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THE POVERTY POINT CULTURE

Edited by

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EDITOR'S NOTE:

The articles for Bulletin 12 were selected from papers presented at the 26th Southeastern Archaeological Conference held in Macon, Georgia, in 1969, and the 27th Southeastern Archaeological Conference held in Columbia, South Carolina in 1970. Several additional articles were obtained by Clarence H. Webb to add to the volume.

Problems with finances and lack of time to type the publication on the part of the Editor have delayed its publication until 1975. We hope that it has been worth waiting for and that the members will forgive the delay.

Bettye J. Broyles
Co-Editor
October, 1975

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FOREWORD

Clarence H. Webb

The past decade has produced evidences that the Poverty Point Complex is part of a major cultural period in the Southeastern and Central United States. It participates, with the ceramic developments of the South Atlantic and eastern Gulf Coast, in the larger American Formative Period, as particularized by Ford (1969). It is also evident that the Poverty Point Complex, manifested largely along the valleys of a half dozen river systems and the Gulf Coast adjacent to their mouths, is preceded and accompanied by complex developments in late Archaic and early Formative cultures throughout the Southeastern United States and up the central valleys.

The present volume results from concerted studies of several facets of the culture and its antecedents in Louisiana and Mississippi. A brief outline of settlement patterns and presumed economic developments sets the stage for more definitive investigations. Studies at Cedarland-Claiborne on the Pearl River estuary and at the Poverty Point Site touch on the complexity of cultural antecedents and the transition into typical Poverty Point manifestations at the largest known coastal and inland sites, with some exploration of their relationships. Papers on the Poverty Point Site exhibit some results of the first intersite study of internal development and organization, as reflected by artifact distribution, with suggestions of temporal and cultural variations.

Studies at the Terral Lewis and Teoc Creek sites reflect a desirable coordination of efforts of professional and non-professional archaeologists. The Terral Lewis Site was explored by members of the Northeast Louisiana Archaeological Society, was confirmed as a Poverty Point manifestation by Gregory, Webb, and Ford, and was excavated as a joint project by members of the archaeological society and students from Northwestern Louisiana State University under the direction of Gregory. The Teoc Creek Site was discovered by members of the Mississippi Archaeological Association, was confirmed by Webb, Neitzel, and L. B. Jones, was surveyed by Ford, Neitzel, and Webb, was initially excavated by field parties from Mississippi State University and the University of Mississippi under the direction of Koehler and Webb, and was intensively studied by Connaway and McGahey for the Mississippi Archaeological Survey.

The interpretation that Terral Lewis is an activity facies devoted to agriculture or horticulture and within the sphere of cultural influence of the Poverty Point Site may be compared with conclusions from Teoc Creek, the earliest known inland site of Poverty Point Complex-- between 1700 and 1100 B.C. A further comparison of diverse econiches and activities is afforded by reports from the Catahoula Lake area of central Louisiana and the coastal and paludal environment at Claiborne. Some evidence of the resources in the Lower Mississippi Valley is reflected in the listing of consumable flora.

A new approach to dating techniques with thermoluminescence studies of Poverty Point clay objects compares favorably with prior radiocarbon datings in indications of time and sequence.

Several approaches to the interpretation of the socioeconomic diversity represented in Poverty Point Culture are exhibited. It is hoped that the papers in this Bulletin will broaden the appreciation of Poverty Point Culture as a widespread prehistoric development and of the Poverty Point Site as its major manifestation. No longer does it appear as an isolated phenomenon but, rather, as the economic, cultural, and religious center of an extensive population and-- for its time-- an intricate way of life.

SETTLEMENT PATTERNS IN THE POVERTY POINT CULTURAL COMPLEX *

Clarence H. Webb

Settlement patterns during the Poverty Point period are slowly becoming evident as more sites are discovered and explored. The picture is still fragmentary because many sites have been altered or destroyed by natural forces, cultivation, or land leveling actions, and many remain to be found and tested. The presence of Poverty Point components in deeper levels of known sites has just been disclosed in recent years by deep plowing, trenching, canal or road building, or competent archaeological exploration. We can, therefore, outline only a partial picture, with confidence that it will be amplified within the next decade.

Site Locations

Poverty Point sites occur generally in four kinds of environmental settings: on terraces or old land masses overlooking major river courses, active or relict; on levees of major river channels, generally relict; at river-lake junctions; and coastal, at estuaries or on old lands in marsh areas (Table 1).

A. Terraces overlooking major streams:

1. Macon Ridge-- presumably overlooking relict Arkansas River channels. Included are the Poverty Point Site and the string of sites along the ridge front. From north to south these sites are Head, Neeley, Motley, Lower Jackson, Marsden, Insley, and Mott.
2. Ouachita River-- from north to south these include Calion and Coon Island (Schamback, personal communication in Arkansas, 1968), Monroe, and possibly Wilson and Alabama Landing in north Louisiana.
3. Bayou Bartholomew course of the Arkansas-- Brodnax and Montgomery II sites in north Louisiana.
4. Turkey Creek-- Herman Harris Field in Franklin Parish, Louisiana (Hiram Gregory, personal communication 1971).
5. Braided terraces overlooking relict Arkansas courses southeast of Catahoula Lake-- Caney Island, Paul's Landing, Wild Hog Mound, and Shoe Bayou sites in central Louisiana (Gibson, Gregory, and Hunter, personal communications 1968-1971).
6. Mississippi River-- site at Angola Gate.

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*Paper presented in part at the 27th Southeastern Archaeological Conference held in Columbia, South Carolina, October 30, 1970.

TABLE 1-- LOCATIONS OF POVERTY POINT SITES

<u>Terraces</u>	<u>River Levees</u>	<u>River-Lake Junctions</u>
A. Louisiana	A. Mississippi	A. Louisiana
Poverty Point	Jaketown	Russell Landing
Head	Teoc Creek	Pickett's Island
Neeley	Neill	Bayou Jasmine
Motley	Stainback	Linsley
Lower Jackson	Norman	Garcia
Marsden	Garner	Little Woods?
Insley	Falls	Big Oak?
Mott	Asack	Tchefuncte?
Monroe	W. E. Smith	
Wilson?	Jacks	
Alabama Landing?	Abby	
Brodnax	Blue Lake	<u>Coastal</u>
Montgomery II	McGary	
Herman Harris	Andrew Lee	A. Louisiana
Caney Island	Murphey	Belle Island
Paul's Landing	Sky Lake	Avery Island
Wild Hog Mound	Kinlock	Rabbit Island?
Shoe Bayou	Paxton Brake?	Ruth Canal?
Angola	Mabin	
	Lake George?	
	Waller	
	Savory	
B. Arkansas	Fairview	RELATED CULTURES
	Nichols	
Calion	Wills	A. Southeast Missouri
Coon Island	Metzger I	O'Bryan's Ridge Phase
	Columbus	Burkett Phase
		On river terraces and levees
C. Mississippi	B. Louisiana	
McCoy	Aaron	
Hebe	Ray Brake	
	Terral Lewis	B. Western Tennessee
	Panther Lake	On terraces and erosion remnants overlooking streams
	Neimeyer-Dare	
	Parks	
	Old Saline	C. Northwest Florida Coast
	Big Bayou	Elliott's Point Complex
	Cross Bayou	Coastal, on bay margins
	Lick Bayou	
	Honey Brake	
	Big Hole	
	Crooks?	
	C. Arkansas	
	Deep Bayou	
	Lloyd's Bayou	
	Hyneman	
	Walnut Mound	
	Frierson	

These sites, located in contact zones, permitted exploitation of upland terrace and lowland valley-swamp environments.

7. Braided surfaces between major meander belts in the Yazoo Basin-- McCoy and Hebe sites differ in being away from major stream courses in an upland environment.

B. Major river natural levees, mostly relict courses:

1. In the Yazoo Basin of Mississippi, a large number of sites include Jacketown, Teoc Creek, Neill, Stainback, Norman, Garner, Falls, Asack, W. E. Smith, Jacks, Blue Lake, McGary, Andrew Lee, Abby, Murphey, Sky Lake, Kinlock, possibly Paxton Brake and, in the Lower Basin-- as reported by the Lower Yazoo Basin Archaeological Survey (Phillips 1970)-- the Mabin, Lake George, Waller, Savory, Fairview, and Nichols sites. These southern Basin sites, also the Asack and Kinlock sites, are in the Sunflower meander belt. The others appear to relate to the Yazoo-Tallahatchie-Cassidy Bayou meander, the easternmost Mississippi-Ohio meander belt. The demonstration of Poverty Point occupation at many of these sites resulted from surface explorations by members of the Mississippi Archaeological Association (Webb 1968).
2. Eastern meander belt of the Arkansas River-- in Arkansas, below Pine Bluff, the Deep Bayou and Lloyd's Bayou sites apparently are on the same relict Arkansas River course as the Joe's Bayou course in northwestern Louisiana, a few miles east of the Poverty Point Site. Joe's Bayou sites are Aaron, Ray Break, Terral Lewis, and Panther Lake (Webb 1968).
3. Bonne-Idee western course of the Arkansas-- Neimeyer-Dare and Parks sites in northern Louisiana (Webb 1968).
4. Lower course of the Arkansas River, southeast of Catahoula Lake in central Louisiana-- Poverty Point occupations are described at Old Saline and Big Bayou sites (Hunter and Gregory, personal communication 1971) and possible sites at Cross Bayou, Lick Bayou, Honey Break, and Big Hole (Gibson, personal communication 1971). A possible component antedated the Marksville period occupation of the Crooks Mound (Ford and Willey 1940).
5. Pearl River-- in addition to the Claiborne Site on the estuary (Gagliano and Webb, this volume), the Wills Site was located on Pearl River in the outskirts of Jackson, Mississippi (Rands 1958).
6. Tombigbee River-- in the headwaters of the Tombigbee River system, in east-central Mississippi, the Metzger I Site has been described by Marshall (1970) and mention made in the same publication of another site in the same system, near Columbus, Mississippi.
7. Mississippi relict courses in northeastern Arkansas-- the Hyneman, Walnut Mound, and Frierson sites (Dan Morse, personal communication 1968) are probably prototypes of a large number of sites which flank Crowley's Ridge. Yet to be established are possible affili-

ation with Poverty Point cultural complex, with the O'Bryan's Ridge or Burkett Place developments in southeastern Missouri, or a separate phase status for these northeastern Arkansas sites. The O'Bryan's Ridge and Burkett phases were identified in the Cairo Lowland of the Missouri "bootheel", on relict Mississippi channels (S. Williams 1954). They are thought to be related to, but not an integral part of, the Poverty Point Complex. There have now been located eight sites with large numbers of baked clay or sandy "balls" and 25 sites with smaller numbers of these objects in the Cairo, Advance, and Morehouse Lowlands (Marshall and Hopgood 1964; Marshall 1965; Ray Williams 1967-8; Hopgood 1969; Klippel 1969; and Marshall and Roller 1971). There are recent evidences of similar occurrences in the Western Lowlands (Marshall, personal communication 1971). Similar cultural uncertainty prevails in western Tennessee, across the present Mississippi River from the northeastern Arkansas sites. Donovan B. Long of Humboldt, has found baked clay objects of various forms at fifteen sites on the Forked Deer, Obion, and Hatchie rivers (Long, personal communication 1971; Morse 1964), and Gerald Smith of Memphis State University (personal communication 1971) reports similar findings on the Hatchie, Loosahatchie, and Wolf rivers.

Most examples of these riverine settlements are not far removed from uplands, but a major dependence on riverine-swamp ecology, plus incipient horticulture or agriculture, is seen as their way of life. Few sites show animal or plant debris.

C. River-lake junctions:

1. Catahoula Lake, central Louisiana-- Russell Landing is located on Little River just before it flows into Catahoula Lake; Prickett's Island is northeast of the lake, on the outflow toward Ouachita-Black rivers.
2. Lake Pontchartrain-- Bayou Jasmine, Linsley, and Garcia sites are on relict Mississippi natural levees near Lake Pontchartrain (Gagliano and Saucier 1963). If there are Poverty Point components at Little Woods, Big Oak, and Tchefuncte sites, these also are on relict streams near the lake margin, the first two on Mississippi relict channels, the last on a smaller relict stream.

D. Coastal estuary and marsh settings:

1. Pearl River estuary-- the Claiborne Site, on a terrace formation, overlooks the estuary of Pearl River within sight of the Gulf.
2. Rabbit Island, Belle Island, Weeks Island (Neuman, personal communication 1971), and Avery Island sites are situated on uplifts of older land in the marshes along the western side of the Mississippi Delta system. The cultural relationships of the Schwing, Sorrel Bayou, and Ruth Canal sites, along the western courses of relict Mississippi channels and in more of swamp than marsh situations, are yet uncertain. The related Elliott's Point Complex is on the Northwest Florida Gulf Coast.

The coastal or near-coastal paludal-lacustrine-riverine sites reflect ecological settings that differ somewhat from the previously described riverine sites. Excavations at Claiborne (described in this volume) and drag-line spoils at Bayou Jasmine and Linsley (Gagliano and Saucier 1963) show that shellfish (primarily clam, some oyster), small animals, turtles, birds, garfish, alligators, and a variety of small and large fish are manifested in the midden refuse.

Size of Sites

Sites of the Poverty Point Complex show a great diversity in size, from the Poverty Point Site which covers more than 500 acres (well over a square mile if one includes the occupation outside of the constructed village and along the terrace front north to Motlet Mound and south to Lower Jackson Mound), to the McCoy Site in the Yazoo Basin which Robert Stansill (personal communication 1969) described as no more than 100 feet in any diameter, hence less than one-fourth acre in size.

Jaketown and Caney Island sites are the largest known in their respective areas, the Yazoo Basin and central Louisiana, each covering approximately 100 acres (the exact extent of Poverty Point occupation at these multicomponent sites has not been established). Both are conceived of as regional centers of the cultural complex. Intermediate in size are Claiborne, the largest known coastal site; Teoc Creek, Neill, and Savory in the Yazoo Basin; Neimeyer-Dare in extreme northern Louisiana; and Pickett's Island in central Louisiana. Each of these is in the neighborhood of eight to fifteen acres in extent. The Lower Jackson, Insley, Calion, Brodnax, Aaron, Srainback, Norman, Garcia, Falls, and Asack sites are probably in this intermediate category, but the extent of occupation is not well known. The W. E. Smith Site, which extends for a mile along the natural levee at Snow Brake (Webb 1968), may encompass 30-40 acres.

Apparently smaller sites, less than two acres in size, are at Jacks, Hebe, McCoy, Andrew Lee, and Kinlock in the Yazoo Basin; at Wills Site on the Pearl River; at Deep Bayou and Lloyd's Bayou in southeastern Arkansas; and at Terral Lewis near Poverty Point. The extent of occupation around the single mound sites along Macon Ridge and at many other sites is unknown.

The range in size, therefore, seems to be appropriate for a great ceremonial center, for lesser but important regional centers, modest villages, seasonal or activity camps, and for single family occupations.

Arrangement of Occupations

Since the majority of the known Poverty Point sites are situated on natural river levees or on terraces overlooking streams, the arrangement of occupation at the smaller sites tends to be linear, paralleling the streams. This is known at a dozen sites and suspected of many others that are inadequately explored.

It is now apparent that the characteristic arrangement of occupation or mound placement at the larger and more complex sites is the horseshoe,

semicircle, or partial oval. With the exception of the Teoc Creek Site, all sites that exhibit semicircular or arcuate arrangement have mound construction, as noted in the next section.

The occupation plans at Poverty Point, Claiborne, and Teoc Creek sites are shown in other papers of this volume. The diameter of the outer ridge of the semioctagonal figure at Poverty Point is 3,964 feet; that of the innermost ridge is 1,950 feet (Ford and Webb 1956). The outside diameter of the horseshoe at Claiborne is 660 feet; that of the semicircle at Teoc Creek is nearly 1,000 feet. The semicircles at Teoc Creek and Claiborne are formed by midden deposits, slightly elevated above the surrounding surfaces.

Originally (Ford 1954; Ford and Webb 1956) the arrangement of the six series of concentric elevated ridges at Poverty Point was thought to have been a complete octagon, with three-eighths of the eastern side cut away by river action. Subsequent studies of river channel geology by Roger Saucier (personal communication 1968) and of the intersite distribution of artifacts at Poverty Point by Gibson and the author-- demonstrating a concentration of artifacts derived from the terminal phases of Poverty Point occupation and of subsequent cultures along the eastern portions of the present ridges bordering Bayou Macon-- suggest that the village was originally built in its present form and has suffered river erosion to a minimal extent.

At Jaketown, the occupation plan may have been dictated by the terrain, as the authors (Ford, Phillips and Haag 1955) describe the formation of a semicircular or disc-shaped point bar or sand island, produced by antecedent action of the Ohio River, on which occupation occurred. There is additionally an arc of eight small mounds on the relict natural levee, with larger mounds, presumably constructed during subsequent Tchula, Baytown, and Mississippi periods, at the base of the semicircle. The diameter of the base, slightly diagonal to the present Wasp Lake, is approximately 2,800 feet.

The Savory Site, described by the Lower Yazoo Basin Archaeological Survey (Phillips 1970, Part 1: 338-339), has a semicircular arrangement of eight mounds surrounded by occupational debris. The base of the semicircle, fronting on the Sunflower River, is approximately 1,260 feet across, as indicated on Phillips' Figure 125 (*ibid.*). The author states that the origin of the mounds is uncertain, but that the semicircular pattern seems to have been set in Poverty Point times.

The above five sites have semicircles or horseshoe arcs with their bases on the stream of reference. A sixth site, Caney Island, differs in that the arcuate arrangement of six mounds, 1,180 feet in diameter (Gibson, personal communication 1971), follows the curve of a horseshoe bend (possibly around a point bar similar to that of Jaketown), with the base away from the stream. Cypress Bayou apparently occupies an old channel of the Arkansas River and the site lies on a terrace presemably formed by braided Mississippi A-1 courses. The site was located by Jon Gibson and Donald Hunter in 1968 after the land was cleared for cultivation. The former states (personal communication 1970) that the site covers approximately 100 acres. It is located in Catahoula Parish, Louisiana, southeast of Catahoula

Lake. Gibson and the author, during a visit to the site in 1970, found fragments of Poverty Point objects on or around five of the mounds; Gibson and Hunter have found at least eight varieties or types of Poverty Point objects at the site, but the full extent of Poverty Point occupation and the cultural context of mound construction have not been firmly established. Subsequent occupations include Tchefuncte, Marksville, and Plaquemine; an antecedent late Archaic occupation seems probable (Hunter and Gregory, personal communications 1971).

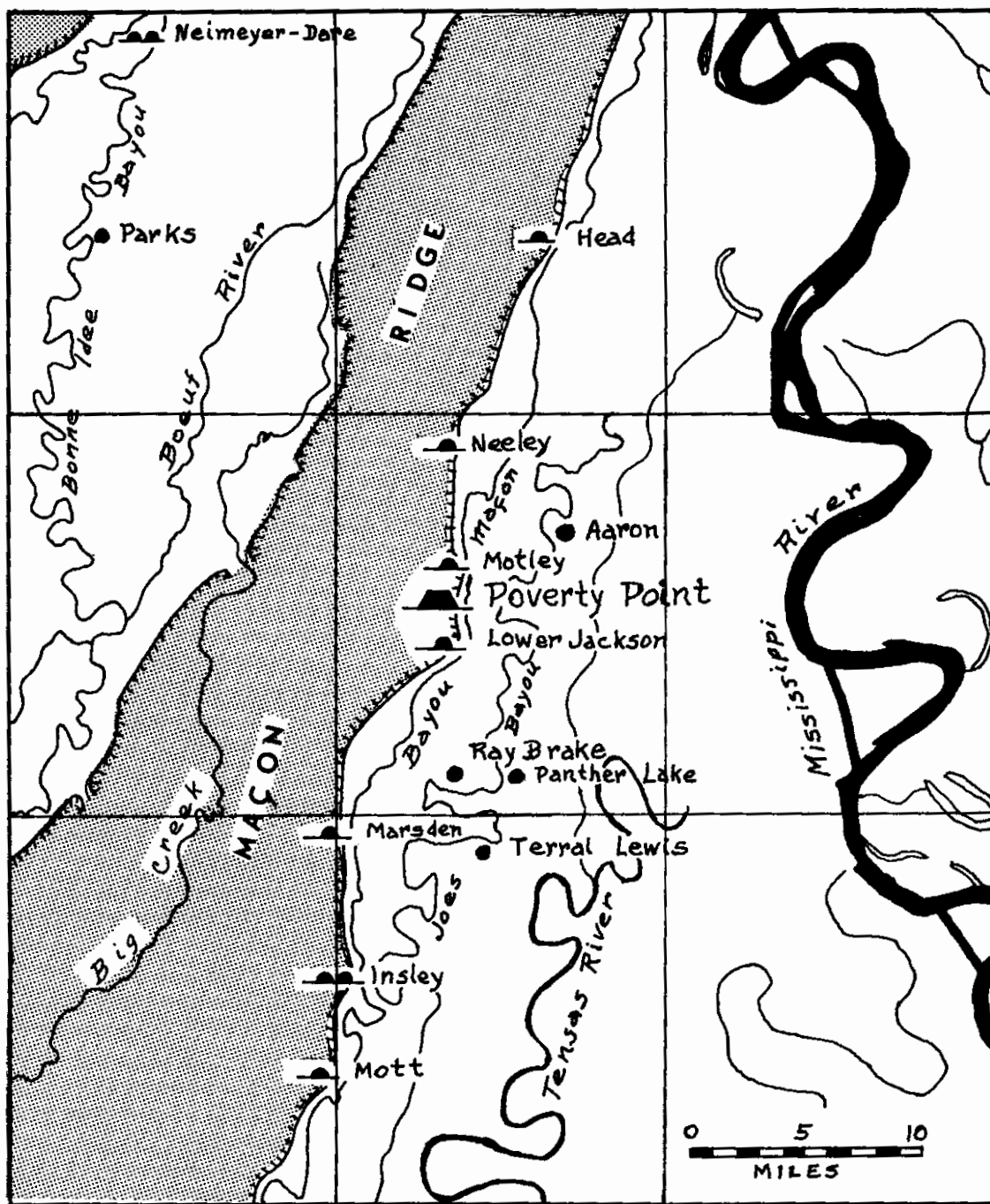
We may conclude that settlement patterns at Poverty Point sites include linear occupations at many smaller sites and semicircular or horseshoe arcuate patterns at larger sites, often with mound construction. There are no evidences of fortifications or other protective constructions, but most settlements are compact. Additionally, major sites are often placed in such a way that the terrain afforded some protection. Poverty Point and Claiborne are flanked by old abraded channels or gullies on each side; Jaketown is on a point bar with low swamps laterally; Caney Island has more than half of its periphery fronting on a horseshoe bend in the river; the Teoc Creek Site has one side and the back of the village adjacent to Teoc Creek swamplands; and Neimeyer-Dare is virtually surrounded by old channels.

Mound Construction

Mounds are now known to have been constructed during Poverty Point times at a number of sites and are suspected at many others. Consistent with its paramount position at the cultural apex, only the Poverty Point Site has monumental and massive mounds. Mound A and Motley Mound, with their terraces and ramps, and the conical Mound B, erected over a crematorium, have been described elsewhere (Ford and Webb 1956). The single mound at Lower Jackson Place, 1.5 miles north of Poverty Point, is a more modest cone. Elsewhere along Macon Ridge, single conical mounds are found at the Head and Neeley sites north of Poverty Point and at the Mott Site to the south. There are five mounds (possibly six originally) at the Insley Site, some 15 miles to the south; one of these was originally over 20 feet high, but the time of construction is uncertain.

The Neimeyer-Dare Site had two conical mounds, now destroyed, approximately five feet in height and 75 to 100 feet in diameter (the characteristic size of the small cones), situated about 150 feet apart. Caney Island Site has been mentioned, with five or six conical mounds that may relate to Poverty Point occupation. The Garcia Site on Lake Pontchartrain was stated by Gagliano and Saucier (1963) to have had a large mound, established by historical accounts but no longer existent. At the Claiborne Site (Gagliano and Webb, this volume) a small cone of sand was situated 1,060 feet east of the semicircle center; it is described as four feet in height and 75 feet in diameter before its destruction.

In Mississippi, the Jaketown Site has been fully described (Ford, Phillips and Haag 1955), with eight small conical mounds related to pre-ceramic Poverty Point occupation; the possibility of initial construction during Poverty Point times of some of the other six mounds at the site is not eliminated. A section through one of the earlier mounds showed occupation phases but no evidences of burials or structures. The Savory semi-



- CEREMONIAL CENTER
- MULTIPLE MOUND SITE
- SINGLE MOUND SITE
- — SIMPLE OCCUPATION

FIG.1. POVERTY POINT INTERACTION SPHERE

circle of eight presumably conical mounds has been described. One conjectures whether the number "8" may have had some significance in tribal organization at the Yazoo Basin sites, as Gibson (personal communication 1970) has thought may have been the case of the number "6" at Louisiana sites (Caney Island, Poverty Point, and possibly Insley).

Poverty Point occupations have been demonstrated at a number of multicomponent sites on which there are single or multiple mounds of uncertain derivation. In Louisiana, such sites are at Russell Landing, Pickett's Island, Wild Hog Mound, Paul's Landing, Marsden, and Ray Brake, with possibilities at other sites. The mound at Ray Brake seems to be of Tchefuncte affiliation and Crooks Mound (Ford and Willey 1940) is Marksville in time. In Arkansas, there are mounds and clay ball deposits at Hyneman and Walnut Mound, again with uncertainty of relationship. The list of mounds with inadequate information is even longer in Mississippi: Norman, Falls, Kinlock, Asack, W. E. Smith, Jacks, Sky Lake, Garner, Blue Lake, Mabin, Paxton, Waller, and possibly others. At some of these sites, the mounds are small conicals consistent in size and appearance with those of Poverty Point provenience.

Houses and Burials

There is still a paucity of information about house construction or burial practices among Poverty Point peoples. The small oval structure indicated by post molds at Jaketown (Ford, Phillips and Haag 1955: 34) is the only known structure of the period. Numerous possible post molds have been found during excavations at Poverty Point, Terral Lewis, Teoc Creek, and other sites, but without a pattern. One of the gullies at Poverty Point transected what appeared to be a house floor beneath Ridge 2 of the North Sector. Masses of burned daub, Poverty Point objects, and other debris lay on the presumed floor and beneath it was a shallow pit containing charred cane. The floor or house debris area seemed to be at least 12-14 feet in diameter at this point. The Monte Sano Site at Baton Rouge (Webb 1968), excavated by Ford and Haag, had a square submound structure 20-21 feet in widths, with massive posts. This site is now thought to be late Archaic in context rather than Poverty Point.

Mound B at the Poverty Point Site covers the only known cremation of the period, if proper interpretation has been placed on the dense layer of submound ash and charred cane containing human bone. We believe that the copper placements in the South Sector of the site, including a double row of 35 copper beads, and other placements of matched and beautifully made large Motley points or polished plummets, may represent burial placements. Similarly, the steatite vessel cache and matched Motley points at Claiborne may be so interpreted. In no instance, however, were human remains present.

Cooking Arrangements-- Subsistence

In contrast with the scarcity of information about houses and burials, the evidence about cooking methods is abundant. Dozens of baking pits or earth ovens have been found at a number of sites; these are typi-

cally 15-20 inches in width and depth, often contain Poverty Point objects, and sometimes have ash or charcoal. Stone vessels or fragments, generally of steatite but sometimes of sandstone, have been found at fourteen sites; sherds of fiber-tempered pottery were recovered from ten sites. The question of Alexander-like sand-tempered and Tchefuncte-like clay-grit-grog-tempered pottery in Poverty Point cultural context is still open, but doubt no longer exists of the fiber-tempered. The methods of use of stone and pottery vessels in food preparation is uncertain, but clay hearths have been found at several sites. Hot rock cooking is also indicated by masses of fire-cracked stones at the Poverty Point and Teoc Creek sites. The manufacture and use of basketry is documented (Ford and Webb 1956).

One draws an inference of the importance of hunting and fowling in the economy from the numerous projectile points, atlatl weights (plus an antler atlatl hook at Poverty Point), and plummets of hematite and magnetite at many sites of the period. One also infers extensive working of wood, hides, bone, and antler from a variety of celts, adzes, scrapers, and lamellar microlithic tools. Pitted stones, mullers, and milling stones are generally less frequent than in late Archaic sites, but the variable occurrence suggests nutting and seed grinding at some sites. Soil tillage is inferred from the occurrence of hoes showing high polish-- as documented in the paper of Gregory, Davis, and Hunter in this volume. This activity suggests horticulture or agriculture, especially with the extensive occupations of fertile natural river levees, but full proof is lacking. Visible food residues are limited to a few sites: persimmon seeds and nut hulls at Teoc Creek and a wide variety of shellfish, animal, fish, and bird bones at Linsley, Bayou Jasmine, and Claiborne sites near the coast (Gagliano and Saucier 1963; Gagliano and Webb, this volume). The shellfish were clams and oysters; animal bones represented deer, alligators, alligator gars, rabbits, squirrels, otters, raccoons, and muskrats. The fish and birds were unidentified.

Trade and Social Organization

These topics have been considered previously (Ford and Webb 1956; Webb 1968; Ford 1969) and are touched on elsewhere in this publication. With respect to the trade network, suffice to note that the entire central basin of the United States was involved at the Poverty Point Site-- from Rocky Mountain obsidian to Appalachian steatite and from Lake Superior copper to Gulf products. A surprising amount of exotic material is found at other sites, especially the regional centers.

James Ford and the author have expressed the opinion (in the above referenced articles) that the society was stratified and well organized, with strong civil and religious leadership, and with specialized artisans. No reasons have developed to alter this opinion, but many details remain to be filled in. Many satellite settlements and activity occupations now seem to be probable, regional chiefdoms and subchiefdoms seem likely, and numerous small mounds suggest a widespread ceremonial-religious concept. Yet it is quite possible that many small settlements had a simple extended family organization, derived from their Archaic predecessors, with only tenuous connections with the great centers.

INTERSITE VARIABILITY AT POVERTY POINT
SOME PRELIMINARY CONSIDERATIONS ON LAPIDARY

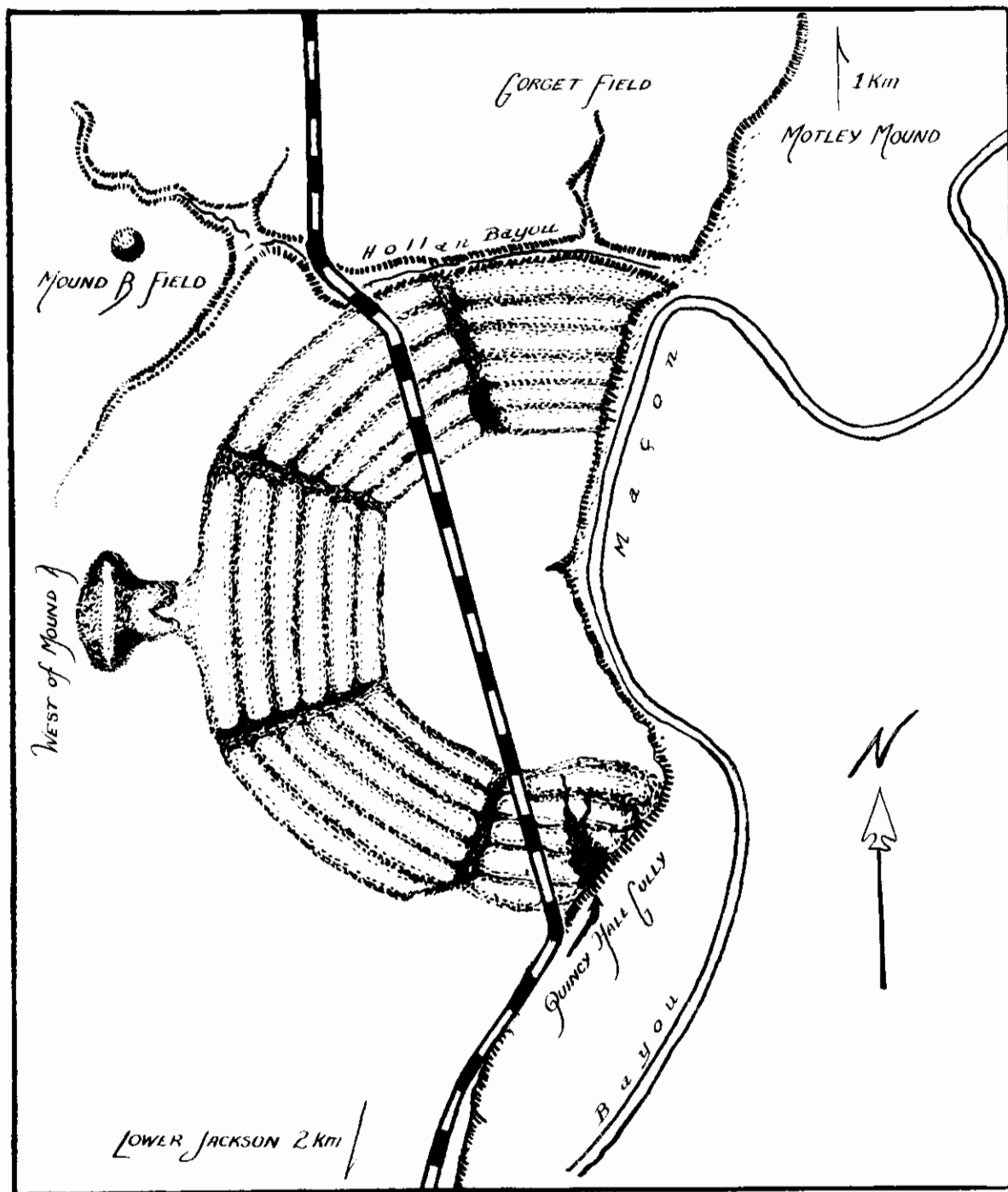
Jon L. Gibson

University of Southwestern Louisiana

Tabulation of the large Carl Alexander collection of artifacts from the Poverty Point Site in northeastern Louisiana has provided an enormous number of new data.* Aside from the obvious value of this collection in terms of unique qualitative and quantitative information, the greatest part of the holdings were collected and catalogued by controlled surface lots. For the first time, Poverty Point is beginning to yield quantities of information on intersite artifactual "behavior". No longer must we be content with simple inventorial and historical perspectives of the site, but now we are able to see how these interact with the added dimension of space.

