THE JAKETOWN SITE IN WEST-CENTRAL MISSISSIPPI

JAMES A. FORD, PHILIP PHILLIPS, AND
WILLIAM G. HAAG

VOLUME 45 : PART 1
ANTHROPOLOGICAL PAPERS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
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PREFACE

THE PRESENT PAPER results from the continuation of the informal and occasional cooperation between archaeologists, representing several institutions, who are interested in problems of the prehistory of the alluvial valley of the Mississippi River. Since 1939 these joint efforts have been carried on under the somewhat ambitious title "Lower Mississippi Valley Archaeological Survey." Part of the work accomplished prior to 1950 has been reported in Vol. 25 of the Papers of Peabody Museum of American Archaeology and Ethnology, Harvard University.

The most recent field-work at the Jaketown Site,[1] from February 26 to May 22, 1951, was supervised by Ford, assisted by Warren Eames, then a graduate student in anthropology at Harvard University. A small store was rented on the main street in the near-by town of Belzoni.[2] Here Phillips, ably assisted by Mrs. Phillips, did the laboratory work on the specimens recovered. Cleaning, cataloguing, classification, and analysis of specimens were carried on concurrently with the field-work. In addition, Phillips trimmed the north wall of the large borrow pit made in the site by the Highway Department and drew the profile given as Fig. 6. He also did considerable site survey work along the old Ohio River courses in the vicinity of Jaketown, locating at least one other site of the Poverty Point culture.

The three authors are mutually liable for all statements that appear in this paper. However, each contributor had an initial responsibility. Ford prepared the first draft of the sections on recent geography and the description of the excavations. Phillips wrote the section on ceramics, Poverty Point objects, and stratigraphic analysis. Haag described the bone remains and the stone artifacts. All three collaborated in writing the concluding sections.

A number of people have contributed to this study. First we must record our indebtedness to the owners of the land upon which the Jaketown Site is located. These are Messrs. J. W. Gammon; J. H. Fly; O. J., Irby, Thomas, and Joe Ware Turner, all of Belzoni. Mr. Maurice Reed of Silver City, Mississippi, was helpful in a number of ways. To Miss Minnie Bell Tenhet of Belzoni we are not only indebted for what we are certain are the best meals served in the Yazoo Delta country, but also for storage of equipment.

Dr. Clarence H. Webb of Shreveport visited our excavations and assisted with his intimate knowledge of the Poverty Point culture, based upon his large collection from the type site. Dr. James B. Griffin and Messrs. Edward Scully and Stephen Williams generously provided information derived from their recent surveys in eastern Missouri. Mr. Glenn Black and Mrs. Frances P. Martin did a similar favor for a comparable site in Indiana. To Dr. Antonio J. Waring of Savannah, Georgia, we are under obligation for the use of unpublished information on early sites on the Georgia coast.

Dr. Frederick Matson has made an analysis of the fired clay artifacts that are a feature of the preceramic phases of the Jaketown Site. The animal bones were identified by Mr. Malcolm Franklin of the University of Mississippi. We are particularly grateful to the Mississippi River Commission and to individuals associated with it for their generosity in supplying the maps and air photographs so necessary in our work. Mr. Charles Kolb, of the Waterways Experiment Station, made a trip to the Jaketown Site to consult with us in regard to the interpretation of the geological situation. Dr. Harold N. Fisk of the Humble Oil Company, upon whose studies of river channel changes we have relied so heavily, has reviewed the interpretations and been most generous with advice. At the American Museum, Miss Bella Weitzner has corrected and arranged the manuscript, and without her painstaking efforts this paper would be even more difficult to read.

[1] It is a little unfortunate that the name Jaketown should have been given to this site, for it really applies to a suburb on the northern side of Belzoni about 3 miles away from the site and was so named because during Prohibition days the people there drank a lot of Jamaica ginger and had quite a few cases of paralysis that was known as "Jakeleg." The name has been retained here because it is already in the literature. Clarence Moore called the site "Mounds near Wasp Lake."

[2] Appropriately enough this small Mississippi town is named for Giovanni Battista Belzoni (1778–1823) who is famous for his exploration of Egyptian antiquities.

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HISTORY OF THE JAKETOWN SITE

IN THE REPORT on his rather unproductive cruise up the Yazoo and Sunflower rivers in 1908, Clarence B. Moore describes the Jaketown Site under the heading "Mounds near Wasp Lake, Washington County."[1] He describes the mounds and the refuse scattered about them briefly, but was unable to obtain permission to excavate. This was perhaps just as well, for the site does not contain a rich Mississippian Period cemetery such as Moore was searching for, and excavation here would certainly have added to his disappointment in the collecting possibilities of the Yazoo River Basin.

James B. Griffin rediscovered Jaketown during the 1941 field season of the Lower Mississippi Valley Archaeological Survey. A sketch map was made showing the arrangement of the mounds, and 4226 sherds were collected from the surface. This collection immediately marked the locality for special attention, for it gave evidence that the occupation had extended through the entire ceramic chronology, from the Tchula to the Mississippian periods. Certain areas of the refuse deposits contained abundant representations of the earliest ceramic types, and, for the first time in the course of this southward-moving survey, the pottery types that had been described for the early Tchefuncte culture of Louisiana were numerically prominent. In addition there were numerous baked clay objects of the so-called Poverty Point type, another early cultural element.

The 1941 field season was too well advanced to permit Griffin to make the stratigraphic tests that were obviously desirable. The war intervened. Therefore it was not until 1946 that Phillips and Paul Gebhard made two 2-meter-square strata cuts in promising portions of the midden deposit. Cut A was located near the bank of Wasp Lake, to the south of Mound A—by chance almost in the center of the large borrow pit that has since been made there to obtain road-building material (see map, Pl. 1). This cut was excavated to a depth of 2.25 meters in 10-centimeter levels. When the sherds were classified, they yielded a rather clear-cut and almost complete quantitative picture of the ceramic chronology of this portion of the Mississippi River alluvial valley. It is possible that there is a break in the continuity at the close of Baytown and at the beginning of the Mississippian occupation, as is discussed in a previous paper.[2] Even more interesting was the relation of ceramics to the Poverty Point objects. Very few of these were found in the upper levels, but at a depth of 1.80 meters below the surface, potsherds virtually vanished from the strata collections, and these objects increased markedly in numbers and formed the bulk of the collections. In the lowest three levels, the cut apparently penetrated into evidence of preceramic occupation. If these carelessly molded baked-clay objects were artificial stones, intended for use in "hot-rock cooking" in a stoneless environment, it was quite logical that their occurrence and that of the potsherds should be in reciprocal frequencies.

Phillips and Gebhard's Cut B was located on the southern edge of Mound E. Testing with a bore-hole auger indicated at least 2.5 meters of deposit; the excavation proved the correctness of this estimate. The upper 1.20 meters was interpreted as fill or wash from Mound E, with a thin capping of soil thrown out of the old railway cut near by. Below this was a midden, 1.55 meters thick, composed of rich black soil mixed with mussel shells, animal bones, charcoal, and quantities of sherds. Tchula and Early Baytown pottery was well represented, but the analysis of the arbitrary levels from this cut did not reveal any clear temporal sequence. From 1.75 to 2.15 meters there was a layer of olive brown clay silt which contained no cultural material except where it had been disturbed. In the light of our recent work, this is readily recognized as a water-deposited stratum that covers the central part of the site. Below this zone of clean soil, extending from 2.15 to 2.65 meters below the surface, was a stratum that was stained dark brown by human occupation and that yielded charcoal and numerous Poverty Point objects, but virtually no pottery.

[1] Moore, 1908, 581–582. Since the date of Moore's visit, Washington County has been divided, and the site is located in the newly created Humphreys County, Mississippi. The exact location is West ½ Section 14, East ½ Section 15, Township 16 North, Range 3 West.

[2] Phillips, Ford, and Griffin, 1951, 273–281.

This was very clear evidence of a preceramic occupation at the site.

The third discovery of the Jaketown Site by archaeologists was made in the summer of 1950. The Mississippi State Highway Department was engaged in relocating the Belzoni-Ittabena highway which cuts through the area. The road was moved from its former position to the abandoned roadbed of the Belzoni and Ittabena Railroad. The necessary widening of the old right-of-way cut still farther into the remnants of Mounds D, E, and F, leaving only small fragments of their western sides. The most drastic damage was done, however, by a 2-acre borrow pit that was dug on the lake bank immediately to the south of Mound A, centering almost exactly at the spot where Phillips and Gebhard had made their Test Cut A. Power shovels were operated here for several months to obtain the clean sand immediately underlying the 2 meters of midden deposit; both sand and midden were trucked north to build a causeway through an extensive swamp. Apparently little of the unspectacular refuse caught the attention of the workmen, and the most noteworthy fact that is reported is that a few skeletons were seen.

Haag, then of the Department of Sociology and Anthropology at the University of Mississippi at Oxford,[1] learned of the excavations by the Highway Department and visited the site several times in the fall and winter of 1950 and collected extensively from the vertical profiles exposed on three sides of the 2-acre excavation. This work demonstrated conclusively what Phillips' cuts had strongly suggested: that underneath the midden yielding the entire ceramic sequence was a thick refuse layer without pottery that corresponded to the cultural complex described by Clarence Webb from Poverty Point, Louisiana.[2] In addition, Haag discovered an area (Location R, map, Pl. 1) on the southern edge of the site where hundreds of flint microblades, retouched blades, and the small cores from which these blades had been struck littered the surface of the field. With Clarence H. Webb, Haag wrote an article describing his discoveries and Webb's collection of similar artifacts at the Poverty Point Site in Louisiana.[3]

Phillips and Ford were planning a field-trip to Mississippi in the spring of 1951, and although they intended to work at another locality Haag had little difficulty in reviving their interest in the Jaketown Site. Accordingly, it was planned that Phillips and Ford would excavate at the site from February through May and that Haag would continue the fieldwork during the vacation months of the University of Mississippi. Unfortunately, the latter part of the plan was not carried out, because Haag was disappointed in his efforts to secure funds for the project. Nevertheless, the results obtained to date warrant a comprehensive report.

[1] Haag has since transferred to the School of Geology, Louisiana State University.

[2] Webb, C. H., 1948.

[3] Haag and C. H. Webb, 1953.

PHYSIOGRAPHY

THE JAKETOWN SITE is located in the flood plain of the Mississippi River in that portion of the alluvial valley commonly called the "Yazoo Delta." To the casual visitor this region appears to be a vast, monotonous plain, featureless except for the numerous sluggish rivers, lakes, bayous, and swamps. To the observer who has some knowledge of fluvial mechanics and an acquaintance with the geological history of this valley the impression is quite different. Each swale and low ridge is a record of former river action; the patterns they form make an interesting record of the restless shifting of the Mississippi and its tributaries during the past 6000 years. The interpretation of this evidence has been greatly facilitated by the air photographic surveys now available, and a very thorough study of the history of the Mississippi alluvial valley has been made by Dr. Harold N. Fisk for the Mississippi River Commission.[1] The cultural history that can be deduced from the human refuse deposits at Jaketown is closely related to a portion of this river history, and to understand the significance of the physiographic evidence uncovered it is necessary first to have some knowledge of Mississippi Valley physiography. For this reason we summarize briefly a portion of Fisk's monumental study. The principles of stream mechanics that are described apply equally well to the alluvial valleys of most other large rivers of the world and consequently may be of interest to archaeologists who are faced with similar problems and do not have access to Fisk's reports.

With each major advance of the polar ice caps during the Pleistocene, substantial quantities of water were imprisoned in the form of ice, and the sea level was lowered. The resulting increase in the gradient of large streams emptying into oceans caused them to cut great entrenched valleys in the older materials over which they flowed. The same sequence of events was repeated for each of the major periods of ice formation during the Pleistocene, but here we are concerned only with the last, the late Wisconsin. Evidence from the Mississippi entrenched valley suggests that at the maximum of the late Wisconsin glacial advance the sea stood at a level between 400 and 450 feet below that of today.[2] Borings show that the Mississippi and its tributaries had cut a valley from Cairo, Illinois, to the Gulf that had an average width of about 75 miles, extending beneath all the flat area that now forms the fertile alluvial valley floor. At New Orleans, the bottom of this irregular canyon was 300 feet below the present surface; near Wickliffe, Kentucky, it was 100 feet deep. The Mississippi, carrying the waters of its tributary the Missouri, flowed down the western side of this trench. The course of the Ohio was down the eastern side to where the valley narrowed and the two streams joined near Natchez, Mississippi.

As the late Wisconsin ice began to wane, releasing water into the oceans, the level of the seas rose and the Mississippi late Wisconsin valley started to alluviate. The gradient of the main stream was comparatively steep, so that the load it carried and deposited as fill was composed mainly of gravels and coarse sands; finer material was carried to the sea. With a lessening gradient the size of the particles became smaller, and therefore the upper part of the coarse fill is principally clean sand. This coarse fill comes nearer the surface up the valley near Cairo, but to the south towards the Gulf is buried more deeply. In the latitude of Belzoni the top of this sand layer lies from 35 to 60 feet below the present surface.[3] As the seas approached the present level, the valley gradient decreased, the streams no longer could transport coarse soils, so fine silts and clays were deposited over the pervious fill, building the valley floor up to the present level.

When the rivers in the valley were carrying great loads of coarse-grained materials they were braided streams dividing into numerous shallow channels. Remnants of these courses, which are observable in certain localities on the present surface, represent the final 20 feet of sea-level rise. According to geologists' estimates the present sea level was reached approximately

[1] Fisk, 1944. Brief summaries will be found in Fisk, 1947 and 1952.

[2] Fisk, 1944, 68.

[3] Fisk, 1944, Pl. 5.

5000 years ago, and stream meandering began first in the lower part of the valley where there was less slope. As the flood plain adjusted to the present level, meandering progressed upstream and became the dominant pattern for all the streams in the Mississippi flood plain.

If the upper part of the valley fill were homogeneous, the rivers flowing down its surface probably would not meander but would flow in rather straight and stable channels, as is the tendency of the Mississippi below Baton Rouge, Louisiana. However, once initiated, the meandering process is self generating. Not only does a bend impose a counter bend on the stream lower down, but the soils deposited by a meandering stream also provide exactly the variable conditions that contribute to this phenomenon. The water on the outside of the curve of the bend of a meander moves faster than that on the inside and is thrown against the bank by centrifugal force. A strong downward current is developed in this way which scours a deep trench around the outside of the bend which is known as a "talweg." At many places the talwegs of the larger streams have cut into the sands that underlie the fine-grained top stratum. These sands are easily removed, and it is quite normal for large areas of top stratum to be undermined and to cave into the stream. By this means, as well as the slower process of scouring, the meander loop moves outward.

The sands that are removed from the talweg are not transported very far by the sluggish currents. On the inner side of the downstream bend, where the water is slack, they are dropped to form what is known as a point bar. The sand on the upstream end of a point bar is ordinarily relatively free from silt and is of medium-grain size; the downstream end of the bar is composed of finer sand interbedded with layers of silt. As the outside of the loop cuts outward, the inside stream bank follows in the form of the growing sand bar. This cutting process is, however, not regular. Annual variation in river stage and other factors cause the loop progression to proceed erratically. Owing to this irregularity in their formation, the older point bars form a series of concentric lunate ridges on the inside of the bend—ridges with swampy swales between them. These features are referred to as "meander accretion" topography. Good examples of these scars are shown in Pl. 2.

During flood stage, all these alluvial valley streams construct natural levees. The relatively swift water in the stream channel carries a suspended load of silt and clay. Centrifugal forces cause the water to leave the channel on the outside of meander bends. The channel water decelerates as it enters the back water and much of its load (coarse-grained silts near the bank of the stream and the finer clays farther away where there is less current) is dropped. This forms a natural levee, which is highest on the immediate bank and slopes gently away from the stream. Natural levees of the Mississippi range up to 20 feet high and a mile or more wide. Those of the other rivers in the valley are smaller in proportion to their size and silt load.

Despite these levee barriers that rivers throw in their way, bank cutting and meander progression continue. The principal shift of a meander loop is outward, a sort of ballooning process. Simultaneously, there is a slower movement down the valley slope. When the loops reach a certain size, the stream gradient is decreased to the point where one of two types of cut-off occur. Either two loops will touch and form a "neck cut-off," or a shorter course will be formed by the scouring of a new channel through one of the swales that was left between the accretion ridges of the old point bars. In either event the abandoned part of the channel becomes a cut-off lake that will be filled with sediment by the stream. If a neck cut-off has been formed and the new channel is not very close, the filling process may take centuries. An example is Sky Lake, shown in Pl. 2. However, a chute cut-off is usually at a small angle to the entrance of the abandoned channel, and some current continues to flow through it, causing a more rapid filling. The principal filling material is clay, and these old plugged channels constitute the features most resistant to subsequent erosion in the valley floor.

The process of meander progression and the repeated abandonment of cut-off loops, with their attendant natural levees, result in the construction by a stream course of what is called a "meander-belt ridge," a low, irregular, but appreciable elevation above the valley

floor. The river continues to build up the meander-belt ridge to the point where flood waters are offered a steeper gradient towards the Gulf by the low back-swamp areas lying between some of the older meander-belt ridges. When the critical point is reached, the entire stream abandons the affected portion of its course and establishes a new course through the lowlands. Here it initiates the same process and begins the construction of a new meander-belt ridge. This is a normal phenomenon and is the principal reason why the Mississippi and other rivers in the valley floor have abandoned so many segments of their courses in the past 5000 years. As an example, the Mississippi River is now in the process of abandoning the portion of its course that lies south of the mouth of the Red River. Unless preventive measures are taken, within a few years the main stream will flow down the new channel that is already operating and is known as the Atchafalaya River, leaving the cities of Baton Rouge and New Orleans on an abandoned course.[1]

Most of the surface soil now found in the alluvial valley has been deposited by meandering streams in the form of silty natural levees, sandy point-bar deposits, old channel plugs generally composed of clays, and fine clay backswamp deposits.

Depending on the valley slope, quantity of water, variation between stages, and material through which it is cutting, every stream develops its own characteristic meander patterns. Not only is the channel of characteristic width, but the meander loops tend to develop towards an average size of arc. On the surface of the relatively consistent sloping plain of the alluvial valley, the volume of water carried by a stream is the principal varying factor that makes it possible to identify the rivers that formed the now-abandoned channels. This Fisk has done in considerable detail[2]; not only has he identified the old stream courses and traced them to the point at which they entered the valley, but he has also established their sequence. As may well be imagined, this is a very involved story, but fortunately for present purposes it is necessary to retell only a part of it.

Fisk has constructed a chronology for measuring channel positions on the surface of the valley floor, which is given here in Table 1.

