication for agriculture arises from the feeling that "the Poverty Point mounds and enclosure are of such a size that it is difficult to imagine their construction in this environment by a people who were non-agriculturists" (Willey 1966: 291). "Agriculture, . . . is not proved, but it is implied by the riverine settlement patterns; by the usual association of agriculture with large year-round villages and ceremonial centers; by the known presence of maize, beans, squash, and other cultigens in contemporary Mesoamerican centers; and by the occurrence, at the Poverty Point site, of artifacts like trough metates, loaf-shaped manos, and clay figurines, which are associated with agriculture in Mesoamerica" (Webb 1968: 319).

Brent Smith's faunal analysis of materials from the Claiborne site has been interpreted as indicating a seasonal exploitation of the deer herds. He has examined the ethnographic data on maize agriculture and combined it with his findings. He proposes that deer hunting at the site was conducted after the hypothetical fields were planted in April and again after the harvest in July (Smith 1974: 6).

Excavations and surface collections from the Terral Lewis site have yielded large numbers of biface-thinning flakes having a high facial polish. Specific analyses have demonstrated that this particular wear could have only been produced by digging in soil (Gregory, Davis, and Hunter 1970). Four complete hoes having a similar polish have been found at the site and several appear in Carl Alexander's collections from Poverty Point (Hiram F. Gregory, personal communication, 1973).

The material from Terral Lewis seems to be the most substantial as it is based on physical evidence rather than on subjective feelings. Whether the wear on these hoes is the end-result of the harvesting of a wild root crop or actual field preparation remains a question. Regardless, this seems to imply a dependence on some sort of plant (not necessarily maize!) on the Poverty Point time level.

The cicada may have been associated with the ripening of some type (or types) of plant in the Southeast in these early cultures. Ap-

parently, it held some sort of cultural significance as it was a subject portrayed in their lapidary industries. If there is a cultural and historical linkage between these early peoples and the Coushatta, the present beliefs concerning this insect may represent a portion of the cultural continuum. The plants may have been the same or the intact belief structure may have been re-applied to later plant domesticates. The beliefs could have been entirely different. Whatever the case, the cicada remains a subject of aboriginal folk traditions.

ACKNOWLEDGEMENTS

The author would like to express his gratitude to the Coushatta, without whom this paper would have not been prepared. Mr. Bel Abbey, Mrs. Nora Abbey, Mrs. Louisa Wilson, Miss Martha John, and Mr. Ed John kindly served as informants. Miss Zula Wilson, Mrs. Nora John, and Mrs. Marie Thompson interpreted for the author on several occasions.

Dr. Ripley Bullen of the Florida State Museum, Dr. H. F. Gregory, Northwestern State University, and especially Dr. Jon Gibson, University of Southwestern Louisiana, did a fine job of editing the manuscript prior to its publication. Special thanks are also extended to Katherine Hunter, the author's wife, who proofed the paper several times.

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