The concentric octagonal arrangement of earthen ridges at Poverty Point has provided a natural design for separating surface collections (Fig. 1). This system described below is essentially like the one set up originally by Ford and Webb (1956: 17) with a little local flavor added by Alexander's intimate knowledge of the terrain. The ridges from inside to outside of the octagon are numbered 1 to 6. The sectors which are compartments of six ridges separated by "aisles" (openings) at the corners of the octagon are lettered according to their orientation with the cardinal directions: north, northwest, west, southwest, and south. For convenience, sectors will be abbreviated hereafter. Thus a typical catalogue reference such as N1 would mean that a particular artifact was found on the interior ridge of the north sector. In addition to the 30 obvious proveniences (five sectors with six ridges each), collections from five other spots have also been maintained. These include: Quincy Hale Gully (QHG, grouped here with S), Mound B Field (MBF, northwest of octagon at Mound B), Gorget Field (GF, north of the octagon across Holland Bayou), West of Mound A (WMA), and Lower Jackson (LJ, south of octagon and of Moore's old Jackson Site).

* Over the past year, Clarence Webb and I have been engaged in the tabulation and study of a new provenience-controlled collection of artifacts amassed from Poverty Point by Carl Alexander of Epps, Louisiana, Webb using the material in preparing a second major volume on Poverty Point and I as the nucleus of my Ph D dissertation at Southern Methodist University. Without the generosity of these two gentlemen this study would not have been possible. An original version of this paper was presented at the 27th Southeastern Archaeological Conference held in Columbia, South Carolina, October 28-November 1, 1970.



CONTROLLED COLLECTION AREAS AT POVERTY POINT

NATURE OF THE DATA

It is hard to find a common name for the groups of artifacts under consideration here. Some purposefully vague term such as "problematicals" or "ceremonial objects" might be appropriate were it not for the fact that the former speaks of archaeological intelligence quotients and the latter of an undemonstrated function. Polished stone would include most of the artifacts, but not those of copper or galena. In the original report on Poverty Point, "ornaments" was used (Ford and Webb 1956: 98), but again an a priori judgement about the duty of these objects is implied. Of late, Webb (1968: 315) and Ford (1969: 60) have both substituted the fashionable term lapidary. I too will follow this trend, but will acknowledge certain violations of the defining criteria (see Marckwardt 1966: 761). Looking at this particular aggregate of artifact groups in hindsight, it seems probable that part of the difficulty in selecting a covering name is that some of the groups brought together here may not really belong together. Actually, the underlying assumption "uniting" these groups was that the past behavioral correlates of these artifacts were to be found in the area of intra- and inter-group relations. This now appears to have been a logical but partly unfounded assumption.

Ford and Webb (1956: 98-104), Webb (1968: 314-317), and Ford (1969: 60-70) should be consulted for descriptive amplification of the following groups.

Beads

A total of 118 beads was available for study. Of these only 28 had provenience information. Four of the five cardinal sectors were represented (missing only in NW), as were the adjoining Gorget Field and Lower Jackson locations. The distribution was rather uneven, with a plurality (42.9 per cent) of the specimens deriving from the West sector of the octagon.

The tubular or cylindrical bead, which was the most abundant form in both present and previously reported collections (Ford and Webb 1956: 101-108), also had the widest distribution (Fig. 2). It occurred in N, W, S, GF, and LJ; one more location than its nearest competitor, the barrel-shaped form, which was not represented in NW, MBF, GF, or LJ. The disc bead was found in two locations (W and LJ), the drilled crinoid stem in two (W and S), the miscellaneous form in two (N and W), and the spheroid in one (N). However, with the sources of 90 beads unknown one hardly needs to be reminded that these absences may be more apparent than real.

Bead Half-Products

This is really not a category of the same order as beads; it belongs under the bead concept and is only set apart here to separately examine the transform states of the bead-making industry or bead system. The following forms of unfinished beads (preforms) correspond in a very general way to stages (time sequences) of bead trajectory and in the ultimate preform state (lacking only drilling) to morphological categories. Blocks (cut and/or simply ground), angular blanks (unrounded stock), cylinder blanks (stock for both tubular and barrel forms), disc blanks, and varia are represented.

The present Alexander collection contains 62 bead half-products; the sources of 35 pieces are known (Fig. 2). Blocks have the widest distribution, occurring in five locations; followed by cylinder blanks and blanks (four spots); and by disc blanks and varia (two locations each). The South sector has yielded almost twice as many specimens (combined categories) as the second most productive area, sector N. These loci are followed in order of decreasing yield by W, SW, GF, and LJ. Sector NW and MBF are not represented.

Other Small Objects

Thirty-one objects including zoomorphic carvings, miniature copies of larger artifacts, and miscellaneous objects are grouped into this category. Bird figures are a dominant theme portrayed by fat-bellied jasper owls (3 objects), pumice or galena bird heads in the round (4), and a flat outline head of slate. Two claw or canine effigies and a lustrous red jasper replica of an open clamshell round out the zoomorphic objects. Eight tiny facsimiles of plummets and two of grooved axes are carved of red jasper, slate, and mudstone. Two flattened cylinders with transverse perforations, four stone buttons, and five miscellaneous objects complete this inventory.

Provenience data are available for 18 of these items (Fig. 2). Collectively, the group of other small objects distribute as follows: S (7, 38.9 percent), W (4, 22.2 percent), N and SW (3 each, 16.6 percent, respectively), and GF (1, 5.5 percent).

Narrow End Rectangular Tablets

At least seven objects in the Alexander collection are identified as narrow end rectangular tablets, a class of chipped/polished objects defined by Ford and Webb (1956: 98-101). The degree of grinding or polishing on these artifacts ranges from mere traces along lateral margins to complete obliteration of flake scars on all faces and margins.

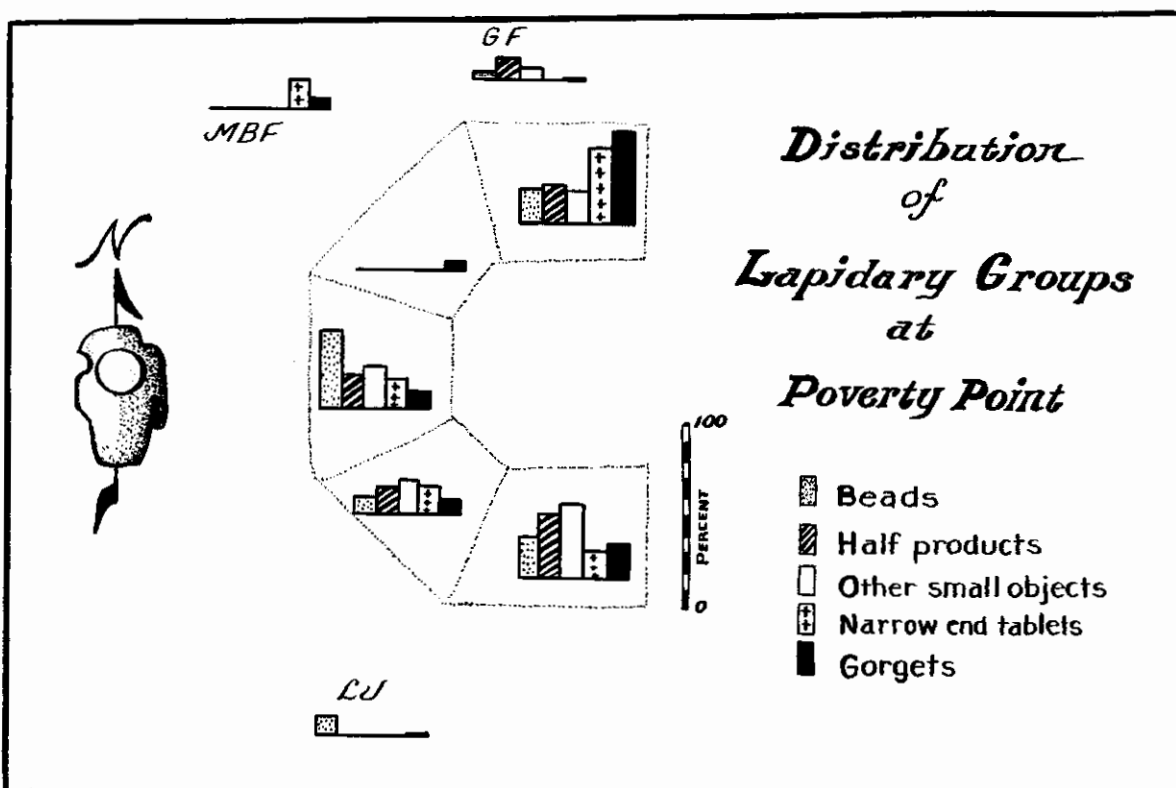
The sources of all seven tablets are known (Fig. 2). Three came from sector N and one from each of the following loci: W, SW, S, and MBF.

Gorgets

Gorgets may seem like strange bedfellows in a lapidary industry. Certainly the materials of which they are made-- shale, slate, mudstone, siltstone, talc, schist, cannel coal, hematite, and galena-- cannot be construed as either "hard" or "precious". Nevertheless, the function of these objects has never been satisfactorily demonstrated, and the possibility that all or some of them may have been "ornaments" cannot be readily dismissed. For this reason then gorgets are discussed under the lapidary rubric.

The Alexander holdings contain 74 recognizable gorgets. All but five specimens have known origins (Fig. 2). Gorgets have been recovered from all sectors of the octagon and from MBF, GF, LJ, and WMA. More of

these objects (50.7 percent) have come from sector N than from any other sector. Sector S is second in production (19.0 percent), followed by W (8.7 percent), SW (7.3 percent), MBF (4.3 percent) and NW (4.3 percent), LJ (2.9 percent), GF (1.4 percent) and WMA (1.4 percent). Generally this distribution reflects total sample distribution.



STATISTICAL CORRELATIONS AMONG CLASSES

With the aid of various statistical tests, degrees of associations between artifact groups were measured. Pearson product moment coefficient of correlation and Spearman rank correlation coefficient were used for this purpose. A coefficient value of 1.00 represents the highest possible positive correlation between variables; a figure of 0.00, no correlation; and one of -1.00, the highest possible negative association. If the frequencies (or ranks) of artifacts in the various groups have highly similar distributions then coefficients will have values in excess of .50; the greater the similarity, the higher the coefficient. If frequencies or ranks "behave" in exactly opposite fashions, then negative values of greater than -.50 will result. Coefficients between -.50 and .50 only hint at the direction of similarity, although the closer the coefficients come to these values, the stronger that hint becomes. Both Pearson and Spearman coefficients are fairly simple to calculate and more importantly for our purposes here can deal with small frequencies. Chi-square, which was also applied, has a stipulation on the relationship between expected cell frequencies and degrees of freedom. Often this could not be satisfied without considerable merging of significant categories. Nonetheless, the probability of associ-

ation determined from the chi-square statistic often lends a measure of corroboration for correlations arrived at by other means.

The following correlations are based on distributions by sectors. Distributions could have just as logically been compared using ridges as the specific locations. In fact, two separate tests were run to see how well ridge distributions matched with sector distributions. Ideally, comparisons by ridge and sector should have furnished the most precise correlations, but in all save one case (gorgets) the number of data in the various lapidary groups are simply insufficient.

Positive correlations exist among all the compared groups of artifacts. Some distributions are, however, more alike than others. A very high order of similarity exists among distributions of gorgets, narrow end rectangular tablets, and Poverty Point objects. Actually, Poverty Point objects were brought into these comparisons as a sort of control measure. The logic governing their selection was conditioned by two factors; first, by the large size of the sample (4,927 specimens) and, secondly, by the probability that clay balls were utilitarian, not ornamental, and should therefore be expected to show a major degree of difference between these functional categories. Such a strong degree of association among these groups was not anticipated, for this suggests possibilities of mutual interrelationships or codependence. Of course, the final decision as to whether or not these associations have cultural meaning must rest with analysis of covariance of all other artifactual configurations at Poverty Point.

When the above correlated groups were compared with all other lapidary groups, much weaker relationships were evidenced (Table 1). In fact, the association between Poverty Point objects and beads was even insignificant ($r = .49$).

The other lapidary groups-- beads, bead half-products, and other small objects-- did not yield high positive coefficients when compared with each other. Even the distributions of beads and incomplete beads (half-products) were not strongly correlated ($r = .42$), and beads and other lapidary objects had the next to lowest association of the whole lot ($r = .44$). Comparatively, beads had the most consistently dissimilar distribution. In other words, when an insignificant or low level correlation was obtained, beads were always involved.

There are only minor rank permutations in the intersite spread of gorgets by materials, and certainly some of these are due to the smallness of the sample from certain sectors. Significant congruency exists between hematite-limonite gorgets ($r = .82$). This simply means that gorgets of these materials vary similarly from sector to sector. High values on one variable are matched by high values on the other; low values by low values. However, sector-ridge comparisons give a much lower degree of parity ($r_{\text{rank}} = .51$). Twenty-six of the 35 gorgets from Sector N are made of slate or other nonironstone materials. Chi-square indicates that this greater-than-expected frequency is significant at the .05 level. And it is of no little interest that four similarly styled gorgets made of identical material (streaked gray slate) have different proveniences. All are from sector N but from different ridges (numbers 1, 3, 5, and 6).

A summary of these correlation coefficients is presented in Table 1.

TABLE 1
CORRELATION COEFFICIENTS

COMPARISONS BY SECTOR	SPEARMAN r	PEARSON r
Poverty Point Objects/Gorgets	.94	.91
Tablets/Gorgets	.88	.93
Tablets/Poverty Point Objects	.75	-
Bead Half/Other Lapidary	.73	-
Bead/Gorget	.71	.53
Bead/Bead Half	.67	.42
Bead/Tablet	.62	.55
Bead/Poverty Point Objects	.62	.49
Bead Half/Gorget	.54	.51
Bead Half/Poverty Point Objects	.51	-
Bead/Other Lapidary	-	.44

CONCLUSIONS ON INTERCLASS RELATIONSHIPS

The preceding analysis has been conducted on a fairly gross level using frequency distributions of various artifact groups which are themselves of heirarchically different orders (cf. gorgets, a class, and other lapidary objects, a "catch-all" for several classes). These intrusions have, however, been made necessary by the nature of the data. A large number of analytically separable groups are represented, but each group only has a few numbers. In order to maximize geographic representation, the 30 separate sector-ridge proveniences were combined into five sectors. Thus, it has been necessary to combine not only artifact categories but locations in order to secure statistically representative samples. It remains then to make some judgement on what analysis of this coarse-grained variability can tell us in terms of behavioral correlates of the archaeological record.

Actually, the artifact groups compared herein were selected in order to test the idea that some degree of difference should exist between the distributions of artifacts which were utilitarian and those which were not. Lapidary was a logical choice for the nonutilitarian category. Poverty Point objects were the utilitarian selection, and some questionable groups such as gorgets and tablets were purposefully included.

The high level of similarity exhibited by the distributions of gorgets, narrow end rectangular tablets, and Poverty Point objects is suggestive of strong functional interdependence due either to the nature of the represented groups or to some unknown factor or factors. The use of Poverty Point objects as "baking stones" in earth ovens is well substantiated (Ford and Webb 1956: 44; Gagliano and Saucier 1963: 323-326; Webb 1968: 308). However, it is difficult to see how gorgets or tablets might have functioned in the culinary sphere. In the absence of a vivid imagination, the obvious alternative would be that the similarity among these groups can be correlated with some other factor, such as perhaps women's activities or just household specificity. In any event it does seem quite clear that gorget-tablets and the other lapidary groups did not occupy similar functional niches in the cultural environment.

The low level of similarity between the distributions of finished and unfinished beads suggests that while the completed beads were pressed into use on the same areas where they were made, some intersite movement among the sectors may have taken place. This is suggested by the inverse ratio of complete beads to half-products in sectors W (2:1) and S (1:2). The extremely low proportion of incomplete to finished beads (about 1:70 judging from the total known sample from Poverty Point and 1:3 in the present sample), while conceivable due to collecting vagaries, can be interpreted as meaning: one, that most beads were made elsewhere and brought on to the site; two, that craftsmen at Poverty Point were so proficient in their work that almost every piece was carried to completion; and three, that beads at Poverty Point served a purpose quite distinct from other Archaic sites where they appear most often as funeral offerings. Credibility of the first suggestion is considerably minimized by the constant ratio of identifiable (form) bead half-products and their correlative bead forms. Chi-square indicates no difference in their distributions (Gibson 1971).

Abstracting from more complete data and statistical correlations which have been presented elsewhere (Gibson 1971), it may be concluded that the distributional patterns of the artifacts in question here are implicative of an egalitarian sociological context. Had either beads or bead half-products shown skewed distributions, then ideas of special production areas and/or unequal access to finished products might have been entertained. But evidence of a ranked or stratified sociocultural milieu has consistently failed to materialize in spite of strong presumptory reasons to believe such might have been the case.

The demonstration of similarities and differences is prerequisite for any scientific interpretation. With analysis of total distributional variability at Poverty Point we should eventually be able to outline the specific patterns of prehistoric residence and activity which have made Poverty Point a rather unique manifestation in the archaeological Southeast; a manifestation which bears the same sort of relation to the ensuing culture history of the Eastern Woodlands as Olmec and Chavin bear to their respective histories and areas. A few significant associations have been presented here only to dispel the notion that there is something mysterious about Poverty Point which defies explanation.

INTRASITE DISTRIBUTION OF ARTIFACTS AT THE POVERTY POINT SITE,
WITH SPECIAL REFERENCE TO WOMEN'S AND MEN'S ACTIVITIES *

Clarence H. Webb

Eighteen collections from the Poverty Point Site were studied by James Ford and the author between 1962 and 1967. Some of the results were summarized in my synoptic article in American Antiquity (1968), at which time the collections incorporated approximately 70,000 objects. In 1967, the collection of Carl Alexander of Epps, Louisiana, which constituted a major resource during the study, was acquired by Louisiana State University and Florida State Museum.

Between 1967 and 1970, deep plowing and gully erosion at the site uncovered many additional objects and Alexander gathered another large collection, with careful provenience control. The author's smaller collection was also accumulated during the same period with provenience control by sectors and ridges of the site as described by Gibson in the preceding paper of this volume.

During 1970, Jon L. Gibson and the author, assisted by Alexander, Hiram Gregory, and Sherwood Gagliano, tabulated 18,727 objects from these two collections by types, materials, and/or various typological and use-category attributes as well as by ridge-sector or adjacent area provenience--a total of 33 locations in or around the village. We are in a position to report only gross observations at present, but hope by finer studies (including computer correlations) to make distributional studies that may throw more light on the life of the people who lived or visited at the Poverty Point Site.

It seemed desirable, first, to classify the more than 91,000 objects now available from the site and to examine the numerical distribution into major categories of objects. This is shown in Figure 1. Nearly one-third (32.25 percent) of the collected objects are lamellar blades, cores, and objects made from these blades, illustrating the importance of this industry at the site. Nearly one-fourth (22 percent) consists of Poverty Point clay objects, most of them whole. About one-eighth each (12.26 and 12.8 percent) are projectile points and chipped stone tools or preforms, used flakes, and cores for these tools. These four categories, therefore, incorporate nearly 80 percent of all objects in the collections from the site. Of the remainder, stone vessel fragments and raw materials each are between five and six percent in frequency; plummets and plummet fragments or other objects of hematite or magnetite make up between two and three percent, as does the combination of lapidary items and polished problematical objects. The final three categories-- ground or polished stone tools, pot-

*Paper presented at the 27th Southeastern Archaeological Conference held in Columbia, South Carolina, October 29-November 1, 1971.

tery sherds, and a miscellaneous group of figurines, pipe fragments, other clay objects, copper, bone, and antler objects--each has less than two percent of the total.

The 18,727 objects with provenience designation, approximately one-fifth of the total collections, compare favorably with the total categorical grouping. Lamellar objects and Poverty Point objects are at the same relative frequencies, as are stone vessel fragments, ground stone tools, pottery sherds, and miscellaneous items. Raw materials are increased to ten per cent and chipped stone objects to 15 percent, probably due to increased interest in these items on the part of the collectors and their disregard by casual collectors. Projectile points, plummets, and lapidary-polished stone problematical objects are at about half the overall levels, probably because they are avidly sought by general collectors, hence their numbers have diminished over the years. All classes of objects, however, are still well represented in the provenience controlled collections and therefore intersite comparisons should be valid.

A more serious difficulty, especially to those purists who wish the kind of tight control over surface collecting that is rarely obtainable at sites like Poverty Point, is that collecting methods are far from perfect. Personal selectivity on the part of the collectors varied, as all objects on the surface were never collected. However, 90 percent of the collection presently studied was made by one person and his selectivity should apply equally to all parts of the site. More serious than this is the variation in depth of plowing and erosion in the various parts of the field--

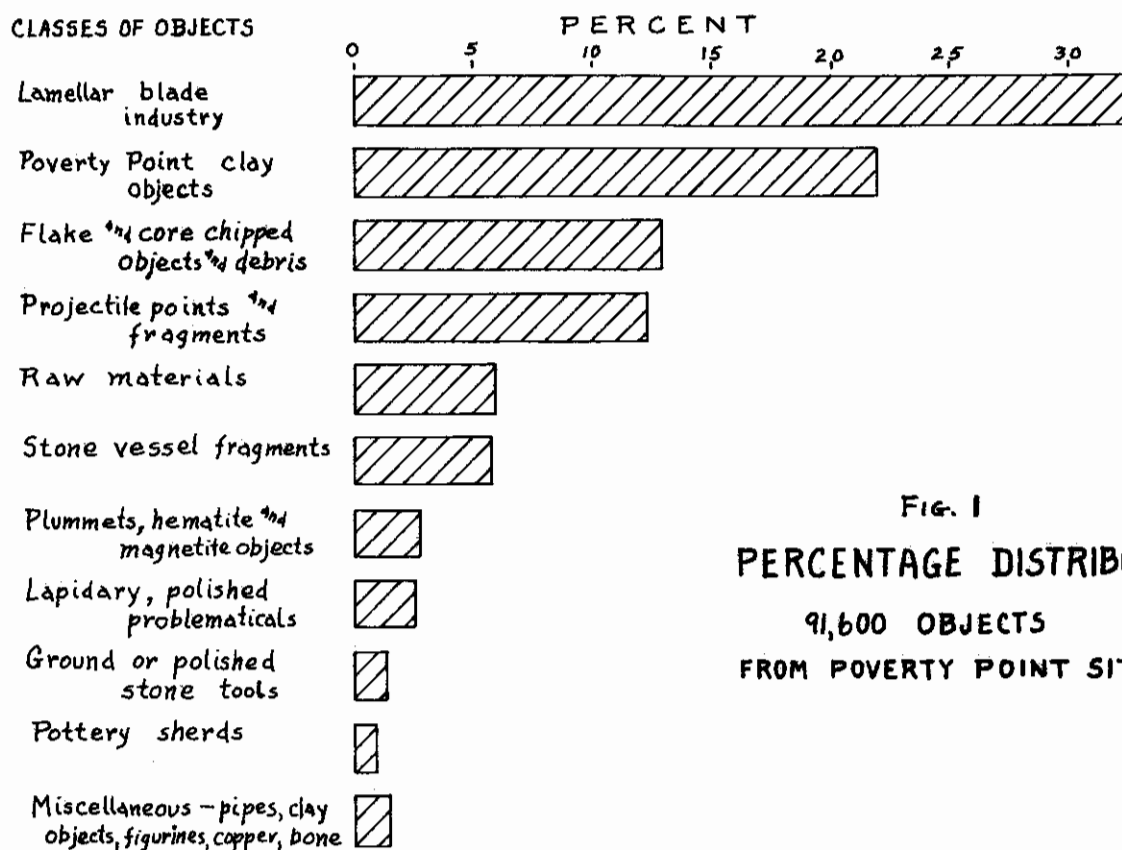


FIG. 1
PERCENTAGE DISTRIBUTION
91,600 OBJECTS
FROM POVERTY POINT SITE

much deeper over the south sector than elsewhere-- and the deep gullying that completely transects the middens, so that objects collected from these ravines after heavy rains represent the total time span of the site. These gullies occur on both south and north sectors, however, so that collections from them are to some extent comparable. The southwest and west sectors are not transected and the northwest is cut only by the highway ditches, from which comparatively few objects have been collected during recent years. Despite these handicaps, the large number of objects available, the size of the site, and the similarity of conditions between the south and north sectors and between the three western sectors seem to offer some validity to intrasite comparisons. Since the site is now being purchased by the State and will be under better control in the future, more definitive studies may be anticipated.

For the first gross comparisons, the 18,000+ objects, divided into the classes shown in Figure 1, were then grouped by presumed gender or social class usage (Table 1 and Fig. 2). The first group includes those objects or classes that are thought to represent women's everyday culinary activities: Poverty Point clay objects, pottery sherds, and stone vessel fragments. The second grouping is that of presumed domestic and village tools, possibly used by men or women: blades and bladelet tools, chipped unifacial and bifacial tools (presumed cutting or scraping objects), and ground or polished stone tools (milling and grinding stones, pitted stones, whetstones, saws, polished celts, axes, adzes, hoes, reamers, etc). In the third group are presumed masculine hunting and fowling objects: projectile points and plummets. The fourth incorporates supposedly ceremonial and ornamental objects, possibly of hierarchical significance: beads, pendants, pipes, figurines, exotic materials like copper, fluorite, calcite, quartz,






TABLE 1. INTRASITE DISTRIBUTION OF CERTAIN OBJECTS BY COLLECTION AREAS AT POVERTY POINT
Shown as percentages of objects in various areas of total numbers in listed categories

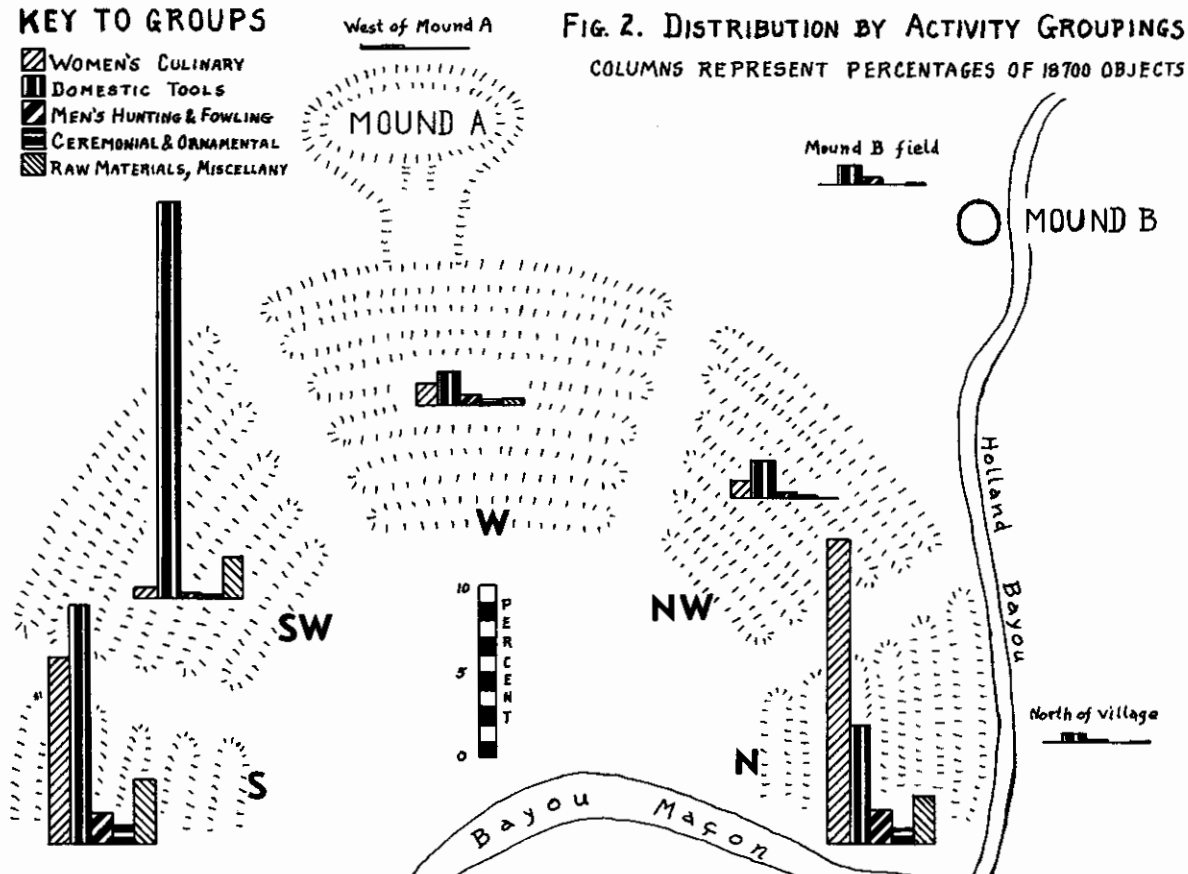
GROUP	OBJECT CATEGORIES	S	SW	W	NW	N	MBF	WMA	NoV	NUMBER OF OBJECTS
1	Poverty Point Objects	31.89	2.05	4.37	3.63	57.87	0.12	—	0.06	4937
	Stone Vessel Fragments	40.00	1.07	3.45	1.43	48.21	2.02	3.21	0.60	840
	Pottery Sherds	61.87	1.44	1.44	3.60	31.65	—	—	—	139
2	Lamellar Blades and Tools	22.26	67.10	3.41	2.68	4.12	0.12	0.08	0.09	6189
	Chipped Stone Tools, Cores	40.10	4.17	4.45	7.71	32.74	6.65	1.12	3.01	2855
	Ground Stone Tools	21.95	8.94	5.64	9.76	38.21	6.50	6.54	2.44	123
	Polished Stone Tools	28.43	2.44	8.83	4.90	34.31	13.72	0.98	5.88	102
3	Projectile Points	28.65	5.24	11.48	4.68	36.79	9.59	0.33	3.23	897
	Plummets, Hematite Objects	42.71	5.73	10.93	11.98	21.35	4.68	1.04	1.56	192
	Beads, Pendants, Lapidary	39.78	9.67	17.20	2.15	27.95	1.08	—	2.17	93
4	Polished Problematics	27.90	8.72	11.63	4.07	39.53	5.23	0.60	2.32	172
	Figurines	28.94	2.63	—	5.26	63.16	—	—	—	38
	Pipe Fragments	44.44	5.55	27.77	—	22.22	—	—	—	18
	Copper	92.00	4.00	—	—	4.00	—	—	—	25
	ALL OBJECTS	31.16	26.35	4.53	3.75	30.57	2.20	0.44	0.97	18727

obsidian, galena, mica, and pigments, and such problematical objects as gorgets, boatstones, bannerstones, barstones, and tablets (supposedly atlatl weights, possibly having marginal significance). In the final group are raw materials (except for the exotics listed above) and a few miscellaneous items such as cane cores and objects of bone, antler, and teeth. Various other combinations are, of course, possible and valid objections might be offered to some of the groupings. Other combinations and comparisons will be made later in a search for distinctive indicators.

Until finer distinctions are available and in order to have adequate numbers for comparison, the above five activity groupings are shown (Fig. 2) by occurrence in the five geometric sectors of the site--south, southwest, west, northwest, and north--and in the three extra-village areas, west of Mound A, Mound B Field, and along Holland Bayou and Bayou Macon north of the village. In round numbers, 31 percent of the 18,727 objects derive from the south sector, 30 percent from the north, 26 percent from the southwest, 4.5 percent from the west, nearly four percent from the northwest, two percent from Mound B Field, and less than one percent each from west of Mound A and north of Holland Bayou.