TABLE 1

CHRONOLOGY OF RIVER CHANNEL POSITIONS ON THE FLOOR OF THE ALLUVIAL VALLEY OF THE MISSISSIPPI (After Fisk, 1944, Pl. 15.)

Standing sea level	2000 years	Historic courses	20 (map, 1939–1943)
			19 (map, 1890)
			18 (map, 1820)
			17 (map, 1765)
		Equal short-time stages	16
			15
			14
			13
			12
			11
			10
			9
			8
			7
			6
			5
			4
			3
			2
			1
	1000 years	Unequal short-time stages	J
			I
			H
			G
			F
			E
Rising sea level	3000 years	Unequal long-time stages	D
			C_2
			C_1
			B_3
			B_2
			B_1
			A_3
			A_2
			A_1

For the past 2000 years, represented by the numbered stages in this chronology, the Mississippi River has been in its present meander belt. Fisk has attempted to locate the position of the channel at 100-year intervals by estimating the rate of meander progression. These estimates are based on early surveys that are available for the last four stages, and the results

[1] Fisk, 1952.
[2] Fisk, 1944.

of this study are published as a series of detailed maps.[1] In a previous paper we have attempted a correlation between this channel position study and the Lower Mississippi Valley ceramic chronologies with very promising results.[2]

The lettered stages that preceded the occupation of the present meander belt are of unequal length and are defined on the basis of major shifts in the drainage pattern. Fisk has not attempted to estimate the length of each stage. Rather, as Table 1 indicates, he has assigned a total of 1000 years to Stages E to J and 3000 years to the longer stages, A_1 to D. At the beginning of this alluvial valley surface chronology the sea was about 20 feet below its present level and still rising as the result of the release of water from the ice caps. Present sea level was reached in Stage A_3, a condition which is estimated to have been achieved about 5000 years ago.[3]

When the valley surface first became stabilized, the Mississippi River was flowing down the western side of the flood plain to the west of Crowley's Ridge, a highland divide of pre-Wisconsin age left in the northern part of the alluvial valley. The Ohio occupied the eastern side of the plain, and at different times the two rivers joined in western Mississippi and northern Louisiana. The Mississippi moved east of Crowley's Ridge in Stage C_2, but it was not until the beginning of the numbered stages that these major streams effected a permanent junction through Thebes Gap near Cairo, Illinois, and flowed southward from there as a single river.[4]

RECONSTRUCTION OF PHYSIOGRAPHIC CHANGES

The earliest human occupation of the Jaketown Site is related to the old C_1 course of the Ohio. At this time the Mississippi was still flowing to the west of Crowley's Ridge, and most of its course lay to the west of the present channel. The Ohio flowed down the eastern side of the flood plain, collected all the local drainage from the hills to the east of the valley, and joined the Mississippi below Natchez, Mississippi. In the vicinity of Belzoni, the Ohio channel was from 2000 to 2700 feet wide and formed large meanders that tended to be about 2 to 3½ miles in diameter. Our interpretation of the sequence of events in the vicinity of Jaketown Site is unusually complex and can be best explained in numbered paragraphs. This interpretation is based principally on the features visible in the air photo-mosaic given as Pl. 2 and is illustrated by drawings (Figs. 1–4).

1. Prior to the arrival of the Ohio River in this vicinity, a small stream flowed down the valley floor past where the Jaketown Site was established at a later date. We are not certain of the origin of this stream, and part of its course has been cut away by later rivers. Although the channel was only about 100 feet wide, the water evidently carried a large load of silt, since the natural levees along this course are quite large. The course is winding, and, although it was active long enough to show considerable bend progression, it did not develop mature convoluted meanders. The fragments of this channel that remain today still serve as flood-water distributaries or, rather, would do so if some of them had not been blocked off by artificial levees. Southward from the Jaketown Site to Belzoni this channel is called Fisk Bayou (Fig. 1; Pl. 2).

2. When the Ohio began to flow in its C_1 course, the axis of the stream lay to the east of the Jaketown locality. One westward-progressing loop began to form some 5 to 6 miles north of this locality (Fig. 1). Accretion scars indicate that it was a normal C-shaped loop that moved downstream and swelled westward, finally becoming Sky Lake. Making a corresponding bend to the eastward, which has since been erased, the Ohio formed another westward-moving loop, which when it reached the longitude of Jaketown had northern banks some 1⅔ miles to the north of the site.

3. This downstream meander loop did not develop in the normal fashion, although examples of the type of progression that it illustrates

[1] Fisk, 1944, Pl. 15.

[2] Phillips, Ford, and Griffin, 1951, 295–306.

[3] This is Fisk's estimate, which he states is based on correlation with European glacial studies (1944, 45; 1947, 16).

[4] Fisk, 1944, Figs. 42–45.

are not rare.[1] The point-bar deposit within this bend was probably clean sand, with very little resistance to erosion, for the upper arm of the loop shifted rapidly down valley, leaving behind it a series of arcuate scars (Pl. 2; Fig. 1). It is also possible that resistant bank materials, such as an older clay-filled channel, may have stopped the westward progression of this meander. However, nothing observable in the air photographs supports the latter suggestion. On the other hand, the lower arm of this meander loop was reworking silts and back-swamp clays in its downstream progression. These are more resistant materials than sand, and this lower part of the meander bend could not cut its banks nearly so fast. As a result, this meander developed a very sharp curve for a river carrying as much water as did the Ohio of Stage C_1.

4. The final position of this meander bend is shown by dotted lines in Fig. 1. At this point the channel was somewhat narrower than in more normal stretches of the old Ohio course—about 1000 feet as compared to the usual width of 2000 feet or more. This may be another indication of the presence of resistant fine-grained channel fill or back-swamp deposit immediately to the west, for channels usually become deeper, and consequently narrower, when meander loops impinge on such resistant materials.[2] The natural levees outside this bend built up to a thickness of about 18 feet and attained a height of about 114 to 115 feet above sea level. Levees are clearly discernible on the northern, western, and southern segments of the present remains of this meander loop. However, to the northwest there is a small swampy area where the levee should be. In the center of this wooded lowland a fragment of the old Ohio levee forms a high, dry island. Many of the local people consider this to be an artificial mound built by the Indians, but it is not. Composition, elevation, and alignment identify it as of natural origin. Apparently the small stream that flows into this swamp from the northwest, the still active remnant of the stream described in paragraph 1 above as preceding the Ohio, had enough current during low-water stages to erode the Ohio levee to the northeast and southeast of this island. This must have occurred in the early stages of the filling of the Ohio bend and while the incoming water had a steep gradient into the cut-off channel during low water.

On the inside of this bend a sand bar formed and built up to a height of 117 feet above sea level. This is 2 to 3 feet higher than the crest of the natural levee on the outside of the bend. This is not unexpected; point bars are frequently higher than related natural levees.[3] Where the bar is highest—the area in which the large mounds are now located (Pl. 1)—the sand is medium coarse on the upper part of the bar, but a few feet down it becomes very coarse. Also this bar is composed of extraordinarily clean sand, with virtually no intermixture of silt. This condition may possibly give a clue to the cause of the downstream movement of the northern arm of the original meander loop. Clean sand deposits like these melt like sugar when river currents are directed against them.

5. The next event was a neck cut-off that occurred as a result of the contact of the two large eastward-swinging meanders to the north of the Jaketown locality (see Fig. 2). This left the westward-progressing loop to the north a cut-off lake that is only partially filled in today and is known as Sky Lake (Pl. 2). The cut-off undoubtedly changed the alignment of the river and probably contributed to the early abandonment of the sharp bend at Jaketown. Here the river made a chute cut-off, establishing a new course through one of the accretion scars left in the westward progression of this curve, and the major portion of the current began to flow east of what is now the central part of the site.

The first position of this cut-off is clearly discernible in the aerial mosaic given as Pl. 2. It is shown by the north to south aligned accretion scars which truncate the earlier east to west scars just east of the label identifying the Jaketown Site. These scars are also shown in the block diagram (Fig. 4).

This left the tip of the former point bar an island, a small sandy rise flanked on the east by the new Ohio channel and on the west by the older course in the process of abandonment by

[1] Fisk, 1947, 34.

[2] For a discussion of this phenomenon, see Fisk, 1947, 69 ff. Unfortunately, we sank only one bore hole (No. 11) in the western bank of this old channel (see map, Pl. 1). This penetrated through 18 feet of silty soil (Ohio natural levee), below which we found a very stiff blue clay that continued to the bottom of the hole. Bore holes in this old channel were not deep enough to reach the bottom of the talweg.

[3] Fisk, 1947, 35.

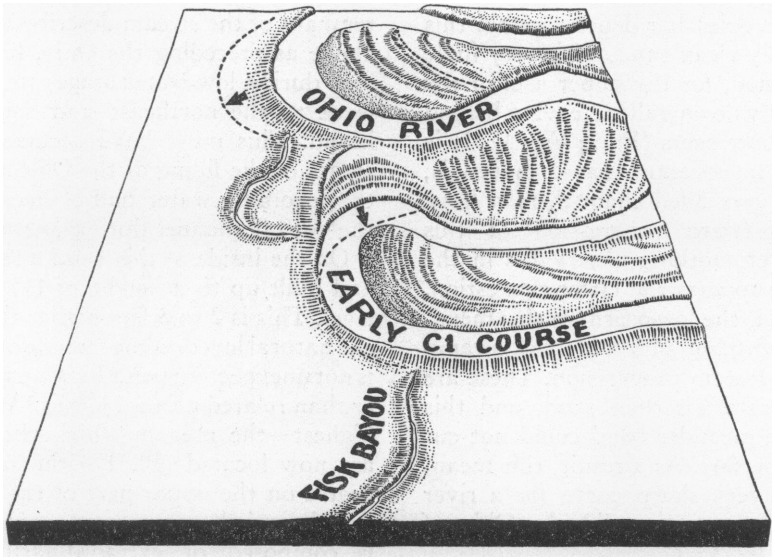

FIG. 1. Block diagram showing location of Ohio River channel early in development of situation at Jaketown in C_1 Stage. Upper meander loop was moving westward and was cut off when it reached the location indicated by the dotted line and formed Sky Lake. Lower loop was progressing slightly westward but principally down valley, leaving sandy point-bar ridges on inside of curve and concentric natural levee ridges to the north. Note these traces on air photograph (Pl. 2). This loop also cut off when it reached the location shown by dotted line.

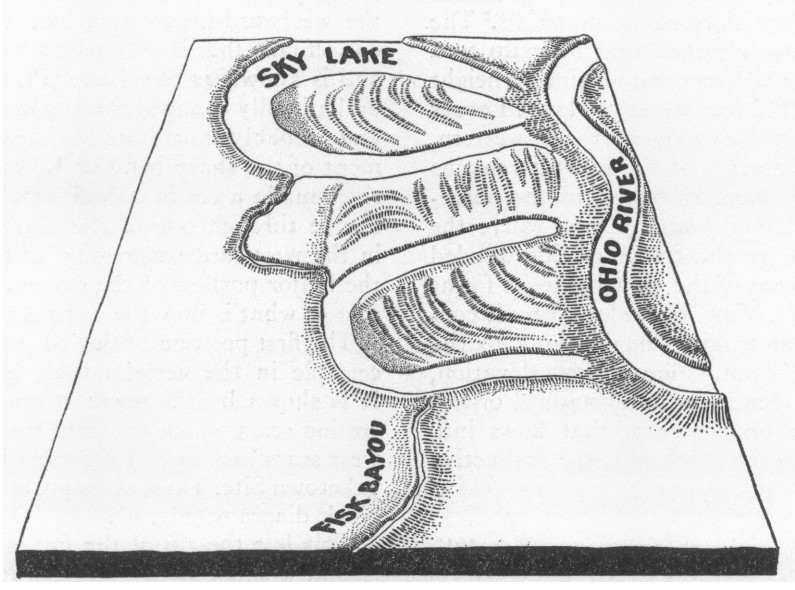

FIG. 2. Position of Stage C_1 Ohio River channel after the neck cut-off formed Sky Lake, an abandoned oxbow. Resultant realignment of current caused a chute cut-off in bend immediately to the south, and the portion of river course that lay to the west of the future Jaketown Site became a lake.

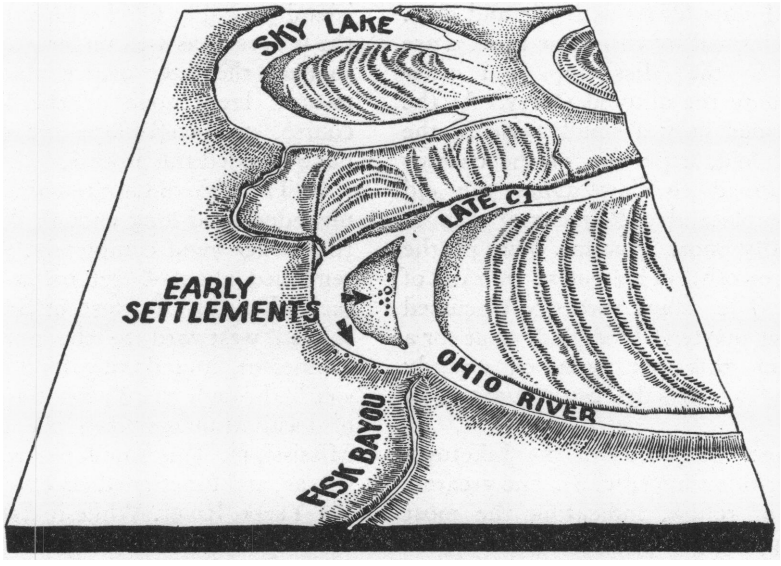

FIG. 3. The Jaketown vicinity late in C_1 Stage. Lower meander loop again moved westward and a small sand-bar island was formed between earlier and later positions of this loop. Occupation debris of preceramic Poverty Point complex was scattered over the surface of this island and incorporated in lower levels of natural levee the Ohio deposited over the area. Across the channel, to the southwest of island, small mounds were constructed and flint chips were scattered along the crest of the early C_1 natural levee.

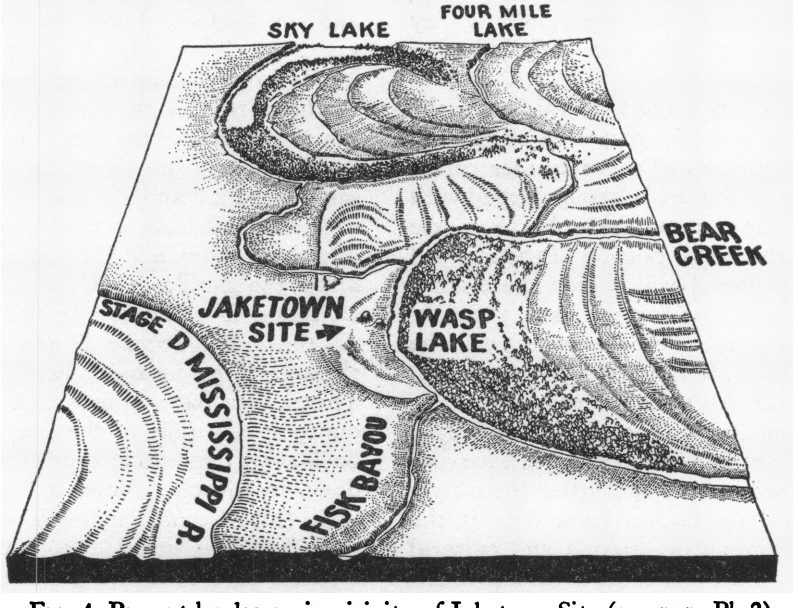

FIG. 4. Present landscape in vicinity of Jaketown Site (compare Pl. 2). The early C_1 channel that enclosed site on west has been almost completely filled in by a clay plug capped with natural levee deposits. The Mississippi River in Stage D has approached to within a mile of site on west and added a small amount of fill to early C_1 course. When the Ohio abandoned this course at end of Stage C_1, the Yazoo River was the remnant stream, which has filled in the channel and in turn abandoned the course, leaving segments called Four Mile Lake, Bear Creek, and Wasp Lake. Later cultural deposits have been added to the Jaketown Site and the rectangular temple mounds constructed.

the current and slow filling with silt and clay. Similar islands formed by this same process are very common in the Mississippi and other streams that share the alluvial valley.[1] As the new course formed only a small angle to the entrance of the old, a portion of the current probably continued to flow along the old course. The complete abandonment of a chute cut-off is usually more gradual than in the case of neck cut-offs. (This refers to rate of abandonment. The filling process discussed above is another matter.) It is likely that for a considerable time this spot remained a sandy island protected on all sides by the waters of the Ohio.

6. The earliest occupation of the Jaketown Site occurred at this time (Fig. 3). The greatest concentration of refuse, indicating the most intensive occupation, was on the highest part of the sand-bar island where it has been covered by later cultural and Ohio River deposits, as is described below.

The sand-bar island was a fairly high area that provided some military protection, and the underlying sand obviously offered excellent local drainage. The locality continued to be occupied, either continuously or intermittently, throughout all periods of the lower valley chronology down to the Late Mississippian Period.

Soon after Indians settled on this spot, the Ohio began the normal process of closing up the abandoned portion of this meander curve. As the entrance to this arc became plugged with silt and sand, the current through the course slackened and the major portion of the channel filled with very fine clay in which there are a few lenses of sand. At the same time, the river began to construct a natural levee over the old sand-bar island. The occupation was probably seasonal, for this would hardly have been a desirable living area during the annual spring floods. Nevertheless, the Indians must have consistently returned to this spot after the waters subsided, for in the natural levee deposit the black stain of human occupation and cultural refuse is well mixed with the river-deposited silts over most of the old sand-bar surface. In a few localities thin lenses of sand and clean silt are interbedded with the stained soil.

The old channel on the western side of the island probably filled with some rapidity, once the process was well under way, for its location so near the later course places it within the natural levee zone of the Wasp Lake Ohio course, and back-slope silt deposition would have speeded the process.

7. The Ohio did not remain in the Wasp Lake meander bend long enough, however, to mask the earlier bend completely. A depression still remained about 4 feet below the present surface when, at the close of Stage C_1, the Ohio shifted westward to the north of Memphis, Tennessee, abandoning its former bed to the south through the Yazoo Basin, to the waters of local drainage from the hills in northern Mississippi. This smaller stream was the same size as, and functioned exactly as does, the present Yazoo River. While it flowed through this Ohio course, it tended to follow the Ohio talwegs to the outside of the meanders and deposited natural levee soils that filled the larger channel to the width demanded by the lesser volume of water. Slight irregularities developed in the oxbow curves as the ancestral Yazoo began to superimpose its rather modest meander pattern on the larger scrolls of its Ohio bed. In Wasp Lake slight changes of course to the north and south of the Jaketown Site—slight bends and steep banks—mark the points where the Yazoo impinged upon the resistant clay plugs in the entrances to the old Ohio course that ran to the west of the site. A more sloping bank in front of the site shows the extent of the old sand bar (Pl. 2 and Fig. 4).