KEY TO GROUPS

-  WOMEN'S CULINARY
-  DOMESTIC TOOLS
-  MEN'S HUNTING & FOWLING
-  CEREMONIAL & ORNAMENTAL
-  RAW MATERIALS, MISCELLANY



Group 1-- Women's Culinary Objects

Most of the women's cooking objects derive from the north and south sectors--56 percent from the north and 34 percent from the south, a total of 90 percent (Table 1 and Fig. 2). These and all subsequent derivation percentages may be compared with the areal distribution of all objects, listed above. The figures are almost identical for Poverty Point objects--89.64 percent from north and south combined-- and for stone vessels, 88.2 percent from these two sectors. In each of these categories, the numbers are greater from the north than from the south. The preponderant derivation of pottery sherds from these sectors is even more striking (93.5 percent), but nearly twice as many sherds came from the south as from the north sector. All of these culinary objects are relatively scarce in the southwest sector and the three areas outside of the village perimeter; in the west and northwest sectors the disproportion between culinary and total objects is less striking but definite. Temporal factors may be involved, especially insofar as pottery is concerned, but distance from the major stream might have been of practical significance to the women, leading them to concentrate their cooking activities near the river.

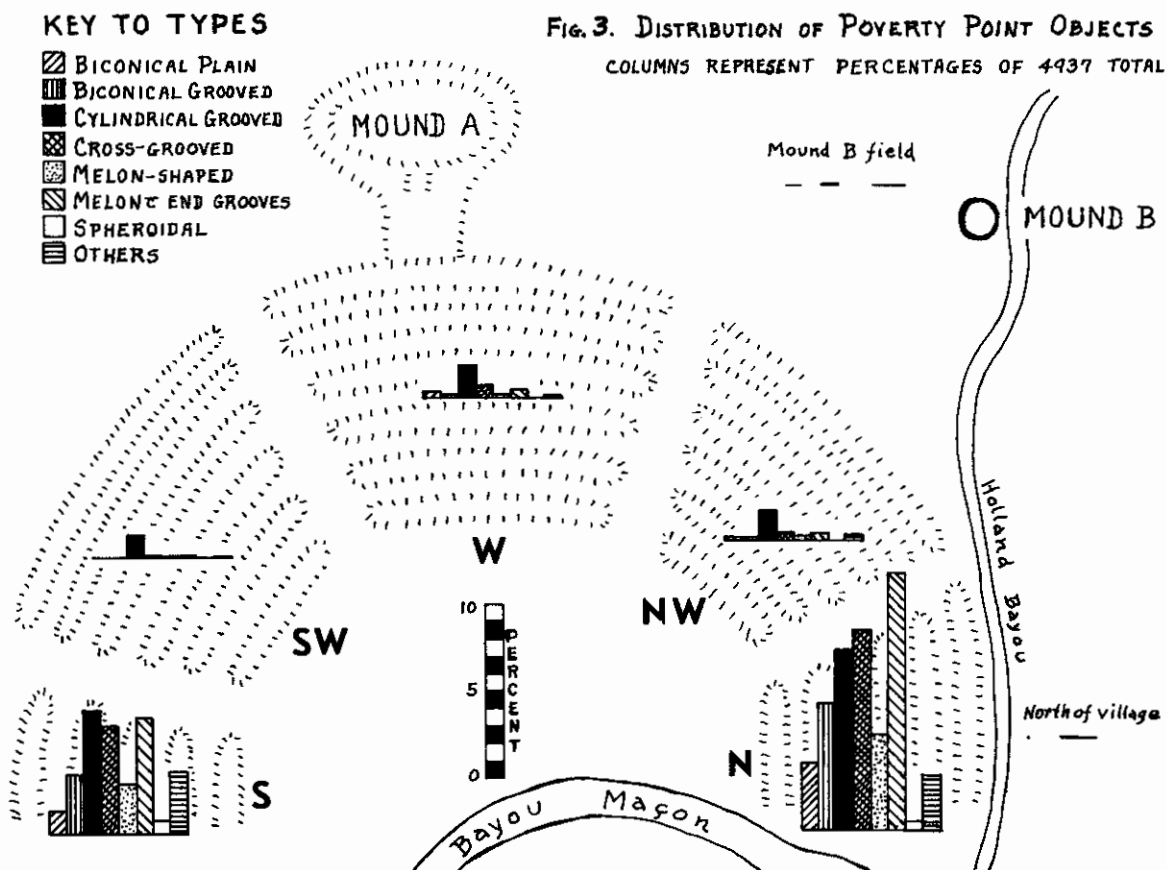
A closer look at the intrasite distribution of Poverty Point objects shows some interesting vagaries (Table 1 and Fig. 3). It has been noted that the north sector is the prime source of Poverty Point objects, supplying 58 percent of the total number. Among the six major types of these objects, Biconical plain, Biconical grooved, and Melon-shaped with end grooves are in increased relative proportions in the north sector. Types Cross-grooved and Melon-shaped are in about the expected proportions (60 and 59 percent, respectively), but the Cylindrical grooved type is comparatively low (45 percent). In the southwest, west, and northwest sectors, the total numbers of Poverty Point objects are limited and Cylindrical grooved is the major type. In the south sector, from which 31.75 percent of Poverty Point objects derived, all of the common types are in the expected proportions (29 to 33 percent of total numbers of each type) except Biconical plain, which falls to 22 percent.

The unusual forms-- spheroidal, cuboidal, rectangular, and biscuit-shaped-- and the tool decorated objects are noticeably more prevalent in the south than in the north sector. For example, 64.1 percent of the tool decorated objects came from the south sector and only 31.62 percent from the north. Cylindrical grooved objects are the dominant type in the south sector, as in the western sectors, whereas the type Melon-shaped with end grooves is the most popular in the north sector, followed by Cross-grooved, with Cylindrical grooved in third place.

There have been indications (Ford and Webb 1956) that type Cylindrical grooved is relatively early at the Poverty Point Site, that Cross-grooved and Melon-shaped types are temporally in a middle position, and Melon-shaped with end grooves and the two biconical types are later; small biconicals are generally conceded to persist into post-Poverty Point cultures. If this sequence is correct, the present study suggests that collections from the western sectors (SW, W, NW) reflect earlier occupations, that a fairly even occupation occurred in the south sector throughout the Poverty Point period, and that relatively heavy occupation existed in the north sector during the later stages.

An added indication of the temporally early position of the Cylindrical grooved type at Poverty Point comes from the debris of a burned structure beneath Ridge 2 of the north sector, on a pre-construction level (Webb, Ford and Gagliano 1971: 48-49). Radiocarbon dates on burned cane from a related subfloor pit are 1050 ± 90 B.C. (Tx-680, Valastro and Davis 1970) and 870 ± 150 B.C. (M-2154, in print). The 150 Poverty Point objects from the house debris included 95 (66.33 percent) Cylindrical grooved, 34 (26.66 percent) amorphous, 11 (7.33 percent) Melon-shaped, one Biconical grooved, and nine untyped.

There is a question whether Poverty Point object types can be used--like pottery types for later periods-- in seriation studies for intrasite comparisons and relative temporal determinations. The complete absence of the Cylindrical grooved type at the Terral Lewis Site (Gregory, Davis, and Hunter, this volume), which otherwise seems to be contemporaneous with the Poverty Point Site, is a case in point. The evidence is conflicting in the Yazoo Basin: the Teoc Creek Site shows a preponderance of large biconical objects, from the deeper levels to the terminal stage when pottery is introduced, during a time span of approximately 1700 to 1100 B.C. (Connaway, McGahey, and Webb, this volume); the Jaketown Site showed a great preponderance of Cylindrical grooved objects in preceramic Poverty Point levels, at a time which should at least overlap the Teoc Creek dates-- the one radiocarbon date from Jaketown of ca. 400 B.C., determined in 1951 (Ford, Phillips and Haag 1955: 154), is obviously too late. On the coast, the Claiborne Site (Gagliano and Webb, this volume) has Melon-shaped, Biconical grooved, and Cross-grooved types in almost equal numbers as the most popular types, with smaller numbers of the Cylindrical grooved type, at a time



level beginning about 1200 B.C.; the Linsley Site, with one radiocarbon date of about 1700 B.C. (Gagliano and Saucier 1963), showed Melon-shaped, Biconical grooved, and Biconical plain as favored types, with Cylindrical grooved as a minor type. Within the Poverty Point cultural complex it may be that the popularity of certain shapes or modifications of Poverty Point objects was determined, from site to site, by cultural rather than temporal factors.

It has been noted that the collections of Poverty Point objects from the type site and Claiborne Site are surprisingly congruous, considering their distance apart and their being on different river systems. It was also noted (Gagliano and Webb, this volume) that the objects at Claiborne are sandy and that a distinctive minor type at Claiborne is the perforated spheroidal with surface roughening ("mulberry" objects). The consequent inference is that the rare perforated, sandy, and "mulberry" objects at the Poverty Point Site are of coastal origin. From the provenience study there are 37 sandy objects, with some derived from each of the five sectors. There are 16 perforated and nine "mulberry" objects in the collection, each having representatives from four different sectors. This is suggestive evidence that visitors from coastal villages-- possibly from Claiborne-- were at Poverty Point, that they included women, and that they were not housed in a special or restricted area of the settlement.

Group 2-- Domestic and Village Tools

The outstanding finding among group 2 objects is the tremendously high proportion of lamellar blades and blade tools found in the southwest sector (Table 1), substantiating the observation of everyone who has collected from the site. Two-thirds of the more than 6,000 objects in the blade industry came from this sector; an additional 22 percent derived from the south sector, leaving only 10-11 percent from all other areas. Lamellar blade objects were found in all parts of the site but in relatively small numbers in the north sector and the fields outside of the terraces. Moreover, it is interesting to observe, from the distribution of approximately 300 lamellar cores, that blades were manufactured in all parts of the village, although use was preponderantly in the southwest sector. Thirty-eight percent of the cores came from the south sector, nearly 28 percent from the west sector, only 19 percent from the southwest, 10 percent from the north, and three percent from the northwest.

Other chipped unifacial and bifacial tools and preforms exhibit a good distribution throughout the site, with moderately increased proportions in the south and northwest sectors, Mound B Field, and north of the village. Ground stone objects and polished stone tools are also represented in all areas, with lesser proportions in the south and southwest sectors and increased proportions in the west, northwest, and north sectors, and outside the village. The increased proportions are especially high in those areas that border Holland Bayou.

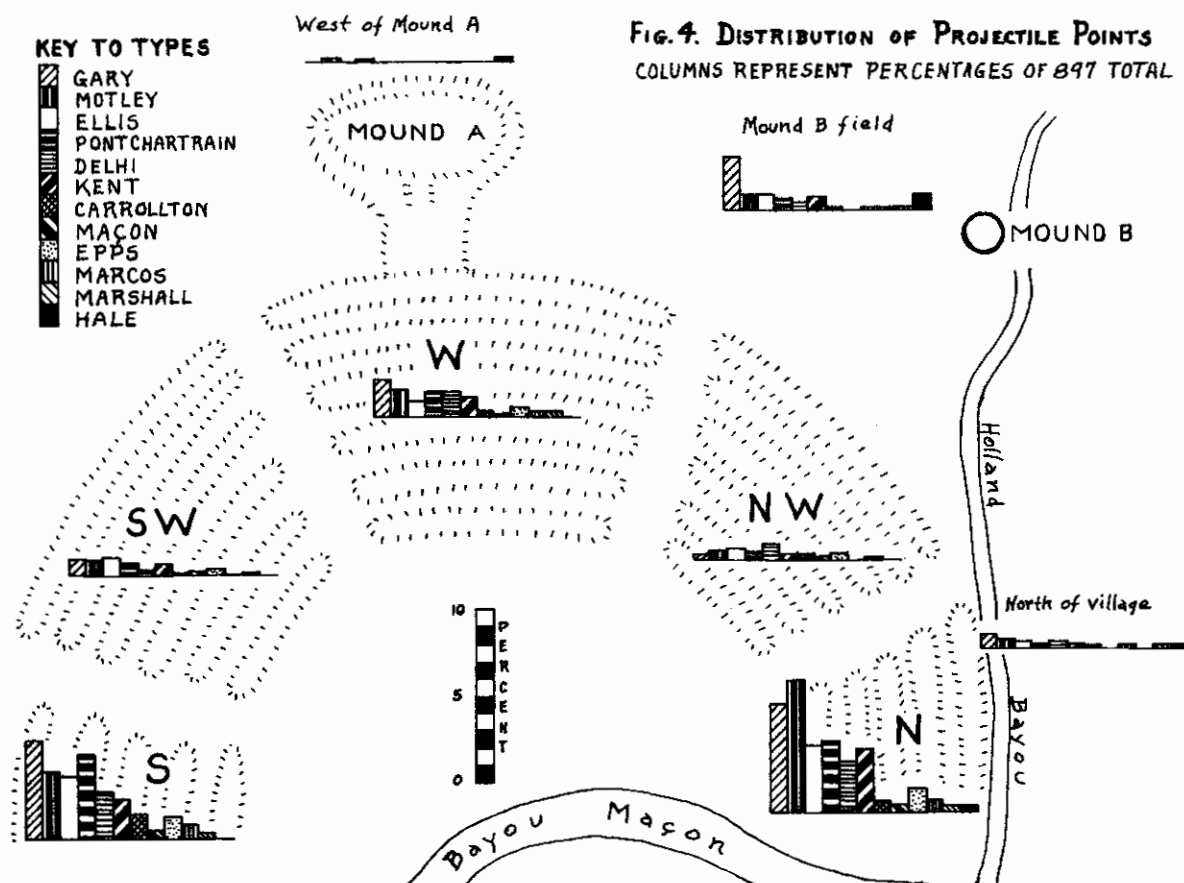
Group 3-- Men's Hunting and Fowling Objects

In contrast to the concentration of women's culinary objects in those sectors near Bayou Macon, the men's hunting and fowling objects are evenly distributed, nearly proportionate in each sector to the total number of objects from that sector, except for the southwest, where all proportions are skewed by the large number of lamellar blades. Plummets are high in proportions in the south sector and low in the north (Table 1), but they are well represented elsewhere, with relatively high proportions in the west and northwest (known to collectors as the "plummet fields"). Similarly, projectile points are well distributed, with the proportions in the west sector, Mound B Field, and north of the village being twice to four times the level expected from the numbers of total objects in these areas.

More detailed studies of projectile point distribution has developed several significant findings:

(1) Half of types Hale, Almagre, and other large forms are found in Mound B Field (Fig. 4); the other half are from the north and northwest sectors, west of Mound A, and north of Holland Bayou. This places these large points along Holland Bayou and its junction with Bayou Macon.

(2) Concave based and side notched points, also aberrant untyped points, have derived almost exclusively from the north and south sectors, Mound B Field, and immediately north of the village, all of these being areas adjacent to Bayou Macon and Holland Bayou.



(3) The occurrences of the six major projectile point types-- Gary, Motley, Pontchartrain, Ellis, Delhi, and Kent, in order of their frequencies in the provenience-controlled conditions-- show interesting intrasite distributions (Fig. 4). Gary is the dominant type in the south and west sectors, in Mound B Field, and north of the village. This type consistently constitutes 17 to 20 percent of all projectiles found in a given sector or area, except in the northwest sector, where only seven percent of the points are the Gary type, and in Mound B Field, where the percentage of the Gary type rises to 31-- nearly one-third of all points in this field. Large Gary points are especially prevalent in Mound B Field, totaling nearly half of the large Gary's with provenience control.

In the south sector, as was found of Poverty Point objects, the various projectile point frequencies parallel their frequencies for the entire site, except that the Pontchartrain type replaces Motley in second place (Fig. 4). The Ellis type is the most popular in the southwest sector and Delhi in the northwest, but the collections from these areas are too small (47 and 42 specimens) to put much weight on these findings.

A striking change in the north sector, however, does seem reliable because the collection includes 330 points from this sector. Here the most popular type is Motley, which constitutes 20 percent of all points from the sector, in comparison with 17.5 percent Gary and 11.5 percent Pontchartrain. Although exact figures are not available, it is evident also that the proportion of points made of imported gray northern flint is higher in the north sector than elsewhere. We have conjectured that Motley points, beautifully made of the dark exotic flint, might have been status objects for the ruling class. If so, the increased numbers of Motley points and northern flint in the north sector suggests residence of the leaders in this area. An alternate-- or concomitant-- temporal factor may be involved, since the distribution of Poverty Point objects suggests a heavy occupation in the north sector during the latter stages of Poverty Point Complex occupation.

It has been noted previously (Ford and Webb 1956) that a good correlation exists between three major projectile point types and the materials from which they were made: novaculites, quartzites, and local cherts for the Gary type, tan and buff cherts for the Pontchartrain type, and gray northern flint for the Motley type. Intrasite correlations of these factors, to include cores, preforms, and flakes as well as finished points, will be sought during the provenience study.

Group 4-- Ceremonial, Ornamental, and Exotic Objects

Group 4 shows unexpectedly uniform distribution through all parts of the site, including the extra-village areas (Table 1 and Fig. 2). The proportions are moderately increased in the south sector, where most of the copper has been found, and lapidary items, as well as pipe fragments, are frequent; and in the west sector, especially in lapidary items, polished problematics, and pipe fragments. Figurines and polished problematics are relatively increased in the north sector and exotic materials like pigments, mica, fluorite, calcite, and galena are more often found in the south sector. Quartz crystals are widely distributed.

Gibson (this volume) has discussed the lapidary and ceremonial objects in some detail. By statistical correlates, he was unable to demonstrate the kind of distribution that was anticipated if this had been a stratified society and concluded "...the distinctive patterns of the artifacts in question here are implicative of an egalitarian sociological context." It is possible, as he discusses, that we made this group of objects too comprehensive and that study of the distribution of individual items would be more revealing. For examples (Table 1), the relatively high incidence of lapidary items and pipe fragments in the west sector, away from the concentration of culinary objects, may relate to ceremonies conducted in this part of the site adjacent to the great mound; the concentration of copper and other exotics in the south sector may result from a burial complex; and the frequency of figurines in the north sector may be interpreted as a reflection of their late arrival at the site and use by the leaders.

Group 5-- Raw Materials, Miscellaneous Objects

The raw materials of this group seem to be evenly distributed in proportion to the collection totals, except for the exotic materials mentioned above. Detailed studies have not been carried out.

PROJECTED HISTORICAL OUTLINE AND HYPOTHESIS OF SOCIAL ORGANIZATION

Based on the limited evidences from the above intrasite study and that of Gibson, from previous studies at the site, and from information at other sites of the complex, the author offers the framework of an historical outline of developments at the Poverty Point Site. There is also offered a working hypothesis (or model) of social organization at the site and in the culture, admittedly broad and nebulous but hopefully to serve as a stimulus for more detailed discussion and study.

The Poverty Point Site was visited by man during the Paleo-Indian Period, using Clovis and other lanceolate points and therefore presumably between 11,000 and 9000 B.C. More frequent visits and probably brief camps occurred during late Paleo-Indian times, by people who left Meserve, Dalton, San Patrice, Scottsbluff, and Plainview-like points. Apparently, various small bands were involved for brief periods and their camps were located along present Bayou Macon (the Arkansas River relict channel) and the older braided channel that is now occupied by Holland Bayou. In addition to the projectiles, a few tools like snub-nose end scrapers may derive from these folk; no camp site with an assemblage of such artifacts has been found.

By middle Archaic times, there was apparently a more regular usage of this site by small bands, especially along present Bayou Macon and its Holland Bayou tributary, with expansion to other parts of the site by late Archaic. The field adjacent to Mound B seems to have been especially popular during Archaic times. It is assumed that people during early and middle Archaic times left points like the Big Sandy, Keithville, and other low side notched varieties, the shallow side notched forms similar to Yarbrough, the corner notched like Bulverde, Morhiss, and Correllton, and, probably, the peculiar Evans points. Other minor types like Ensor, Palmillas, Wells, Trinity, Marshall, and Marcos (similar to these types if not identifiable

as such) are probably late Archaic points and some have the same distributional pattern as the major Poverty Point types. During middle and beginning late Archaic times, it is assumed that many of the chipped stone tools-- scrapers, choppers, thin biface knives, drilling and boring tools, graters, chipped axes, and adzes-- were made, also that some of the ground and polished tools appeared. As yet we have insufficient evidence by which we can compare distribution of these tools with that of projectile points.

By late Archaic times at the site, conceivably by 2000 B.C., the exploitation of food resources may have been adequate to sustain rather large groups-- like bands or extended families-- during certain seasons, although the seasonal round was probably still prevalent. Judging by sites in the Catahoula Lake area (Gibson 1966; Gregory, personal communication 1968-1970), ground and polished stone artifacts were made and the lapidary industry was under way, with the manufacture of beads, pendants, and other small polished objects. One presumably pre-Poverty Point Archaic site is known in the alluvial valley about 15 miles southeast of the Poverty Point Site (Neuman, personal communication 1970). There were large Paleo-Indian and Archaic sites on the Arkansas braided fan west of Poverty Point (Alexander, personal communication 1969-1970). A considerable Archaic population in the Turkey Creek area, 40 miles southwest of Poverty Point (Hiram Gregory, personal communication 1971) used plummetts and other ground and polished stone objects as well as a full compliment of chipped stone tools.

Along the Ouachita River and the Boeuf-Bonne Idee (Arkansas) courses there were a number of Archaic sites and the manufacture of plummetts made of hematite and sandstone was prevalent (Lewis Whitfield, S. L. Parks, and other members of the Northeast Louisiana Archaeological Society, personal communication 1968-1970). The sites at which plummetts are numerous are near swampy situations, consistent with our belief that these objects were used for fowling. Along and west of the Ouachita River in southwest Arkansas, plummetts (usually made of hematite and magnetite) are frequent at Archaic sites, and stone vessel fragments appear (Frank Schambach, personal communication 1968-1971). There are also numerous Archaic sites north of Poverty Point, along the contact zone between the uplands and the Arkansas terraces south of Pine Bluff. The Poverty Point Site was, therefore, surrounded on three sides by respectably large Archaic populations during pre-Poverty Point Complex times; contact and trade interaction seems not only possible, but probable, considering the number of shared traits.

Most of the projectile point types used during Poverty Point times presumably had been introduced to the site during late Archaic; at least Gary, Ellis, Pontchartrain, Kent, lonzenge-shaped, Carrollton, Marcos, and Marshall types are known in late Archaic complexes of northern or central Louisiana. Gary and Ellis types dominated most late Archaic assemblages in the northern part of the State and probably did in late Archaic at Poverty Point. Judging by the distribution of these types, occupation immediately prior to Poverty Point times was along the streams, was still frequent in Mound B Field, but has also spread to the western parts of the eventual occupation area. This is indicated by the dominance of the Gary type in the western sector and of Ellis in the southwestern sector. It is known (Ford and Webb 1956) that Gary points diminished in size with time, hence the frequency of Gary large in Mound B Field establishes this part of the site as an important occupation area during pre-Poverty Point Archaic times.

Presumably the other large forms found predominantly in this field-- Almagre, Hale, Webb, and untyped large stemmed points-- were also used in late Archaic times.

One assumes that a full compliment of Archaic chipped stone tools was similar to that of Poverty Point times. It is probable that ground and polished stone tools were fairly numerous, that plummets of hematite and magnetite were already in use for fowling, that bannerstones were made for atlatl weights, that stone vessels were present in small numbers, and that stone beads and pendants were manufactured. Although most materials came from sources available within a 50-mile radius, it seems that good trade relationships had been established in pre-Poverty Point times. One infers hunting, fishing, fowling, nutting, the gathering and grinding of seeds, and active exploitation of many food resources.

We have cited evidences that the Poverty Point Culture was established on the Gulf Coast and on the ancestral Mississippi in the present Yazoo Basin by 1700 B.C. One conceives that the existing Archaic culture at the Poverty Point Site was changed between 1500 and 1200 B.C., gradually or suddenly, by the advent of those items and concepts that are adjudged to be distinctive of Poverty Point Culture: clay ball cooking, extensive use of steatite vessels, a shift from bannerstones to two-hole gorgets and expanded center bars (hence from round to flat atlatls), extensive use of hematite and magnetite plummets, lamellar bladlet use for cutting and scraping purposes, more widespread trade for exotic materials, a florescence of lapidary work, and the extensive use of adzes and hoes to suggest wood-working and soil tillage. The population increased to cover the extent of the entire site, intermittently or continuously, even before the construction of ridges and mounds began. The food base is still inexact, but it seems probable that some kind of horticulture or agriculture was added to the previous forest-stream-swamp exploitation. Some change in foods is suggested by the new methods of cooking and some year-round assurance of food supplies seems essential for the numbers of people soon to be occupied in massive construction.

The previous importance of the site as an Archaic center was expanded by the establishment of Poverty Point sites along the Macon Ridge, of which about ten are known and others probable (to the extent that almost the entire terrace front for ten miles north and south seems to have had small occupations). Small groups-- extended family or two to three family bands-- expanded to the lowlands eastward, as shown by the Aaron, Terral Lewis, Panther Lake, and Ray Brake sites. Thus was established a large interacting sphere of food and labor suppliers to the center, with these satellite peoples depending on the center for religious and civil leadership and protection from known or imagined dangers. In view of the unknown or destroyed sites, one could probably multiply the known sites by a factor of five to ten in order to have a true picture of the probable interaction sphere around the Poverty Point Site (see Fig. 1, page 10, this volume).

At some time between 1000 and 800 B.C., major construction was started: first the ridges, then Mound B. There is no evidence to date construction of Mound A, but the unfinished appearance of the Motley Mound suggests that it was the last of the major constructions. Others are dubious, but the author has no doubt that the construction was an architect-

turally planned enterprise and that the basic plan was established within a comparatively short time, not a construction by accretion. There is evidence of stage construction in Mound B and excavation of the ridges shows intermittent occupation, with cooking and refuse deposits during their elevation. Neither in Mound B nor in the ridges are there evidences of prolonged intermission and habitation between stages of construction and it seems probable that the entire process was not protracted. The solar orientation of the village and Mound A and the fitting of the outer ridge between braided channel depressions suggest that at least the outer row of village ridges and the major mound, with its platform and ramp leading toward the village center, were related in planning and construction.

What was the inspiration and enabling mechanism at this site that led to a construction more massive and grandiose than anything of its time north of the great Olmec centers? We have no solid evidence, but certain inferences or conclusions seem justified. There was a fecund ecological setting, with well developed technology, acceptance of the site as the center of a large area, and probably a stratification of society with established leadership. But these were present elsewhere; they were enabling, not causative, factors. One must look to the mind and the spirit, to a religious concept which was solar oriented and tied in with monumental construction as one of its expressions. At this time there is no other example of a like conjunction of physical facilities and spiritual spark nearer than the developing Formative in Olmec. Add to this the introduction of figurines, lamellar blades, petaloid polished celts, tecomate vessel forms, and a more intricate lapidary technology than had ever been seen in late Archaic, and it is difficult to deny to Mesoamerican Formative cultures the probability of being the source of that spark of imagination (Webb 1968).

Fiber-Tempered pottery had arrived by construction times at Poverty Point. Habitation, waxing and waning with the seasons and with ceremonial or trading influx, covered the area of constructed ridges; the considerable and prolonged habitation atop the completed ridges is attested to by the tons of midden and debris washed into the swales, which contrast vividly with the lighter denuded ridges on aerial photographs, and the millions (Ford and Webb 1956) of clay ball fragments and other artifacts left on the site. Certain artisans may have lived in specific parts of the village; at least the use of bladelet tools was concentrated in the southwest sector and presumably reflects much working of bone, antler, and wood in this area. Lapidary items and blanks for their manufacture similarly are concentrated in the south and west sectors.

Projectile point types Motley, Delhi, Epps, and Macon come increasingly into vogue and gray northern flint was imported in large amounts for manufacture of these points-- especially Motley-- and large tools. It now seems plausible that the village plan was never a complete series of octagons, but had a five-sided or horseshoe shape from the beginning. The center was important in contact, trade, and ceremonial leadership, not only to the surrounding network of hamlets or family settlements, but more widely, to the extent that visitors came from as far as the coastal groups to mingle freely among the permanent inhabitants. Trade covered the entire Mississippi central basin, with obsidian from the Rockies, steatite from the Appalachians, copper from Lake Superior, and immense quantities of raw materials from the upper reaches of the rivers.

During the later stages of the Poverty Point period, occupations in the westernmost parts of the site diminished, less in the western sector itself (possibly related to its involvement in ceremonies at the great mound), and heaviest habitation persisted along Bayou Macon, the north and south sectors. The use of bladelet tools diminished and that of gray northern flint increased, as did the popularity of Motley points. The latter may have been status objects and it seems probable that figurines and the rare metal, copper, were also. Copper finds suggest their placement in the south sector with burials, probably of important persons. Poverty Point clay object forms shifted in popularity from Cylindrical grooved to Cross-grooved and Melon-shaped, then to small biconicals. Special shapes and decorated objects were made in the south sector, possibly for special feasts.

Finally, Alexander-like sand-tempered pottery wares reached the site; then, toward the end of the Poverty Point cultural period, clay and grit-tempered vessels with punched through nodes and rocker stamping were made. By this time the shrinkage of the village had reached the point that western portions were little used, except possibly for ceremonies, and most people lived along the river.

About 500 B.C., Poverty Point Culture ceased to exist. Smaller occupations of Tchefuncte, Marksville, Troyville, and Coles Creek peoples lived along the stream, but the major occupation shifted by Marksville times to the Jackson Place, immediately contiguous to the south. By Coles Creek times the Jackson Place Site had become a ceremonial center of some importance, with plaza, temple mounds, and the other characteristics of this period.

THE TERRAL LEWIS SITE:
A POVERTY POINT ACTIVITY FACIES IN MADISON PARISH, LOUISIANA

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Northwestern State University

The Terral Lewis Site was partially excavated in 1967, and is located in the Joe's Bayou drainage in the upper Tensas Basin in northwestern Louisiana. The project was a joint venture by the Northeast Louisiana Archaeological Society and Northwestern Louisiana State University.

The site was reported to members of the society by Mr. Terral Lewis who farmed the land on which it is situated. Subsequently, Mr. Lewis and various society members made their surface collections from the site available to the authors and Clarence H. Webb for analysis. On the basis of these collections the site was reconed to be a rather typical Poverty Point component. It was located well out into the alluvial floodplain of the Mississippi, south of the meander belts assumed to be related to early Arkansas, Mississippi, or Ohio channels (Fisk 1941). Recently, geomorphological studies have been renewed which indicate that some of the earlier channel dates may require revision (Saucier 1968: 65-67). However, the location of the site suggested that it might be of some importance in unraveling the ecological relationship of Poverty Point period people to the alluvial floodplain.

SITE EXCAVATIONS AND DESCRIPTION

A preliminary test unit was excavated at the Terral Lewis Site by two of the authors (Gregory and Davis) and Clarence H. Webb in the spring of 1967. The pit indicated a relatively undisturbed midden. This deposit was three feet deep and contained masses of fired clay Poverty Point objects. Some of these objects were noted in situ in what apparently was the remnant of an earth oven situation.

On the basis of this test unit and the fact that the whole site had only recently been placed in cultivation (Terral Lewis, personal communication 1967) it was decided that the site should be tested further. Consequently, the initial excavated unit was used as a corner for a series of six- by six-foot squares, excavated in arbitrary six-inch levels. It was felt that these arbitrary levels would compensate for the lack of visible stratigraphy in the midden and also allow maximum control upon the activities of students and amateurs who were to be taught methodology as the excavations proceeded.

These test units were augmented by a wide (five feet) stratigraphic trench excavated along the eastern periphery of the midden. Both the pits and the trench were then tied into a standard grid quadrant which was ulti-

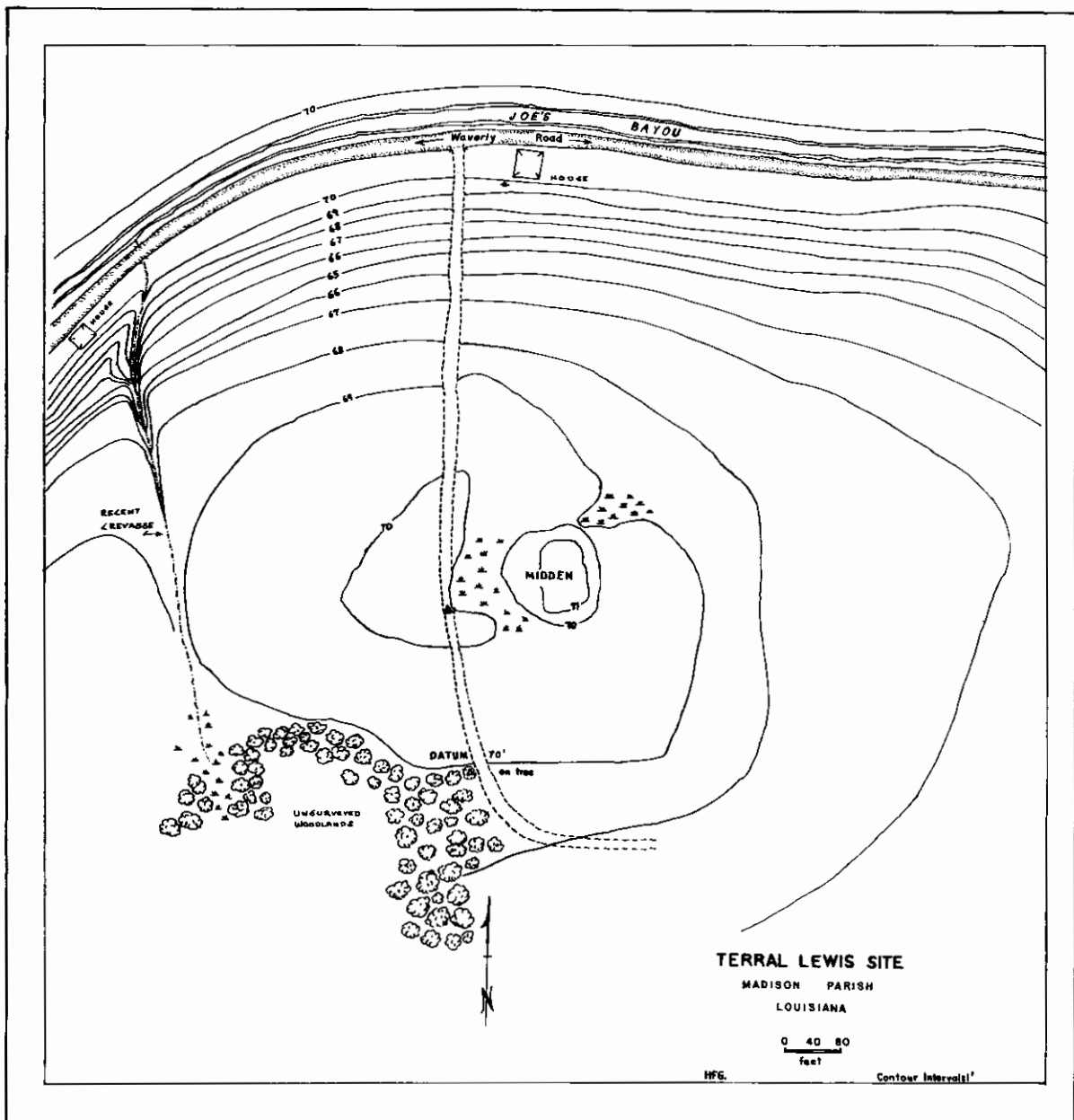


FIGURE 1

mately related to a one foot interval contour map of the site. A total of 13 squares were excavated, as well as 55 feet of trench. Of these squares, six were completed well into the sterile silt below the midden.

Stratigraphy

The excavations showed the site to be a three-foot-deep midden. This midden contained concentrations of clay objects (representing hearth concentrations) and scattered lithic materials. The depth of the midden was somewhat in contrast to the small size of the site, which is only about 200 feet in circumference. However, the lack of visible depositional or cultural stratigraphy seems to indicate that the site was a single component, probably short term, occupation. It seems suggestive of a small close knit group, possibly an extended family or two, rather than a village situation. At the very most, the site would seem to represent a very small band-level group.

The profiles ((Fig. 2) indicate hearth concentrations scattered across the whole area. Layers of in situ clay objects lined the bottoms of shallow pits while wider scatters of both whole and broken objects were concentrated in the immediate vicinities. Obviously these concentrations represented earth ovens. The scatter seems to be the result of the removal of hot objects from the upper portions of the pits when the ovens were opened. In the Terral Lewis case (four ovens with the in situ bottom layers were excavated) there was no evidence that any hearth was used more than once. This factor seems to explain the relatively deep midden concentration at the site. The periodic shifting of such ovens would probably lead to a rapid accumulation of midden. Concomitantly there is no need to infer a large population aggregate to explain the deposits.

Other than hearth areas, the only structural remains at the site were a single pair of post molds located on the eastern edge of the midden. Unfortunately, this area of the site was excavated at the very end of the season so these posts must go uninterpreted at this point. Excavations planned for the summer of 1971 will attempt a more definitive search for architectural data.

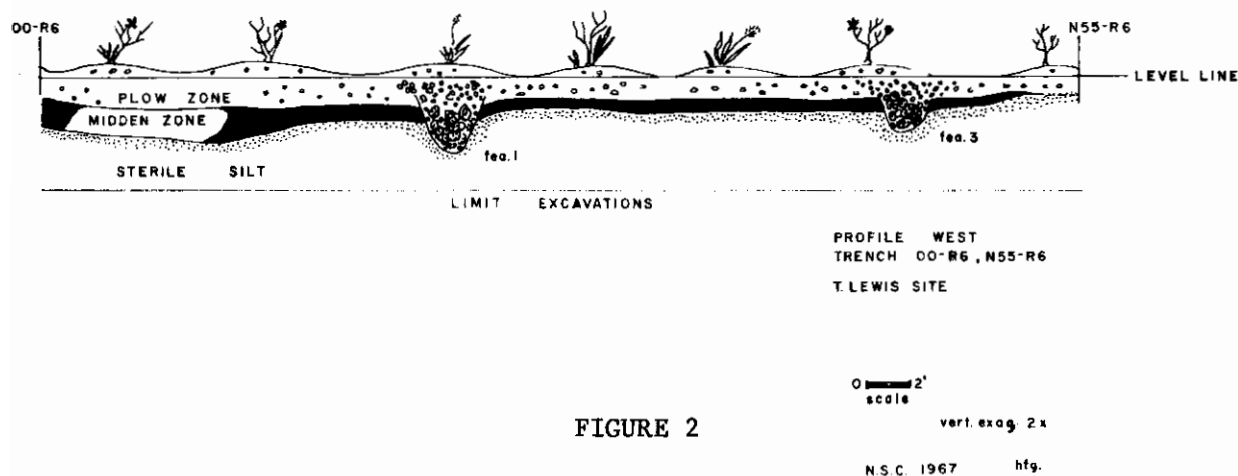


FIGURE 2

ARTIFACTURAL INTERPRETATIONS

On the basis of a controlled artifact sample some preliminary interpretations of the Terral Lewis Site seem possible. Although the sample is a stratified sample from only a portion of the site, thereby losing some of the statistical power of randomness, it does seem an adequate quantitative sample. It also remains the only excavated sample of any size from any of the Poverty Point sites in northern Louisiana with the exception of Poverty Point per se.

The bulk of the material recovered was clay objects and fragments of such objects. Some of the six-inch levels yielded as much as 25 pounds of fragments as well as a number of whole, unbroken objects. Also abundant in the vicinity of the hearth or oven concentrations were "slabs" of fired clay laminae. These remain problematical at this point, however, they do occur in context at one other Poverty Point site, Teoc Creek in northern Mississippi (Clarence H. Webb, personal communication 1968). Certainly these laminae are related to earth oven food preparation in some way, but exactly how is unclear at this point. The use of arbitrary six-inch levels has obscured these data, and it is planned that a "scatter-pattern" technique be applied this next season. Hopefully this will yield more contextual data.

The distribution of the co-varying fired clay objects at the site is better controlled. Horizontal and vertical plots were made for each type by square and level. These were then plotted to scale on clear plastic overlays and scanned for maximal clustering. It became readily apparent that there were some clear clusters of varieties present at the site. More importantly, there were absent some of the varieties present at Poverty Point, a scant 15 miles to the north. In the sample of 91 whole objects available for analysis the dominant forms were biconicals, biconical grooved, and grooved melon-shaped varieties, using the descriptive varieties standardly employed (Webb 1968). The cylindrical grooved variety, present at Poverty Point and several other sites, was totally absent from the identifiable fragments and the whole objects from Terral Lewis.

The selection of forms and the fact that the selected forms tended to cluster horizontally in the midden seems worthy of consideration at this point (Fig. 3). In terms of the intersite relationships, certain points of these distributive data should be emphasized. Within the rather narrow confines of the site none of the excavated oven concentrations was composed of a single variety of clay object. Contrarily, each hearth had a range of forms (sharing forms with all other excavated hearths at the site) but each with its distinctive modal preference. These unique constellations seem indicative again of a rather close kin group, assuming that culinary activities at the Terral Lewis Site are the product of women. The clustering present would seem to suggest that single varieties cannot be interpreted as representing groups, but that within groups certain stylistic preferences did exist, cut from a wider range of known possibilities.

The lack of the cylindrical grooved variety may be interpreted either as temporal or social variation. Ford and Webb (1956: 47-49) demonstrated some differences in the vertical distribution of the Poverty Point varieties. They suggested that the Cylindrical grooved forms possibly rep-

resented the earlier components at that site. Their absence at Terral Lewis leaves this possibility open. However, the strong clustering of forms observed seems to offer the possibility of these objects covarying with social groups as well. In hopes of solving this dilemma, samples of in situ clay objects from the Terral Lewis Site and from Poverty Point have been submitted to the London Geochronological Laboratory through the auspices of the office of Dr. Cynthia Weber of the Arkansas Archeological Survey. Hopefully the counts which result will help rationalize this issue.

In spite of the foregoing reservations, it seems that the distribution of clay objects at the Terral Lewis Site warrants a few conclusions. Their differential distribution in form and space seems supportive of the inference made on the basis of the nature of the oven deposits, namely that the site was occupied for a short term by a rather small close-knit group. In spite of the fact that certain "primary traits" (Webb 1968) were not present at Terral Lewis, high degrees of congruence were exhibited by those which did occur. All categories present at the site could easily be compared to varieties established by Ford and Webb (1956) for the Poverty

HORIZONTAL DISTRIBUTION OF CLAY OBJECTS FROM EXCAVATED UNITS, TERRAL LEWIS

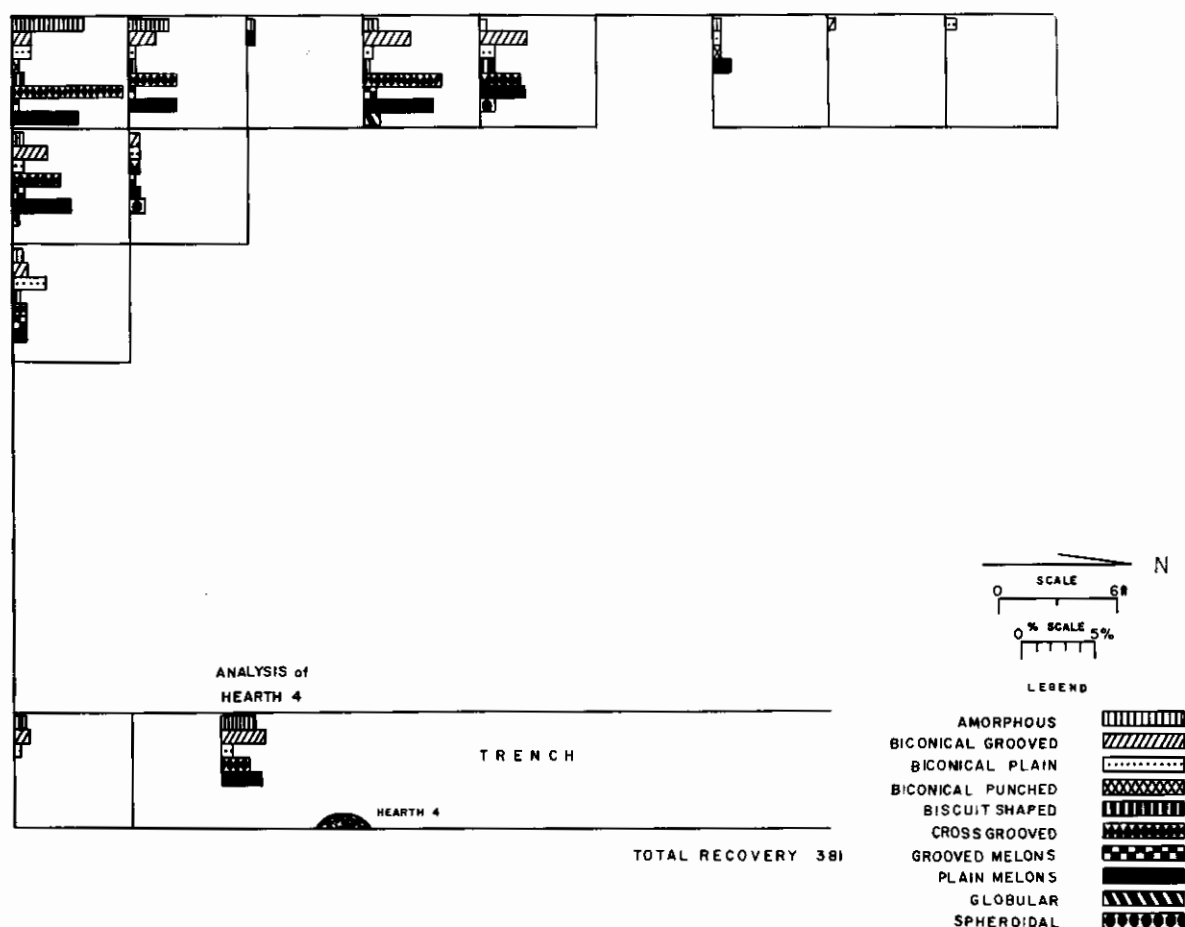


FIGURE 3

d.g.h.

Point Site itself. Certainly these objects are one of the clearest evidences of the relationship of Terral Lewis to the larger complex, and also point simultaneously towards some definite selections of local stylistic norms. Such hypotheses will be further tested at the site, but the preliminary conclusions seem inevitable. They seem at least powerful enough to stand, based on the data in hand.

The lithic sample from the site was equally interesting. It exhibited some of the same kinds of formal and distributive variations described for the clay objects.

In terms of horizontal distribution, the bulk of the lithic material was recovered from areas not in the immediate vicinity of the oven scatter or the in situ clay ball deposits. This horizontal differential suggests some sort of sexual division of labor or at least well defined activity areas within the site. It is also suggestive of a summer or late spring site where activities were not anchored to hearths. These possibilities alone would have made the lithic distributions of interest, but the formal analysis was more striking.

Projectile points, the time-worn index fossils of the eastern Archaic and Formative, were not common at the Terral Lewis Site. Altogether, 19 points were available in our controlled sample from the site. Of these, none was seen to depart radically from the stylistic ranges present for the Poverty Point Complex (Webb 1968). Other tools were likewise congruent with categories accepted as part and parcel of the Poverty Point "culture". Consequently, it seemed that little was to be gained by the compilation of another "type list" for the Terral Lewis Site. Therefore, once the typological correspondences were firmed up, the emphasis in lithic analysis was shifted to a technological and processural procedure as suggested by Shiner (1968: 17-21). All existing typological groups were retained; especially useful were projectile point and microlithic tool types. Yet it was felt that the technological-processural analysis of the total controlled sample (551 pieces) allowed the analysis to go beyond simple presence-absence models for the site. It was allowed the use of the most abundant lithic materials. At the Terral Lewis Site these were primarily non-tool categories: cores, debitage, and debris. To have ignored these would have meant that the lithic analysis would have been biased a priori in favor of temporal-spatial comparisons, with little emphasis on economic activities intersite. In the light of the fact that all traits present at Terral Lewis were also present at Poverty Point it seemed of little value to make that kind of interpretation. It seemed unnecessary and redundant. That point had been adequately asserted by Webb (1968).

Theoretically, the lithic material from the Terral Lewis Site has been viewed in terms of a processural trajectory established by J. Parker Nunley (Dissertation in progress, Southern Methodist University, 1971). The sample was sorted into the various reductive stages of flint technology: raw material, cores and kinds of debitage, debris (pieces too small to make tools as opposed to debitage), and finally into tool categories which could be typed. This trajectory allowed the use of all categories of lithics, and, it is felt, allows this analysis to go beyond the comparisons which had been made by Webb (1968). Viewed quantitatively, this type of analysis seems to allow insights into functional relationships within the Terral Lewis Site.

At the Terral Lewis Site, there was a strong preference for exotic raw material, especially the waxy gray and dull white "northern" flints. Together these two materials comprise some 64.1 percent of all the lithic material recovered. Initially this was considered merely as substantial evidence of a connection with a larger Poverty Point milieu. However, it was soon apparent that this choice of raw material was functional and very deliberate. The typological analysis of projectile points included a raw material tabulation. Of the 19 points in the controlled sample from the site, only two were manufactured of the northern flint, while 75 percent of the others were made of a tan and white mottled local chert. The nearest "local" cherts are in Pleistocene gravel trains located some 50 to 60 miles from the Terral Lewis Site. However, these tan and white flint nodules are available, east of the Mississippi, along the Amite and Pearl rivers, but certainly nearer than the sources postulated (Ford and Webb 1956) for the northern flints. The distribution of these local cherts tends to covary neatly with the distribution of the Pontchartrain point (Ford, Phillips and Haag 1955: 129; Ford and Webb 1956: 54-55). In this regard, it should be noted that the Pontchartrain type made up 11.7 percent of the projectile point sample from the Terral Lewis Site. In spite of the small sample, this frequency seems wholly in line with that of the type at Poverty Point (12 percent) described by Ford and Webb (1956: 75). But the tan and white mottled chert typical of Pontchartrain points was essentially absent from the debris and debitage at Terral Lewis. Also, no processural breaks were observed and none of the small pressure flakes which would result from the peculiar retouch occurred. In spite of efforts at total recovery, trowling and careful screening, these categories are absent from this material. In terms of the present sample, it seems obvious that the Pontchartrain points present at the site were derived from some other source and not manufactured locally. Also, the other point categories were made of other, albeit again non-northern cherts, which were poorly represented in the site sample: an exotic pink, a tan nodular, and mottled red and tan chert split up the remaining percentages of raw materials used in point production. The almost total lack of the more massive raw material in point form actually stimulated the shift in analysis. If this northern gray flint was used for some production other than point manufacture or the microlithic tools (it was not represented in this category) then it raises a new issue.

The microlithic industry (cores, lamelles, and the Jaketown Perforators and other retouched pieces) so well described for the Poverty Point Complex (Haag and Webb 1963: 245-248; Phillips, Ford and Haag 1955: 137) was almost totally absent at the Terral Lewis Site. This absence is most striking when one considers the thousands of artifacts which represent the industry from Poverty Point and Jaketown. Yet at Terral Lewis only ten pieces (eight unmodified lamelles and two typical Jaketown Perforators) were recovered in the sample. More significantly all of these were of tan or yellow nodular flint, identical to the material used in their production at other Poverty Point sites, and not a single core was represented in the excavated sample from Terral Lewis. It seems at this point reasonable to suggest the hypothesis that there exists some relationship between projectile points and the microlithic industry involved in the Poverty Point Complex. Both of these technological categories certainly are poorly represented at the Terral Lewis Site, although both are minimally present.

Coupled to the fact that local collectors (Terral Lewis, personal communication 1968) report a higher frequency of points in the swales on either side of the midden at the Terral Lewis Site, these technological factors take on additional significance. Hunting seems to have been a secondary activity at the site, concentrated in adjacent low-lying backswamps or on the battures of active associated streams. The production of projectile points and cutting-scraping tools (a suggested functional hypothesis for the microlithic industry) was extraneous to the site; the bulk of the points were obtained, as were the microlithic tools, from another site or sites. At this point, the possibility of sampling error severely weakens these interpretations. Certainly it is possible that the excavations at Terral Lewis missed the activity areas where the points and/or microliths were produced. It is precisely to test that possibility that the additional excavations will be conducted. However, in terms of the samples in hand, the above generalizations seem to hold.

The typological selection noted for the clay objects is apparent again in point styles: 35.5 percent Gary, 5.7 percent Ellis, 11.7 percent Pontchartrain, 17.6 percent Kent, and 5.7 percent Belverde and Wells. These variations cover a large portion of the type list for the Poverty Point time range, but narrow it slightly. Certainly the most striking thing is the absence of the Motley point (Ford, Phillips and Haag 1955: 129-130) which is one of the better Poverty Point "markers" (Webb 1968). Ford and Webb (1956: 56) noted that the waxy gray chert-- so common at the Terral Lewis Site-- was the preferred material for this type. Technologically then, it is most notable that no Motley points are present in the sample from Terral Lewis and only one is reported from the site surface. Jon Gibson (personal communication 1969) has suggested that perhaps these delicate points were status-related artifacts with little function in the hunting strategy of the Poverty Point peoples. The data from Terral Lewis seem at least supportive. Perhaps as an alternative it can be explained as a temporal variation, a possibility which cannot be tested without better data. The lack of tight excavational data from the Poverty Point Site and others severely hampers these generalizations, but it still seems that they are testable hypotheses and will at least serve to direct other questions.

The "northern flint" at the Terral Lewis Site shows some technological aspects not noted for other Poverty Point sites to date. Of the total sample (551 pieces), the bulk was this material. Likewise, some 243 pieces (of the total) were biface thinning flakes or eclat de taille. This means a frequency of 44.1 percent of all the lithic material was related to the production of bifacial tools. In this way the preference for the exotic gray and white material can be readily explained. These materials never showed any cortex flakes and all the large pieces (cores) were somewhat tabular. In other words the preference was due to the massive nature of the raw material (it occurred in large blocks) and to the fact that it was used in the production of large tools. These biface thinning flakes were large and 67 (27.5 percent) showed a very high facial sheen which could be duplicated on large bifaces from Poverty Point and on several found on the surface of the Terral Lewis Site itself. It was apparent that these large tools were the reason for the high frequencies of both the raw materials and the eclat de taille at the site.

It was suspected that the facial sheen was the result of using these large ovate bifaces as hoes, much in the manner inferred for the so-

called Mississippian hoes. In order to test this hypothesis, Mr. J. B. Solberger of Dallas, Texas, copied in flint several sheen covered bifaces from Poverty Point. The bifaces manufactured by Mr. Solberger were then used to work wood, leather, and a low silt content soil. The soil tilling alone produced the sheen and edge wear exhibited by the complete bifaces and also the thinning flakes. The soil tilling began to produce edge wear and facial polish within two hours and it is expected that high silt/sand content soils like those under the Terral Lewis midden will yield even more spectacular results. It is felt, in the light of these experiments, that the biface production at the Terral Lewis Site was directly related to the use of hoes. The manufacture of the bifaces plus the constant re-sharpening of worn hoes easily accounts for the frequency of the thinning flakes and the quantity of the raw material involved.

The fact that these completed bifaces look identically like the "adzes" described by Ford and Webb (1956: 91-92) notwithstanding, it seems most logical to model the major lithic focus at Terral Lewis as "hoe production and maintenance". The fact that over a quarter of all the biface thinning flakes bear both edge wear and sheen on their obverse faces suggests a strong use of the finished products at the site. Only rarely were flakes off the northern materials retouched (denticulated and notched pieces were present but rare) and these were often on pieces which were obviously struck off sheen-bearing hoes rather than being the result of a flake debitage based industry. In short, points, cutting, and scraping tools are not common in the sample nor are their related processural debris and/or stages of manufacture. Certainly broken and whole bifaces, though the latter are rare, occurred at the site and the bulk of the debris in the site seems related to hoe production and use. These data clearly seem to indicate that the Terral Lewis Site was an activity facies of a wider Poverty Point Complex. The emphasis on hoes can only be taken as a clear indication of some sort of swidden/hoe cultivation. The fact that the hunting tools seem extraneous may relate to some clear cut symbiosis between this small group of cultivators and a more predatory group at some other site. Alternatively, it may relate to the fact that this site was only occupied in the spring and summer (the seasons of planting and cultivating) when hunting gear was left at another site and only a small amount of hunting equipment and no raw material was brought along. This latter hypothesis seems supported by the fact that lithic materials were concentrated away from the hearths, probably indicating warmer weather for the site.

The relationship between an activity facies and the more nuclear settlement at Poverty Point has not been adequately explored. Certainly if Poverty Point people maintained cultivation sites, as the lithic analysis from Terral Lewis suggests, other activity units should be expected. All in all, there is a very secular ring to the Terral Lewis data. The well documented lapidary industry of the Poverty Point Complex (Webb 1968) is totally absent. Neither the finished products nor any processural stages were represented in the Terral Lewis assemblage. The possibility that the lapidary represents high status, wealth, within the Poverty Point ambience seems likely. At Terral Lewis the emphasis was on work, not status. Also, the total lack of these items is to be expected within a single kin group, say an extended family. In that case, the probability of a middle to lower status rank seems likely for a work site.

In general, the site was marked by a low quantity of ground stone. There were three steatite sherds in the sample, and one showed multiple mending perforations. All were plain with one simple rim present. A single magnetic greenstone celt was recovered, although several are known from the site in local collections. Two unworked quartz crystals and some perforated fragments of bar weights (atlatl weights?) virtually round out the assemblage. The magnetite and hematite plummets normally found at Poverty Point sites do occur but, like the projectile points, these are distributed along the low-lying areas of the site. Four whole and one broken magnetite plummet comprise the total number known from the site.

A survey of plummets in northern Louisiana has revealed a spotty distribution, both in time and space. The major concentration of these artifacts is along the old braided channel systems along the western periphery of the Mississippi alluvial plain. A very heavy concentration appears along the lower Boeuf Basin in the Turkey Creek drainage. These sites show almost the opposite constellation of traits from Terral Lewis. Emphasis was on projectile point production with large numbers of plummets associated with the edges of swampy areas, some of which were probably water filled much of the year, even in Poverty Point times. Two local sites there have yielded clay objects and steatite sherds. So, in the light of these interpretations of a spring-summer site of cultivators at Terral Lewis, it seems entirely feasible that the Turkey Creek sites represent autumn-winter hunting facies with heavy emphasis in the capture of waterfowl, thereby accounting for the large numbers of magnetite and hematite plummets. This interpretation will remain hypothetical until the Poverty Point components on the Boeuf and its tributaries are better known (H. F. Gregory, MS on file, the Williamson Museum, Natchitoches, Louisiana). This distribution of plummets has a corollary in the Illinois region (Gregory, personal communication 1967) where it seems related to Hopewellian adaptive techniques. If these data are suggestive of the later Woodland settlement systems as described by Struever (1964: 85-106), it was only to be expected in the light of other Hopewellian antecedents present in Poverty Point context (Ford and Webb 1956: 128). If these hypotheses are validated, we could then see a Poverty Point interaction sphere based upon seasonal production with the maintenance of a large nucleated center, Poverty Point proper, by in and out moving groups. That is, no one group need be resident at the large site all year round, but the site maintained a series of local contributive units which were occupied seasonally by some groups, probably extended families.

The selection of gorgets (bar weights) at Terral Lewis also relate to this model. A total of four broken and one whole specimen are available from the site. Four of these are of red and greenish gray slate, probably derived from the Ouachita Mountains in Arkansas. All were two-hole perforate ovals with notched perimeters. The single exception was an unnotched fragment of a two-hole mudstone bar. All of these seem related to areas of maximum lithic concentration in the excavation except for the whole bar and the mudstone fragment, both from the surface of the site. This correlation between lithics and these bars tends to support the hypothesis of their being atlatl weights. The fact that they were all snapped across the center would seem to indicate a single form of atlatl was in use by hunters at the site, a point brought up originally by Ford and Webb (1956). Again, this would seem to support both the idea of a short term occupation and a

small close-knit social group with little variation in tool form present. The low frequencies of these objects, their close identities in form, and the correspondingly low emphasis on quantity and form of points might well be construed as indicating a low number of resident males at the site. This point would correspond to the imported projectile point assemblage as well. It may be suggested that with a larger sample this hypothesis-- that women did most of the work with only a few male hunters periodically dropping by-- may be more adequately evaluated.

The secular, subsistence oriented, assemblage from the Terral Lewis Site has its strongest corollaries to the south in coastal sites where Sauer and Gagliano (1963) noted similar situations. It may be suggested at this point that some of their sites, especially the Linsley Site, would bear more analysis. It can probably be expected as a coastal facies of a wider economic sphere. Certainly these small midden sites are a major link in the explanation of the Poverty Point economy. It is suggested here, however, that we have gone as far as we can with simple time/space, presence/absence models.

SUMMARY AND CONCLUSIONS

These preliminary investigations of the Terral Lewis Site seem supportive of the model that the site represents a spring-summer cultivation unit. The site was probably occupied by a small social unit, with a low proportion of men. Hoe agriculture seems to have been the primary economic focus. Perhaps agriculture is an awkward term for this cultivation. It may well have involved some sort of point bar production (Gagliano 1967: 13-14) of semi-domesticates like the cheno-amaranthus groups now associated with Woodland subsistence patterns (Struever 1968: 285-313). Certainly the site was involved in production rather than predation, and the presence of the hoe with lots of use wear and repeated sharpening seems indicative of deliberate cultivation. Certainly this can no longer be seen as an Archaic or standwild economic system in spite of the possible existence of facies devoted primarily to seasonal hunting strategies. The scant palml of calcined bone from Terral Lewis indicates some variety of turtle and the Virginia deer were taken at the site, but both of these protein sources remained the meat staples of even full agriculturalists in the Lower Mississippi valley. Their presence at Terral Lewis only serves to support the seasonal model slightly (turtles are most easily taken in backswamp environments in summer and spring).

At this point it seems simplest to model a sort of Poverty Point interaction based on a series of contributive sites. This would indicate an operative model much like that suggested by Sanders and Price (1968) for a chiefdom: a major population nucleus with very small scattered supportive units. We can, in the light of the Terral Lewis data, modify this to imply seasonal activities for various close kin groups (extended families?) with few high status or wealthy individuals involved in seasonal production or predation. This model would tend to support the claim that Poverty Point was a chiefdom, as complicated and long lasting as its Mesoamerican counterparts. Such a relatively complex sociopolitical structure can be seen rising from an increasingly efficient manipulation of a broad spectrum of available resources as has been suggested for the coastal units by Gagliano (1967: 9-22).

ACKNOWLEDGMENTS

This paper is the result of cooperation on several levels. It would be impossible to thank everyone who has given freely of their time and energy. However, our thanks must be extended to Terral Lewis and the Tate family for their permission to excavate the site and for their continuing efforts to protect the site. Their interest and kindnesses go well beyond the normal working permission extended the archaeologist by landowners. They have been a part of this research from the time Mr. Lewis reported the site.

The following members of the Northeast Louisiana Archaeological Society deserve special commendation here for the completion of their excavated units: Mr. and Mrs. S. L. Parks and Messrs. Paul Hodges, C. B. Speague, Manning Durham, Joe Tate, and Tony Ragusa. The other units were all left incomplete, but thanks are rendered here to the junior members of the Society who moved more earth than the field supervisors thought they could. The students of Anthropology 302 at Northwestern State University in Natchitoches paid their own expenses and labored long and hard on the control trench. Without their effort this paper would have been much weaker.

Dr. Clarench H. Webb has helped with this project since the onset. We are especially grateful to him for allowing us to use his counts of artifacts from the site. This quantitative data saved us the laborious task of typing all the materials so we could devote our attention to other forms of analysis. In no way should Dr. Webb be held accountable for our interpretations, but we sincerely hope he will feel they do his efforts justice.

Space prevents a long list of people who labored at the site; we shall endeavor to give more adequate credits at a later date.

ARCHAIC-POVERTY POINT TRANSITION AT THE PEARL RIVER MOUTH*

Sherwood M. Gagliano and Clarence H. Webb

This paper is concerned with the Cedarland Plantation (22HC30) and Claiborne (22HC35) sites located near the mouth of Pearl River in Hancock County, Mississippi (Fig. 1). The sites are immediately contiguous on a terrace formation on the eastern margin of the Pearl River estuary, the first high ground upstream from the river mouth and within sight of the present Gulf, three miles distant. On the Rigolets Quadrangle the location is the $W\frac{1}{2}$ of $NW\frac{1}{4}$ of Section 35, Township 9S, Range 16W, and a small portion of the adjoining Section 34. The latitude is $30^{\circ} 13' 10''$ N, the longitude $89^{\circ} 35'$ W. The present channel of Pearl River courses one mile southeast of the bluffs; immediately below the sites is Mulatto Bayou which joins the Pearl near its mouth. Marshes fill the estuary, except for the streams. The sandy terrace has a pine forest with oaks around the margins.

The Cedarland Site (22HC30) is a large, stratified oyster shell and earth midden, semicircular in plan, located on the edge of a low bluff overlooking the estuary (Fig. 2). The outer diameter of the midden semicircle is approximately 540 feet, the inner diameter 300 feet. The site was located by Gagliano in 1957 during the course of site surveys in the area (Gagliano 1963). Mapping and excavation have continued periodically since that time.