8. Meanwhile, from the C_2 to the D stage, the combined Ohio and Mississippi were flowing down the Sunflower River Basin some 10 to 20 miles to the west of the Jaketown Site. At the end of Stage D the combined rivers threw a large meander bend far to the east. The eastern bank approached to within three-quarters of a mile of the site, and part of the back-slope deposits of the Mississippi were laid down in the old, almost filled channel of the Ohio (Fig. 4). Although this was a rather thin deposit, it was sufficient to make the fill in the western part of this old buried channel fragment a few feet higher than the fill at either end. (Note contours in Pl. 1.) Prior to this event, the small channel that empties into this bend from the northwest, a remnant of the stream described in the first paragraph, probably flowed down (southward) through this

[1] Fisk, 1947, 36–37, Pl. 3

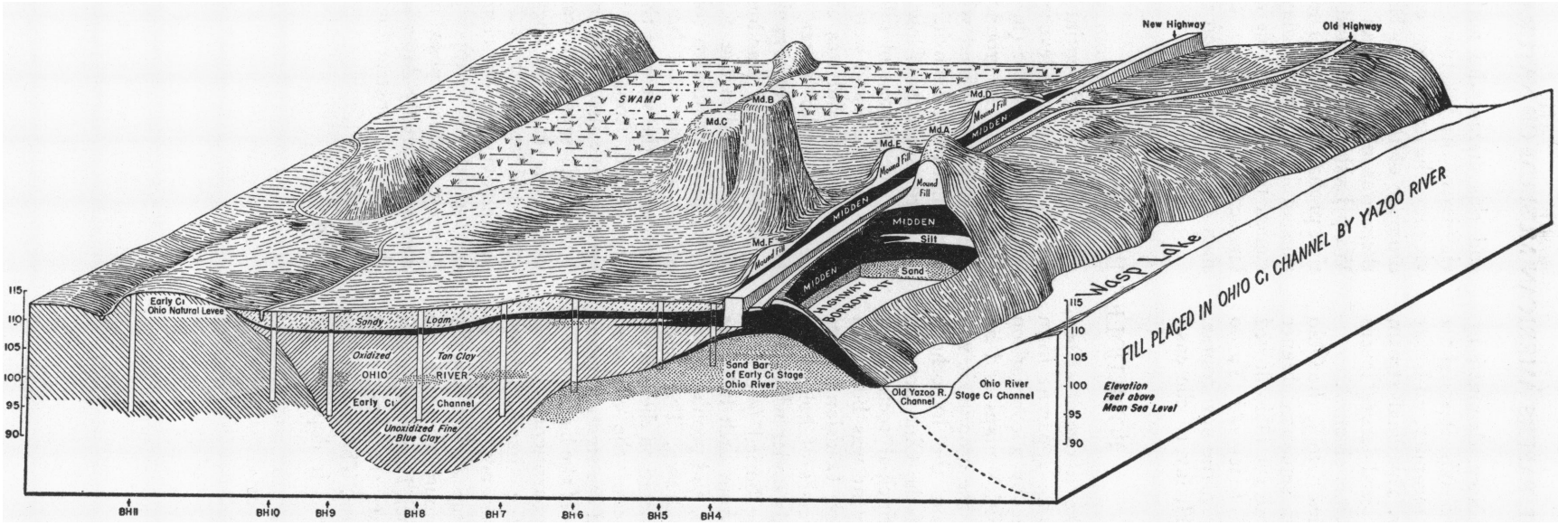

FIG. 5. Block diagram of Jaketown Site, view towards the north. Sub-surface data based on information provided by Bore Holes 4 to 11 and walls of borrow pit dug for highway construction (see Pl. 1). Vertical scale is 20 times the horizontal.

abandoned Ohio meander. Now, dammed by the Mississippi natural levee soils, it sought a course upstream along this meander, and that is the course it follows today. This small stream has constructed appropriate-sized natural levees inside those of the original Ohio channel.

9. In the succeeding Stages E to J, the Ohio and Mississippi rivers again separated higher up the valley, and once more the Ohio flowed down the general course of its old Yazoo River meander belt. However, the new course, well established by Stage H, lay to the east, and this stream did not again approach the vicinity of the Jaketown Site. It did affect this vicinity, however, by capturing the normal drainage of the Yazoo River. After this event there was no longer an active stream in the Wasp Lake channel, and natural levee formation probably ceased. The much slower deposition of back-swamp clays undoubtedly continued to build up this area slightly, but the landscape here has not changed substantially since the Mississippi left its Stage D course.

BORE-HOLE TRAVERSES

After the details of the above-described physiographic history became apparent from a study of air photographs, by a comparison of the photographs with Fisk's maps and an examination of features on the ground, it was considered desirable to test the hypothesis that an early C_1 course of the Ohio actually lay to the west of the principal rectangular mounds. Soil auger equipment was borrowed from the School of Geology, Louisiana State University, and three traverses of holes were run across the plowed fields under which the channel was assumed to be buried (see map, Pl. 1). The soil recovered from each hole was logged as to type and depth, and profiles based on this information were drawn. The block diagram (Fig. 5) was constructed on the basis of the data provided by one of the east-west traverses across the site and the strata exposed in the south and north walls of the large borrow pit made by the highway department.

Unfortunately, with the hand-operated equipment available it was not possible to drill to a depth of more than 20 feet, usually less. This was not deep enough to reach the bottom of the buried channel. However, it was deep enough to demonstrate the presence of the channel beyond question. The top of the sand-bar island was traced as it sloped to the west, and the differentiation between the channel fill and natural leveee on the western bank was clearly apparent (in Bore Hole 10). From the surface of the ground down about 15 feet the channel was filled with tan and brownish clays that had been oxidized by exposure to the air during periods of low water as the channel was in the process of filling. Below that level a few lenses of sand were encountered, but the principal material was a tenacious blue mud, deposited under water, which still retained large quantities of organic matter. This is the typical fill of an abandoned river channel.[1]

As indicated in Fig. 5, Bore Holes 4, 5, and 6 found black midden soil directly on the top of the sloping sand bar. This layer became thinner to the west as the buried channel was approached. Apparently this is the preceramic layer that is also found in the north wall of the borrow pit separated from superimposed midden by a layer of silt. The bore holes also yielded other midden soil from 2 to 3 feet beneath the surface over the old channel. This apparently corresponds to the upper portion of the pottery-bearing midden exposed in the borrow pit walls and undoubtedly dates in its latter part from the period of construction of the large rectangular mounds.

[1] Fisk, 1947.

DESCRIPTION OF THE JAKETOWN SITE

A MAP OF THE Jaketown Site, contoured at 1-foot intervals, is given as Pl. 1.[1] As the photograph shows, the entire area is under cultivation, and trees remain only in the low swampy ground bordering the site to the northwest and south and lying to the east of the old stream channel, Wasp Lake. The mounds are the most prominent evidences of ancient human occupation here. Mound B, the best-preserved of the entire group, is rectangular, about 150 by 200 feet at the base and 23 feet high. The summit is flat. On the eastern side a well-defined bulge marks the location of the ramp for a stairway. The top of this mound has been used as a plantation cemetery, so it has never been plowed. Mound C, to the northwest of B, is larger in base area, but is only 15 feet high. The top of Mound C has suffered considerably from plowing, and its rectangular form is not so well preserved as in B. The remnants of three small mounds along the western bank of the new state highway are mere fragments of the western sides of Mounds D, E, and F. When Griffin first visited the site in 1941, these structures were in slightly better condition. However, when the state highway was relocated in 1949 to follow the bed of the abandoned railway, the cuts through these mounds were widened and their eastern fragments completely destroyed.[2]

Mound A, another mutilated fragment, stands to the east of Mound B, on the bank of Wasp Lake. The first highway that was built along the bank of this lake many years ago sliced away the western side of this structure, leaving an oval-shaped remnant about 160 feet north to south, 75 feet east to west, and 12 feet high. In its final stages this mound may have been rectangular, with a flat top, but nothing visible in its present form substantiates this possibility. This is merely a guess based on the fact that this mound is located almost due east of the large Mound B, almost directly in front of the ramp that can be seen on the eastern side of B. The 300 feet of nearly level ground that separates Mounds A and B may be the plaza or court about which the structures on this site centered during the Late Baytown and Mississippian periods of occupation. If this assumption is correct, then the arrangement is quite typical for these times: a large rectangular mound (B) facing east or southeast across a plaza towards a smaller mound (A).[3]

To the north, west, and south of the mounds just described, the land surface has a gentle downward slope for 800 to 1000 feet. This is a surface reflection of the island of the C_1 Ohio course that has already been described. Eighteen hundred feet southwest of Mound B a low narrow ridge begins at the bank of Wasp Lake and makes a broad sweeping curve to the north. This is the outside natural levee of the early C_1 Ohio when it was in its last position before the chute cut-off developed. Scattered along this ridge are eight or more mounds that are undoubtedly of aboriginal origin (see map, Pl. 1, Mounds H, I, V, S, G, P, Q, T). They range from about 60 feet in diameter and 1 foot high to 120 feet in diameter and 5 feet high. These low rises are composed of lighter colored soils than the surrounding field and on the aerial photographs appear as white dots. The largest of the mounds (G) was excavated and is described in more detail below. In the plowed fields around these mounds are concentrations of flint chips, microblades, blades retouched into a beaked tool, and the cores from which the blades were struck. An occasional large projectile point is found, as well as a few Poverty Point objects, but no pottery. This cultural deposit which seems to be superficial everywhere has been thoroughly overturned and mixed by plowing.

[1] To make this illustration, we secured a X-8 enlargement of a portion of an air photograph made for mapping purposes for the Mississippi River Commission. The true scale was determined by measuring between two points that showed clearly in the photograph. Then the photograph was fastened to the plane table and contours were located with an alidade in the usual way. Although there was some distortion in this photograph, it was so small that it was not apparent in plotting stadia readings.

[2] A map of the site as it appeared in 1941 is in Phillips, Ford, and Griffin, 1951, Fig. 43.

Highways and railways in the Mississippi Valley follow the natural levees where prehistoric sites are located. In addition to this practical fact and the element of chance, location engineers and contractors seem unable to resist the opportunity to use their earth-moving equipment on prehistoric mounds.

[3] Phillips, Ford, and Griffin, 1951, 316, 325.

THE HIGHWAY BORROW PIT

The 2-acre borrow pit excavated in the fall of 1950 to secure fill for the construction of the new highway lies immediately to the south of Mound A. It includes what seem to have been the thickest cultural deposits along the crest of the old Ohio natural levee. When we began work in the spring of 1951, a small amount of slumping had occurred on the walls of the pit, and the back water, although so high when we first arrived as to hide the strata in the pit walls, soon lowered so that the north profile could be trimmed and recorded (Pl. 3a and Fig. 6).

This excellent profile, 210 feet long, extends east and west at right angles to the late C_1 Ohio channel, and in one continuous section exposes the same natural and man-made deposits that we found in the two parallel trenches (Trenches 1 and 5) that were dug to the north of the borrow pit. Although no systematic collections of cultural material were made here, the contents of the several strata were obvious. It seems advisable to describe and interpret them in some detail.

In order to settle any possible doubts as to the origin of the soils, 12 samples from this profile were measured as to range of grain size in the laboratories of the Waterways Experiment Station at Vicksburg. The derivation of the samples is shown in Fig. 6 by numbers in small square boxes. The results of the measurements are given as soil grain size curves in Fig. 7. Each of the three graphs in this figure records a series of samples taken from the strata ranging from the top to the base of the exposed profile. The shaded background of these figures shows the upper and lower limits of grain sizes in natural levee soils in the Mississippi Valley as determined by Fisk from an analysis of 90 representative samples.[1] All our samples, except Sample 9, fall within the range of natural levee deposits. Sample 9 consisted of nearly clean sand from the base of the profile (see Fig. 6) and comes within the limits of point-bar top stratum deposits.

At the time the profile was drawn, back water covered the floor of the borrow pit and stood at a level of about 109 feet above sea level. This prevented an examination of the sand at the deep levels to which this excavation was made, but highway engineers who had supervised the work volunteered the information that towards the bottom of the pit the sand became noticeably coarser. The sand exposed above the water was of medium grain size, brown, and almost free from silt. It was so clean that as the moisture dried out it tended to slump from beneath the overlying strata, and some difficulty was experienced in maintaining a vertical profile long enough to obtain good photographs (Pl. 3a). Towards the surface of the old point bar, between 113 and 114 feet above sea level, the sand is mixed with substantial quantities of silt. Soil Samples 1, 4, and 10 were taken from this stratum. This grading from coarser to finer materials is normal for point-bar deposits.[2]

Some natural levee deposition may already have taken place when the first occupation of this portion of the site occurred. This conclusion is suggested by the 1-foot layer of brown clay silt that lies above the sand layers and immediately below the lowest midden. Soil Samples 5 and 11 from this stratum identify it as primarily a clayey silt with very low sand content. The soil is olive brown and breaks into angular lumps as it dries. The upper part of the stratum is stained by dark organic material leached from the midden above, but no cultural material seems to be included. This description applies primarily to the eastern half of this exposure; to the west the stratum splits into an upper and lower part, separated by a deposit of light brown sandy silt which has slight organic stain. Probably this soil was deposited on the back slope of the late C_1 Ohio channel as it approached from the east towards its final position in the Wasp Lake course.

The above interpretation may be quite correct, yet this deposit was not found in either Trench 1 or 5, where the lower midden rested directly on top of the sand. Either this soil is a local deposit or, what is more likely, there chanced to be very little active deposition of cultural refuse at this spot during the period of accumulation. The latter possibility is reënforced by the presence of a fireplace, observed in this profile by Haag in November, 1950. When the profile drawing was made in the spring of 1951, bank caving had destroyed this fireplace, but Haag's sketches and photo-

[1] Fisk, 1947, Vol. 2, Pl. 70.

[2] Fisk, 1947, Vol. 1, 55.

graphs leave no doubt that it was at least 2 feet below the base of the midden, well into the top of the old sand bar, and was separated from the midden by naturally deposited soil. This fired area, almost 5 feet in diameter, was very slightly depressed in the center, and the sand had been burned to a reddish color to a depth of 9 inches. A concentration of the baked clay Poverty Point objects was in the top layer of this fired area.

Along the eastern half of the profile, beneath Mound A, the lowest midden contained no potsherds. It is a layer about 2 feet thick capped by a naturally deposited stratum of clean, olive brown silt. The silt layer cannot be seen along the western half of the profile, and the lower pottery-free midden merges directly into the pottery-bearing deposits lying above it. The basic soil of the lower midden is silt, and there seems to be little doubt that this midden owes much of its thickness to natural levee deposition concurrent with the deposition of refuse from human occupation. The deposit contains quantities of fragments of Poverty Point objects; ashes and bits of charcoal are abundant. Several well-burned areas were exposed in cross-section, and surrounding these the supposed artificial cooking-stone fragments are particularly abundant. The most clearly defined of these living areas is marked by a white line towards the eastern end of the profile (Fig. 6). Post holes extend downward from this level, and others are scattered through the midden.

As mentioned above, the 1-foot thick stratum of clean, olive brown silt that seals off the lower midden layer cannot be traced west of the center of the profile. However, it probably does represent an interruption in the occupation of the site, for similar sterile layers occur at about the same elevation above sea level and in the same position in the cultural sequences represented in Trenches 1 and 5.

Above the naturally deposited silt there is an accumulation of consolidated brown midden containing a few sherds and a great many fragments of a special type of baked clay objects, referred to hereinafter as tetrahedrons. This deposit appears only in that portion of the profile immediately contiguous to the base of Mound A, and the same stratum was exposed in the eastern end of Trench 1 and the western end of Trench 5 where these excavations approached the base of the mound. The uncertain nature of this curious deposit, whether a core or outwash feature of Mound A, is discussed in another section below.

The north wall of the borrow pit was tangent to the south side of Mound A and did not expose any intentionally constructed layers in this mound. The uppermost stratum shown in the eastern half of the profile appears to be midden that accumulated on the south flank of the mound and probably derived from buildings that once stood on its top. This midden, also brown in color, is less compacted than the tetrahedron layer beneath it. In addition to quantities of sherds, there are a number of mussel shells; curiously enough, mussel shells are not found in the earlier cultural deposits.

In the western half of the profile the tetrahedron layer is absent. The transition between the midden without pottery and the pottery-bearing upper 18 inches is not marked by any change in color or texture. Sherds and shell fragments in the upper part of the midden become less abundant at some distance from the base of Mound A.

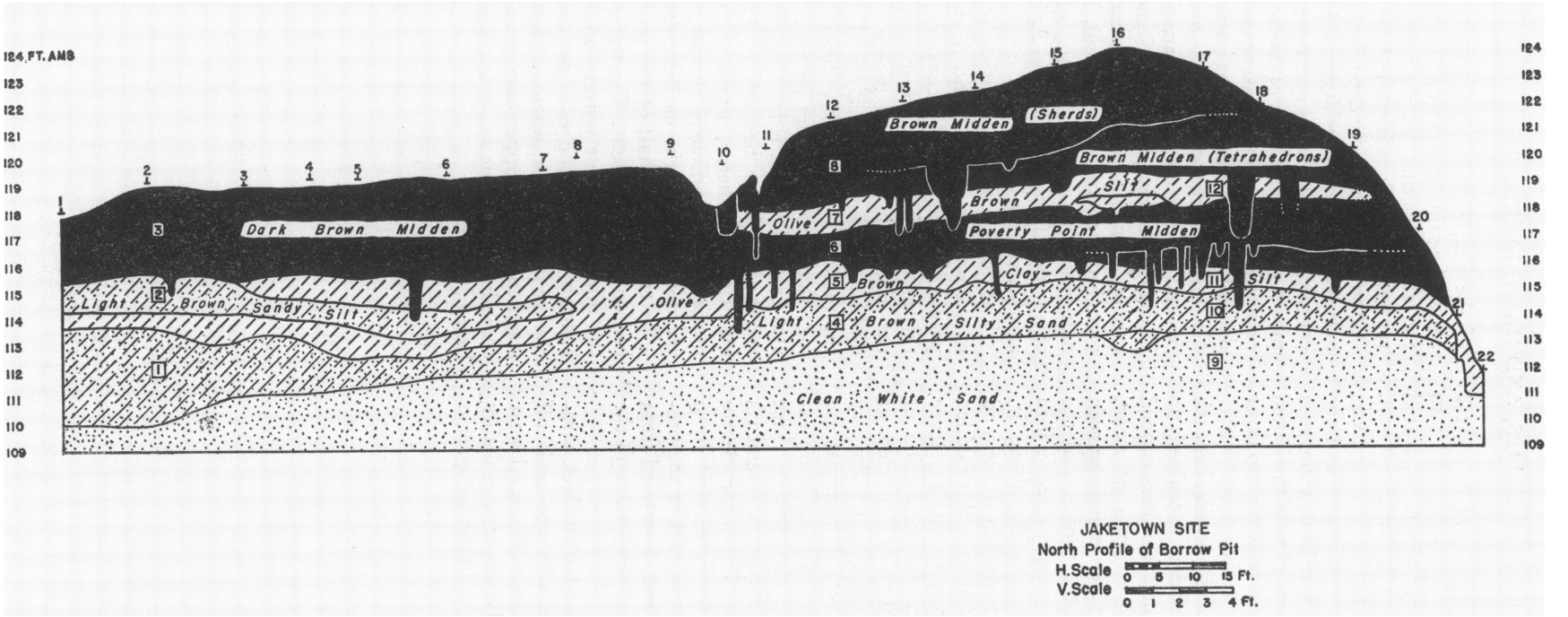

FIG. 6. Profile drawing of north wall of large borrow pit made in Jaketown Site by Highway Department (see Pl. 3a). The figures at either end of diagram are feet above sea level. Stations at which measurements were taken are shown by numbers above ground surface. Figures in boxes identify soil samples that were measured with the results shown in Fig. 7.