Prior to discovery of the site, shell had been taken from a borrow pit in the northwest quarter of the midden for local road construction. This borrow pit called attention to the site and aided in initial exploration. It was enlarged periodically and during these expansions new data were recorded. Cross-section x-x' of Figure 2 is typical. In most places the midden is composed of two units. The lower and thicker consists predominantly of oyster shell, with bones of small animals, deer, bear, fish, and waterfowl, and with charcoal and artifacts intermixed. Remnants of small clay-lined hearths are scattered throughout the shell. The upper level is composed of black organic sand with charcoal, animal bones, occasional clay lumps, and other artifacts. The clay-lined hearths increase noticeably in the upper sandy unit. Sterile light brown sand, oxidized to orange and red in places, underlies the midden.

The Claiborne Site (22HC35) lies along the bluff immediately south of the Cedarland midden, separated from it by a large gully extending in from the bluff edge. Despite the close proximity of the two sites, the timber cover and dense undergrowth obscured the larger midden and it re-

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mained undiscovered until 1967. Clearing was then initiated for a new port facility to be constructed along the bluff margin. Amateur archaeologists active in the area found quantities of baked clay objects on the newly cleared ground. Of these non-professionals, Charles Satchfield and the late Robert Lowry, Jr., of Gulfport, deserve credit for the discovery. They, with Gary Kraus of Metairie and Monte Walden of Slidell, Louisiana, and their families, have made important collections and have cooperated with our efforts to salvage as much data as possible before destruction of the site.

During initial clearing Gagliano, with aid of his Geography Field Class, made a plane table map of the site and excavated several test pits. In November, 1967, the junior author was informed of the site by Gary Kraus and recorded Kraus' collection early in 1968. During the following year Webb made several visits to the site and studied the collections of Lowry, Satchfield, Walden, and some objects in the collection of J. F. Pankow, of Slidell. With the assistance of the owners and members of his family, and with collaboration of Gagliano on one occasion, Webb classified more than 12,000 Poverty Point objects from the site (Table 1) and subsequently compared them with objects from the Poverty Point, Terral Lewis, Linsley, and Jaketown sites (Webb, Ford and Gagliano 1971).

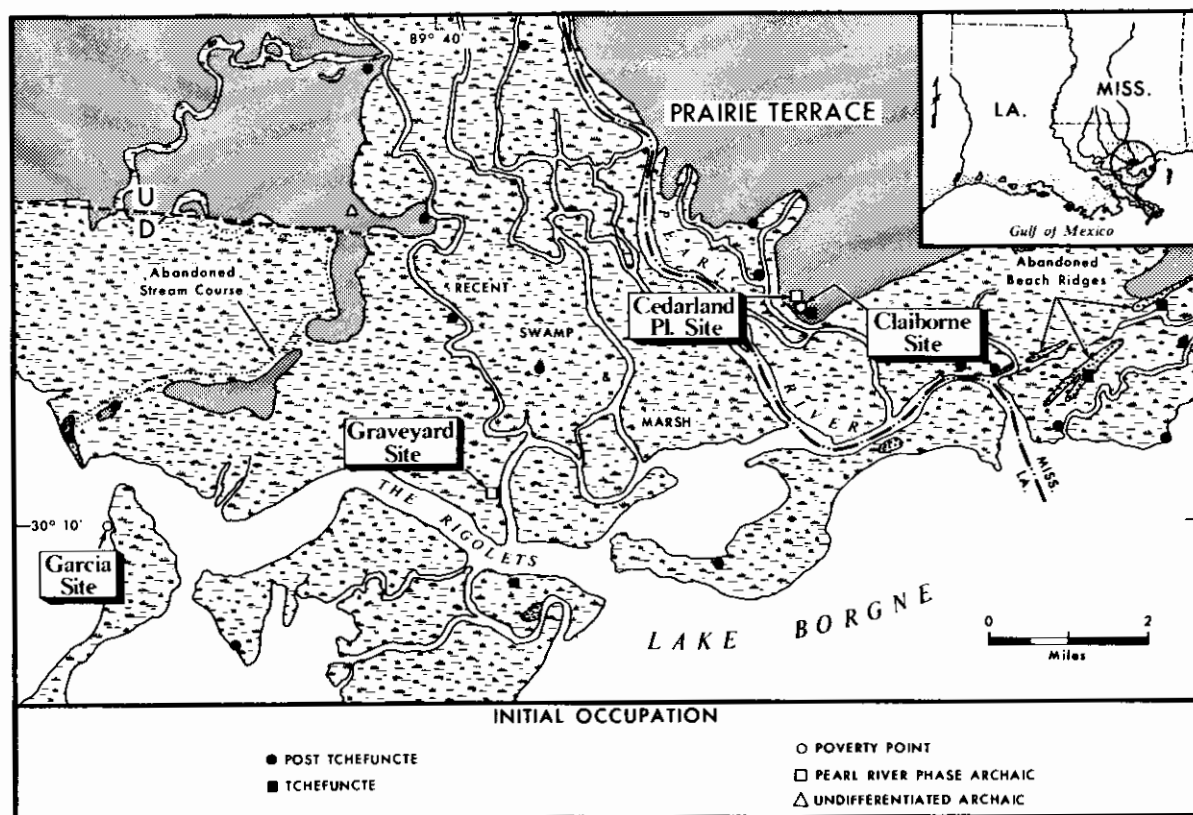


FIGURE 1

Site distribution and cultural relationships in the Pearl River mouth area.

Additional studies were made at the site, with pit and trench exploration, by Richard A. Marshall and students of Mississippi State University during field research for the Mississippi Archeological Survey in 1969 and 1970. A progress report was made after the second summer's work (Marshall 1970). The site is now under protection of the Survey.

The Claiborne Site consists of a large, stratified, horseshoe-shaped midden composed of black earth midden and shells of the brackish water clam *Rangia cuneata*, with some oyster shells. It has an outside diameter of approximately 660 feet and inside diameter of 460 feet. Associated with the semicircle, due east of its center at a distance of 1,060 feet, was a small conical sand mound. It was about 75 feet in diameter at the base and four feet high; unfortunately, it was destroyed before test excavations could be made. A careful search of the area before and after bulldozing disclosed only a few scattered shell fragments.

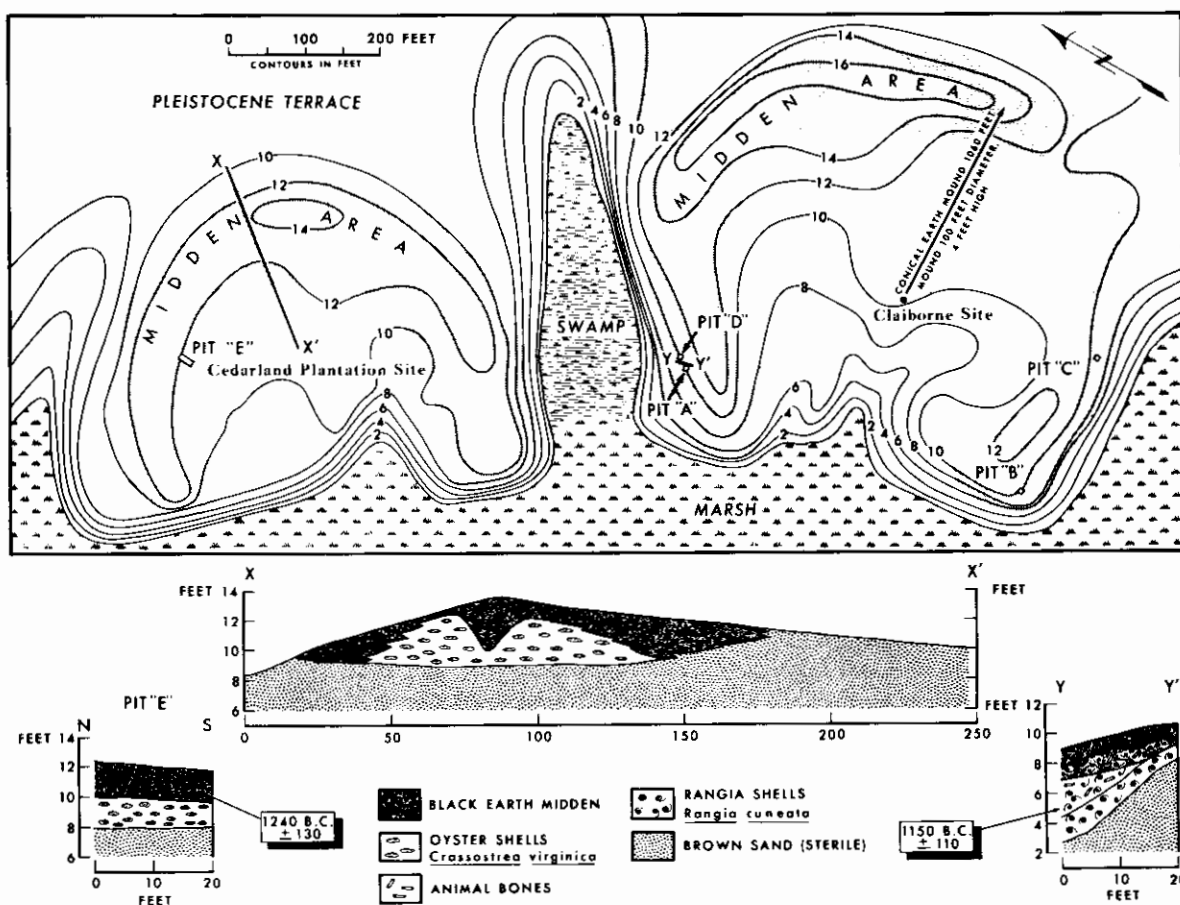


FIGURE 2

Cedarland and Claiborne sites. Subjacent profiles: x - x', cross-section across Cedarland midden; Pit E, Cedarland midden; y - y', profile of pit in Claiborne midden.

TABLE 1

POVERTY POINT OBJECTS FROM THE CLAIBORNE SITE:
TOTALS AND PERCENTAGES BY TYPES, FOR ENTIRE SITE AND FOR A RESTRICTED AREA.

TYPE OR DESCRIPTION	WALDEN EXCAVATION		TOTAL COLLECTION	
	NUMBER	PERCENT	NUMBER	PERCENT
Biconical plain	124	6.23	1,153	10.07
Biconical extruded			10	0.09
Biconical punched			3	0.03
Biconical grooved	332	16.67	2,069	18.08
Biconical, vertical incised			1	0.01
Biconical grooved variants	2	0.10	23	0.20
Biconical total	458	23.00	3,259	28.48
Cylindrical grooved	154	7.73	1,171	10.23
Cylindrical plain	4	0.20	16	0.14
Cylindrical variants	3	0.15	43	0.37
Cylindrical total	161	8.08	1,230	10.75
Cross-grooved	443	22.25	2,006	17.53
Cross-grooved, multiple crosses			5	0.04
Cross-grooved, folded			2	0.02
Cross-grooved, perforated			1	0.01
Cross-grooved total	443	22.25	2,014	17.60
Melon-shaped	553	27.77	2,106	18.40
Melon-shaped twisted			4	0.03
Melon-shaped with end grooves	239	12.00	1,356	11.85
Melon-shaped variants	6	0.30	10	0.09
Melon-shaped total	798	40.08	3,476	30.37
Spheroidal plain	72	3.62	377	3.29
Spheroidal dimpled or faceted	18	0.90	358	3.13
Spheroidal "mulberry"	10	0.50	68	0.59
Spheroidal variants	7	0.35	21	0.18
Spheroidal total	107	5.37	824	7.20
Amorphous			476	4.16
Biscuit-shaped plain			15	0.13
Biscuit-shaped variants			7	0.06
Biscuit-shaped total			22	0.19

TABLE 1
(CONTINUED)

TYPE OR DESCRIPTION	WALDEN EXCAVATION				TOTAL COLLECTION			
	NUMBER		PERCENT		NUMBER		PERCENT	
Cuboidal					10	10	0.09	0.09
Rectangular or pillow plain	1		0.05		3		0.03	
Rectangular variants					2		0.02	
Rectangular total	1		0.05		5		0.04	
Finger and hand squeezed	1	1	0.05	0.05	2	2	0.02	0.02
Conoidal or mushroom	21	21	1.05	1.05	100	100	0.87	0.87
Tetrahedron					4	4	0.04	0.04
Pyramidal					1	1	0.01	0.01
Barrel or ovoid plain					5		0.04	
Barrel variants	1		0.05		16		0.14	
Barrel total	1		0.05		21		0.18	
Total typed	1,991		99.98		11,444		100.00	
Total untyped	661				1,270			
Total objects from site	2,652				12,714			

The sites are situated between a series of gullies extending in from the terrace scarp. Test pits showed a marked thickening of midden material along the gully margins. Concentrations of fish and animal bones at the ends of the semicircle, near the gullies, suggested processing areas. Apparently the gullies existed at the time of site occupation, although we have no definite evidence for or against partial truncation by subsequent erosion. It is thought that both villages were semicircular at the time of occupation, open-ended toward the estuary.

ARTIFACTS

Cedarland Plantation has previously been designated as the type site for the Archaic Pearl River Phase (Table 3), with an artifact assemblage typical of late Archaic (Gagliano 1963). Although some of the artifacts resemble those from the Poverty Point Site, only a few fragments of baked clay objects have been found, including Biscuit-shaped and a few grooved-pierced objects.

Conversely, the first objects to show at the Claiborne Site were overwhelming numbers of Poverty Point clay objects. Table 1 shows the types and varieties present among the 12,714 whole objects studied from the collections. Elsewhere (Webb, Ford and Gagliano 1971) we have given detailed comparisons of the objects from this site with those at other sites of the complex. In general, the types are very similar in relative distribution at Claiborne and Poverty Point (Fig. 3). There is not the surprising variation of the Cylindrical grooved type seen at Jaketown, where this type is more abundant than all others combined, or at Terral Lewis, where Cylindrical grooved is completely missing. It is interesting to note that the frequencies at the Linsley Site are very similar to those at Claiborne.

General differences noted between Poverty Point objects at Claiborne and those at the Poverty Point and Jaketown sites (Webb, Ford and Gagliano 1971) are:

- (a) the objects at Claiborne are made of coarse gritty sand with a minimum of clay, whereas the objects from the Poverty Point Site are of clay and those from Jaketown are of clay with a minimum of fine sand. At Claiborne 97.2 percent of the objects are sandy, 2.8 percent of clay; at Poverty Point only 0.66 percent are sandy and 99.34 percent are of clay.



FIGURE 3

Percentage distribution of Poverty Point object types in five sites of the complex. Note absence of Cylindrical grooved type at Terral Lewis and preponderance of this type at Jaketown. Also note similarity of distributions at Poverty Point and Claiborne sites.

- (b) the color at Poverty Point and Jaketown is buff with orange or red-dish tones; at Claiborne there is greater variation, from light gray to buff to red to black (three to five percent are black at Claiborne, less than one percent at Poverty Point). The few clay objects at Claiborne tend to be dove gray to blue-gray in color, probably of local or lower valley clays.
- (c) the objects at Claiborne average slightly smaller than at Poverty Point but are denser and heavier (specific gravity 1.91 to 2 at Claiborne, 1.77 to 1.91 at Poverty Point).
- (d) The Claiborne objects show more evidence of wear from use and a number have linear grooves suggesting their use as abraders.

TABLE 2

POVERTY POINT OBJECTS: FREQUENCIES OF GROOVES ON BICONICAL AND MELON-SHAPED OBJECTS FROM CLAIBORNE AND POVERTY POINT SITES*

TYPE OR VARIETY	SITE	NUMBER OF GROOVES								
		1	2	3	4	5	6	7	8	9
Biconical grooved	Claiborne Poverty Point	0.10	3.88	18.91	76.86	0.24				
			1.09	10.00	84.50	3.80	0.36			0.18
Melon-shaped	Claiborne Poverty Point	0.62	6.71	77.87	14.13	0.52	0.10			
			1.13	23.65	59.91	10.81	2.70	1.13	0.45	0.22
Melon-shaped with one end groove	Claiborne Poverty Point	0.74	4.21	81.93	13.12					
			0.33	30.00	54.00	13.33	2.00	0.33		
Melon-shaped with two end grooves	Claiborne Poverty Point		0.46	5.99	91.70	1.84				
			0.21	12.82	65.86	18.17	2.63	0.31		

* Shown in percentages of total objects in each type or variety

Specific typological differences are:

- (a) a relatively smaller number of type Cylindrical grooved at Claiborne than at Poverty Point or Jaketown,
- (b) a relatively larger percentage of biconical objects, especially Biconical grooved, at Claiborne than at the other sites,
- (c) an excess of Melon-shaped over Melon-shaped with end grooves at Claiborne and the reverse at Poverty Point,

- (d) a predilection for three lateral grooves on Melon-shaped and Melon-shaped with one end groove at Claiborne (Table 2) and four grooves at Poverty Point (interestingly, Claiborne shows the same tendency for four grooving of biconicals and Melon-shaped with two end grooves as is seen at Poverty Point),
- (e) a greater frequency of one end grooving of melons (Fig. 4 O, O') at Claiborne compared with the preference for double end grooving at Poverty Point,
- (f) a greater frequency of perforated objects at Claiborne (175 or 1.51 percent at Claiborne; 64 or 0.47 percent at Poverty Point),
- (g) greater frequencies of tool decoration, miniatures, and of rectangular and biscuit shapes at Poverty Point,

FIGURE 4

Poverty Point Objects from the Claiborne Site, unusual varieties
(Objects derive from Lowry, Satchfield, Walden, and Webb collections)

A	Biconical with vertical and horizontal groove
B	Biconical with pinched apex
C	Biconical grooved with punches
D	Biconical grooved with dimpled end and scoring
E, E'	Biconical grooved, large with deep grooves
F	Spheroidal perforated, with equatorial ridge
G	Cylindrical, central grooved, incised and perforated
H, I	Cylindrical, spiral grooved, perforated
J	Cylindrical, small, single groove, scored
K	Cylindrical, incised and perforated
L	Cylindrical, horizontal grooving, perforated
M	Cross-grooved, many grooves
N	Cylindrical, miniature, single ridge
O, O'	Melon-shaped, single end grooved
P	Melon-shaped, ends grooved, almost cuboidal
Q	Melon-shaped, perforated
R	Melon-shaped, miniature, end circles and incising
S	Melon-shaped, finger punching, nail punctates
T, T'	Spheroidal, perforated, "mulberry" roughening
U, V	Spheroidal, faceted and perforated
W	Spheroidal plain, tiny
X	Rectangular, circle impressed
Y	Spheroidal, perforated, patterned incising
Z	Spheroidal, perforated, random incising
AA	Biscuit-shaped with finger impressions
BB	Conoidal or mushroom-shaped
CC	Tetrahedron
DD	Pyramidal
EE	Amorphous

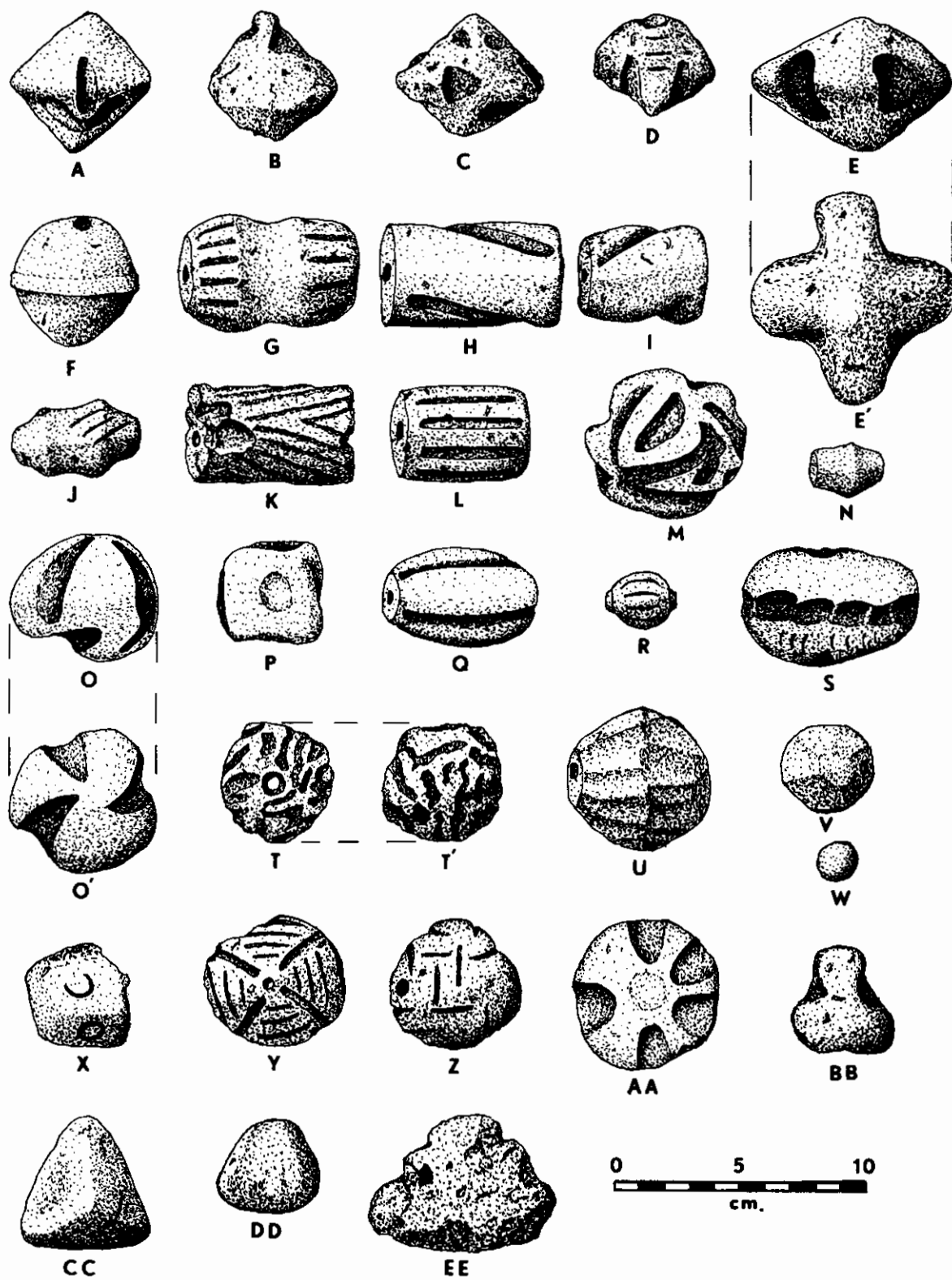


FIGURE 4

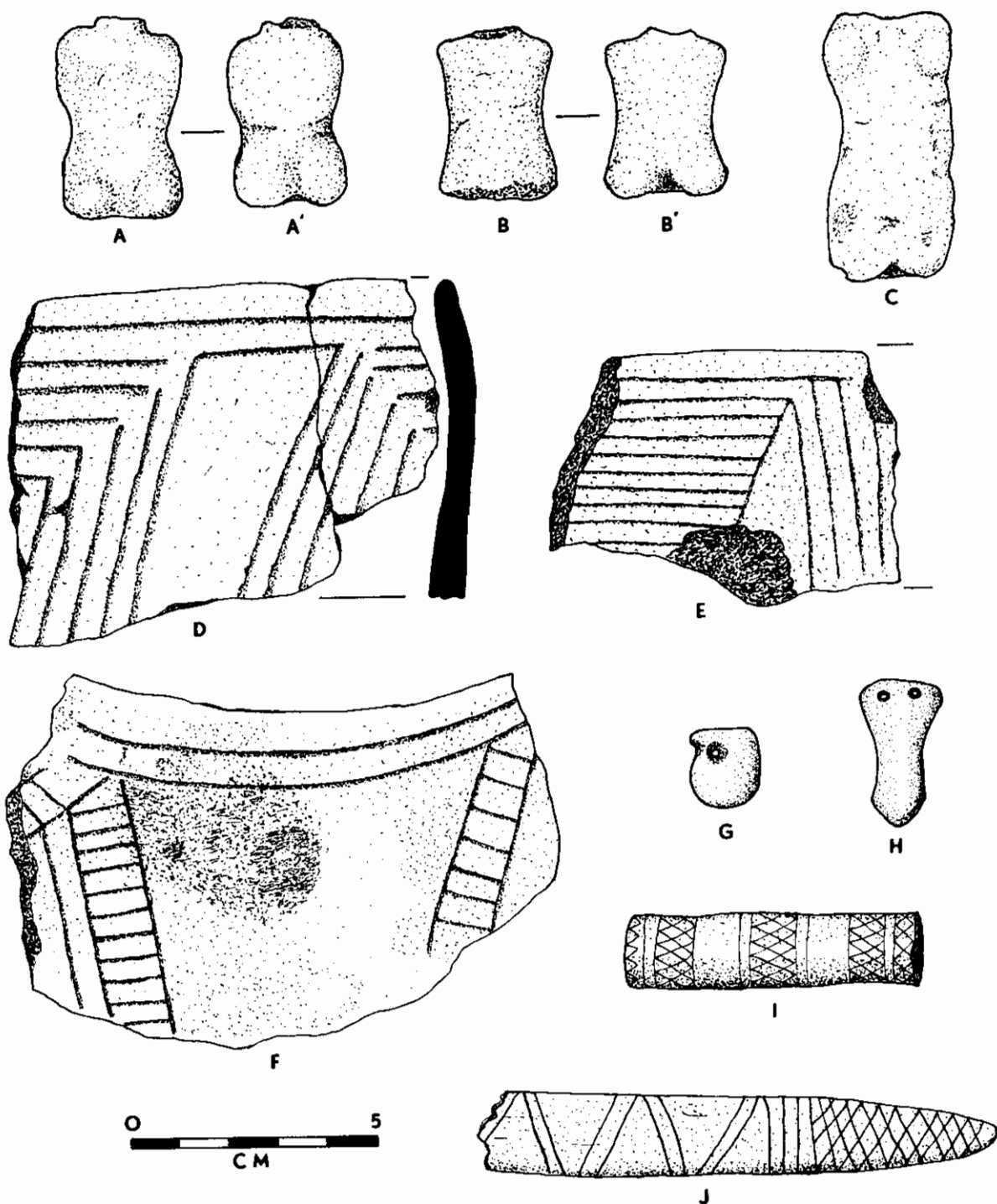


FIGURE 5

Figurines, untempered pottery sherds, and unusual objects from the Claiborne Site: A-C, solid clay figurines; D-F, untempered, decorated pottery sherds; G, galena owl effigy; H, pendant of red jasper, possibly bear effigy; I, engraved bone tube; and J, engraved bone pin. A,B,E from collection of Charles Satchfield; C,I from collection of Ronnie Rigdon, Gulfport, Mississippi; D,G,H from collection of Jim Bruseth, Slidell, Louisiana; and J from collection of W. M. Walden, Pearl River, Louisiana.

- (h) conversely, greater frequencies of mushroom-shaped, tetrahedrons, perforated "mulberry" spheroidals (Fig. 4 T, T'), and the techniques of faceting and fluting at Claiborne.

A number of the unusual varieties from Claiborne are in Figure 4.

The Walden collection came from excavations at the south end of the Claiborne semicircle, Table 1 shows a comparison of this localized collection with the totals from the site. The chief differences are the higher percentages of Melon-shaped and Cross-grooved types from the south end, with lesser percentages of biconicals, Cylindrical grooved, and spheroidals from this end. The differences, especially in Melon-shaped objects, appear to be statistically significant but whether this represents a difference resultant from time or from preference between families is moot.

Virtually the entire Poverty Point artifactual assemblage is represented at the Claiborne Site. The quantity and variety of artifacts eclipse all other site collections in the coastal area, leading to the conclusion that Claiborne was a regional center participating fully in the Poverty Point trade and cultural organization.

Five clay figurines (Fig. 5 A-C) have been found at Claiborne, the only site other than Poverty Point at which typical female figurines have occurred. Four of the five objects have the heads broken off. We think that this may be a cultural trait, as it occurs more often at the Poverty Point Site than appears likely by accident. The Claiborne figurines have the appearance, composition, and size of the objects found at Poverty Point and we suspect this site as their source.

Claiborne has produced more fiber-tempered sherds than any other site in the coastal area. An estimated 200 sherds have been found at the site, of which 119 were available for study. They were scattered through all levels of the midden. One hundred and nine sherds (91.6 percent) were fiber-tempered, 98 of these Wheeler Plain and 11 Wheeler Punctated, the latter including fingernail and tool punctating. An entire fiber-tempered disc base, 14 cm. in diameter and with hemiconical punctations on the base and lower body, was found by Walden at the north end of the midden. A solid cylindrical podal support, 2 cm. in diameter and 2.6 cm. long, is attached to a fiber-tempered basal sherd and a suggestion of a pod is on another.

Seven sherds are of untempered, highly kaolinitic clay. Four of these-- one a rim sherd-- are plain. They have cream-colored exteriors and black interiors. The paste is surprisingly firm but powdery clay rubs off the surface when dry. Three untempered sherds are from open bowl rims with zoned incised decorations (Fig. 5 D-F); one of the rims is thickened. The other sherds are tempered with coquina or shell. The final two sherds seem to be of Tchefuncte types-- Tchefuncte Red Filmed and Tchefuncte Stamped. Their provenience is not known.

Steatite vessel fragments were interspersed throughout the midden. The collections include 117 fragments, of which 20 are rim sherds. Three are decorated with one to three horizontal grooves around the body, just below the lip; two are exterior and one interior decorations. One flat lip

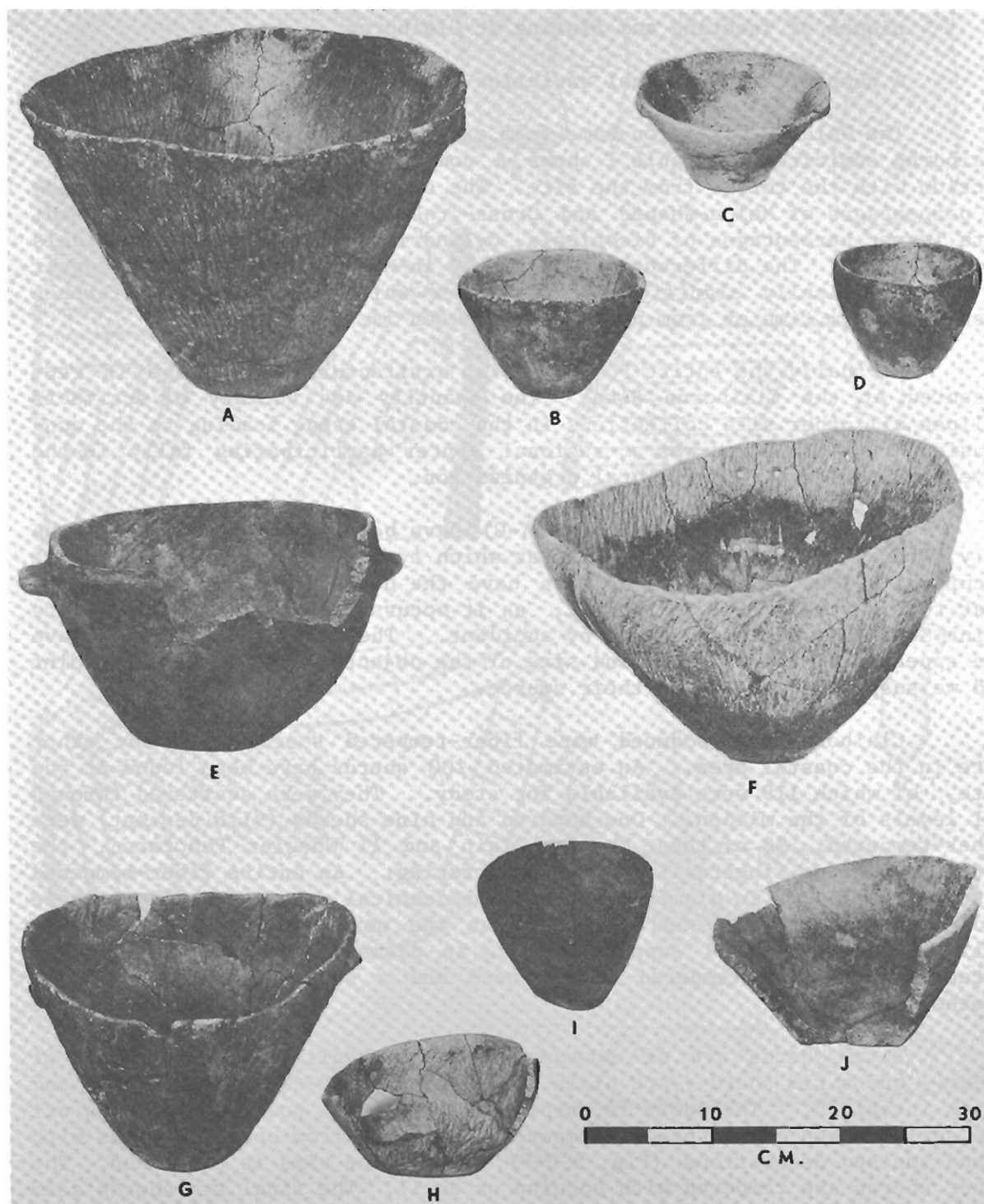


FIGURE 6

Steatite vessels from the Claiborne cache.
 Note: A,C,E-G, lugs; F, sets of crack-lacing perforations; and
 B-E,I,J, smoothing of vessel surfaces.

has diagonal incising. One fragment has a lug and a number have repair holes; one of the latter shows a countersunk channel running horizontally from the repair hole to the broken edge, on the outer surface of the fragment.