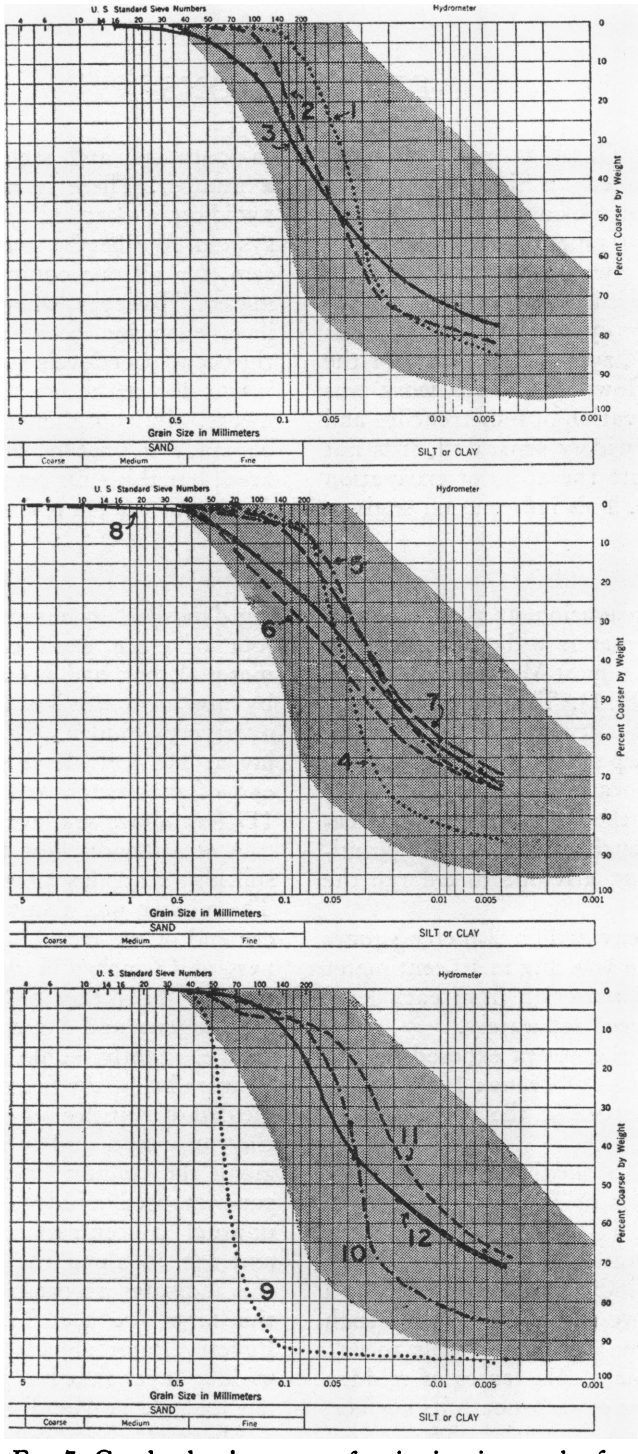

FIG. 7. Graphs showing range of grain sizes in samples from north wall of borrow pit. Provenience of samples indicated by numbers in small squares in Fig. 6. Samples 1–3 from west end of excavation, Samples 4–8 from near center, Samples 9–12 from east end nearest late Stage C_1 Ohio Channel which built this natural levee. Shaded zone represents limits in grain-size variation of natural levee deposits as determined from study of 90 Mississippi Valley samples (Fisk, 1947, 2, Pl. 70). Sample 9, which falls outside this range, is the underlying sand bar (see Fig. 6).

EXCAVATIONS

When Phillips and Gebhart made their two strata cuts in the Jaketown Site in 1946, they established a bench mark on the top of Mound A. This was an iron pipe with a bronze cap bearing the cryptic symbols CMVAS-20-0-1,[1] clear enough to the initiated, but a source of wonder to local surveyors. This station was also used for the grid system laid down for the 1951 excavations. However, as our work was confined to the excavation of four trenches and a single mound, all widely separated, it is not necessary to designate the areas of excavation by their coordinates. This information is given in footnotes, and each excavation is assigned a number. There is an additional reason for avoiding a detailed exposition of the survey system. We began work using the metric system, for all our equipment was calibrated in meters. However, when the importance of sea-level elevation became apparent for relating the occupation levels to stream channel changes it was decided to use feet for vertical measurements. Horizontal measurements continued to be made in meters. Accuracy was not sacrificed, but this shift certainly added to the complexity of the surveying system.

TRENCH 1

The first 1951 excavation at the Jaketown Site was a trench 2 meters wide that extended from the toe of the remnant Mound A due westward for 28 meters (Pl. 1).[2] The principal reason for selecting this locality for the initial test was to sample the deep refuse deposits that were visible in the north wall of the borrow pit, 60 feet to the south of the trench location. Excavating a separate trench seemed a more practical procedure than to attempt to enlarge the borrow pit.

Trench 1 was excavated in 2-meter square blocks, each of which was dug in 10-centimeter levels. The cultural material from each level in each block was saved separately.

As was expected, the strata exposed in and recorded from the walls of Trench 1 were quite similar to those observed in the north wall of the borrow pit (Fig. 8).

Clean brown sand of medium grain size was exposed in the profiles of Trench 1 at the bottom of the deposit. It proved impractical to dig more than a foot or so in this sand, for it was so free from binding silt that there was a real danger that it would flow into the trench as it dried and allow the trench walls to collapse. At several places thin lenses of midden lay in the sand, a foot or so beneath its surface, suggesting that during the initial phases of occupation of this locality the sand was still being deposited by natural processes. The upper foot of clean sand contained little cultural material, but had been stained a darker color by organic materials leached down from the overlying midden. The surface of this sand lay at 118 feet above sea level at the eastern end of the trench and sloped gently down to 117 feet above sea level at the western end.

A stratum of light black midden, its basic soil also sand, lay immediately over the sand. The midden was about 1 foot thick in the eastern end of the trench and increased to a thickness of 18 inches in the western end. A little west of the center of the trench a fired area 16 feet long and 8 inches thick showed in the profile slightly sunken into the clean sand stratum below the line of the midden base. This yielded quantities of fire-reddened sand and clay, charcoal, and ashes. On this same level, along the contact line between the sand and superimposed midden, there seemed to be an unusual concentration of scattered charcoal and ash all along the trench profile. Possibly this indicates an occupation surface related to this large fire bed. The major frequencies of Poverty Point objects are concentrated in the midden layer that has just been described, but not a single potsherd was found.

Above this basal midden layer was a stratum of brown, medium fine grain silt, about 3 feet thick at the eastern end of the trench and 18 inches at the western. This soil, which bore no evidence of water sorting, tended to break into angular fragments as it dried. This is natural levee soil deposited by the Ohio in late C_1

[1] Central Mississippi Valley Archaeological Survey, Site 20-0-1. For an explanation of the site designation system, see Phillips, Ford, and Griffin, 1951, 41.

[2] Coordinates of Trench 1 are: South 0–2, West 8–36 meters.

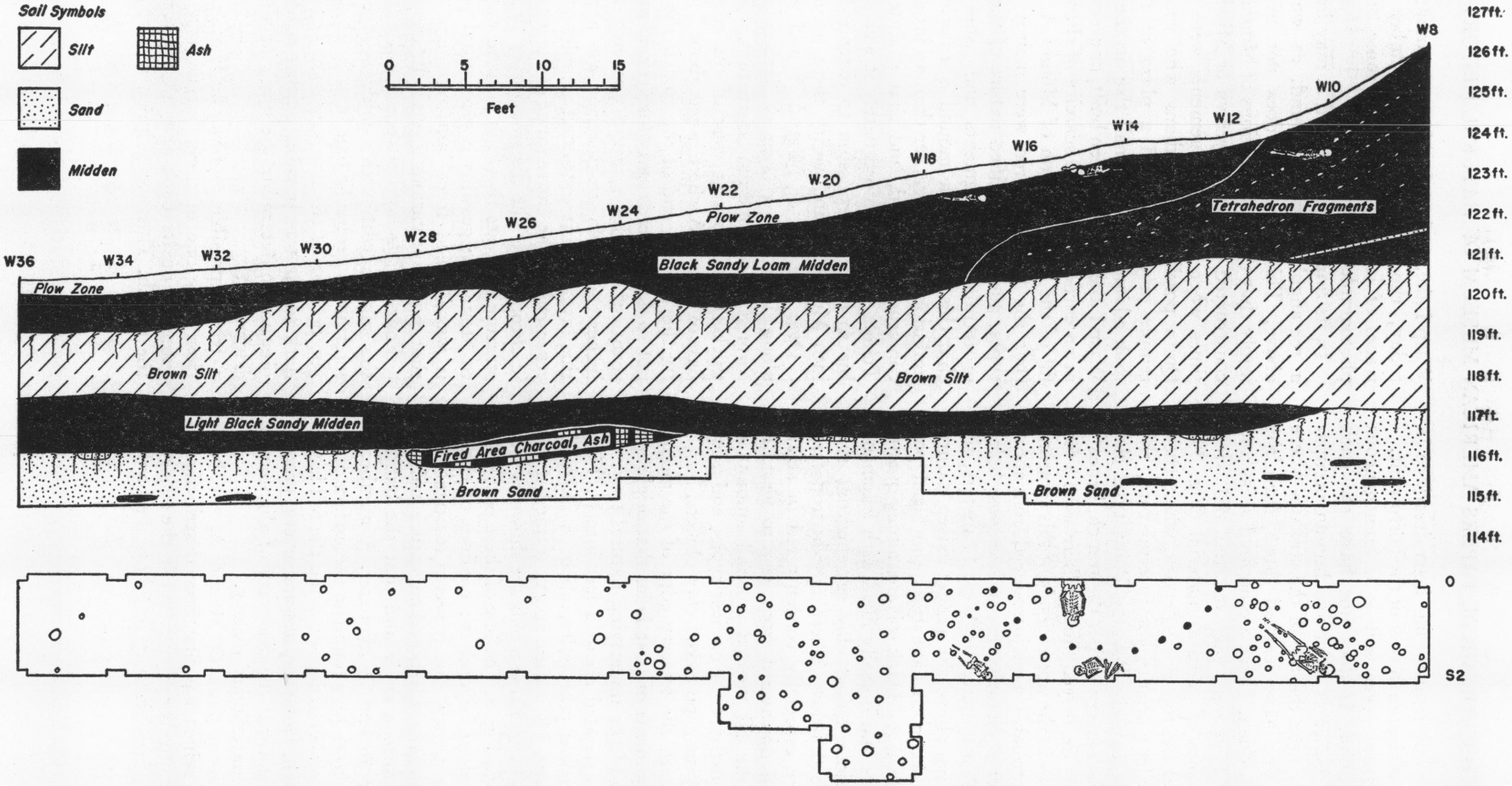

FIG. 8. Profile of north wall of Trench 1. On the floor plan stakes are shown at 2-meter intervals. Vertical measurements are feet above sea level.

times; the same stratum has been described in the profile of the north wall of the borrow pit.

This natural levee soil is a homogeneous brown in color. It does not have the dark color that indicates intensive human occupation, except near the top of the stratum where organic stains have leached down from the overlying midden. There are no fired areas and no ashes. However, this stratum did yield small amounts of cultural material (Fig. 39). Except near the top of the deposit, where there is an excellent chance for intermixture, this was almost entirely Poverty Point type clay balls. At the eastern end of the trench, beneath the partially destroyed mound there were a few tetrahedrons in the upper levels of this stratum, but these probably were introduced from above by undetected disturbances such as post holes.

From West 8 meters to West 17 meters, the stratum lying above the almost barren natural levee soils seems to have been the basal portion of Mound A—black soil containing quantities of ashes and literally filled with fragments of the curious baked clay tetrahedrons that are described below. These tetrahedron fragments were especially concentrated in strata that sloped downward from east to west. In addition, the fill yielded a small amount of pottery, mostly of the earliest types, and a few Poverty Point type baked clay objects.

Underneath the western edge of the mound was an alignment of post holes that originated at the top of the underlying natural levee deposit and extended about 2 feet into it. These clearly marked post holes, about 8 inches in diameter and 18 inches apart, formed a segment of a circle. These molds are shown as solid black dots in Fig. 8. The line of these post holes was not traced beyond the confines of the 2-meter-wide trench, but it seems reasonable to conjecture that the exposed curvature had continued to form a circle and that the building was about 16 feet in diameter. A number of other post holes were found on the surface of the clean natural levee deposit along the full length of the trench. However, despite several promising starts towards the discovery of alignments, no others materialized clearly.

The western flank of Mound A, the basal portion of which has just been described, was cut away a number of years ago in the construction of the first highway to follow the bank of Wasp Lake. Although this road cannot be seen today, the older settlers remember it, and traces of it show clearly on some of the air photographs.

In its final stages, Mound A may have been a rectangular temple mound, as we suggest above. This, however, does not necessarily imply that the basal portions of Mound A were constructed in Late Baytown or Mississippian times when such arrangements were popular. Quite possibly the Indians who constructed temple mounds around a plaza at this spot took advantage of a small rise on the bank of Wasp Lake that had been built, or accumulated, at an earlier date. The scarcity of sherds in the fill of the basal portion of Mound A, the fact that the few recovered were mainly of early types, and the stratified nature of the deposit of tetrahedron fragments and ashes suggest that this part of the mound is a normal accumulation of refuse rather than an intentionally constructed mound, and that it dates in the Tchula Period. Unfortunately it was not possible to obtain permission to extend Trench 1 into Mound A and verify these assumptions.

Over the toe of Mound A and westward along Trench 1, a layer of dark midden soil formed the uppermost stratum. This was thickest and darkest west of the edge of the base of Mound A where it was about 2 feet deep. At the western end of the trench the soil was not so dark, sherds and other refuse were much scantier, and this stratum was only about 10 inches thick. No stratification was apparent in this layer, but it contained samples of pottery representing the entire range of the local ceramic chronology. The distribution of this midden stratum suggests that it is in some way related to Mound A; possibly a substantial portion of it was derived from buildings that stood on that mound at various levels in its construction.

Four burials lay between 2 and 3 feet below the surface within this midden layer. These interments probably had been in shallow pits, but because of the homogeneous nature of the dark soil it was possible neither to define the pits nor to determine the levels at which they originated.

It was possible to save the bones and skull from only one of these burials—the skeleton extended on its back near the eastern end of the trench. This was shipped to Dr. Marshall

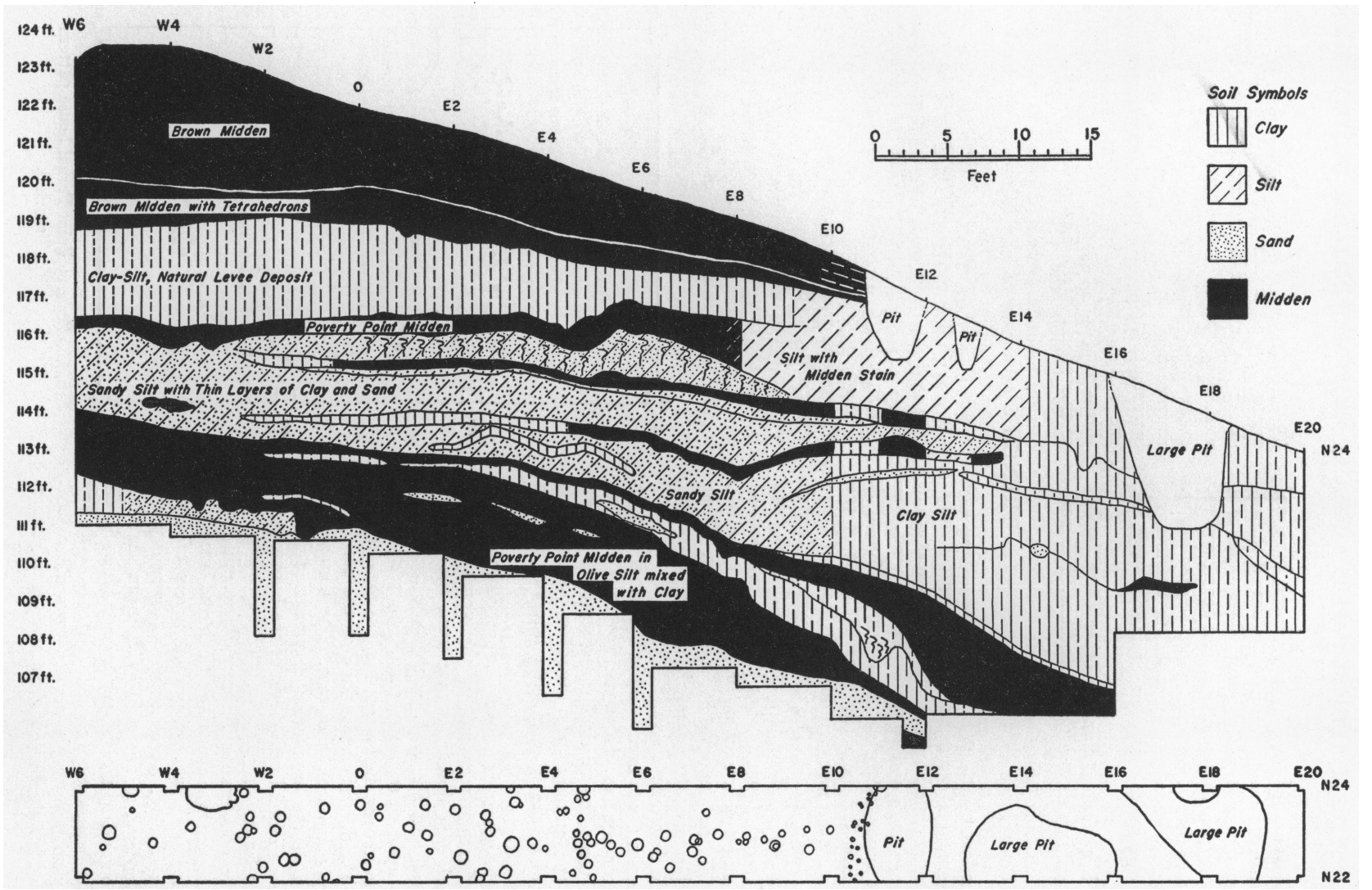

FIG. 9. Profile of north wall of Trench 5. On the floor plan stakes are shown at 2-meter intervals. Vertical measurements are feet above sea level.

T. Newman of the United States National Museum for examination. He informed the excavators that it was a beautiful example of a Negro type. These embarrassed gentlemen referred to their notes and, as can be seen in Fig. 8, this skeleton was extended in a Christian pose with hands folded on, or at least near, the chest.

It is probable that the other three burials exposed in this trench are Indians. The positions are typical, and the condition of the bones argues a greater age than that of the single skeleton that could be preserved. Similar burials were reported to have been encountered in excavating the highway borrow pit. Failure to trace the burial pits leaves the date of these interments in doubt. Probably they date from the Mississippian Period of occupation, for this type of burial appears to be a characteristic of this period in the Yazoo River Basin.

TRENCH 5

Our last trench at Jaketown was intended to supplement the cultural and geological information revealed by Trench 1. This excavation, 2 meters wide and 26 meters east to west, was made immediately to the north of Mound A and extended from the apparent crest of the natural levee eastward down the bank of Wasp Lake (map, Pl. 1). The north profile of Trench 5 (Fig. 9) is offset 24 meters northward from the Trench 1 profile, but the two are parallel and supplement each other to give a cross-section of the deposits 56 meters long. These trenches are also parallel to the borrow-pit profile described above.

Trench 5 was excavated in the usual way, in 2-meter squares. However, by this time we were recording vertical measurements in feet, and the material was saved in 6-inch levels instead of the 10-centimeter intervals used in Trench 1.

Although it is slightly more complex, the stratification recorded in the north wall of Trench 5 is similar to that from the borrow-pit wall and Trench 1. At the base the deposit rests upon clean brown sand. This trench runs eastward over the eastern bank of the old sand-bar island, and the surface of the sand dips sharply towards the east. The extent and depth of the excavation diagrammed in Fig. 9 were limited by the level of the backwater in Wasp Lake.

The non-ceramic Poverty Point midden in this trench was unusually thick and was interbedded with water-deposited layers of sand, silt, and clay. Apparently the lower deposits to the level of about 116 feet mean sea level correspond to the thinner lower midden layers in the borrow-pit wall and Trench 1, and their complexity probably results from their location within the bank of the active Ohio. Numerous post holes extend downward from the layers of dark midden soil at various levels, but it was possible to outline a building at only one place, a curving line of staggered small post molds, towards the eastern end of the trench. The molds originate in the preceramic deposits. The trench was widened to follow the line of the molds, and almost all of a small oval-shaped house was outlined (Fig. 10; Pl. 4b). This is the first evidence of dwellings dating in the Poverty Point Period.

The 2-foot-thick layer of clayey silt lying

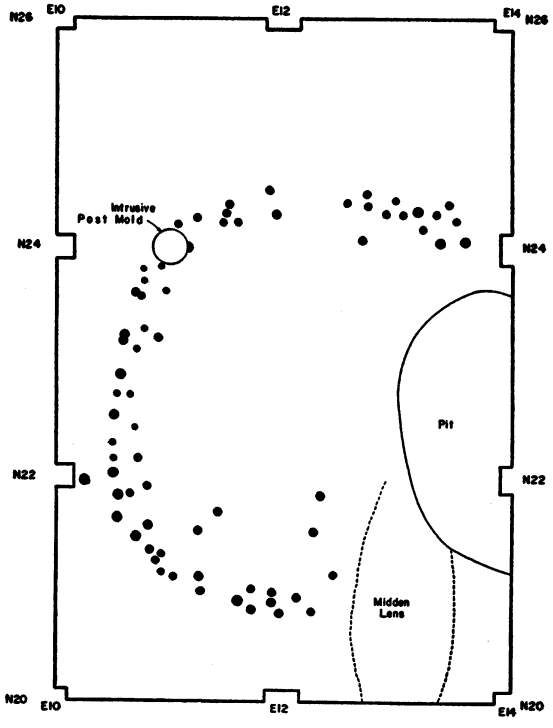

FIG. 10. Poverty Point Period house pattern in Trench 5.

about 117 feet above sea level appears to correspond with the similar layer at about the same level between the lower and upper middens of the borrow-pit profile and Trench 1. There are some midden stains in this silt and quite a few Poverty Point objects, but almost no pottery.

The dark brown compacted midden containing tetrahedrons, described above in the two preceding profiles as lying at the base of Mound A, here again overlies the stratum of silt. It is 1 foot thick at the western end of the profile where Trench 5 touches the edge of Mound A and becomes gradually thinner to the east, away from the mound. It disappears near the center of the profile.

The upper stratum in this trench is the uncompacted brown midden described above for the two preceding profiles. The deposit is 4 feet thick at the western end of the trench nearest the mound, thins to 1 foot near the center of the trench, and beyond that point to the east the typical midden color fades, there are fewer artifacts, and the layer loses its identity. This stratum contains almost all the pottery recovered from Trench 5, and almost the entire ceramic chronology of this region is represented.

Eastward from the eastern end of Trench 5 a line of bore holes was made at 4-meter intervals along the North-24-meter coordinate to the edge of the backwater in Wasp Lake at East 36 meters. These demonstrated that the interbedded midden, silt, clay, and sand deposits similar to those exposed in the trench walls continued slanting towards Wasp Lake. In each hole the clean sand found at the bottom of Trench 5 lay underneath this natural and cultural deposit. In four of the five holes there was rather rich midden soil immediately above the surface of the old sand bar. At the East 36 hole the top of the clean sand was 98.22 feet above sea level and was overlain by 9 feet of alternate silt and midden layers.

TRENCH 2

The second trench excavated lay to the north of the small Mound D on the western side of the new highway (map, Pl. 1).[1] It was 2 meters wide, 24 meters long, and extended north to south parallel to the highway. The trench was excavated in 2-meter squares, and the cultural material from each 10-centimeter level was segregated. Stratification in this cut was very simple. Towards the southern end nearest Mound D there was about 2 feet of midden-stained clay beneath the plow zone; towards the northern end of the trench this cultural layer thinned to only 1 foot. The stain in this layer was not very dark, no internal stratification was visible, and cultural material was by no means as abundant as in Trenches 1 and 5. A few post holes were found at the base of the midden, but no pattern of arrangement was recoverable. The parent soil was clay. Beneath the midden, clay extended downward to the bottom of the trench, a foot or more below the base of the cultural layer.

The brown clayey soil upon which this deposit rests appears to be the back slope of the late C_1 Ohio natural levee that lies along the west bank of Wasp Lake. The high clay content of the soil is explained by the fact that the cut is 500 feet away from the old river bank. A near-by bore hole (Bore Hole 15; see map, Pl. 1) revealed that the top of the old underlying sand bar was 6 feet beneath the ground surface.

TRENCH 3

The third trench was placed parallel to the second but on the eastern side of the new highway (see map, Pl. 1).[2] At this point the drainage ditch for the new highway yielded a large quantity of sherds of Tchula types, and it was hoped that a parallel excavation would assist in outlining time differences in the ceramics of this period. Stakes were set for an excavation 2 meters wide and 26 meters long, but the obvious disturbance caused by a "deadman," which the telephone company had buried to brace a pole, prevented the digging of three of the 2-meter squares. Two other squares were ruined by an undetected excavation made for a similar anchor a number of years ago.

[1] Coordinates of Trench 2 are West 130–132 meters, North 216–240 meters.

[2] Coordinates of the area actually dug are West 88–90, North 216–230, 236–242 meters.

Stratification in Trench 3 was almost as simple as in Trench 2. In the southern half of the trench beneath the plowed surface zone was a thin layer of dark sandy loam that gradually increased towards the south to a thickness of 10 inches. The southern end of the trench is not far from the edge of the destroyed Mound D, and this layer seems to have been washed from that mound. The underlying midden layer was about 18 inches thick for the full extent of the trench. Silty clay blackened by organic stains was the parent material. No lines of demarcation could be seen in the midden, and the few scattered post holes found were not detected until the base of the deposit was reached. Yellow silty sand, the surface of the old sand-bar island, lay underneath the midden.

EXCAVATION OF MOUND G, CUT 4

The eight or more small mounds that are scattered along the low ridge that marks the outer bank of the early C_1 Ohio course on the southwestern edge of the site have already been mentioned. Along this ridge are thousands of microblades and the cores from which they were struck, but potsherds are extremely rare. All these small rounded rises have been plowed over, and it is obvious that they have been lowered somewhat by this process.

We decided to excavate the largest of these structures to settle any doubt as to their artificial origin and, if possible, determine the date and purpose of construction. In this we were only partially successful. Mound G lies on the crest of the old natural levee, some 1800 feet southwest of the two principal rectangular Mounds B and C. Superficially the mound appeared to be about 4 feet high and to have a diameter of about 85 feet. Mr. J. H. Fly, the owner of the plantation on which the mound is located, states that several years ago he graded about 1 foot of clay off this mound to fill a low spot in the near-by field. The surface of the mound was staked in 2-meter squares, and the structure was sliced in the usual way, beginning on the north edge of the mound and proceeding towards the center. Each trench was cut down a foot or more below the mound base, and profile drawings were made and photographs taken at 2-meter intervals. Owing to the toughness of the clay soil of which the mound was built, the excavating was a rather slow process, and about two-thirds of the structure was dug in the three and one half weeks devoted to this work.[1]

[1] Coordinates of the area of Mound G excavated are South 420–444, West 548–560 meters.

An extensive discussion of the contents of Mound G is hardly necessary, as the results of the excavation were meager. There can be no doubt that the mound was artificially constructed, for it was possible to trace the old ground surface at its base over most of the area excavated. The underlying surface was irregular and had been rather thoroughly leached before the mound was piled over it. The original soil was a clayey silt, and manganese concretions were redeposited in a narrow, 6-inch-thick zone about 18 inches below the old surface. However, these concretions can be formed quite rapidly.

A few evidences of occupation were present on the old surface, mainly in the form of scattered fragments of charcoal, small ash stains, and a few fragments of Poverty Point objects. At one place a small pit had been dug into the original ground surface, but there were no associated artifacts or evidence of fire. In general, the cultural remains on this old surface are very scanty.

From 1 foot to 18 inches above this old ground surface there was a second surface, just as irregular as the lower, which shows a similar leaching in its surface soils, but which does not have a well-defined redisposition of manganese below it. How the intervening sandy clay soils were deposited is not clear. No evidence of basket loading can be seen. This layer may be entirely natural, a further deposition of natural levee caused by currents flowing through the adjacent channel in time of flood. This possibility is further strengthened by the fact that this higher surface lies at 113.5 feet above sea level, approximately the elevation of the natural levee crest in the surrounding fields. The earlier leached surface at an elevation of 112 feet is slightly below this surface (note contours

on map, Pl. 1). This explanation may be valid, but the two surfaces could not be differentiated in a test pit dug about 60 meters to the northeast of Mound G in the old levee.

The upper buried surface showed more evidence of occupation than the lower. One well-defined fire pit was found, a basin-shaped depression 16 inches in diameter and 3 inches deep. The pit was filled with ashes and small fragments of charcoal; more ash, charcoal, and fragments of Poverty Point objects were scattered around the pit on the old surface. At three or four other places, it was apparent that fires had been built, but no fire pit could be detected. Ash, tiny fragments of charcoal, and Poverty Point objects were scattered over areas 4 to 5 feet in diameter. None of the charcoal fragments were large enough to serve for Carbon 14 measurement, and in general the fragments of Poverty Point objects were too small for their types to be determined. However, the distribution of these latter objects did suggest that they are associated with the fireplaces.

The 3 feet of soil which overlay the upper surface just described was deposited by the Indians. At a number of places, basket loads of varicolored silt and clay showed clearly in cross-section. Several small fireplace areas were found at different levels, but there was only a slight amount of ash and charcoal stain around each. Poverty Point objects, usually in fragments, were sparsely scattered through this artificially deposited soil.

Our excavations proceeded well beyond the center of the mound in the expectation that we would find some sort of central deposit. However, we were disappointed in this. No human burials were found except for four recent interments that obviously had been deposited in graves dug from the surface and were in wooden coffins pinned with iron nails. We had rather expected to find these, for it is a rare mound in the Mississippi flood plain that has not been used as a modern cemetery. Where the burials are marked by headstones they assist in preserving the mound from cultivation.

Our excavations in Mound G demonstrated conclusively that the structure was of artificial origin, and the material recovered shows that it was built some time within the Poverty Point Period, before the introduction of pottery. However, we are still uncertain as to whether or not it was constructed early in this "period" of somewhat uncertain length, and have no evidence as to what purpose the mound was intended to serve.

WHY SUCH A LONG OCCUPATION

Our excavations at Jaketown have shown that this locality was inhabited by the prehistoric Indians almost continuously from the preceramic Poverty Point Period to the time of the Mississippian culture phase, a span of at least a thousand years and perhaps more. A very pertinent question is why this locality should have been favored for so long a time when it appears to have no peculiar advantages; it is not near any dependable supply of food such as is supplied by the mussels provided by the shoals of the Tennessee River, nor is it near river junctions that might have been an asset for purposes of communication. Apparently this is a stretch of old natural levee similar to hundreds of miles of like terrain in the flood plain.

The answer seems to be elevation, a decided asset during the spring flood season. On the map (Pl. 1) it will be seen that the terrain near Mound A, outside the limits of artificial construction of the mound proper, ranges up to 123 feet above sea level, while the levee crest both up and down the old Ohio course does not rise to over 114 feet.

Factors that may have caused this portion of the natural levee to reach this elevation are worth examining, for they not only offer an explanation for the conditions here but possibly may apply to other sites in the flood plain. It will be recalled that, as cited above, the surface of the Early C_1 sand bar lies at an elevation of 117 feet above sea level, 2 to 3 feet above the crest of the natural levee on the outside of the Early C_1 meander bend. This probably was a factor in the selection of this spot for settlement in the Poverty Point Period. Human occupation refuse began to accumulate on the site and continued to be deposited during the early phases of the construction of the natural levee of the Late C_1 Ohio course that is now marked by Wasp Lake.

We describe above the mechanics of natural

levee formation. The factors controlling the kind and quantity of soil that is deposited are the curve of the stream channel and the distance from the channel; apparently there are no reasons why low places along the stream bank should be filled in or higher places receive less deposit.

The refuse accumulated from human occupation supplemented the annual increment provided by the spring floods and contributed to the height of the growing levee at this spot. In turn, the higher the area became, the more desirable it was for occupation. This is a self-renewing cycle that could operate until the village area built up to the level of the crests of the annual floods, after which the river could no longer contribute; man would have to elevate himself by his own dirt alone. However, at least his feet would be dry.

POVERTY POINT OBJECTS

NOMENCLATURE

FOR SOME REASON it seems to be difficult to find an acceptable name for the enigmatic artifacts of baked clay, commonly referred to as "baked clay objects" or "clay balls" in California and the Lower Mississippi Valley, the only two areas in North America from which they have been described. In the Lower Mississippi Area they have also, of late, been called "Poverty Point objects" after the Louisiana site on which they were first found in sufficient numbers to attract attention.[1] The term "clay balls" seems to have prevailed in California but is seldom used without quotation marks, and with reason. As Schenck and Dawson aptly commented,

> "Ball" does not correctly describe the usual form, and its ordinary connotations seem to apply in no way to the articles. Also it fails to convey an impression of the variety and complexity of the objects.[2]

It also appears to us that in California there is a good deal of uncertainty as to the types of baked clay objects covered by the term "ball." Most writers use the generic "baked clay objects" to denote a wide range of forms, for some of which the term "ball" is manifestly inappropriate, reserving the latter for those simpler forms that are thought by some to have been artificial cooking stones.[3] The uncertainty lies in the fact that not all students of California archaeology accept the cooking-stone theory, and those who do, disagree as to whether all or only some of the many types were so employed.

Their counterparts in the Lower Mississippi Valley are, so far as present knowledge goes, considerably less varied in form, and in California most, if not all, of the types would undoubtedly be called "clay balls." However, we have chosen to use "Poverty Point objects" here, limiting the designation to those types that are found at Jaketown and Poverty Point or appear to be typologically related thereto. For analogous, but not necessarily related, types elsewhere we shall continue to use the generic term "baked clay objects" until such time as other type designations named after other centers appear to be appropriate.

TECHNOLOGY

Poverty Point objects at Jaketown show a high degree of uniformity in paste, color, and surface finish. The clays used were consistently of a fine sandy character. Tests have not been made to determine their origin, but such clays are abundantly available in the alluvial deposits of the locality. There is nothing to suggest that sand was intentionally added as an aplastic, though such a possibility cannot be ruled out.

Paste and surface colors are likewise remarkably uniform, with warm buffs, orange, and red predominating, indicating protracted or repeated firing under oxidizing conditions. Oxidation is usually complete, darker cores occurring with extreme rarity. The amount of firing suggested by these conditions is perhaps favorable to the theory of a "cooking-stone" function for these objects, as is discussed below.

Surfaces indicate that the objects were invariably hand-molded without the aid of any sort of tools; the only impressions consistently recorded are those of the fingers. If there was any effort to give an extra finish by smoothing or polishing, it is rarely apparent. Most of the objects appear as they left the hands of their makers, bearing no pronounced signs of subsequent wear.

CLASSIFICATION

One of the interesting and puzzling things about Poverty Point objects is that they run remarkably true to type. For hand-molded objects that are crudely finished and almost cer-

[1] Moore, 1913, Pl. 2. Moore calls them "objects of earthenware" or "objects of baked clay."

[2] Schenck and Dawson, 1929, 360.

[3] The term "cooking stone" is used here in place of "fire stones" or "boiling stones" to avoid the implication that we know for what sort of cooking they were used, if any.