Additionally, a cache of ten steatite vessels was found in sterile sand underlying the midden near the center of the horseshoe apex. They were found by Norvell Roberts, then of Picayune, Mississippi, but now a resident of Winchester, Ohio. Descriptions and photographs of the vessels were made available by Roberts, R. C. Lowery, Jr., and W. M. Walden. The cache had been struck by a bulldozer and all of the vessels were broken; they had been placed in an inverted position, within an area of 10-12 feet square. Conceivably they formed a burial or ceremonial offering. Shown in Figure 6 with permission of Mr. Roberts, and after repair, it is seen that two are large, three are intermediate in size, and five are small. The vessels range from 8.8 to 28 cm. in height, from 11.5 to 40 cm. in orifice diameter, and have flat bases that range from 5.7 to 15 cm. in diameter. All are open bowls, most of them circular, but two with bathtub oval shapes. Opposed pairs of lugs occur on the four largest vessels and one of the smaller; none is decorated. The larger tend to have gouge marks on the surfaces, but half of the vessels have been ground to considerable smoothness. One large vessel (Fig. 6 F) has seven pairs of crack-lacing perforations, counterdrilled, with the pairs connected on the interior by horizontal grooves. Soot stain is found on all interiors and most exterior surfaces.

It is difficult to compare the chipped stone assemblages, including projectile points, with each other or between either site and other sites, because most collections of these objects from Cedarland and Claiborne were not separated. Several smaller collections, including those of the authors, give some comparative information (Table 3). Moreover, the authors have not had the opportunity of correlating typology and the present report follows the classification by Gagliano.

The projectile point assemblage from the two sites is diverse, with 27 types or varieties identified. Of 268 classified points, approximately 25 percent are the Pontchartrain type (Fig. 7 K; see Ford and Webb 1956 and Webb, Ford and Gagliano 1971 for type descriptions). Nineteen percent are the Gary type (Fig. 10 E), 9.0 percent Macon (or "Archaic simple stem"; Figs. 7 T and 10 B,C), 6.0 percent Carrollton, 5.6 percent Hale (Figs. 7 L and 10 A), 5.0 percent similar to Kent (Fig. 7 S), and 3.5 percent Motley (Fig. 7 P). Noticeably rare or absent Poverty Point types are Delhi, Epps, Ellis, Marcos, and Marshall. However, Gagliano typed 18 points (6.35 percent) as Shumla (Fig. 7 N), a Texas type that has some similarity to Delhi (short specimens) and Marshall points. Not found at the Poverty Point Site but present in small numbers at Claiborne-Cedarland are Morrow Mountain II (Fig. 7 M), Kirk (Fig. 7 Q), and ten specimens similar to Florida Stemmed Archaic points (Bullen 1968). Most of the latter, represented at both sites, are Levy subtype with concave bases, made of white orthoquartzite or chert. In general, the assemblages of points at Cedarland and Claiborne are similar in major types (Table 3), but Claiborne differs in the introduction of the Motley type, the Shumla-like points (relatively wide, with basal notching to produce distinct barbs and rectangular stems), and two

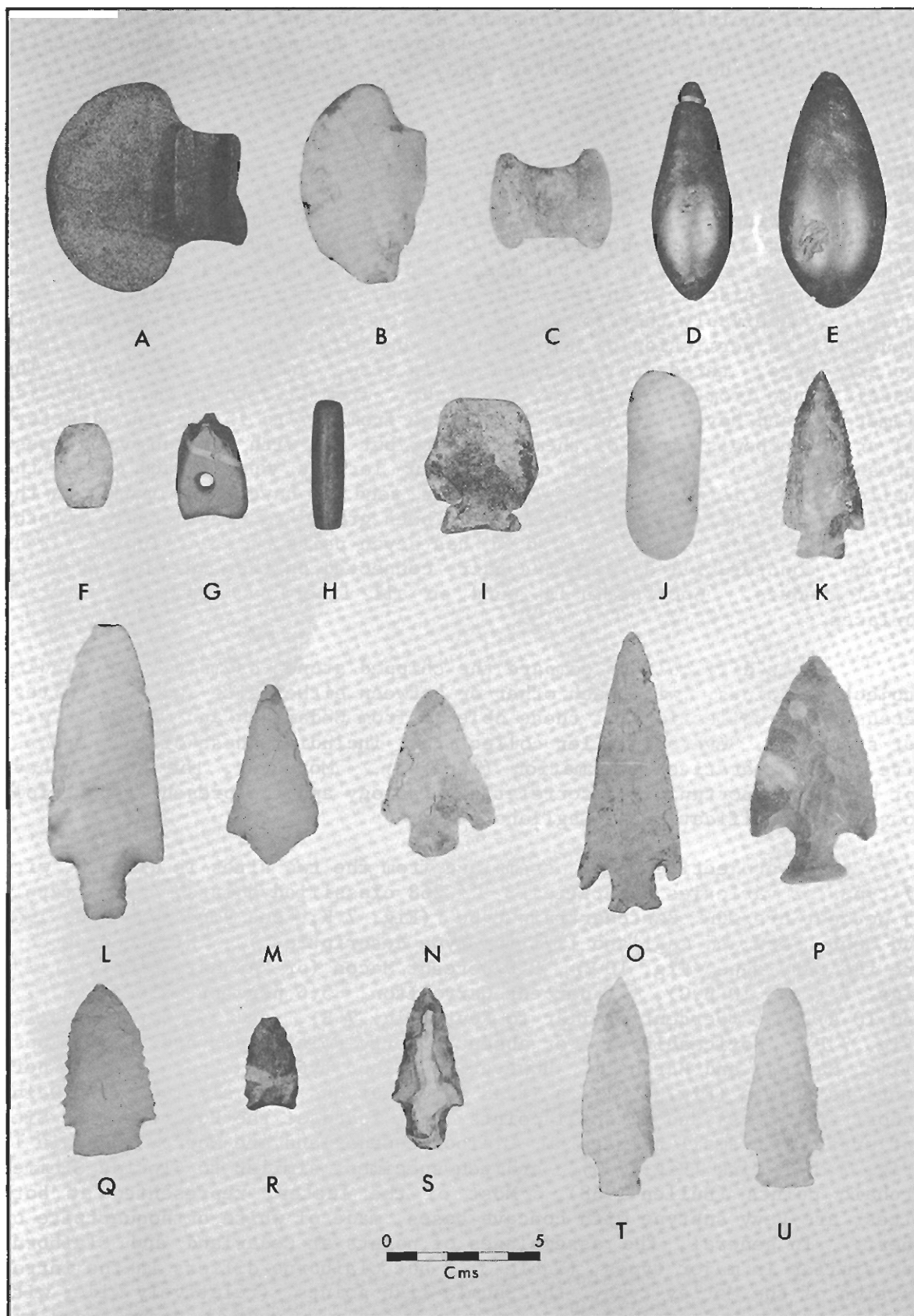


FIGURE 7

Delhi points. Three beautifully made points, 11 to 12.5 cm. in length, were found by Walden in a group at the south end of the Claiborne midden. Two of the Motley type are of gray northern flint and the third-- of the Marcos type-- is of white, almost chalky, flint-- all exotic materials. These may be ceremonial objects from the Poverty Point Site, where similar caches have been conceived of as burial offerings.

Cedarland and Claiborne have a full assemblage of chipped stone tools. Partly worked pebbles, cores (bipolar, disc, lamellar, and multi-platform), a variety of rejects, debris, and bifaces all indicate stages of manufacture at the sites. Thin bifaces are triangular, ovate, elongate and rectangular; some show evidence of use, but most appear to be unused (pre-forms?). End and side scrapers are made from thin flakes and reworked projectile points; graters are from flakes, blades, or reworked projectiles. Drills are of straight quadrilateral (Fig. 10 G), simple stemmed, and expanded base varieties. Rough pebble tools include chipped celts, adzes, scrapers, and knife-like tools, some of which show use marks or polish. Chipped celts and adzes are also fully chipped forms. Simple flakes show use-chipped or smoothed edges. The Walden collection contains a large hematite ovate knife form from Claiborne, with alternate beveling of the edges; it is 12 cm. in length and 4.3 cm. in width.

Microflints are not as abundant as at Poverty Point or Jaketown, but some occur at the Claiborne (200 recorded by Webb) and Cedarland sites. The technique of manufacture differs: those from Claiborne were drawn from cores with slanting prepared platforms as at Poverty Point and Jaketown, while those from Cedarland utilize blades resultant from a bipolar technique of pebble splitting (Fig. 10 H-K) and the finished products are small rod or needle forms. Bipolar flaked drills are also present.

The materials from which points, chipped stone tools, microflints, and biface preforms were made are varied; cores, flakes, and debitage indicate that most of these materials were brought to the site and the finished objects manufactured there. Most prevalent, especially for microflints and Pontchartrain points, are local tan, buff, yellow, and brown pebble cherts; some red, cream, and black are included. There is not the

FIGURE 7

Stone and metal artifacts from the Claiborne and Cedarland sites. A-C, bipennate atlatl weights of quartzite; D-E, magnetite plummet; F, barrel-shaped quartzite bead; G, perforated red jasper pebble; H, red jasper bead; I, projectile point-shaped copper object with underfolded barbs; J, ground quartz crystal; K, Pontchartrain point; L, Hale point; M, Morrow Mountain point; N, Shumla-like point; O, Delhi point; P, Motley point; Q, Kirk point, var. St. Tammany (serrated); R, Palmer point; S, Kent point; T, Maçon point; and U, Yarbrough-like point. Specimens A-L from Cedarland Site; M-U from Claiborne. Q and R may represent "antiques" collected by Claiborne inhabitants.

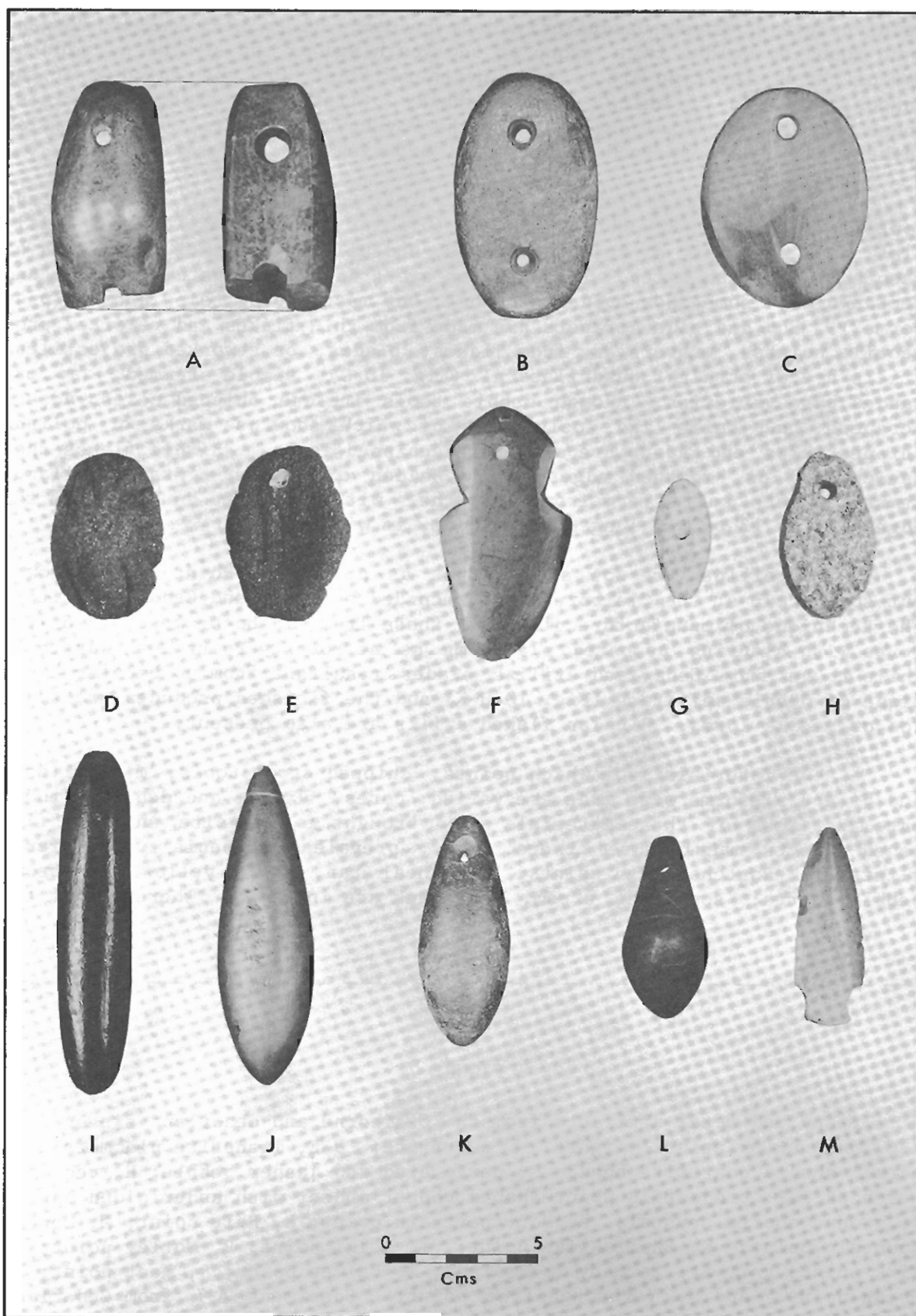


FIGURE 8

great frequency of pink and red colors and fire-spalls that was noted at the Teoc Creek Site, resulting from intentional or accidental fire treatment of the tan-buff cherts. Quartzites and novaculite are in moderate numbers, indicating trade from the Ouachita Mountains of Arkansas, and a small amount of white fossiliferous chert possibly derived from the Ozarks. Other darker fossiliferous chert may be of local origin, as may some of the quartzites. White speckled orthoquartzite is fairly common and debris indicates its manufacturing process at the site; possible sources are Alabama and central Louisiana. Several varieties of gray flint, light and dark, may include materials from Tennessee or Kentucky as well as the flint quarries along the Ohio; some of the latter was brought to the site, as cores and flakes are present in small numbers. A material peculiar to this site is opalized oyster shell, from which points and tools were made; flakes and debitage show working of the material at the site.

Plummets and atlatl weights are the most abundant of the ground and polished objects at the sites (Fig. 7 D,E; Fig. 8 I-L; Fig. 10 Q-T). Plummets show a variety of shapes, although the long ovate with both ends pointed is the most frequent. They are made of hematite, magnetite, fine-grained sandstone, quartzite, limonite, galena, and steatite and include grooved, ungrooved, and pierced (counterdrilled) modifications. Some are highly polished and one fragment is decorated with a field of closely placed parallel engraved lines.

Although plummet types do not appear to change between the sites, there is a conspicuous shift in atlatl weight styles. Approximately 30 bannerstone fragments are known from Cedarland Plantation, mostly winged or bipennate (Fig. 7 A-C; Fig. 10 Q), but a few with prismatic or cylindrical forms. They are usually broken or in various stages of manufacture. Bannerstones are replaced at Claiborne by two-hole gorgets (Fig. 8 A-C). Of the 20 specimens examined by us, two are flat tablets of slate, oval in outline; the others are thicker, plano-convex in cross section, often with a slight indentation or longitudinal groove on the plane surface, and are made of limonite, chert, red claystone, and fine-grained sandstone. A concomitant shift from round to flat atlatls is inferred. Boatstones and barstones are rare, only two of each occurring in the collections; no expanded center bars have been found.

Large and small polished celts, abraders, sandstone saws, pebble hammerstones, pitted stones, and anvils are fairly numerous. White Catahoula sandstone is present. The Satchfield and Walden collections include 11 unique objects of dark sandstone-- locally called "stone turtles"-- that

FIGURE 8

Ground stone artifacts from the Claiborne Site.

A-C, two-hole gorgets of limonite and hematite; D,E, ferruginous sandstone abraders or atlatl weights ("turtles"); F, hematite pendant; G,H, steatite pendants; I-L, limonite and magnetite plummets (note engraving on specimen L); M, polished object of red chert in projectile point form.

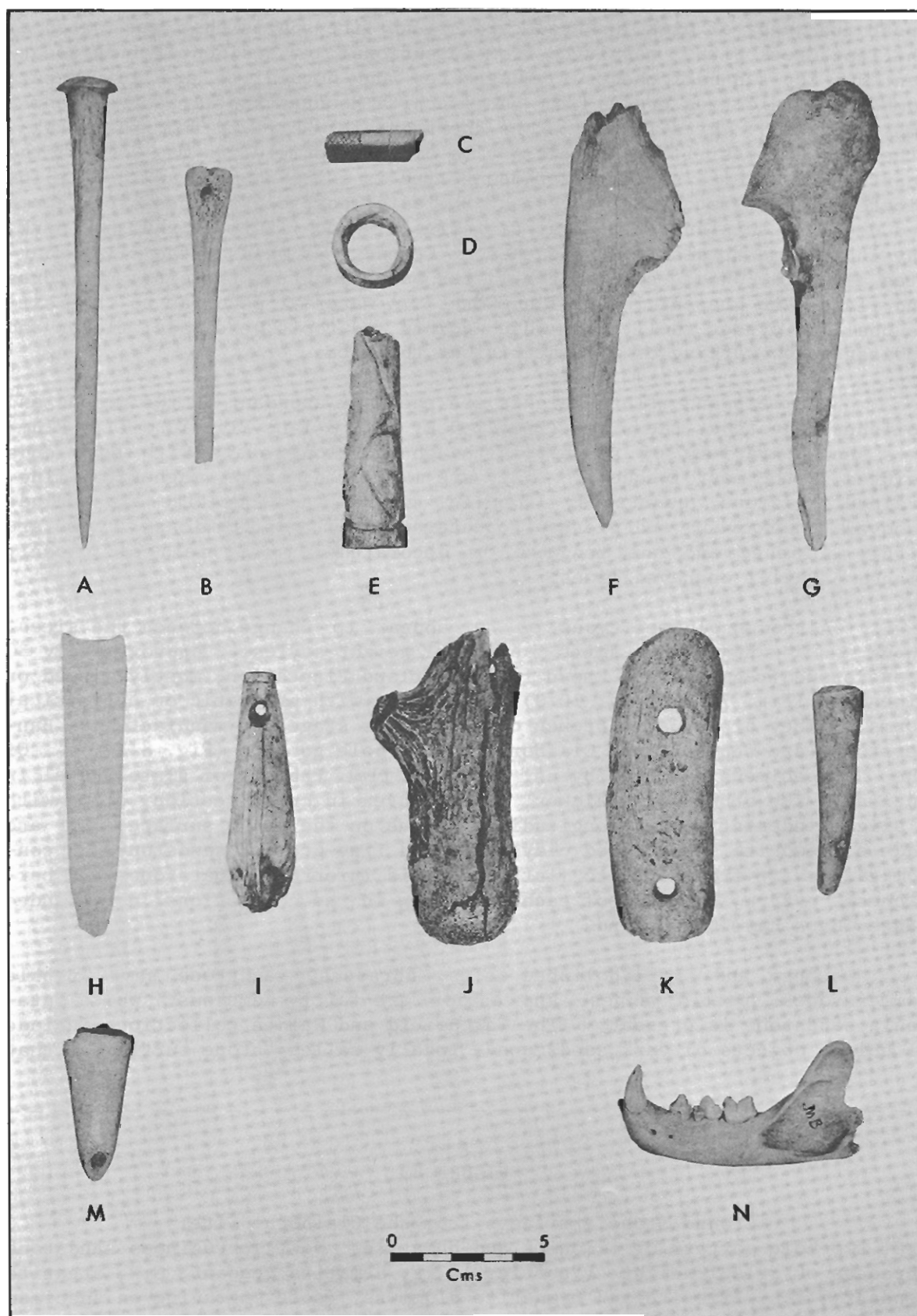


FIGURE 9

are presumably abraders or whetstones (Fig. 8 D,E), but possibly were atlatl weights. They are oval in outline, 5 to 6.5 cm. in length, 3 to 4 cm. in width, and 2 to 3 cm. in thickness, are plano-convex with the plane face slightly hollowed or grooved, and have the convex face deeply scored to the point of indenting the edges.

Ornaments and problematical objects (Fig. 5 G,H; Fig. 7 F-H; Fig. 8 F-H; Fig. 10 P-R) include tubular and barrel-shaped beads of red jasper, crinoid beads, drilled jasper pebbles, pendants of limonite, hematite, jasper, and hard sandstone, tubes and tubular pipes of claystone and steatite, a green claystone locust zoomorphic bead found at Claiborne by Owen Heitzmann (Webb 1971), an owl effigy of galena (Fig. 5 G), a solid quartz cylinder, and a completely ground and polished projectile point form (Fig. 8 M). Objects of copper have been found at both sites, including rolled tubular beads (four agglutinated in position of stringing at Claiborne), plates and slender pins, in addition to a flat object with folded edges in the shape of a blunt projectile point (Fig. 7 I).

Objects of bone and antler are fairly numerous at both sites (Fig. 9). Included are polished antler tines (flakers?), deer ulna awls, split bone awls, an antler wedge or chisel, a shaft straightener or two-hole gorget of antler, tubular bone beads, bone pins and tubes (both plain and nicely engraved, Fig. 5 I,J), a decorated bone handle (Fig. 9 E), spatulas, bone pendants, several perforated or carved bones, a cut and polished canine jaw (Fig. 9 N), a napkin-ring hollowed fish vertebra (Fig. 9 D), and three perforated teeth (two canines of bear or puma and one of alligator). Bone pins and spatulas are more frequent at Claiborne than at Cedarland.

A recent find at the extreme north end of the Claiborne midden (by Joe Bruseth of Slidell, Louisiana) is interpreted as some kind of burnt offering. An area of very dark midden, three to eighteen inches in depth and 18 to 24 inches in diameter, contained fragments of bone pins, decorated bone tubes, and white chert projectile points, all showing charring or fire spalling after breakage. There were 20 fragments of bone pins and 102 fragments of bone tubes, of which 17 showed smooth ends and 25 had engraved decoration. From the fragments of points, Bruseth reconstructed two complete and one partial large Marcos points, similar to the specimen found with Motley points in another cache.

Miscellaneous materials include quartz, galena, limonite, fossil casts, geodes, asphaltum lumps, pumice, and powdered hematite. Gagliano has found Venus shell choppers at the Cedarland Site.

FIGURE 9

Bone and antler artifacts from the Claiborne and Cedarland sites. A-C, bone hairpins; D, bone ring or ear ornament carved from fish vertebra; E, decorated bone handle; F, antler tine awl; G, deer ulna awl; H, bone spatula or net spacer; I, perforated fish bone; J, antler scraper or wedge; K, antler shaft scraper or atlatl weight; L,M, cut antler tines; N, cut and polished canine jaw. All specimens from the Claiborne Site except E, which was excavated from the midden at the Cedarland Site.

TABLE 3

TRAIT SUMMARY AND COMPARISONS *
CEDARLAND PLANTATION SITE (22 HC 30) AND CLAIBORNE SITE (22 HC 35)

CEDARLAND CLAIBORNE

Structural Complex:		
Oyster shells and black earth midden	X	
<u>Rangia</u> shells and black earth midden		X
Semi-circular village plan	X	X
Village on estuary margin	X	X
Conical earth mound in proximity of village	X	
Clay-lined hearths throughout midden		X
Well-defined butchering and fish-processing areas	X	X
Burials absent in middens	X	X
Raw Materials and Miscellaneous Minerals:		
Animal bone	C	A
Marine shells (local gulf beaches)	A	C
Pumice (local gulf beaches)	O	O
Asphaltum lumps (local gulf beaches)		O
Terrace and stream gravel (local sources)	A	A
Red jasper pebbles (local sources)	C	C
Ferruginous sandstone (local sources)	A	C
Limonite (local sources)	C	C
White sandstone (Catahoula Formation, central Louisiana)		O
Steatite (Alabama)		C
Orthoquartzite (south Alabama)	C	C
Opalized wood and shell (south Alabama)		O
Pink and white metaquartzite (Arkansas)	C	O
Crystal quartz (Arkansas)	O	C
Magnetite and hematite (Arkansas)	C	C
Novaculite (Arkansas)	O	O
White chert (Arkansas-Missouri)	O	O
Galena (Arkansas-Missouri)		O
Red-white-yellow banded chert (Mississippi uplands)		O
Copper (Great Lakes area)	O	O
Gray chert (Indiana)		O
Ground Stone:		
Sandstone hones and slabs	C	C
Sandstone saws	C	C
Pumice abraders	O	O
Sandstone reamers		O
Oval-shaped pebble hammerstones	C	C
Cupped sandstone hammerstones	C	O

* X= Representative; A= Abundant; C= Common; and O= Occurs.

TABLE 3 (CONTINUED)

CEDARLAND CLAIBORNE

Ground Stone (continued):

Winged atlatl weights	C	
Cylindrical atlatl weights	O	
Prismatic atlatl weights	O	
Two and three-hole gorgets	O	C
Rough sandstone gorgets		C
Grooved plummets	O	C
Perforated plummets	O	C
Cigar-shaped plummets		O
Decorated plummets		O
Ball-shaped plummets		O
Celts		O
Pendants		O
Tubular pipes	C	C
Tubular beads (red jasper)	O	
Barrel-shaped beads		O
Stylized bird and grasshopper beads		O
Polished projectile point-shaped objects		O
Perforated red jasper pebbles	O	O
Crystal quartz pendants		O

Chipped Stone Projectile Points:

Yarbrough	O	
Gary, large	O	C
Gary, typical	C	C
Gary, small	O	O
Pontchartrain	C	A
Maçon	C	C
Hale	C	C
Palmillas	C	O
Kent	O	C
Motley		O
Shulma		C
Williams		C
Morhiss		O
Almagre		O
Morrow Mountain		O
Desmuke		O
Webb		O
Carrollton		C
Kirk serrated St. Tammany		O
Delhi		O
Ellis		O
Marcos		O
Levy		O
"Spike"		O

TABLE 3 (CONTINUED)

CEDARLAND CLAIBORNE

Chipped Stone Tools:		
Straight drills	C	0
Simple stemmed drills	0	0
Bulbous stemmed drills		0
Stemmed points with blunt, pitted ends	0	
Stemmed scrapers reworked from points	0	0
Ovate blades	0	
Small chipped celts	0	0
Pebble side scrapers		0
Cores and Blades:		
Bipolar cores	A	
Bipolar flakes	A	
Needle-shaped graters from bipolar flakes	C	
Cores with prepared striking platforms		0
Poverty Point-type microflints		C
Bone:		
Splinter awls	0	0
Deer ulna awls	C	C
Socketed bone points	0	C
Socketed antler tine points	0	0
Antler perforators	0	C
Antler flakers and drifts	0	C
Antler scrapers or wedges		0
Spatulas or net spacers		0
Beads	0	0
Perforated fish vertebrae		0
Pins or bodkins	0	C
Engraved pins		0
Finger ring		0
Perforated canine teeth		0
Shell:		
Scrapers and gouges (<u>Busycan perversum</u>)	C	
Choppers (<u>Mercenaria mercenaria campechiensis</u>)	C	
Metal:		
Rolled copper beads		0
Sheet copper ornament, projectile point shaped		0 (?)
Sheet copper ornament, ring shaped	0	
Copper needle	0	
Vessels:		
Steatite vessels and sherds		C
Fiber-tempered pottery		C
Untempered pottery		C

TABLE 3 (CONTINUED)

CEDARLAND CLAIBORNE

Fired Clay:

Clay-lined hearth fragments	A	
Biscuit-shaped objects	0	0
Cylindrical objects with grooves	0	0
Other Poverty Point objects (see Table 2)		A
Figurines		0

SUMMARY

The Cedarland and Claiborne coastal villages, both horseshoe-shaped and located side-by-side to front on the estuary, were occupied during late Archaic and Poverty Point times. We think the two sites were sequent occupations of the same population type and that a shift in occupation locus, without evidence of new people, coincided with the introduction of traits associated with the Poverty Point cultural complex. Important among these traits were: clay ball cooking as a major method of food preparation, fiber-tempered and untempered pottery, solid clay figurines, Motley projectile points, a shift from bannerstones to two-hole gorgets as preferential atlatl weights, and a shift in manufacture of microflints from small rods produced by bipolar flaking to blades struck from angled platforms of prepared cores.

There is otherwise little evidence of change in lithic technology, projectile point styles, or bone-antler tools. It is evident that stone vessels were in use and that grooved and perforated plummets were made at Cedarland (Fig. 10) before the advent of the typical Poverty Point complex of traits; copper was also in use prior to Poverty Point times.

A charcoal sample from the upper level of the Cedarland Site yielded a radiocarbon date of 1240 B.C.* and a sample from near the base of the Claiborne midden has a date of 1150 B.C.** The two dates suggest a shift in occupation from Cedarland to Claiborne at some time around 1200 B.C. These dates are not inconsistent with recent dates from the Poverty Point and Teoc Creek sites (Weber and Webb, this volume).

* Sample analyzed by Exploration Department, Humble Oil and Refining Company, Houston, Texas. Lab. No. G-561. Age B.P. 3200 \pm 130 years. Charcoal submitted by R. T. Saucier, July 1960.

** Analysis by Isotopes, Westwood Laboratories. Lab. No. I-3705. Age B.P. 3100 \pm 110 years (James Buckley, personal communication 1968). Sample submitted by Sherwood Gagliano.

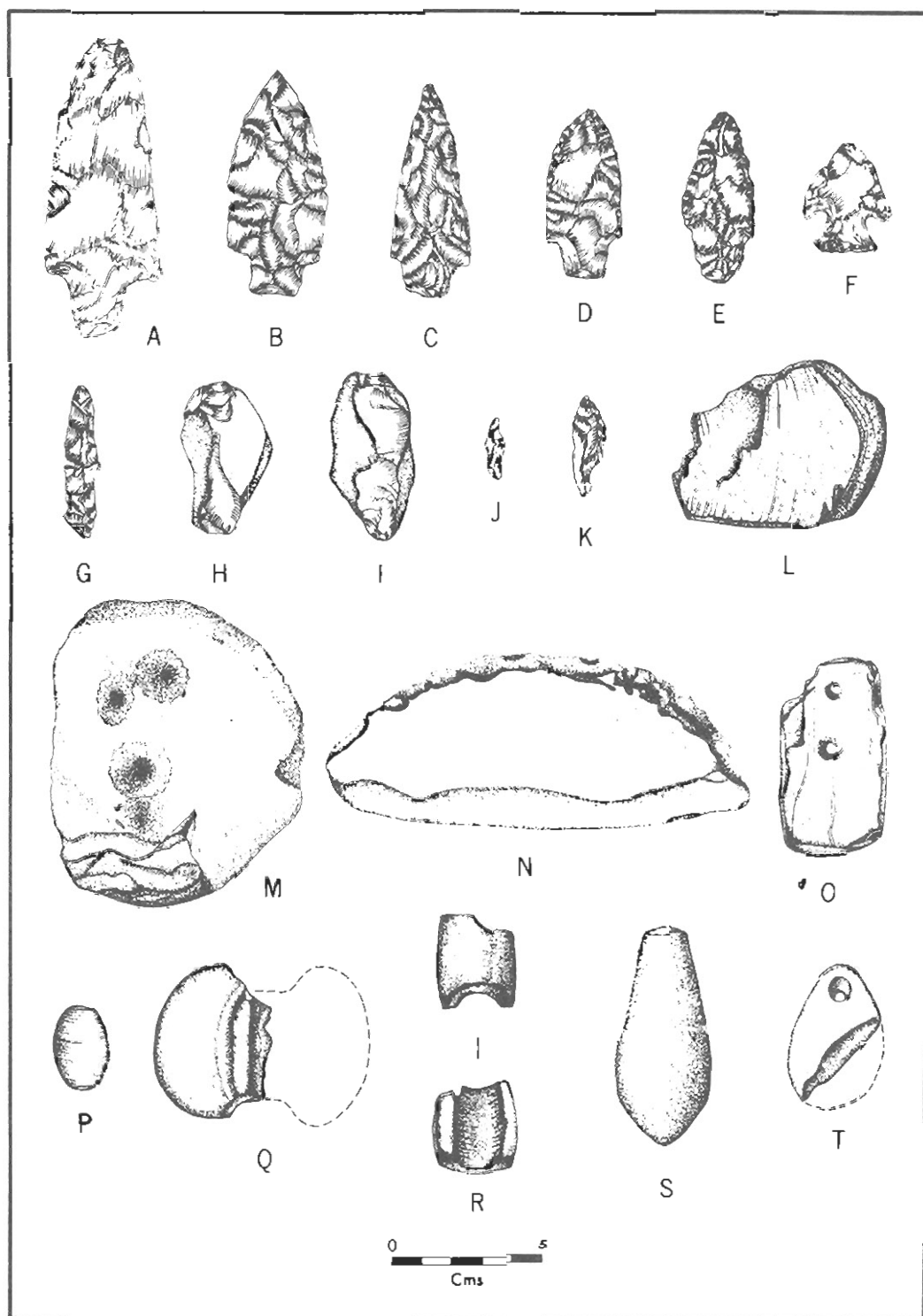


FIGURE 10

Pearl River Phase artifact assemblage.