TABLE 2

TYPE FREQUENCIES OF POVERTY POINT OBJECTS AT JAKETOWN

Type	Location Trench 1	Trench 2	Trench 3	Trench 5	Mound G	Miscellaneous[a]	Totals
Bioconical[b]	81	192	151	37	0	24	485
Cylindrical with lateral grooves	310	3	462	509	47	80	1411
Cross-grooved	129	23	36	157	44	24	413
Spheroidal	2	6	8	5	0	8	29
Unclassified	2567	914	2362	3168	215	0	9226
Totals	3089	1138	3019	3876	306	136	11564

[a] Includes specimens obtained in trimming north profile of borrow pit and miscellaneous surface finds.

[b] Including the three variant sub-types. Partial count of these based only on material saved after the field sorting is as follows:

	Trench 1	Trench 2	Trench 3	Trench 5	Mound G	Miscellaneous	Totals
Biconical extruded	14	8	4	6	0	5	37
Biconical punched	11	1	0	6	0	1	19
Biconical grooved	1	0	0	2	0	0	3

tainly intended for ephemeral use, it is surprising that they can be classified at all. Yet we found them about as easy to type and sort as potsherds. The number of intermediate specimens is almost negligible. The collections from Jaketown were sorted in the field, and only the complete or nearly complete objects were saved for further study. When the latter were resorted in Cambridge, it was found necessary to switch the classification of not more than a handful of specimens. The large number of "unclassified" objects listed in Table 2 represents merely specimens that were too fragmentary for type identification. All the unclassified specimens complete enough to show form were saved, but their number was surprisingly small.

The simple classification used in the field consisted of five lettered types, as follows:

A. Biconical
B. Cylindrical with lateral grooves
C. Cross-grooved
D. Spheroidal
E. Cylindrical, plain

Of these five types only the first three were tabulated in significant quantities. These bear the full weight of the somewhat tenuous stratigraphic interpretations in the later section of this report.

The only result of the subsequent re-analysis was the segregation of three variants of the biconical type that might prove useful in the future, and the elimination of the plain cylindrical type, of which there were only two examples in the entire collection. The revised classification thus became:

Biconical, plain
  Biconical, extruded
  Biconical, punched
  Biconical, grooved
Cylindrical, with lateral grooves
Cross-grooved
Spheroidal

Examples of these types and variants are shown in Fig. 11 and Pls. 5 to 7. The latter, primarily intended to show the extent to which Poverty Point objects run to type, also give an adequate idea of the range in size and character of workmanship.

BICONICAL PLAIN

Figure 11a–b; Plate 5a–d, h

It seems possible to infer that objects of this type were molded between the palms of the hands with a minimum of help from the fingers. This is perhaps why they generally show a smoother finish than the other types. The smaller examples—they range down to about 3

cm. in diameter—are, in fact, sometimes extremely well made (Fig. 11b). It is this small biconical type that appears to have persisted into more recent times in the Lower Mississippi Valley.

Biconical Extruded

Figure 11c; Plate 5i–l

In this variant the vertexes of the two cones have been pulled outward and the sides pushed in, resulting in a double bell-shaped form. The process involved the use of the fingers, and the objects are not generally so well finished as in the plain biconical type. The extruded variant appears to be early at Jaketown in relation to the biconical class as a whole.

Biconical Punched

Figure 11d; Plate 5m–p

This biconical variant is often extruded as well as punched. The "punching" consists of a series of deep impressions on both conic surfaces made by simultaneously poking the thumb and three, sometimes four, fingers of both hands into the soft clay. This treatment usually distorts the double cone, so it is not always possible to distinguish it from the cross-grooved type described below. It is not without interest that the thumb and finger impressions on this class of objects are usually such as could have been made only by small hands, possibly those of women or children.

Biconical Grooved

Figure 11e; Plate 5e–g

So rare at Jaketown as hardly deserving mention, this form is common at Poverty Point and in the only site on the Ohio River from which Poverty Point objects have so far been reported (cf. p. 52). In this variant of the biconical form grooves are made by pressing the finger or some other implement across the rim or circumference of the double cone in a direction parallel to its axis. The three examples found at Jaketown each have four grooves that appear to have been made by the thumb and three fingers of one hand in a simultaneous squeeze, and the same is evident in many examples from Poverty Point.

Cylindrical, with Lateral Grooves

Figure 11f–i; Plate 6a–p

This type normally has two or three circumferential grooves apparently made by rolling the clay between the hands. The grooves, however, are not simply an inadvertent result of this rolling—it would be possible to make a smooth cylinder by the same means—but seem to have been deliberately produced by extra pressure of the fingers. Objects of this class generally show evidence of having been subsequently compressed on the top and bottom subsequent to the rolling, thus partly closing the grooves (Fig. 11g; Pl. 6f, n). Excessive squeezing tends to throw the cylinder entirely out of shape, but in most cases it is still distinguishable from the cross-grooved type described below. This grooved cylindrical type makes an impressive, though somewhat misleading, showing in Table 2 because it is easier to recognize in small fragments. Even if this is allowed for, however, it is the dominant type at Jaketown.

Cross-grooved

Figure 11j–k; Plate 7a–p

It has been difficult to find a name for this very common form. That it is a type in the same sense as forms already described is quite evident, notwithstanding the fact that it has no consistent shape and is almost impossible to describe. It is essentially a lump of clay, so molded in both hands as to leave prominent finger and thumb impressions, usually in the form of grooves. Occasionally these are parallel to one another and to the longest diameter of the object, resulting in a crude, melon-shaped form (Fig. 12b). Actually there are only three good examples of longitudinal grooving in the Jaketown collection; two of these have an additional cross-groove at each end (Fig. 12c-d).

More often, however, the finger grooves are at angles to one another, and the resulting form resembles no other known object. It can be inferred that in the process of molding, the clay is turned in the hands, as in making a snowball, so that each squeeze tends to close or even obliterate the grooves made by previous squeezes, resulting in a very characteristic cross-grooved effect. These remarks are not intended as a formal description applicable to all objects of

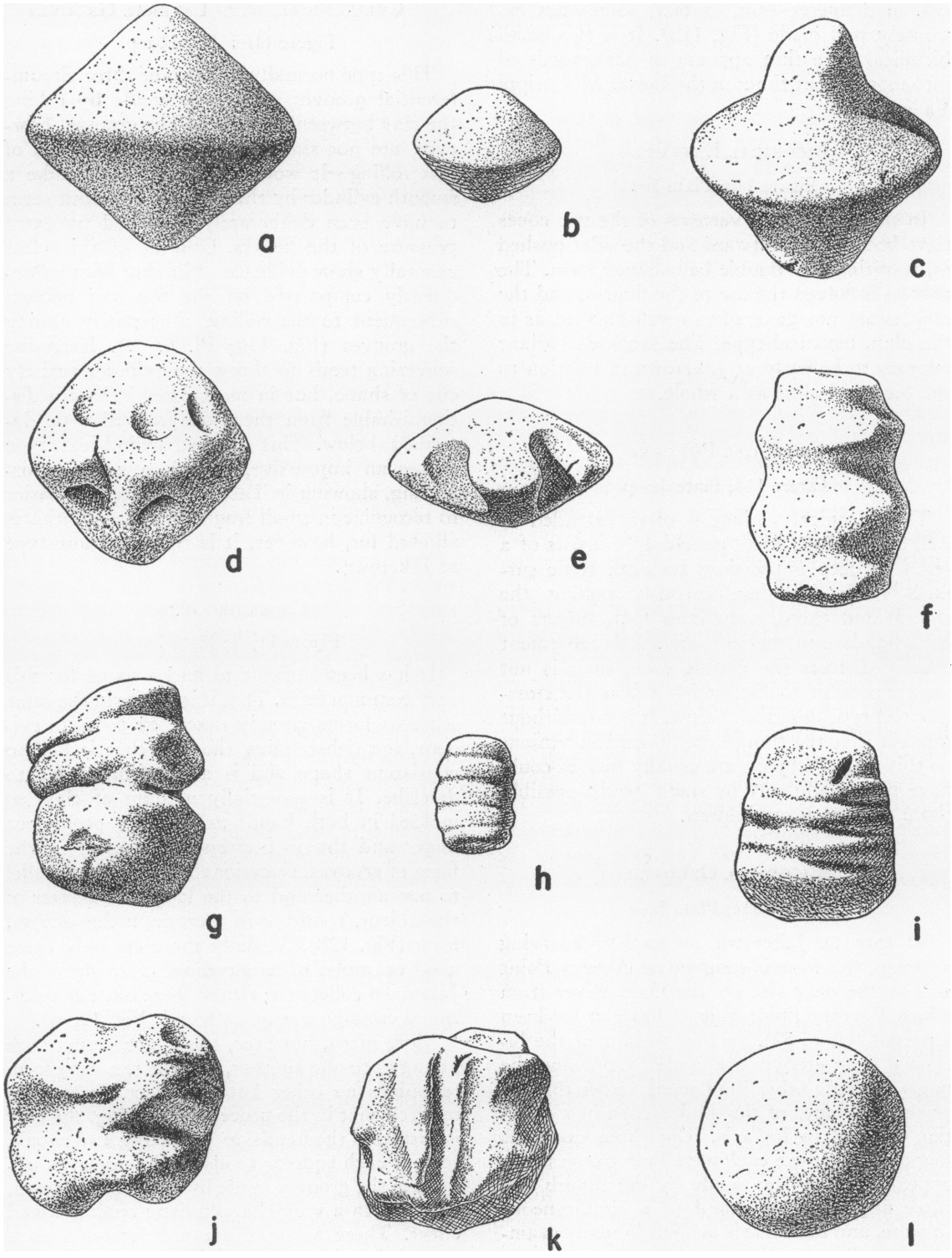

FIG. 11. Common types of Poverty Point objects. a–b. Biconical plain. c. Biconical extruded. d. Biconical punched. e. Biconical grooved. f–i. Cylindrical with lateral grooves. j–k. Cross-grooved. l. Spheroidal.

this class. There are many variations; at times the grooves give place to deep gouges; at others, implements other than thumb and fingers appear to have been employed. Notwithstanding all these irregularities the type is fairly well standardized, as may be seen in the random sample shown in Pl. 7. It presents no greater difficulty in sorting than the other common types at Jaketown. It is not so readily recognizable from a small fragment, however, so that our counts may be a little low in relation to the other types.

Spheroidal

Figure 111

These are "balls" in the real sense of the word, though seldom round enough to roll in a straight course. Some examples show a faint tendency towards a biconical shape and may possibly represent merely a non-significant variation of that type. There were not enough spheroids at Jaketown to test this possibility stratigraphically.

Frequencies of the above types in the various trenches in the Jaketown site are shown in Table 2.

This classification by no means covers the full range of Poverty Point objects at Jaketown. A selection of additional forms is shown in Fig. 12. Some of these will doubtless be recognized as types in future studies. Plain cylindrical clay objects (Fig. 12) have been reported from the Little Woods middens on Lake Pontchartrain.[1] However, we found only two examples in the Jaketown collections—one of which is perforated longitudinally—in spite of the fact that we were on the lookout for them. The melon-shaped forms (Fig. 12b-d), not distinguished from the cross-grooved type in our present classification, will almost certainly qualify as a type in the future. The collection brought back from the field contains only two whole and two fragmentary specimens; others doubtless were unrecognized and are now lying peacefully on the Belzoni town dump along with several tons of other rejects from our sorting. The specimen shown in Fig. 12k, a flat trianguloid form, is interesting as a type that is "quite common" in California.[2] It is represented by only one complete specimen and one doubtful fragment in the Jaketown sample. Whether this, and the other forms represented by single specimens in Fig. 12, will have any typological significance will depend on their occurrence in future collections.

It remains to discuss one or two minor features that may be of interest. Several specimens of the cross-grooved type have one flat side that shows the imprints of canes or twigs and, on one example, coarse matting. Similar impressions are described on specimens from California, but are not to be confused with the basketry-impressed objects in that area. Another small group of fragments shows signs of possible decorative intentions in the form of crude incised or impressed lines (Fig. 13), and one fragmentary biconical has definite traces of red pigment. It would certainly be going too far to cite these as evidence that decoration is a feature of Poverty Point objects (as it is in California) or to infer function therefrom.

POVERTY POINT OBJECTS FROM POVERTY POINT

The great Poverty Point Site on Bayou Macon in northeastern Louisiana is eminently qualified to give its name to the class of baked clay objects under consideration here. Not only was it here that they first attracted the attention of an archaeologist who could afford to illustrate them in a manner which will probably never be repeated,[3] but the site remains today an inexhaustible mine of these curious artifacts. Ford's brief test excavations in the spring of 1952, in the great concentric embankments enclosing part of the site, yielded a sample of 1264 complete specimens and fragments large enough for classification.[4] This collection, not yet analyzed in detail, will be described in a forthcoming publication on the site.

Solely for comparison with the Jaketown material, a quick sorting of this Poverty Point

[1] Czajkowski, 1934; Ford and Quimby, 1945, Pl. 1d.
[2] Heizer, 1937, 38.
[3] Moore, 1913, Pl. 2.
[4] Ford, 1954.

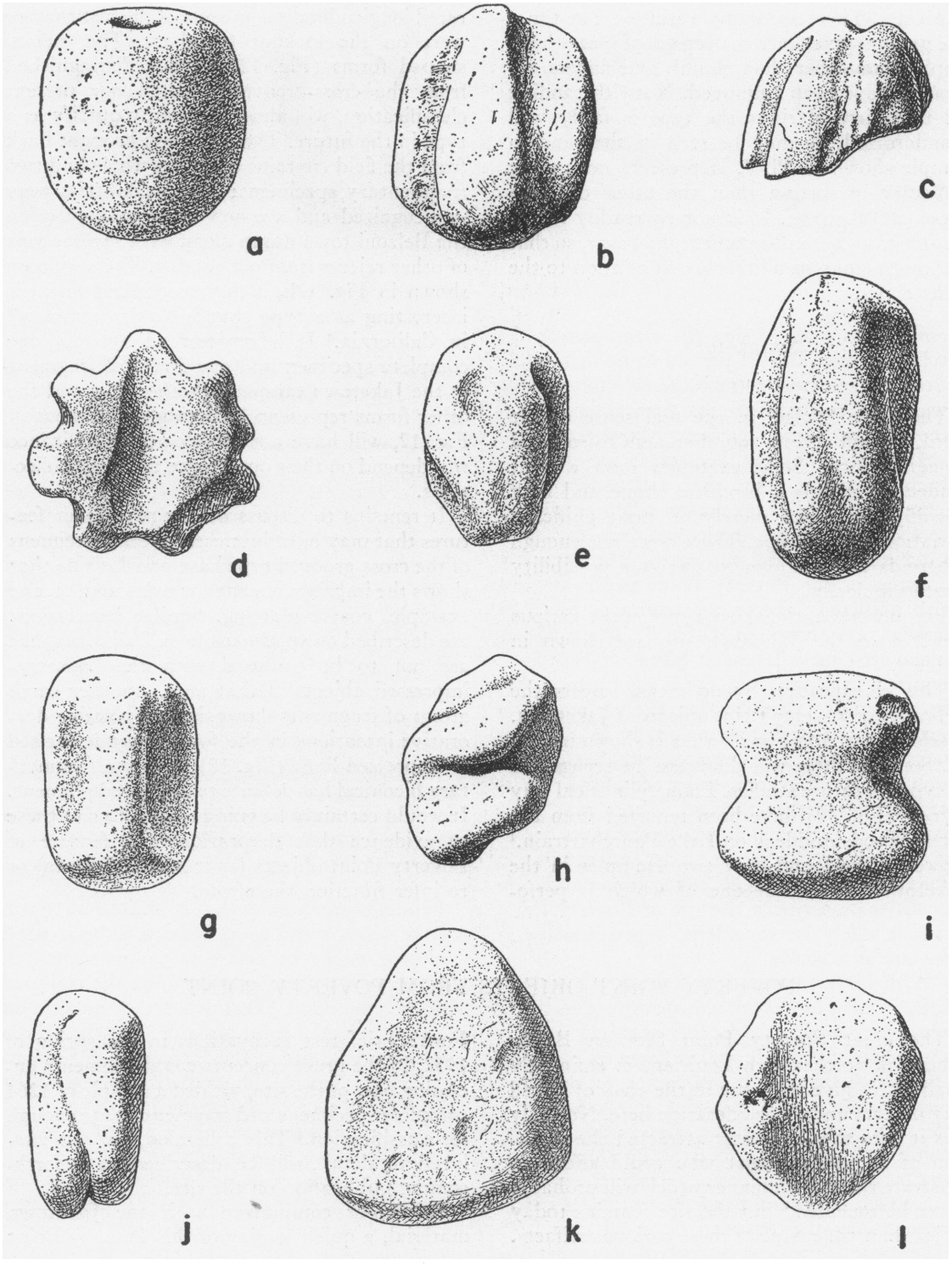

FIG. 12. Uncommon types of Poverty Point objects at Jaketown.

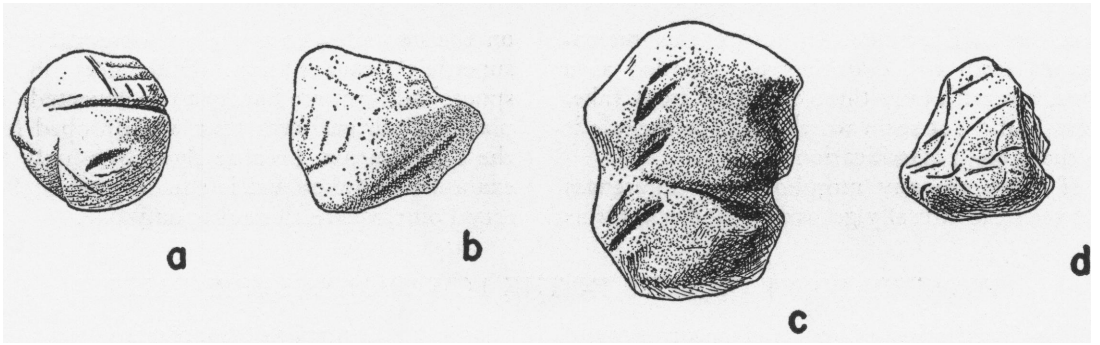

FIG. 13. "Decorated" Poverty Point objects.

sample was made, using the classification described above. That it proved to be reasonably adequate testifies to the close relationship between the two sites at the time these objects were in use. More significant, however, is the fact that the objects themselves are precisely similar in paste, color, size, and general character. A handful of specimens taken at random from one collection and tossed into the other could not be picked out again. The type frequencies of the Poverty Point site collection, with adjusted Jaketown percentages for comparison, are shown in Table 3. These figures reveal striking differences, but some caution is required in estimating their significance. We discovered at Jaketown that the various types tend to be distributed unequally in different parts of the site, a circumstance that seemed to promise a stratigraphic sequence of types that was not altogether fulfilled. There may have been other factors influencing the distribution of these objects on the site independent of time. For this reason, a sample taken from only a few localities on a site of the size of Poverty Point cannot safely be considered representative of the site as a whole.