A, Hale point; B,C, Macon point; D, Pontchartrain point; E, Gary point; F, Ellis or Edgewood point; G, straight drill; H,I, bipolar cores; J,K, microflints; L, shell gouge or scraper; M, nutstone or anvil; N, sandstone saw; O, gorget; P, undrilled bead; Q,R, atlatl weights; and S,T, plummets. All objects from Cedarland Site except M, which is from the Graveyard Site.

Smaller and probably related satellite sites have been located in the nearby coastal areas (Fig. 1): Archaic occupations at Cedar Point and Graveyard sites; Poverty Point occupations at Garcia, Linsley, and Bayou Jasmine sites.

There are no certain evidences of Poverty Point manifestations along the Gulf Coast east of Cedarland-Claiborne, but contemporaneity and some contact seem likely. Bayou La Batre and the shell middens around Mobile Bay, with minimal clay ball manufacture and with fiber-tempered pottery, presumably overlapped the Cedarland-Claiborne occupation period (Ford 1968; Webb 1968; Webb, Ford and Gagliano 1971). Clay ball manufacture around Choctawhatchee Bay on the northwest Florida Coast (Lazarus 1958; Fairbanks 1959; Small 1966) seems to occur with cultures from late Archaic to Deptford times.

Recently the junior author was privileged to study the collection of David Reichelt, Destin, Florida, and to visit several sites with him. Mr. Reichelt's collection includes sandy clay balls from 15 sites along the south shore of Choctawhatchee Bay. Two sites are of special relevance to the present study.

A large shell midden on Buck Bayou contains steatite sherds and moderate numbers of clay ball fragments in the upper 12 inches of a five to six-foot deep deposit of shells; other details of the cultural content are not presently available, but steatite is rare in the Bay area other than in this and the following site. Across the inlet from the shell midden, on a point of land projecting into the Bay, Reichelt has found a more complete cultural assemblage at site 8-WL-87. More than 50 steatite fragments represent at least five vessels; one whole sandy clay ball of biconical shape, longitudinally incised, and a large fragment is ovate with longitudinal scoring. Evidences of a lamellar blade industry at 8-WL-87 include one quartzite core with angled platform and several blade channels, three unused blades of white chert and quartzite, five blades which closely resemble Jaketown perforators except for use bevels along the entire extent of both edges (made of tan or dull white chert or orthoquartzite) and ten broken "drill stems" which appear to have been made from blades. A ferruginous sandstone saw, galena, quartz pebbles, red hematite pigment, and a perforated fragment of polished hematite (apparently the end of a two-hole gorget) are other objects with similarities to Claiborne. Projectile points are predominantly large specimens (8-16 cm. long) of the Levy subtype of Florida Archaic Stemmed (Bullen 1968); several are whole and about a dozen are fragmentary or reconstructed from fragments found underwater by Reichelt. They are made, in approximately equal numbers, of orthoquartzite and dull or waxy white cherts, except for one of typical Arkansas novaculite. One example of Sumter subtype is of orthoquartzite, two of Putnam subtype are of fossiliferous chert and shiny gray flint. Two smaller specimens of orthoquartzite and gray chert are similar to the Gary type. A fragmentary point, slender, approximately 11 cm. in length, and of glossy gray chert, has the general shape and stem characteristics of the Motley type, although missing fragments at the shoulders make typing uncertain. Hammerstones, a loaf-shaped mano, two end scrapers and a denticulate made from reworked projectiles, a thin triangular biface, thicker biface preforms, flake side scrapers, a notch end denticulate, two straight quadri-

lateral drills, a shaped and partially polished tan chert fragment, and 64 used and 165 unused flakes (orthoquartzite, other quartzites, gray, white, blue-gray and mottled cherts, and three yellow-tan cherts) complete the assemblage.

The Levy and Putnam points are directly comparable with Florida Archaic points found at the Cedarland and Claiborne sites and the Levy subtype compares closely with the nine Group F points found at the Poverty Point Site (Webb, Ford and Gagliano 1971). The orthoquartzite materials at Claiborne and 8-WL-87 are quite similar. Conversely, tan-yellow pebble chert, novaculite, galena, sandstone saws, and the lamellar blade industry are rare or otherwise absent from the Choctawhatchee area and appear to be imports from the Mississippi Valley.

It appears, therefore, that occupants of the Cedarland and Claiborne villages were participating in a widespread trade network, up the Mississippi Valley and along the Gulf Coast, which seems to have intensified in Poverty Point times. There are evidences of direct contact between the Claiborne and Poverty Point sites; it seems probable that Claiborne was a regional center of importance in the commercial, secular, and religious organization of Poverty Point cultural complex.

THE CATAHOULA PHASE OF THE POVERTY POINT COMPLEX
IN EAST-CENTRAL LOUISIANA

Donald G. Hunter
Northwestern State University

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Dr. Clarench H. Webb proofread the manuscript. He also contributed much data on other Poverty Point sites. His criticisms and suggestions helped to strengthen this paper.

Tony Delano and Hilda McBride typed the second rough draft. Delson Chevalier contributed his personal knowledge concerning the location of sites and their artifact assemblages. Everett Baker helped in much of the field work. To these people go many thanks.

INTRODUCTION

In 1970, Dr. Philip Phillips postulated the existence of a phase of the Poverty Point Complex in an area near Catahoula Lake (Fig. 1) (Phillips 1970). Recent survey work conducted by the author in this area has yielded additional components which seem to identify this phase more fully. On the basis of the present data, sites of Phillips' original Catahoula Phase have either been retained or rejected in an effort to redefine and characterize it.

Sites were surface collected. Limited stratigraphic sampling was conducted to determine the association of traits to their proper components. Traits found in stratigraphic context and surface finds at Old Saline Camp were used to define and characterize this phase.

Traits not previously described from components in this area would suggest the grouping of these sites into a phase distinct from others in the Poverty Point Complex. High frequencies of biconical, Biscuit-shaped, and amorphous clay balls may also suggest a temporal phase. Enough cultural continuity does exist so that these sites may be included within the Poverty Point Complex.

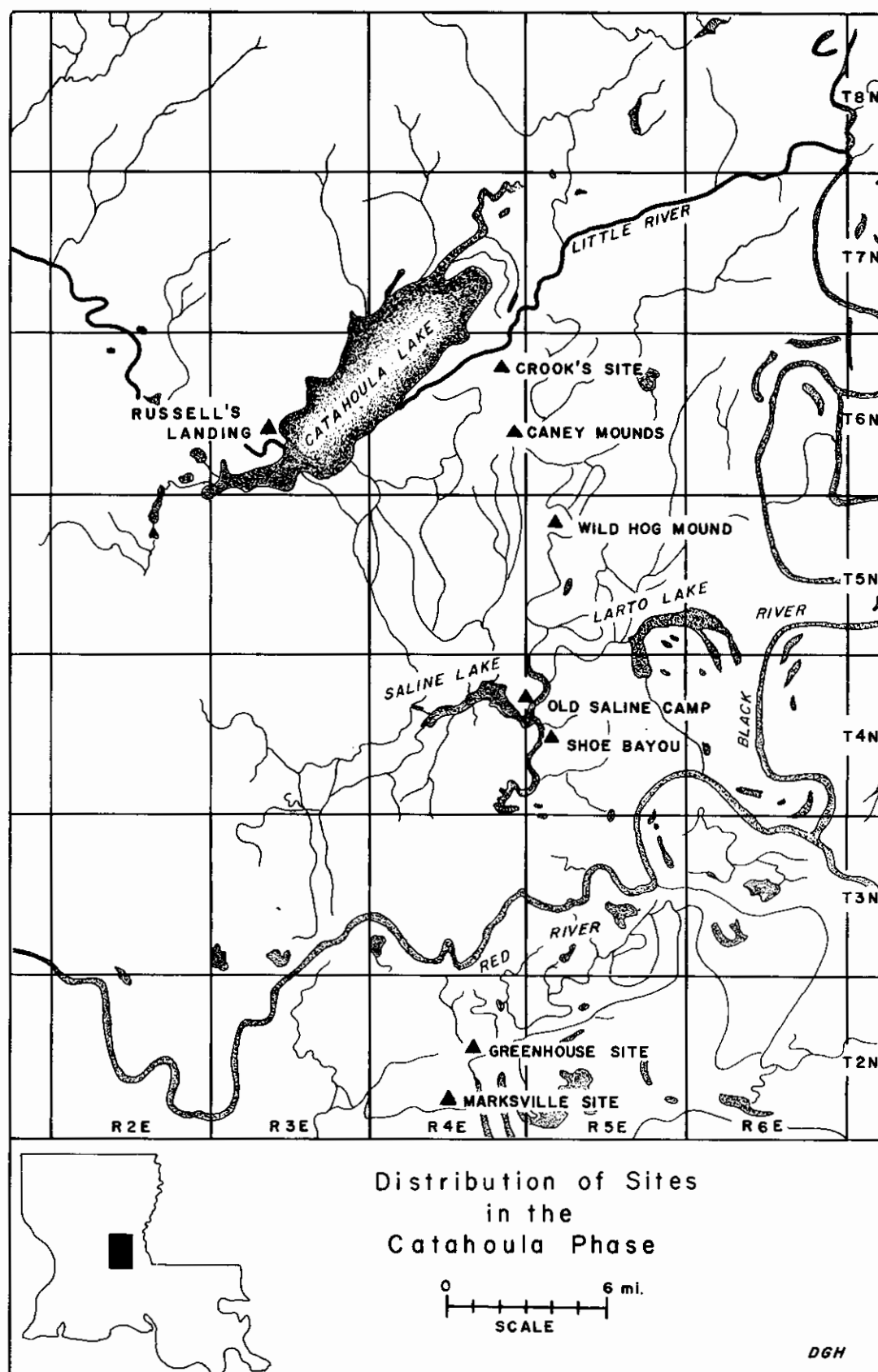


FIGURE 1
Sites of the Catahoula Phase

SHOE BAYOU

The Shoe Bayou Site (Fig. 1) is located at the confluence of Shoe Bayou and Old Saline Bayou on the Catahoula-LaSalle Parish border. It is situated approximately 45 feet above sea level on a natural levee of what once probably was an old channel of the Arkansas River. The site is a small midden deposit, measuring less than 100 feet north to south and less than 30 feet east to west. Apparently much of the site has been eroded. Two sections of this eroded bankline were profiled. The general stratigraphy consists of a basal layer of sterile gray clay, with some ferruginous inclusions, which is capped by a midden containing Poverty Point clay objects and no ceramics. A ceramic level directly overlies this midden (Fig. 2). No great density of artifacts or any midden accumulation was noted in the deposit. Surface collections yielded other sherds relating to the Tchefuncte, Deasonville, and Coles Creek periods. These occupations will not be discussed here as they do not relate to the Poverty Point component.

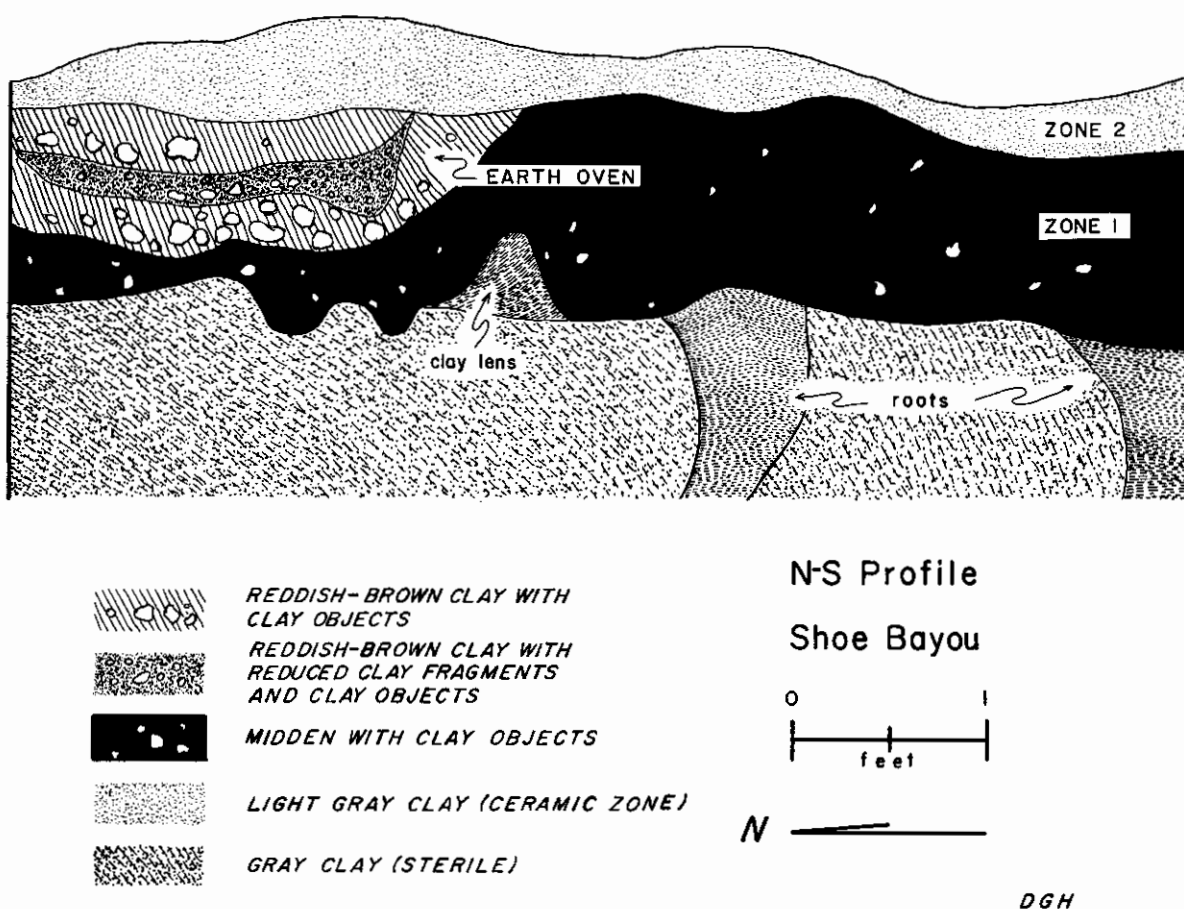


FIGURE 2

Stratigraphic profile, Shoe Bayou

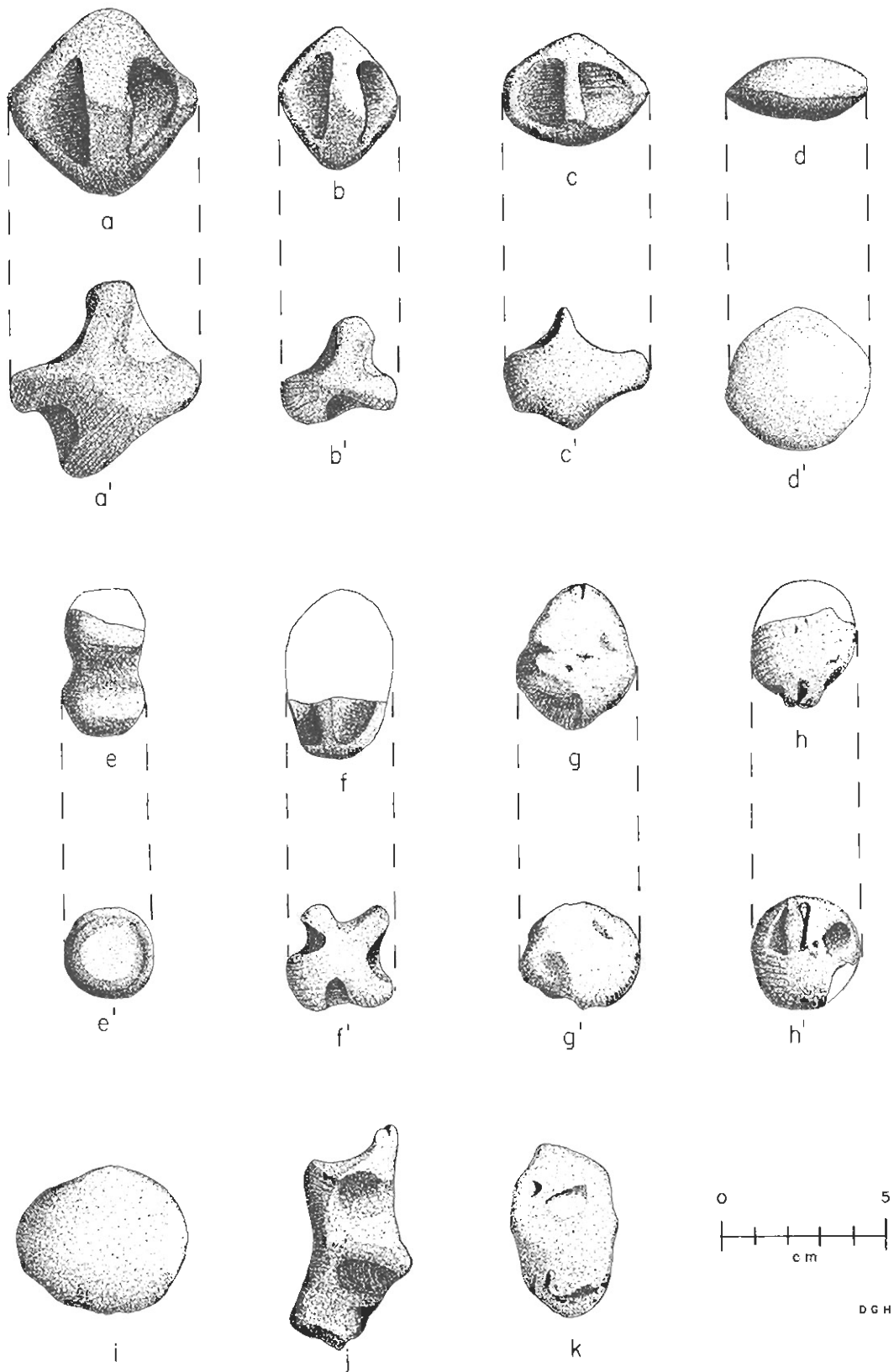


FIGURE 3

The lower occupation contained, in addition to the clay objects, orthoquartzite, chert, and minute fragments of bone. These bones were too small and too infrequent to warrant specific identification. However, bird and fish were recognized as representing a portion of the faunal assemblage.

One stratified earth oven was exposed in the profile (Fig. 2). The matrix was a reddish-brown clay containing broken clay objects. A cluster of these was noted in the bottom of the pit. Over this layer was a stratum of dark reddish-brown clay containing many fragments of poorly fired, dark gray clay. This fragmentary condition suggests, on the basis of specific analysis (experimental preparation of and cooking with clay balls), that a layer of wet clay objects was fired in the pit. This could have been done to add heated clay balls during food preparation. Flecks of charcoal and small fragments of bone were present in this layer. The stratum covering this dark area resembles that underneath. A cluster of clay objects in the northern-most portion of this pit (Fig. 2) probably represents the opening of the oven after the meal was prepared. Similar, but not identical, scatter was noted with the earth ovens at Terral Lewis (Gregory, Davis and Hunter, this volume). At Terral Lewis, the fragments circumscribed the ovens; at Shoe Bayou they were to one side. The dark area in the oven at Shoe Bayou is lacking at Terral Lewis. This one oven may not represent the norm for this type operation and more sampling is required to demonstrate this. Such hypothetical differences may be explained either by regional or technical variation.

Fifty-nine amorphous fragments, four Biconical fragments, and 28 unidentifiable fragments were recovered from this oven. Samples of the matrix and baked clay objects were sent to Dr. Cynthia Weber, Arkansas Archeological Survey, for thermoluminescent dating. Unfortunately, the results are not presently available.

Poverty Point Clay Objects

Among the Catahoula sites the Shoe Bayou assemblage of fired clay objects shows the most similarity to that from Poverty Point. To facilitate comparisons, the typology for these objects as presented by Ford and Webb (1956) was used. Amorphous clay objects represent about 73 percent of the sample (158 identifiable objects). Biconical plain, Biconical grooved, and Biscuit-shaped comprise approximately 12 percent of the sample. Other minority types include Melon-shaped, Cylindrical with lateral grooves, and Spheroidals (Table 1). Several of the Spheroidals have slight finger impressions (Fig. 3)

FIGURE 3

Poverty Point clay objects from Shoe Bayou.

a-c, Biconical grooved; d, Biscuit-shaped; e, Cylindrical grooved; f, Melon-shaped; g-h, Hemi-spheroidals with slight finger impressions; i, Spheroidal; j, "squeeze"; and k, amorphous.

Paste differences within the sample appear to be a function of the soil at the site. Bone fragments occur in 46.4 percent of the sample of 71 whole, fragmentary, and unidentifiable objects. These do not appear to be quantitatively sufficient to have served as temper and their appearance in the midden suggests accidental inclusions. Otherwise, the paste is virtually indistinguishable from that at Poverty Point. Color range is basically the same, though the sample from Shoe Bayou appears to be somewhat lighter. This may be related to a lower aluminum or manganese content in the soil (Gregory, personal communication 1971). It may also reflect regional variation in the method in which these objects were manufactured and/or used.

Lithics

The assignment of stone in surface collections to one period or another is, unfortunately, not as diagnostic as the temporal positioning of baked clay objects or pottery. Certainly a portion of this sample is associated with the ceramic components at Shoe Bayou. Stratigraphic sampling revealed that chert occurs in both occupational zones, but orthoquartzite only occurs in the Poverty Point component.

Orthoquartzite accounts for 27.7 percent of the total sample (62 pieces) of raw material. Tertiary flakes, primary flakes, and eclat de taille (biface-thinning flakes) occur. The core-to-flake ratio is 0:17; indicating that this stone was worked elsewhere and imported to the site as preforms or large flakes. Only two pieces of orthoquartzite have been retouched.

Orthoquartzite occurs as small nodules in the local Pleistocene gravels about 14 miles to the northwest. However, it probably comes from other sources due to the size of the raw materials. Such large pieces are known to occur in the Sabine and Calcasieu River drainages in the Tertiary Uplands of the Kisatchie Wold (Fisk 1940: 113-115) about 60 miles to the west.

There seems to be a preference for orthoquartzite at Shoe Bayou and Old Saline Camp. This appears to be an innovation in lithic raw materials in this area. It was not extensively used in the Archaic in the Catahoula Lake Drainage. For example, in the inventory of 348 Archaic projectile points and other related lithic products from the Joseph's Island Site (Gregory collection) only three pieces of orthoquartzite (0.9 percent) were noted. No orthoquartzite was found in the Dekson Chevalier (Dewille, Louisiana) collection of over 1,000 Archaic pieces from the Catahoula and Saline Lake areas.

Chert accounts for the remaining 72.3 percent of the raw material. Forms include primary, secondary, and tertiary flakes; unmodified pebbles; flake cores; and a few probable lames. The core-to-flake ratio is 7:38, indicating that the chert was probably carried to the site whole and worked there. The source of this chert is probably the local Pleistocene gravels 14 miles to the northwest in the Little River Drainage.

The lithic technology here is primarily a flake industry, contrasting with the Poverty Point Site which has a large core and blade production. The absence of microflints is even more striking.

Rough and Ground Stone

Three pieces of hematite were found. Two are nodular and the third is a rough plummet fragment. All are a poor grade of hematite similar to that from northwest Louisiana, and do not resemble the hematite used at Poverty Point. This is the only site within the Catahoula Phase that has plummets and no Archaic occupation to which they may be attributed. Caution should be used in the application of hematite plummets as a diagnostic trait of the Poverty Point Complex. Such artifacts occur in a middle Archaic context at the Joseph's Island Site and in collections from the American Cemetery Site in Natchitoches Parish (Gregory, personal communication 1971).

One sandstone saw was found. A tertiary trait of the Poverty Point Complex, its temporal position is uncertain (Webb 1968). In addition, a single sandstone hone was found.

Other rough stone includes fire-cracked sandstone, friable and regular quartzite, and chert. It is felt that the fire-cracked quartzites and sandstones from the Poverty Point Site are involved with a culinary practice which survived from an Archaic tradition (Ford and Webb 1956: 39). Although no fire-cracked stone has been found in association with earth ovens and clay balls in the Lower Valley, Gerald Smith (1971) in Tennessee has reported finding a single oven in which there were clay balls of distinctive shape and a quantity of fire-cracked stone. This is an isolated find. At Poverty Point, fire-cracked stone is common, occurring in open hearth areas but not in earth ovens (Ford and Webb 1956; Webb, Ford and Gagliano 1971). This may be related to a different culinary process or, possibly, for heating. Fire-cracked rock is rare at the Terral Lewis Site. It has been postulated that Terral Lewis is a summer agricultural site where there would be no need for open heating areas-- which have not been found (Gregory, Davis and Hunter, this volume). This may support the hypothesis that the stone was utilized in heating rather than directly in cooking.

Some of the chert at Shoe Bayou was heat treated. One piece (Fig. 4,h) from the lower zone was treated in this way. This is evidenced by surface discoloration exposed by secondary chipping. Some of this chert was undoubtedly related to this particular tool manufacture; some may be accidental by-products of the heating and/or culinary complex.

Demography

At the Terral Lewis Site, demographic conditions were based on the size of the site and the amounts of occupational debris. Population there has been estimated to have possibly approached the band level, but it probably did not exceed the number of individuals within two nuclear families (Gregory, Davis and Hunter, this volume). The Shoe Bayou Site is somewhat smaller than Terral Lewis and cultural debris is less dense. On this basis, the population here appears relatively smaller.

Men were present as evidenced by tools often attributed to men's activities (e.g. projectile points, eclat de taille approximating the size of flake scars on projectiles from other sites in the area, and plummets).

Women were present on the site. Evidence of this is found in size of the finger impressions --smaller than a man's hand would produce --in the clay balls. Some impressions are so small as to indicate children at the site.

Subsistence

Crushed bone fragments in the midden and in several of the clay balls at Shoe Bayou suggest a hunting and fishing subsistence pattern. Fish and birds were recognized as representing a portion of the faunal assemblage. This immediate area abounds in migratory and resident populations of ducks, geese, and other wild fowl. Hematite may indicate a possible industry for the manufacture of plummetts which, if the hypothesis of their being used as bolas weights (Ford and Webb 1956) is correct, may indicate a camp for fowling.

OLD SALINE CAMP

Old Saline Camp (Fig. 1) is situated approximately 45 feet above sea level on a natural levee of Saline Bayou, an old channel of the Arkansas River. It is located some three airline miles north-northwest of Shoe Bayou. The site is about 75 feet north to south; its east to west limits are poorly defined. A small salt lick (now buried by bulldozing) is located about 50 yards to the south. Old Saline Camp is a single component site. It probably has the most definitive site collection relating to the Catahoula Phase.

A single stratigraphic profile was cut along the exposed bankline. An oval pit approximately four feet long and two feet deep was exposed. It contained charred sandstone and clay objects. It does not resemble earth ovens described from other sites of the complex (Ford and Webb 1956; Webb, Ford, and Gagliano 1971). The pit matrix was a dark tannish-gray clay with many ferruginous inclusions. Except in the pit, the midden accumulation was not well defined.

Poverty Point Clay Objects

Three types of clay objects (43 identifiable objects) are represented at the site. They are Biconical plain (41.8 percent), Amorphous (11.6 percent), and Biscuit-shaped (46.4 percent). Variation occurs within the paste due to intra-site soil variation. Less than ten percent of a sample (123 whole, fragmentary, and unidentifiable objects) contained bone inclusions. Ocher inclusions occurred in most of the examples. In all cases the amount of inclusions does not appear to have been sufficient for tempering. They appear to be accidental inclusions. The color of these objects varies from tannish-gray to a light orange, lighter than the same objects from Poverty Point. Most surfaces are well oxidized and the color is uniform throughout the entire artifact. Three have reduced exteriors and 19 have observable reduced interiors.

Lithics

Since this is a single component site, all surface material may be attributed to the Poverty Point period. The percentage of orthoquartzite in relation to chert is greater at the Old Saline Camp than at Shoe Bayou. This probably is due to the fact that the stone from the ceramic zone at Shoe Bayou could not be sorted from the earlier component. The ratio of orthoquartzite to chert seems more realistic at Old Saline Camp. This is not necessarily a valid assumption if these two sites represent different activity facies.

Orthoquartzite comprises 45 percent (9 pieces) of the lithic raw material. Forms include tertiary flakes, eclat de taille, and a single biface (projectile) (Fig. 4, k). The core-to-flake ratio is 0:8, illustrating that this material was worked at another location and imported to the site. Only three flakes were retouched.

Another 45 percent (9 pieces) of this material is represented by chert. Forms include primary, secondary, and tertiary flakes, eclat de taille, flake cores, and bifaces (projectiles). The core-to-flake ratio is 1:6, suggesting that the chert was carried to the site in nodular form and worked there. Only one piece of chert was retouched.

The final 10 percent (2 pieces) is represented by a pink quartzite biface and a primary flake from a quartz pebble. This is a flake industry, no lames or blade-core technology being present. This total absence represents a considerable difference between this site and Poverty Point, although a sample error is possible, as the sample is small. However, the low frequencies of blades from other components seems supportive of this difference.

Rough and Ground Stone

No polished or ground stone has been found. Rough stone includes fire-cracked quartzite and chert, unmodified low-grade quartzite, Catahoula sandstone, and ferruginous sandstone.

Subsistence

Animal bone in the midden and in less than 10 percent of the clay ball sample demonstrates that hunting, and possibly fishing, was a part of the subsistence of these people. Projectile points also reinforce this idea. This is in agreement with the postulated adaptive strategies for other sites in this phase.

Demography

The very small size of this site indicates a rather minimal population, probably never exceeding one nuclear family. This seems reasonable if the limited variation in clay ball shape represents the efforts of one or two women. While clay objects suggest the presence of women, lithics imply that males also were there.

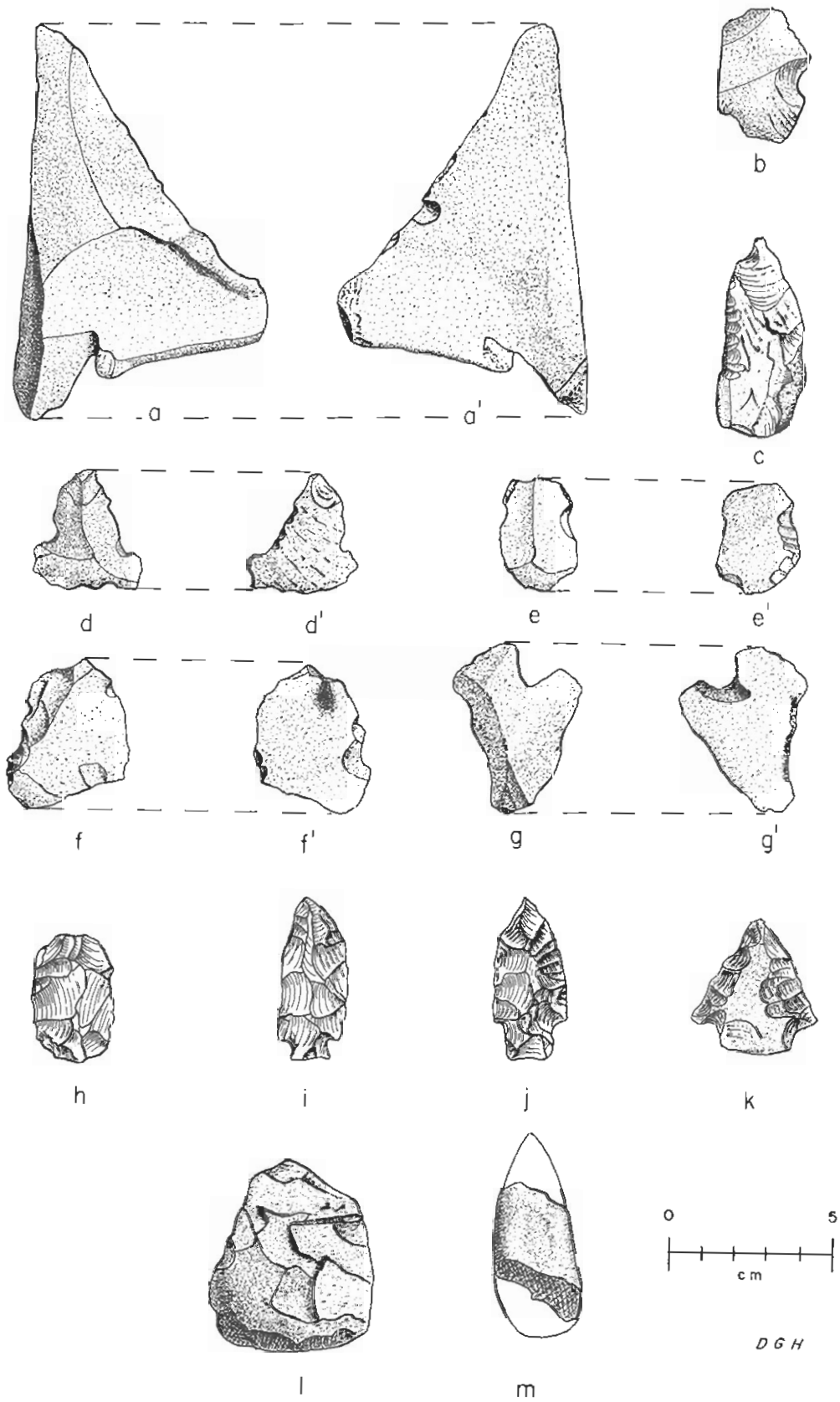


FIGURE 4

FIGURE 4

Stone of the Catahoula Phase

a,b,d-g,k, orthoquartzites; c, unifacial chert tools; h, heat treated chert biface; i-j, chert projectiles; m, plummet fragment (a, c, h, i, and m are from Shoe Bayou; b, d-f, and j-l from Old Saline Camp; and g from Russell Landing).