TABLE 3

COMPARISON OF TYPE FREQUENCIES OF POVERTY POINT OBJECTS AT POVERTY POINT AND JAKETOWN

Type	Poverty Point Number	Poverty Point Per Cent	Jaketown Number	Jaketown Per Cent
Biconical	36[a]	2.8	485	20.6
Cylindrical, with lateral grooves	340	26.8	1411	60.0
Cross-grooved	873	69.0	413	17.6
Spheroidal	3	0.2	29	1.2
Unclassified	11	0.9	10[b]	0.4
Totals	1263		2348	

[a] Includes 21 grooved biconicals, but no extruded or punched variants.

[b] Jaketown figures adjusted by the exclusion of all unclassified fragments too small for type identification.

With more information, a study of detailed differences in form between corresponding types from the two sites might be rewarding. We are not prepared to recite such differences here, but one or two things stand out even in the most cursory examination. Biconical forms, for example, occur not only far less often in the Poverty Point collection, but tend to be thicker, i.e., longer in axial dimension, than those from Jaketown. In general proportions they resemble more closely the extruded biconical type from Jaketown. If we are correct in assigning the latter to an early level at Jaketown (cf. p. 112), the suggestion follows that in the course of time there was a trend away from thickness, which in turn might be taken to indicate that the Poverty Point Site is earlier than the comparable occupation at Jaketown. Other notable differences are the total absence of extruded and punched variants in the Poverty Point sample and, in contrast, the virtual absence of the grooved variant at Jaketown.

In the cross-grooved class, the only noticeable difference is that objects with parallel longitudinal grooves, e.g., melon-shaped, are considerably more common at Poverty Point. Twenty-five whole specimens of this description were noted in the collection, and doubtless many more fragments could, with closer atten-

tion, be so identified. In future this melon-shaped form will doubtless be regarded as a type, but with only three examples from Jaketown it did not seem worth while to include it in the present classification.

If there are any morphological differences between the laterally grooved cylindrical forms on the two sites, they are not observable in a superficial examination. Differences in the spheroidal form are hardly to be expected. The plain cylindrical form that was dropped from the classification, because there were only two examples at Jaketown, is equally rare at Poverty Point, where there was only one.

POVERTY POINT OBJECTS IN THE LOWER MISSISSIPPI VALLEY

The distribution of reported occurrences of Poverty Point objects in the Lower Valley is shown in Fig. 14 and Table 4. Little amplification of this compilation is necessary at the present time, for references to these specimens are very meager in archaeological literature. It seems that they were rarely noticed before Moore found them in such abundance at Poverty Point and directed attention to these objects. In the absence of additional comparable finds this momentary interest soon evaporated. It was only when the present writers discovered a similar abundance of these objects at Jaketown that interest in the problem was revived. So we may take it as certain that a great many sites with Poverty Point objects are still unreported. On the other hand, it also seems unlikely that many sites with an abundance comparable to that at Poverty Point and Jaketown remain to be discovered. The situation is strangely parallel to that in central California, where also a large proportion of the baked clay objects described seem to have come from a very small number of sites.[1]

The over-all pattern revealed by Fig. 14 suggests a split distribution. Furthermore, several of the thin scattering of sites in the central portion of the area are represented by very uncertain finds, especially Barton Ranch (11-O-10) and Hollywood (13-O-10). As this is precisely the area that has been most thoroughly surveyed, negative evidence in this case is probably significant. Further work by the Central Mississippi Valley Survey in the northern part of the lower valley will doubtless add detail to the picture.[2] The results to date, in any case, indicate clearly that the problem is no longer confined to the southern part of the Lower Mississippi Valley.

[1] Schenck and Dawson, 1929; Heizer, 1937.

[2] Acknowledgment is expressed above to J. B. Griffin and the members of the Survey for their kindness in furnishing information incorporated in Fig. 14 and Table 4.

Cultural Association

It will be noted that in most of the sites listed in Table 4, the typical occurrence involves a handful of Poverty Point objects, sometimes not more than one or two, usually associated with potsherds and other artifacts pertaining to one or more of the ceramic periods in the area. These ceramic associations range all the way from Tchula-Tchefuncte (and an Alexander-like complex on one site in the north) to Late Mississippi. Out of a total of 32 sites in which association data are available, a preceramic context is indicated in only four—O'Bryan Ridge (5-T-4), Weems (5-T-7), Jaketown (20-O-1), and Poverty Point (22-K-1). This situation, previously recognized in part by Ford and others, led them to the assumption that Poverty Point objects continued in use as late as Troyville or even Coles Creek times.[3] Several associations listed in Table 4 may be even later. For example, the seven biconicals found in the Matthews Site (5-R-3) are said by the excavators to be associated with the New Madrid Focus,[4] which equates roughly with Plaquemine, the succeeding period to Coles Creek in the Lower Valley. The specimen from the Lilbourne Site (6-R-1) and the four from Walls (13-P-1), also biconicals, may relate to the same general time period. With these apparent late associations in mind, we were not surprised, in reëxamining the collections made by the Lower Mississippi Survey in 1940 and 1941, to find two specimens from the Barton Ranch Site (11-O-10) that would have been called Poverty Point objects had they been found at Jaketown (Fig. 15a-b), and one at Hollywood (13-O-10) not quite so typical (Fig.

[3] Ford and Quimby, 1945, 31 ff.; Ford, 1951, 113.

[4] Walker and Adams, 1946. Perhaps it would be more correct to say that the excavators did not question the assignment of the Povery Point objects to the New Madrid Focus; " . . . investigation of the site has so far revealed only one cultural component" (98).

TABLE 4

REPORTED FINDS OF POVERTY POINT OBJECTS IN THE LOWER MISSISSIPPI VALLEY

Site Index Number	Name	Reference	No. of Objects	Types	Cultural Associations	Channel Associations
5-R-3	Matthews	Walker and Adams, 1946, 84	7	Biconical	Mississippi	No data
5-S-1	Charleston	Beckwith, 1911	Unspecified	Not described	Lower level? of large mound site with mixed Baytown-Mississippi pottery complex	On Stage 5 bankline, with Stage 11 channel very near
5-T-4	O'Bryan Ridge	Unpublished field data in U.M.M.A.[a] files	8	Biconical, spheroid, and amorphous	Village site without mounds. Lower level contains Poverty Point objects and "Late Archaic" material, overlain by Early Baytown pottery complex	On Stage J bankline
5-T-7	Weems	Griffin and Spaulding, 1952, Fig. 2	6	Biconical, spheroid, and amorphous	Same as above	On same Stage J bankline as 5-T-4
6-R-1	Lilbourne	Swallow, MS in Peabody Museum files, 1874; Putnam, 1875, 24	1	Perforated biconical or spheroid	Found in excavating Mississippi Period mound; associations not clear	No data
6-S-5	Laplant	Unpublished field data in U.M.M.A.[a] files	—	Unidentified fragments only	Early Baytown, including sherds of southern Illinois Hopewell variety	On Stage F bankline, Stage J channel very near
7-Q-2	Pascola	Unpublished field data in U.M.M.A.[a] files	—	Unidentified fragments only	Sand-tempered Alexander-like pottery complex, probably Early Baytown in date	On braided channel of Stage 3
7-R-5	Double Bridges	Unpublished field data in U.M.M.A.[a] files	19	Bic nical, spheroid, discoid, and amorphous	?Mississippi	In Stage 10 channel
8-Q-10	Hurley	Unpublished field data in U.M.M.A.[a] files	1	Spheroid	Pottery not identified	Near Stage F bankline
8-Q-12	Blazer	Unpublished field data in U.M.M.A.[a] files	2	Spheroid	Pottery not identified	On Stage J bankline
11-O-10	Barton Ranch	Present report	2	Doubtful specimens of amorphous shape. Cf. Fig. 15a–b	Mississippi	No data
13-P-1	Walls	Brown, 1926, 289	4	Biconical	Baytown-Mississippi	On Stage 7 bankline
13-P-8	Lake Cormorant	Unpublished field data in L.M.S.[b] files	1	Spheroid	In early Baytown level (Level 7 of Stratigraphic Cut A). Cf. Phillips, Ford, and Griffin, 1951, 249	On Stage 7 bankline

TABLE 4—(*continued*)

Site Index Number	Name	Reference	No. of Objects	Types	Cultural Associations	Channel Associations
13-O-10	Hollywood	Present report	1	Very doubtful specimen. Fig. 15c	Baytown-Mississippi	On Stage 12 bankline, in Stage 11 channel. Cannot be earlier than Stage 12
16-O-15	Garner	Unpublished field data in L.M.S.[b] files	—	Small fragment of biconical	Tchula	On Stage H bankline
18-K-5	Parnell	Lemley and Dickinson, 1937, 30	2	Described as similar to baked clay objects found by Moore at Poverty Point	Surface finds, association doubtful	In area of braided channels of Stage C_1
19-F-1	Calion	Unpublished field data in L.M.S.[b] files	Unspecified	Several types including cylindrical with lateral grooves	Poverty Point	No data
20-O-1	Jaketown	Present report	2348+	All types	Poverty Point	On Stage C_1 bankline, occupation on active channel of that date
20-O-14	Welsh Camp Landing	Moore, 1908, 580	Unspecified	Several types	?Poverty Point	Site not located by L.M.S.[b] Probably on bankline of Stage C_1
21-N-9	Waller	Unpublished field data in L.M.S.[b] files	5+	Cylindrical with lateral grooves	Surface collection not yet analyzed	No data
21-N-10	Crippen Point	Unpublished field data in L.M.S.[b] files	25+	Several types	Surface collection not yet analyzed	No data
22-H-1	Monroe	Unpublished field data in L.M.S.[b] files	36+	Several types	Site has been destroyed; cultural associations not ascertainable; probably Poverty Point	No data
22-K-1	Poverty Point	Moore, 1913; Webb, C. H., 1944, 1948; Ford's 1952 excavation	1263+	All types	Poverty Point	Stage C_1 probably; cannot date later than Stage H
23-K-2	Insley[c]	Moore, 1913, 61	3	Undescribed	Poverty Point and later	Bayou Macon channel of Stage 1
25-I-2	Pritchard Landing	Ford, 1936, 216	Unspecified	Undescribed	Marksville-Coles Creek	Arkansas R. channel of Stage 4
25-J-5	Hopeka	Moore, 1913, 43	1	Biconical with groove around one apex	No data	Bayou Macon channel of Stage 1

TABLE 4—(*continued*)

Site Index Number	Name	Reference	No. of Objects	Types	Cultural Associations	Channel Associations
26-H-2	Gorum	Ford, 1936, 212	Unspecified	Undescribed	Marksville-Coles Creek	Arkansas R. channel of Stage C_2
26-H-3	Crooks	Ford and Willey, 1940, 120	41	Several types, including biconical	Marksville	Braided Mississippi channel of Stage A_1 or possibly Arkansas River channel of Stage C_2
27-I-1	Wiley	Ford, 1936, 216	Unspecified	Undescribed	Marksville-Coles Creek	?On Stage 10 bankline (cf. p. 51)
28-H-2	Greenhouse	Ford, 1951, 113	7	Small fragments, probably biconical	Troyville-Coles Creek	Mississippi channel of Stage 3 (cf. Ford, 1951, 17)
28-H-4	Marksville, Mound 10	Fowke, 1928, 425; Setzler, 1933a, Pl. 6	2	Cylindrical with lateral grooves	Marksville	On older alluvial terrace near Mississippi channel of Stage 3
31-P-1	Tchefuncte	Ford and Quimby, 1945, 23	5	1 spheroid, 4 biconical	Tchefuncte	No data
32-I-1	Lafayette	Ford and Quimby, 1945, 23	1	Biconical. Also unspecified number reported by local collector, all biconicals	Tchefuncte	Vermillion R. channel of Stage 3
32-I-2	Ruth Canal	Unpublished data in L.M.S.[b] files	?	Biconicals	No data	Bankline of Stage 1 channel
32-K-1	Sorrel Bayou	Moore, 1913, 15	3	Undescribed	No data	Uncertain. Possibly of Stage C_2 date
32-K-2	Schwing	Moore, 1913, 16	32+	Biconical, plain, and grooved	No data	Unnamed distributary of Stage D?
32-Q-1	Little Woods Middens	Ford and Quimby, 1945, 5	25	Several types, mostly biconical	Tchefuncte	No data
32-Q-2	Big Oak Island	Ford and Quimby, 1945, 7	3	Biconical	Tchefuncte	No data
33-L-1	Miller	Moore, 1913, 12	1	Undescribed	No data	On bankline of Stage H channel

[a] University of Michigan Museum of Anthropology.
[b] Lower Mississippi Valley Archaeological Survey.
[c] Recent work by Phillips (MS) shows occupation similar in type and extent to Poverty Point.

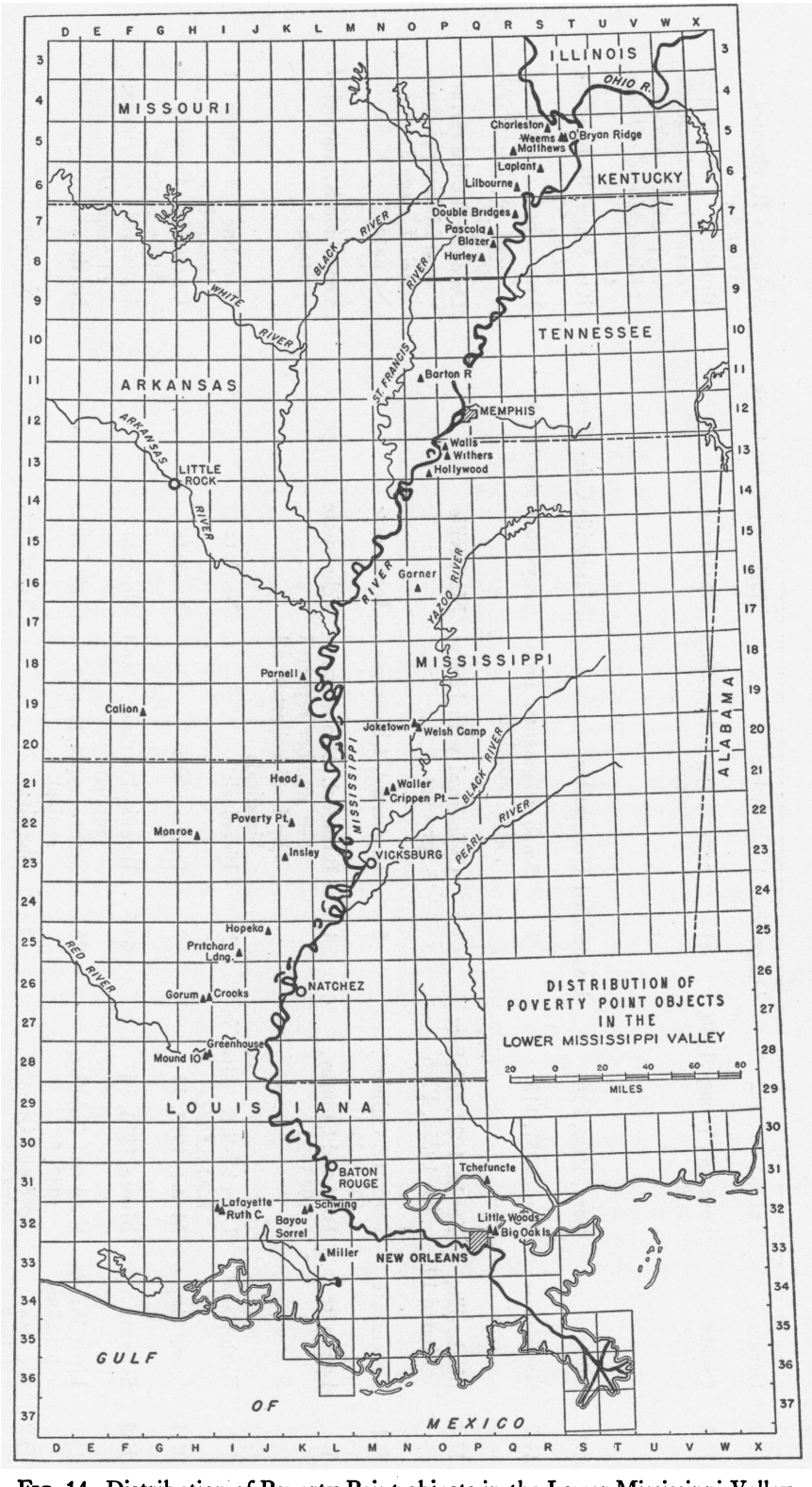

FIG. 14. Distribution of Poverty Point objects in the Lower Mississippi Valley.

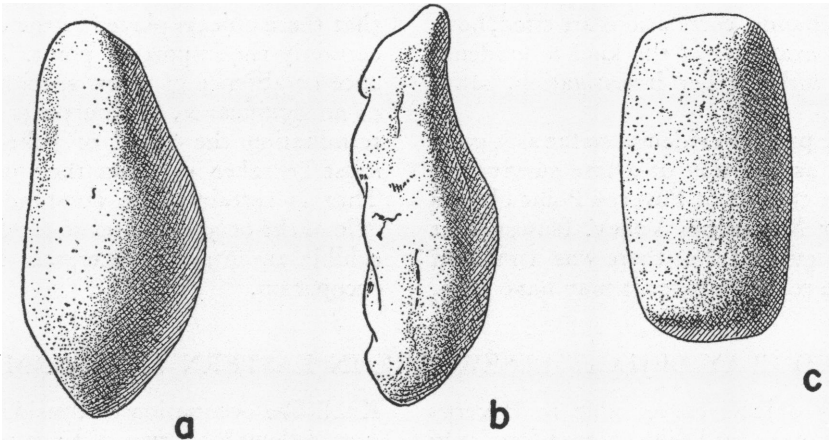

FIG. 15. Doubtful baked clay objects. a–b. Barton Ranch Site (11-O-11). c. Hollywood Site (13-O-10).

15c). The first of these is a pure Late Mississippi Site and the second almost so. There seems no reason, therefore, to amend the hypothesis of a late survival of certain Poverty Point types in the Lower Mississippi, but it would be well to have more proof than is presently available in the literature. The mere presence of a few objects in a late context is not conclusive. They could conceivably have been picked up from earlier sites in the vicinity as objects of curiosity.

If the survival assumption is correct, it may be significant that in the majority of cases, Poverty Point objects with late associations are of the biconical type and tend to be smaller in size than those at Jaketown and Poverty Point. So pronounced is this tendency towards reduction in size that it seems possible that some change in function was involved.