 THE CANEY MOUNDS

The Caney Mounds are located approximately eight and one-half miles north-northeast of Old Saline Camp on Cypress Bayou, a probable relict channel of the Arkansas River. A large scar is to the east of the site. Caney is situated on the levee of this larger scar approximately 45 to 50 feet above sea level.

It is a large site containing six conical mounds that form a circle. Much of the site has been extensively altered by recent land-leveling. Midden deposits are scattered between the mounds and usually on the northern slope of each structure. These mounds seem to be products of several ceramic bearing phases at the site. The Poverty Point occupation is mainly confined to the eastern edge of the site on the natural levee of the large scar. Most of the debris from this component is distributed along an area about 250 feet north to south, representing a continuous horizontal occupation.

No stratigraphic cuts have been made at this site, but extensive controlled surface collections have demonstrated Archaic, Poverty Point, Tchefuncte, Marksville, Issaquena, Deasonville, Coles Creek, and Plaquemine occupations. These components which do not relate to the Poverty Point occupation are not dealt with. Only the Poverty Point clay objects and other artifacts that may be connected to this component will be discussed.

Surface collections at this site suggest that it is the largest component in the Catahoula Phase, although the size of the recovered sample may be slightly larger due to the fact that this is the only site in the phase that is now in cultivation. Notwithstanding, the site is not large in comparison with some other Poverty Point sites.

Poverty Point Clay Objects

The types of clay objects found at the Caney Site represent (often by a single specimen) the major types present at Poverty Point. Forms include Biconical plain (17.6 percent), Biconical grooved (0.6 percent), Biscuit-shaped (37.2 percent), Amorphous (34.6 percent), Cylindrical grooved (2.5 percent), and Spheroidal (4.4 percent). Cylindrical plain, Melon-shaped, Cross-grooved, and a perforated variety, represented by a single object each, comprise the remaining 3.1 percent of the sample (157 identifiable objects).

Most of the specimens are coated with a ferruginous or manganese concretion often giving the exteriors a deep brownish-gray color. Consequently, their surfaces are uneven and have a rough, granular feel. Their cores are a bright yellowish-orange with many dark inclusions (probably ferrocrete or manganese). Six do not have this coating. Colors range from buff to deep orange, usually uniform throughout the entire object. Other inclusions occur in 13.1 percent of the sample.

Other Clay Objects

One clay tubular pipe fragment has been found. It also is covered with concretion. The pipe is crude and plain. No pipes have been found at the single component site (Old Saline Camp). This artifact probably relates to the large Tchefuncte component at Caney, as such pipes are common in Tchefuncte sites (Ford and Quimby 1945).

Lithics

Since the Caney Site has a long temporal span of occupation, it has not been plausible to extensively analyze the stone. At present, a random collection of stone is not available for study.

Projectile points include Kent, Wells, Ensor, Gary, Pontchartrain, Evans, and Ellis. Most seem to be attributable to an Archaic component, and some probably relate to the ceramic occupations. However, Gary and Pontchartrain points are common at Poverty Point, Teoc Creek, and Terral Lewis (Webb and Gregory, personal communication, 1971).

Rough and Ground Stone

Rough grooved quartzite plummets are present. Their temporal position is unclear and they possibly relate to the ceramic components. Celts also occur. Two small specimens (one of greenstone and the other of diorite) have good lines and do not resemble the forms from Poverty Point sites. Both seemingly relate to the Coles Creek occupation.

Fire-cracked quartzite from the Archaic, and probably the Poverty Point component, is rather common. If this stone does relate to the later component, and if the hypothesis that it is associated with winter camps is correct, then the Caney Site would seem to have a winter occupation.

FIGURE 5

Poverty Point clay objects from the Caney Site
a-d, Biconical plain; e, Biconical grooved; f, Cross grooved; g, Cylindrical plain; h, Cylindrical grooved; i, Biscuit-shaped; j, perforated form; and k, spheroidal.

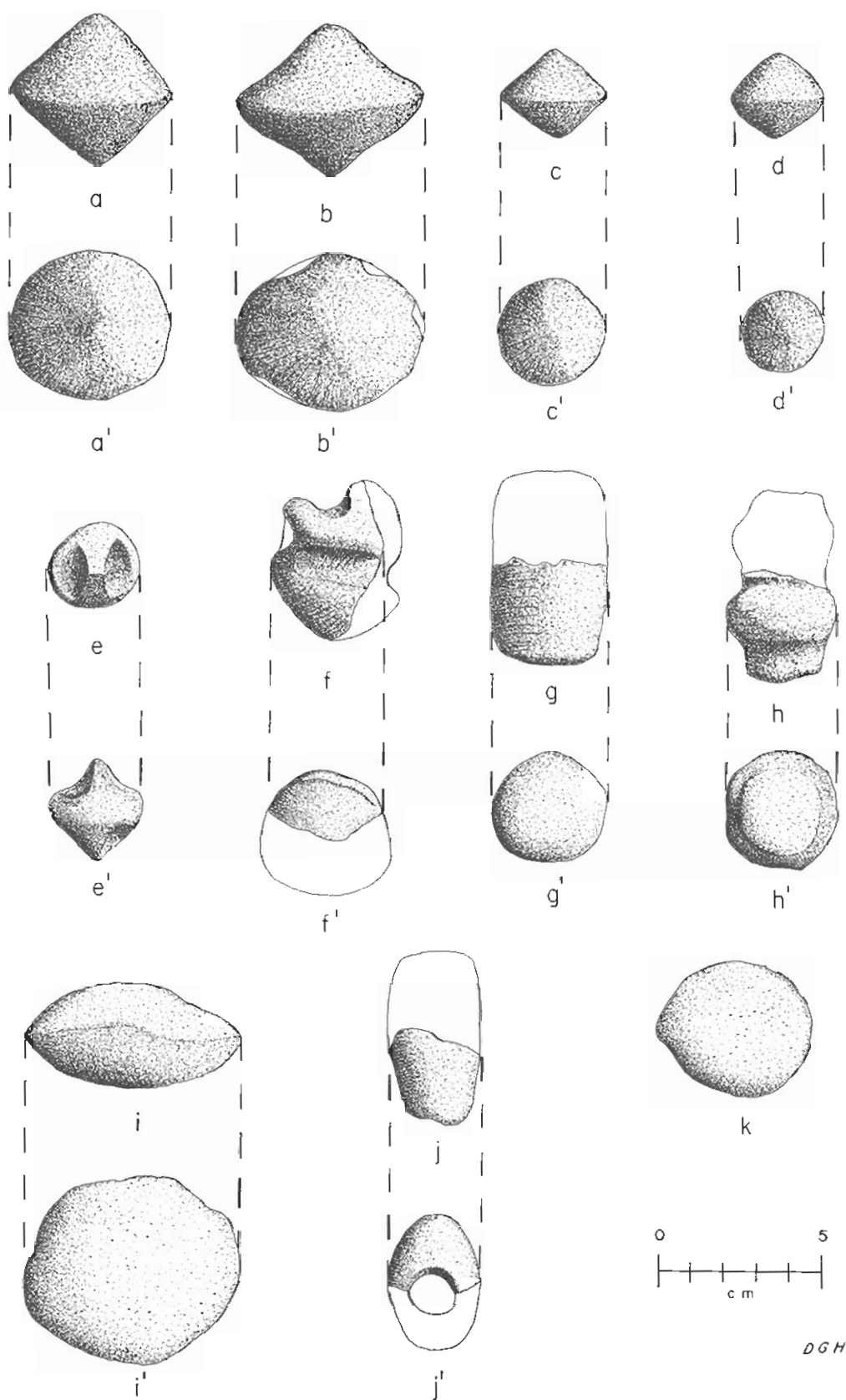


FIGURE 5

Subsistence

The inhabitants relied on hunting and possibly gathering. The presence of possible related projectile points and bone fragments in several of the clay balls suggest this. There is no evidence of agriculture; no eclat de taille or hoes similar to those at Terral Lewis have been found.

Demography

If the distribution of the Poverty Point clay objects is indicative of the entire occupation area, then this site could not have supported more than an extended family, not exceeding four nuclear families. The population have never surpassed the band level.

Small finger impressions on the clay balls suggest the presence of both women and children. Covarying biface types (points) seem related to male activities.

THE WILD HOG MOUND

The Wild Hog Mound is located on Cross Bayou on an old Arkansas River Levee. The site was first reported by Ford (1936). Mrs. U. B. Evans, an amateur, dug in the site in the late 1930's. The digging was confined to a small, much eroded conical mound, now destroyed, which was situated upon a high locality. Whether or not it actually is a mound is questionable. This area is approximately six feet high; dense occupational debris covers most of its summit and flanks for some 100 feet. Surface collections have yielded pottery and other artifacts that illustrate the full sequence (Ford 1951) of the Red River mouth. No stratigraphic data is now available,

Poverty Point Clay Objects

Five types of clay balls are represented at Wild Hog (Table 1). These include Biconical plain (27.8 percent), amorphous (21.0 percent), Biscuit-shaped (58.8 percent), Biconical grooved (2.1 percent), and a single small spheroidal (2.1 percent). These objects resemble those from the Caney Site because of the concretions adhering to the exteriors on the sample of 48 complete or identifiable objects. Their surfaces usually are a dark brownish-gray with a rough, granular feel. When broken open, the cores usually are a bright yellowish-orange. Bone fragments occur in 54.6 percent of the sample; other inclusions are present in 12.6 percent.

Subsistence

Because of the inadequate sample of stone recovered from this site, it is difficult to hypothesize a subsistence adaptive technology. Hunting is modeled for this site only due to the amounts of bone in over half of the recovered sample of clay objects. Apparently, these objects were manufactured from soil containing pre-existing bone accumulated through years of hunting or fishing. Fish and birds were recognized by some of these fragments (Gregory, personal communication, 1971).

Demography

Clay ball distribution is scattered along the natural levee approximately 150 to 200 feet north to south and about 50 feet east to west. Much of this distribution is questionable. Clay ball fragments have been found the whole length of this eroded area or in the spoil from pot-hunter's holes. Judging from the area of this scatter, the population may have approached the band level.

OTHER SITES

Russell Landing

Poverty Point objects occurred at Russell Landing (Fig. 1) (Gibson 1968: 55). Gibson (1968: 119) assumes these to be a trait of the Russell Landing Phase of the Tchefuncte Period. This association seems not to be substantial due to the lack of stratigraphic data at this site. No Tchefuncte pottery is found in stratigraphic context containing these clay objects at Shoe Bayou or Old Saline Camp. It now seems that they should be attributed to an earlier Poverty Point occupation. Similarly, the same objects from coastal Tchefuncte sites may represent a pre-Tchefuncte occupation (Phillips 1970: 875).

Reviewing the data (Gibson 1968; Phillips 1970) it seems reasonable to include at least one component at this site in the Catahoula Phase. However, most of the occupations seem to date earlier or later.

Phillips (1970: 873) lists the presence of burins at Russell Landing and at Duck Slough as a trait possibility relating to the Catahoula Phase. Since no burins have been found at other sites of this phase and the burins from the above two sites have no clear temporal context, it would seem reasonable to delete this as a definitive trait from the Catahoula Phase. The microlithic tool assemblage more characteristic of the Poverty Point Site is not quantitatively important at Russell Landing as it is at the former site. No double-backed bladelets, perforators, notches, or denticulates were reported by Gibson (1968) or found by the author in subsequent collections. Such lithics do occasionally occur in an Archaic context at Cad, Joseph's Island, and several other sites in the Catahoula Lake drainage (Gregory, personal communication, 1971).

Crooks

Phillips (1970) suggests the inclusion of the Crooks Site (Fig. 1), four miles north-northeast of Caney, which is similarly on the Cypress Bayou levee. Two biconicals, two elongated forms, and 37 undifferentiated (probably amorphous) forms have been reported (Ford and Willey 1940). Both the occurrence of the clay objects and the geographic location suggest it is another component of this phase. The lack of adequate data on lithics and the nature of this occupation prevents analysis and comparisons.

TABLE 1

TRAITS of the CATAHOULA PHASE

TRAITS	RELATED SITES								
	Shoe Bayou	Old Saline Camp	Caney	Wild Hog	Russell Landing	Crooks	Wiley	Greenhouse	Marksville
Clay objects (major types)									
amorphous	73.1%	11.6%	34.7%	21.0%	75.9%	88.8%	-	-	-
biconical grooved	3.8%	-	0.6%	2.1%	2.3%	-	-	-	-
biconical plain	10.7%	41.8%	17.6%	37.8%	11.5%	4.8%	n	x	x
biscuit shaped	7.5%	46.4%	37.2%	58.8%	-	-	-	-	-
cross grooved	-	-	0.6%	-	2.3%	-	-	-	-
cylindrical grooved	1.9%	-	2.5%	-	2.3%	-	-	-	x
cylindrical plain	-	-	0.6%	-	-	-	-	-	-
melon shaped	0.6%	-	0.6%	-	-	-	-	-	-
spheroidals	0.6%	-	4.4%	2.1%	2.3%	-	-	-	-
perforated	-	-	0.6%	-	-	-	-	-	-
Lithics and Raw Materials									
orthoquartzite	27.7%	45.0%	n	n	x	n	n	n	n
unifacial flake tools	x	x	n	n	x	n	n	n	n
bifacial tools (projectiles)	-	x	-	-	-	n	n	n	n
chert	72.3%	45.0%	x	x	x	x	x	x	x
unifacial flake tools	x	x	n	n	x	x	x	n	n
bifacial tools (projectiles)	x	x	x	x	x	x	x	x	x
bifaces (others)	x	x	x	x	x	x	x	x	x
quartzite bifaces	-	x	-	-	n	n	n	n	n
Other Stone									
hematite	x	-	-	-	x	-	x	-	x
plummets	x	-	-	-	x	-	x	-	x
nodular	x	-	-	-	-	-	-	-	-
fire cracked stone	x	x	x	x	n	n	n	n	n
quartzite	x	x	x	x	n	n	n	n	n
sandstone	x	x	x	x	n	n	n	n	n
chert	x	x	n	n	n	n	n	n	n
Demography									
nuclear family	x	x	-	-	n	n	n	n	n
extended family	-	-	x	x	n	n	n	n	n
Subsistence (hunting)	x	x	x	x	n	n	n	n	n
Settlement patterns (riverine)	x	x	x	x	x	x	x	x	x

x= present

- = absent

n= no data

DGH

SUMMARY AND CONCLUSIONS

Much of the material culture present at many of the Poverty Point sites is missing within the Catahoula Phase. Among Webb's (1968) diagnostic traits, tubular pipes, clay figurines, stone vessels, microflints, rough green hoes and celts, and jasper beads are not represented here. Only Poverty Point clay objects and hematite plummetts occur. Most of his secondary and tertiary traits also do not appear.

Although many of the diagnostic traits of the complex are absent within this phase, much of the non-material culture (Webb 1971) is shared. Sites are riverine and are associated with what appear to be relict Arkansas River channels. The sites are situated on natural levees of these streams. Their size is relatively small; population usually is of an extended family size, not surpassing the band level at any one site.

The general subsistence patterns of these people seem to be in accordance with many Poverty Point sites. Hunting, fishing, and gathering are modeled for these people due to the amounts of bone fragments in the midden. No evidence of agriculture has been demonstrated.

As with many of the sites within the complex, these people seem to have had a preference for large exotic raw materials. The preference for exotic northern cherts is absent, but orthoquartzite is important from the west.

No dates are presently available from any of the components of this phase. These sites may be somewhat early in the complex if large biconical clay objects are indicative of an early period as they are at the Teoc Creek Site (Webb, personal communication, 1971).

It is clear that there is a Poverty Point occupation within the Catahoula drainage on the basis of these new data. It may no longer be assumed that the appearance of baked clay objects in this area can be attributed to Tchefuncte and later occupations. The relationship of the phase to the rest of the complex is poorly understood in terms of time and space. Only more work in this area can clarify these.

ARCHAEOLOGICAL CHECKLIST OF EDIBLE FLORA
IN THE LOWER MISSISSIPPI VALLEY

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Directly or indirectly plants have furnished the basis of man's subsistence for the duration of his entire existence. In the most direct sense, plants have provided food. This checklist presents a comprehensive but not exhaustive tabulation of edible plants which commonly occur in various microhabitats in the Lower Mississippi Valley. The purpose of this compilation is two-fold: first, to draw together a number of the more common wild food plants from eastern Louisiana and western Mississippi in order to provide an appreciation of the variety and extensiveness of consumable species; and second, to provide the substance for reconstructing economic strategies from given sets of archaeologically recorded materials.

The area considered here takes in several physiographically and topographically distinctive regions in that portion of the Lower Mississippi Valley that is contained within the present states of Louisiana and Mississippi. It includes the alluvial valley of the Mississippi River and its major affluents and as much of the escarpment (terrace) edges and hinterground as might be easily accessible within a few hours distance by foot from the alluvial valleys. It stops where the delta and marsh begin. It goes without saying that the whole aggregate of plants detailed herein will not be available in every microhabitat in the Lower Mississippi Valley. Some of the niches will contain greater variety than others and some will be virtually monotypic for one species or another. The range of habitats extends from the constantly wet backswamps, locally the lowest elevations in the floodplain, to the dry and rich mixed forests of the terraces and uplands that provide the highest points in the area. Microhabitats have not been specified in the following lists. This is partially because detailed studies are lacking for many areas and partly because I do not profess to have anything other than a passing acquaintance with the botanical literature. Furthermore, the proper utilization of the information assembled here must still reside with the singular assessment of floral conditions in each site microenvironment*. In other words, both the niche and associated flora must be determined for every site situation in order for any particular plant or floral aggregate to figure in a paradigm of local economy.

* Microenvironment as used here follows Chang (1967: 57-70), who is basically following the geographical concept of the operational environment; that is, that small and selected portion of the total surroundings within which man is physically interconnected.

Presentation format is very simple. Plants have been identified by common and scientific names and their various edible parts and seasonality are listed individually under as many preparation categories as are known or possible. These categories generally follow those of Chase (1965) and include: salad, potherbs, vegetables, potatoes, flour, nuts, achenes, and fruits. There will be some duplication from category to category because of various preparation possibilities. Plants listed as salads, for example, may also be fixed as vegetables or potatoes, although the reverse is not equally true. These categories may be briefly characterized as follows:

1. Salad-- raw, either singly or mixed together
2. Potherbs-- cooked in frequently changed water
3. Vegetables-- boiled or baked as greens, beans, asparagus, etc.
4. Potatoes-- boiled, baked, roasted, fried, dried, flour-bread
5. Flour-- pounded, ground, or crushed (leached), and dried; bread and spoonmeat
6. Nuts-- raw, flour-bread, spoonmeat, soup, oil
7. Achenes-- as nuts
8. Fruits-- raw, flour-bread, spoonmeat, soup, and dried

The information compiled herein has accrued over the span of many years. Various sources, most documentary, have been used but it is often difficult now to attribute a particular bit of knowledge to a specific source. Thus, for the purpose of this presentation, the various sources are themselves categorized in the following tables as archaeological, ethnographical, folk (informants), and other (primarily field and ranger guides and botanical literature). The literature actually cited while preparing this list for publication is collected in a bibliography even though it may not actually be cited in the text.

I feel that a further word is necessary to explain why I have undertaken the compilation of this list because of the feeling of uneasiness brought on by "dabbling" in someone else's field. I realize that anyone who publishes in an area is legitimately subject to the critical scrutiny of specialists in that field. Scientific integrity should not be sacrificed no matter if it is an archaeologist working with botanical materials (or as in this case primarily with the archaeological, ethnological, and other literature dealing with plants and with various informants) or if a botanist is using archaeological materials. Certain standards must be maintained so that the interests of science are not jeopardized and substandard hodgepodge passed on to the uninitiated. Before any botanist who might read this paper passes too harsh a judgement on the assembler or the volume let him be reminded that it was often he or one of his colleagues that the archaeologist or ethnologist consulted for specific determinations in the first place. Ethnologists, in particular, know plants by native or common names. Scientific determinations are and were made primarily in their libraries (not in the field) without the plant handy and with no thought ever given to placing a representative specimen in an herbarium for further reference or corroboration. All too often this procedure has resulted in mistaken specific determinations. Thus, a certain amount of misinformation on plant determinations exists in the anthropological (and botanical) literature and anyone using these sources uncritically is likely to be guilty of perpetrating these errors. I have tried to exercise proper caution in making various determination of species, especially when only a common name is known or when several practically indistinguishable species are involved,

any one of which (or all) might be intended. In both cases only genus is given. Still there remains the possibility of misattributed determinations. For these I can only tend my apologies. My ultimate hope is that an offended botanist may soon provide the comprehensive study so urgently needed on the edible flora of the Lower Mississippi Valley.

All too often archaeologists are prone to make largely unqualified statements to the effect that, "it is difficult to see how this manifestation could have occurred without the benefits of agriculture," or "the nature of the natural resources promoted a wandering existence," or "hunting and gathering cultures are restricted to a lowly level of sociocultural integration." All of these conclusions are non-sequiturs in the absence of extensive investigation or consideration of the culture-flora ecosystem either through the actual archaeological recovery of floral materials or through model-building from contemporary or historical floral conditions. It may well be that such conclusions will follow from the investigation but mere cross-cultural comparison should not be allowed to prejudice such conditions.

These considerations are especially applicable to the Poverty Point problem. Poverty Point represents a cultural climax. Yet it is likely that the enabling economic base was nonhorticultural (Gibson 1971). Evidence of cultigens has consistently failed to materialize from Poverty Point sites. It is a matter of fact that direct evidence of horticulture is totally nonexistent. Notwithstanding the logical conclusions of Gregory et al (this volume) that Terral Lewis represents an agricultural facies, the kinds of evidence necessary to establish the existence of horticulture beyond a shadow of a doubt are still non emergent. Root or tuber grubbing in burned-over cane breaks or weed seed harvesting in the same setting could have just as similarly produced the opeline glaze on the edges and faces of the "hoes." But without the recovery of the plant products themselves, all arguments pro and con are reduced to the question of intent. Was the exploited floral aggregate intentionally propagated? I do not think archaeologists can satisfactorily answer this question with only ad hoc opinions. The ultimate "proof" must rest with the recovery of documented cultigens or genetically modified and/or spatially displaced indigenous species which depend on man for their own existence (cf. Yarnell 1965).

To emerge from this sterile argument, however, brings us to the point that regardless of whether or not horticulture was basic to Poverty Point economy, or any other for that matter, considerable use was made of wild plants by the Indians, both prehistoric and historic. The following presentation of some of these consumable plants and their economically important details is but acknowledgement of their importance in the development of prehistoric cultures in the Lower Mississippi Valley.

42.	Beech
Fagus grandifolia	x x x
43.	Chinquapin
Castanea pumila	x x x
44.	Oak, white
Quercus alba	x
45.	Oak, overcup
Quercus lyrata	x
46.	Oak, swamp chestnut
Quercus prinus	x
47.	Oak, chinquapin
Q. muehlenbergii	x
48.	Oak, water
Quercus aquatica	xx
49.	Oak, live
Quercus virginiana	x
50.	Oak, post
Quercus stellata	x
51.	Oak, bur
Quercus macrocarpa	x
52.	Panic grass
Panicum sp.	x x
53.	Wild rice
	x
54.	Marsh elder
Iva annua	x
55.	Smartweed
Polygonum sp.	x
56.	Ragweed, giant
Ambrosia trifida	x
57.	Ragweed, lesser
Ambrosia sp.	x

NAME	A	E	F	O	SALAD	S	POTHRB	S	VEGETA	S	POTATO	S	FLOUR	S	NUT	S	SEED	S	FRUIT	S
58. Wild millet <u>Echinochloa crus-</u> <u>galli</u>																	x	su		
59. Muscadine <u>Vitus sp.</u>																			x	su
60. Passionflower <u>Passiflora incar-</u> <u>nata</u>																	x	x		?
61. Pawpaw <u>Asimina triloba</u>																			x	f
62. Mayhaw <u>Crataegus opaca</u>																			x	sp
63. Persimmon <u>Diospyros virgin-</u> <u>iana</u>																				
64. Crab apple <u>Malus angustifolia</u>																			x	f
65. Plum, red <u>Prunus americana</u>																			x	f
66. Plum, Chickasaw <u>Prunus angustifolia</u>																			x	su
67. Huckleberry <u>Vaccinium sp.</u>																			x	f
68. Dewberry <u>Rubus sp.</u>																			x	su
69. Hackberry <u>Celtis laevigata</u>																			x	sp
70. Red mulberry <u>Morus rubra</u>																			x	f
71. Strawberry <u>Fragaria virginiana</u>																			x	sp
72. Serviceberry <u>Amelanchier arborea</u>																			x	su

[illegible]

THERMOLUMINESCENT DATING OF POVERTY POINT OBJECTS

J. Cynthia Weber

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The Poverty Point Thermoluminescence Project originated in the fall of 1968 after the author had returned from a year at the Research Laboratory for Archaeology and the History of Art at Oxford, England, where Dr. Martin Aitken and his students (S.J. Fleming and D.W. Zimmerman) were looking at the physical property of thermoluminescence (TL) and its practical applications (Aitken, Zimmerman, and Fleming 1968). Thermoluminescent dating seemed uniquely suited to the needs of Poverty Point archaeology since it could utilize the Poverty Point objects themselves in age determinations.

It took a while for the project to get underway. The Research Laboratory had to be convinced of the value of this American project and they had to reach a state of confidence in theory and method that would make such a project of value to the archaeologist. In the fall of 1970 all three conditions were fulfilled and requests were sent by the author to those people known to be actively digging Poverty Point sites to gather freshly excavated Poverty Point objects and a sample of the accompanying soil.

Thermoluminescence is a property of certain materials that absorb energy from their environments, store it in their crystalline lattice structure, and, when heated, release this stored energy as light (hence thermoluminescent-light). Quartz, for example, a common mineral in certain fabric, is capable of thermoluminescence.

The amount of energy stored by a sample--a sherd, for example--is proportional to the strength of the sources emitting energy to it and the length of time of exposure. Hence, age determinations are theoretically and practically possible.

The source of energy to the sherd is from the radioactive minerals that make up the clay itself, to a lesser extent from the radioactive impurities in the surrounding soil, and a much lesser extent from cosmic rays. The radioactive minerals are present as a few parts per million of uranium and thorium and a few percent of potassium. These can be measured by standard quantitative procedures and the amount and kind of radiation given the sherd from its own radioactive impurities and those of the surrounding soil can be calculated.

As different ceramic specimens vary in their susceptibility to accumulate this radiation energy, one cannot simply divide the amount of energy given off as light by the amount emitted to the specimen each year to get the time elapsed. Instead, after the naturally acquired TL of the sherd is measured, that same sherd is dosed with standard radioactive sources to determine what amount of radiation is necessary to induce a level of thermoluminescence equal to the natural TL of the sherd. The amount of radi-

ation required to produce this equivalence is called the equivalent radiation dose. Since the joint contributions of the radioactive sources have been measured, the age determination is then obtained as follows:

$$\text{Age} = \frac{\text{Equivalent Radiation Dose}}{\text{Dose per year}}$$

Using the "fine grain" technique developed by Zimmerman (1971), which uses particles of the pottery fabric that are well under 100 millimicrons, the accuracy possible in TL dating is plus or minus 5-10 percent.

Thus far, six known Poverty Point sites or components have been dated. One additional site, culturally unassigned at the time of submission, also has been dated.

The samples have been processed by Miss Joan Huxtable at the Research Laboratory under Dr. Aitken's direction. The age determinations as presented here are the results of averaging the determinations for each site, with the predicted error--both random and systematic--being indicated.

A sample was taken from the Poverty Point Site (16WC5) with the aid of Carl Alexander of Epps, Louisiana, and was excavated on the Sullivan Place. Objects and soil were taken from the top six inches of the midden zone on Ridge 6 in the southern area of the site. These objects dated to 750 B.C. \pm 200 years.

The single component Terral Lewis Site (MaX1) in Madison Parish, Louisiana, was dated at 1090 B.C. \pm 230 years. These objects were taken from Feature 4 by H. F. Gregory of Northwestern State University, who excavated the site.

The single component Teoc Creek Site (22CR504) in Carroll County, Mississippi, was visited in the company of John Connaway of the Mississippi Archaeological Survey. Objects and soil were taken from the one to two-foot-thick midden zone encountered in a N-S trench placed about 10 feet from the southeast corner of the 1970 excavations. These gave a date of 1070 B.C. \pm 220 years.

Although no soil sample was available, a few Poverty Point objects from the Jaketown Site (22HV505) were obtained from Dr. Philip Phillips of Peabody Museum, Harvard. These specimens gave a date of 1080 B.C. \pm 250 years.

The Claiborne Site (22HO35) in Hancock County, Mississippi, was sampled by Charles Satchfield of the Mississippi Archaeological Society. The samples are from the southwest corner of the site, from an excavation unit placed adjacent to that of the 1969 Mississippi Archaeological Survey excavation at a depth approximately five feet below the original ground surface. These gave a date of 650 B.C. \pm 240 years.

The Shoe Bayou Site (NSU380) in Catahoula Parish, Louisiana, was excavated by Donald Hunter of Northwestern State University, Natchitoches, Louisiana. The sample was from Earth Oven 1 in Profile 2 at the site and

gave a date of 1000 B.C. \pm 220 years.

The additional site for which dates were obtained is Loggy Bayou (3DR59) in Drew County, Arkansas, where sherds and clay balls were found together in a deep pit excavated by Dr. Martha Rolingson of the Arkansas Archeological Survey. Both ceramic classes were sent to Oxford for an internal check run. A.D. dates were obtained for this association of Withers Fabric Impressed and a plain ware--now identified as Tchefuncte Plain (M. Rolingson, personal communication)--and clay objects. The series of dates for the balls averaged 290 A.D. \pm 260 years; for the sherds 410 A.D. \pm 130 years.

A more detailed presentation of the results obtained in this project is scheduled to appear in *Archaeometry*, Volume 14, 1972.

COMPILATION OF RECENT RADIOCARBON AND THERMOLUMINESCENCE DATES,
WITH DOMINANT POVERTY POINT OBJECT AND PROJECTILE POINT TYPES,
AT SITES OF THE POVERTY POINT COMPLEX

J. Cynthia Weber and Clarence H. Webb

Site	Radiocarbon Dates (recent)	Thermolumi- nescence Dates	Dominant Poverty Point Objects	Dominant Projectile Point Types
Poverty Point	1050 B.C. 870 B.C.	750 B.C.	Cylindrical grooved Crossgrooved Melon with end grooves	Gary Motley Ellis
Terral Lewis	1090 B.C.		Crossgrooved Melon-shaped Biconical grooved	Gary Delhi
Jaketown	1080 B.C.		Cylindrical grooved Biconical plain Crossgrooved	Gary Heavy blade Motley
Teoc Creek	1700 B.C. 1650 B.C. 1520 B.C. 1450 B.C. 1430 B.C. 1320 B.C. 1260 B.C. 1130 B.C. 1070 B.C.	1070 B.C.	Biconical plain	Pontchartrain Kent Gary
Claiborne	1150 B.C.	650 B.C.	Melon-shaped Biconical grooved Crossgrooved	Pontchartrain Gary
Shoe Bayou	1000 B.C.		Biconical plain Melon-shaped	Uncertain

Thermoluminescent dating from article by Weber; radiocarbon dating from articles by Webb; Connaway, McGahey, and Webb; and Gagliano and Webb, all in this volume. Laboratory numbers, details, and ranges are given in these

articles. Information about Poverty Point objects and projectile points in above articles are from Webb, Ford, and Gagliano; Poverty Point Culture and the American Formative (I), (II), 1970 and 1971, n.d. Jaketown information from Ford, Phillips, and Haag 1955.

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