EXTINCT CHANNEL ASSOCIATIONS

The channel associations derived from Fisk's pioneer study of the recent geological history of the Lower Mississippi Valley,[1] listed in the column the farthest to the right in Table 4, may also be brought to bear on the question of a possible late persistence of Poverty Point objects. In the main they furnish *terminus a quo* dates that are fairly early, hence not in serious conflict with our interpretations on the dating of the Poverty Point occupation at Jaketown. Some of them, however, are so late in Fisk's chronology as to leave no alternative but the assumption of a late survival of Poverty Point objects elsewhere. For example, the Double Bridges Site (7-R-5), which yielded a complex of several types of Poverty Point objects, lies *inside* a Stage-10 channel. Therefore, if Fisk's dating is correct, it cannot have existed before Stage 11 when that channel was filled. A similar in-channel position makes the Hollywood Site (13-O-10) not earlier than Stage 12, but the single baked clay object from Hollywood is a very doubtful specimen. Again, the Wiley Site (27-I-1) on Larto Lake, which yielded a few Poverty Point objects along with Troyville-Coles Creek pottery, cannot have been earlier than the Mississippi channel now occupied by the lake. There is a reasonable probability that this channel is assignable to Stage 10 in the Fisk sequence.[2] Such a date would agree rather well with the earliest pottery on the site. The point at issue, however, is that the possibility that the Poverty Point objects came from an earlier occupation on or near the site in this case should, it seems, be ruled out. The net result is slight, but not conclusive, evidence that the Poverty Point objects were still being made as late as Troyville times at

[1] Fisk, 1944, Pls. 15 and 22.

[2] Fisk, 1944, Pl. 15, Sheet 3. The straight reach in the Stage 10 channel east of Larto Lake, now occupied by Black River, may have been the cut-off that formed the lake. Russell (1933, 21) states only that Larto Lake was an active Mississippi channel "in the not distant past as geologists think of time."

least. These channel correlations are cited, however, only as examples of the kind of evidence that might, with further investigation, settle the question.

In sum, the present evidence, so far as it goes, supports the assumption of a late survival or persistence in the use of Poverty Point objects in the Lower Mississippi Valley. However, it seems no less evident that there was a marked change in the role, whatever it may have been, that these objects played in the culture. This is certainly the important point. The mere presence or absence of a few specimens is of little or no significance. For purposes of cultural determination the "use" of baked clay objects must be taken to mean their use *in quantity*. That is certainly the outstanding characteristic of the only four sites so far discovered that exhibit an intense preceramic Poverty Point occupation.

BAKED CLAY OBJECTS ELSEWHERE IN EASTERN NORTH AMERICA

Baked clay objects comparable to Poverty Point types have so far been reported from only two localities in the East outside the Lower Mississippi Valley: on the Ohio River and on the Georgia coast. These finds have not yet been published in detail, so we can do little more than mention them briefly here.

While this report was in the early stages of preparation, Glenn Black very kindly called our attention to an important, and so far unique, find of baked clay objects on the Indiana side of the Ohio River just below the Falls. In the winter of 1949–1950, two local collectors found some two hundred of these objects in what appeared to have been a cache in the eroded river bank; subsequently at least two other individuals each found a few more. A preliminary account of the find was made to the Indiana Academy of Science by Mrs. Frances P. Martin, an abstract of which appeared in the Academy's Proceedings for 1951.[1] Mrs. Martin is now preparing a final report, but has very generously offered the information presented here.

The locality, designated as the Kelly Farm Site, has long been famous under various names as the outstanding shell midden in this part of the Ohio Valley.[2] According to Guernsey, it was (unfortunately we must use the past tense, because the site has been virtually demolished in the course of recent levee-building operations) a stratified midden with a basal deposit of shell without artifacts, overlain by an Indian Knoll-like occupation of considerable depth, in turn followed by two distinct pottery-bearing levels of Mississippi affiliation.[3] This is apparently not the full story, however, because Mrs. Martin reports finding cord-marked sherds on the site, indicating a phase of occupation intermediate between Archaic and Mississippi.

Unfortunately, it is not possible to relate the Poverty Point type objects to any specific level of the Kelly Farm Site. In view of the apparent late survival of these objects in the Lower Mississippi Valley, we cannot automatically assume that they were associated with the Archaic component. The finds were made after levee construction had removed most of the upper portion of the midden, which, Mrs. Martin suggests, might be assumed to indicate that the baked clay objects came from the lower levels, were it not for the considerable bank slumping that has taken place. In may be added that the complete absence of similar finds in other Archaic shell middens in the Ohio Valley, in Kentucky, and in northern Alabama argues against an Archaic association here.

In view of Mrs. Martin's forthcoming report on these finds, it is sufficient to note that they belong unquestionably to the class of baked clay objects designated here as "Poverty Point"; in fact, many of them are classifiable with types described above. Judging from photographs kindly supplied by Glenn Black a significant number are of the biconical grooved type.

The importance of these finds can hardly be exaggerated. Besides extending the range of distribution very considerably, they suggest the possibility of establishing, through future finds,

[1] Martin, 1952.

[2] Borden, 1874, 185–187; Lilly, 1937, 100–101; Guernsey, 1942, 62–67. Guernsey catalogued two portions of the site under separate names, Elrod and Clark's Point. The Kelly Farm once included both, so that designation is preferred by Mrs. Martin and is followed here.

Guernsey, 1942.

the stratigraphic relationship between Poverty Point and one or more of the Archaic or post-Archaic phases in the Ohio Valley. Their presence here also bears on the question of function, as this is the first significant find in a locality where stones were abundantly available for cooking purposes. It may be argued that this was only a trader's hoard, but one can scarcely explain the sale of artificial cooking stones to a people to whom actual stones were accessible.

The only other find in the Ohio Valley that has so far come to our attention is the single baked clay object found by Solecki in an Adena Culture mound near Natrium, West Virginia.[1] It is neither described nor illustrated, but Solecki designates it as of Poverty Point type. We have learned to discount the significance of single finds of Poverty Point objects in the Lower Mississippi Valley, but this one deserves mention as a further extension of their range on an Adena level, a temporal position in agreement with the general interpretations of this report.

The second unpublished occurrence of baked clay objects in eastern North America can be reported here, thanks to information from Antonio Waring, Jr., who with Lewis Larson recently found them in several locations on the Georgia coast. In testing the large shell circle on Sapelo Island described by Moore,[2] they found a number of these objects of crude, longitudinally grooved form in the lower levels of the structure, together with a hundred per cent plain fiber-tempered pottery complex. The association of baked clay objects with a circular embankment is particularly interesting in view of the recently discovered octagonal earthworks at Poverty Point.[3] The Sapelo Island circle is not an isolated phenomenon on the Georgia coast. Waring has located remains of several others of comparable dimensions. If the radiocarbon date of 1848 ± 250 B.C.[4] for the Sapelo Island circle proves to be valid, this may well be the earliest planned earth (or in this case, shell) structure in North America. Parenthetically, the possibility of relationship to the "sacred circles" of the Adena Culture in the Ohio Valley should be noted.

Besides plain fiber-tempered pottery the cultural associations of these Georgia baked clay objects include: plain and ornamented bone pins, winged bannerstones, full and three-quarter grooved axes, socketed antler points, cut and engraved deer jaws, and a chipped stone complex identical to that of Stallings Island.

At the near-by Dulany Site in Chatham County, again associated with plain fiber-tempered pottery, Waring found other baked clay objects of better workmanship. These also have longitudinal grooves and are not unlike the melon-shaped type that is rare at Jaketown but fairly common at Poverty Point. Several fragments from the Dulany Site showed fiber tempering. Waring also reports a single find of roughly cylindrical form from the lowest level of the Bilbo Site in the same cultural horizon.

The association of baked clay objects, some of which may be of actual Poverty Point type, with late coastal Archaic material, not to mention the intriguing radiocarbon date, has important bearings on the problem of dating the Poverty Point phase.

COMPARISON OF POVERTY POINT OBJECTS WITH THE BAKED CLAY "BALLS" OF CENTRAL CALIFORNIA

Attention has frequently been drawn to the parallels between the baked clay objects from the Lower Mississippi and those from central California. In the latter area they are perhaps not more abundant, but are certainly better known and more fully documented.[5] We have already referred to the terminological difficulties and the fact that the designation "baked clay objects" covers a wider range of artifacts in California than in the East. The comparisons made here relate to the more limited class of objects generally referred to in California as

[1] Solecki, 1953, 373–374.
[2] Moore, 1897, 71–73, Fig. 48.
[3] Ford, 1954.
[4] Griffin, 1952b, 366.
[5] Schenck and Dawson, 1929; Nordenskiold, 1930; Heizer, 1937; Wedel, 1941; Beardsley, 1948.

"clay balls." For reasons already given we are avoiding this term here. In reference to the California material, the designation "baked clay objects" is used in a somewhat restricted sense, excluding those more specialized forms that almost certainly have a different cultural meaning.

There is a remarkable similarity of occurrence of baked clay objects in the two areas. In California their distribution is limited to the alluvial "delta" of the lower Sacramento and San Joaquin rivers, as stoneless as the Mississippi flood plain. In both areas, as already noted, they occur in great profusion on a very few sites, sharply diminishing in quantity with increase of distance from these focal centers. In both areas they seem often to be associated with low habitation mounds formed by gradual accumulation of rubbish, but in California there is nothing comparable to the great mounds and earthworks at Poverty Point. Likewise in both areas, whole and fragmentary objects occur at random throughout the midden as do any other articles of refuse. They also are found in fireplaces and ash deposits. In connection with theories of function, it would be useful to know whether or not they tend to be significantly concentrated in or about such features, but the evidence is not conclusive in either area. The 32 whole objects and numerous fragments found by Moore in the Schwing Site in Louisiana (32-K-2) were coated with ash and carbon from which he concluded that they "had lain in a fireplace."[1] We found several concentrations at Jaketown that might be similarly interpreted, but no case in which it could be stated categorically as a fact. In both California and the Lower Mississippi compact groups of whole, possibly unused, baked clay objects are occasionally found, suggesting deposit in "caches." This may also have been the situation in the Ohio Valley find reported above. In neither area are they typically found with burials.[2]

In composition and manufacture, but not in size, the objects are very similar in the two areas. The average dimensions given by several California writers are about equal to those of the largest specimens from Jaketown and Poverty Point. In both areas they seem to have been made chiefly from common clay having a sandy content, with no tempering added. Waring, however, states that a few fragments from the Dulaney Site are fiber-tempered, which is not strange in view of the fact that on the Georgia coast they are associated with the well-known fiber-tempered pottery complex.[3] Heizer reports that baked clay "balls" from the Windmiller Site of the Early Horizon in California "commonly show fibre temper."[4] The coincidence is made notable by the fact that these two widely separated "facies" (to use the California term) have furnished radiocarbon dates of 1848 ± 250 B.C. and 2101 ± 160 B.C., respectively. To return to the method of manufacture: in both areas the objects were molded in the hand and given final shape by the fingers. The use of grass or tule wrappings (which may have been a device to retard drying and prevent cracks, in lieu of tempering), common in California,[5] has not been reported from the Mississippi Area. The California types, with basketry impressions on several or all sides, likewise have no counterparts in the East.

The Eastern observer is first impressed by the greater diversity of the California types. This leads us to revert to the difficulties of terminology. Even among the limited class of artifacts called "balls" in California, there are many forms that apparently have had functions other than that of cooking stones generally attributed to them. Possibly we are comparing a group of objects from the Mississippi that have a single function with a larger group from California that has diverse functions. The Sacramento-San Joaquin area seems to be the locality where a great variety of forms, elsewhere in California made of stone, are imitated in clay. These include earplugs, labrets, cup stones, sinkers, bolas, charm stones, etc. Whether these had the same functions as their prototypes in stone or are simply clay "balls" of specialized form is for the California archaeologists to decide. It is as though we found bannerstones, boatstones, and plummets of baked clay in the Lower Mississippi similar in form to their stone counterparts in surrounding areas but similar to Poverty Point objects in compo-

[1] Moore, 1913, 15.

[2] This is a rash statement. So far, no Poverty Point burials have been found.

[3] Personal communication, dated September 24, 1952.

[4] Personal communication, dated May 27, 1953.

[5] Heizer, 1937, 41 ff.

sition and finish. Fortunately we do not, so are not obliged to have an opinion on the question.

In consideration of the diversity of forms in California, whatever the reason, it is not surprising that a few close parallels to Mississippi types are found among them. However, apart from the spheroidal, which might be expected, the only common Mississippi Valley type found in California is the biconical. This is rather interesting because, according to information furnished to Moore by Willoughby, double cones of fired clay were obtained by Edward Palmer from the Paiute in 1875 and were said to have been used in a hand game.[1] This bit of ethnographic information, added to the fact that the biconical is generally the type found in late contexts in the Mississippi, suggests a possibility that, whatever its original function may have been, this type was adapted to other uses and survived long after the others had gone out of existence.

The nature and extent of decoration of baked clay objects present another striking difference between the two areas. Apart from the impressions of grass, tule, and basketry incidental to manufacture, there is in California considerable deliberate though misdirected effort to beautify them with simple decorations of punctations, nail marks, incised lines, etc. Certain forms appear to be generally plain, but a large percentage of cylindrical and spool-shaped forms and all cones are said to be so decorated.[2] Two or three specimens from Jaketown could, by the widest possible stretch, be described as decorated (Fig. 13). It is difficult to fit the idea of decoration into the cooking-stone theory, and the fact that in California it is correlated with certain forms suggests the possibility of a different function for the decorated types. Again, this is a question for California archaeologists; we have problems of our own, but apparently decoration is not one of them.

In the foregoing rough comparison we have perhaps given the impression that the differences far outnumber the similarities. However, the impressive fact that problematical hand-molded clay objects occur in similar abundance in two similar but widely separated environments outweighs any number of specific differences. It is certainly not a mere coincidence; it must have some meaning. If this be granted, the question becomes one of cultural relationship versus environmental adaptation. A direct historical relationship seems to be ruled out by the space factor alone. Implications of the time factor are not so negative. Until recently it was thought that baked clay objects were confined to the Middle and Late periods of California archaeology. Now they are also known from Early Period sites, and there is one radiocarbon date that is substantially earlier than anything we have as yet in the Lower Mississippi but compares closely with Waring's Sapelo Island date. There was apparently a great increase in their use and variety in the Middle Period of California archaeology which culminated in the Late. Thus the use of baked clay objects in California began so early and lasted so long that any date we are likely to establish for the Poverty Point culture is almost certain to fall within this period. The possibility of cultural connection in a historical sense, therefore, cannot be ruled out on the grounds of time as well as space. A hypothesis of an old cultural distribution on an Archaic level that would include California and the Southeast has already been submitted by one of the present authors, and baked clay objects were included in the evidence cited.[3] However, we now incline to the view that Poverty Point is a post-Archaic development, so this hypothesis loses some of its force. It must be admitted, however, that the coincidence of stoneless areas (and perhaps we can now include the Georgia coast) argues strongly for a case of convergence in response to special environmental stimulus of cultures at a comparable (preceramic) stage of development, special in the sense that the environments must be similar in one respect only—lack of stone.

FUNCTION OF POVERTY POINT OBJECTS

In appearing to favor an environmental explanation for the parallel occurrences of baked clay objects in California and the Lower Mississippi, we have, it will be discerned, more or less begged the question of function. Any theory

[1] Moore, 1913, 73.

[2] Schenck and Dawson, 1929, 363 ff.

[3] Haag, 1942a.

other than one involving an every-day utilitarian function would seem to involve some sort of historical connection. As a matter of fact, no other theory has been seriously considered. The consensus is that all the Lower Mississippi and most of the California types are simply baked clay substitutes for cooking stones. However, we have no justification for regarding this as an assumption requiring no further proof, even in the Mississippi Area. It would be well to adopt the point of view of some California archaeologists that not all baked clay objects are susceptible of the same explanation, at least for the present. There are enough additional difficulties barring a blanket acceptance of the cooking-stone theory to counsel patience.

Another question that cannot yet be regarded as settled is the presumed negative correlation between Poverty Point objects and pottery. This has an important bearing on at least one aspect of the cooking-stone theory, that which supposes the objects to have been artificial "boiling stones," as distinct from "fire stones" used in roasting. We can say with some confidence that the greatest use of Poverty Point objects in the Lower Mississippi was in the preceramic period, but they apparently continued in use (at least they are found) in later sites right up to Mississippi times. It seems unlikely that the practice of stone boiling continued simultaneously with the use of serviceable pottery for a very long period. Perhaps some of the old cherished recipes called for Poverty Point objects in the stew pots, but a few generations would certainly have sufficed for a complete transition to the new and simpler method of cooking. Therefore, we must postulate either a secondary function for Poverty Point objects, one that *did* persist, or a shift in function soon after the introduction of pottery. It must be admitted, however, that a "fire-stone" as opposed to a "boiling-stone" theory is not subject to the same objection.

Again, there is the problem of tetrahedrons, which is dealt with below. The nature of the occurrence of this particular form of baked clay object at Jaketown suggests very strongly a ceremonial use (cf. p. 60). The question here is whether tetrahedrons are simply another and later form of Poverty Point object with the same cultural role, in which case the cooking-stone theory is considerably weakened, or, as Moore apparently believed, entirely different, with no bearing on the Poverty Point problem at all. Finally, it must be repeated, we still lack the required positive evidence of the association of Poverty Point objects in fireplaces, ash beds, etc., to prove the validity of the cooking-stone theory, whether based on boiling, roasting, or any other culinary art.

A judicious conclusion, on a continental basis, would be that only one explanation seems to answer most of the facts: that baked clay objects represent an invention, probably made more than once, in response to the household needs of a pottery-less people in a stone-less land.

As a matter of interest, not presented as evidence, it should be noted that the aborigines of Australia roasted game by means of baked clay balls in regions where cooking stones were not available. Apparently the clay balls were not shaped to standard forms. Beveridge's description of a method of cooking that may also have been a function of Poverty Point clay artifacts is interesting and worth quoting here:

> As soon as the hunters have seated themselves comfortably, they set to work skinning the opossums, whilst several of the *lyoores* [women] go off with their yamsticks. When they reach the spot which they had before selected for the purpose, they begin with a will to excavate a hole three feet in diameter and eighteen inches deep. During the digging of the hole, any pieces of clay of about the size of cricket balls which are turned out are carefully placed on one side. When the hole has been dug sufficiently deep, it is swept or brushed out with some boughs, or a bunch of grass; it is then filled to the top with firewood (which the *lyoores* had previously collected for that purpose), upon which the selected pieces of clay are carefully placed. The wood is then ignited, and by the time it is all burned the clay nodules have become baked, until they are exactly similar to irregular sections of well-burnt brick; of course, they are red hot. When this result has been properly achieved, the hot clay is removed from the hole; for this purpose they use two pieces of stick, about eight inches long, holding them both in one hand, and working them deftly, even as a cook-maid uses a pair of tongs. Prior to the advent of white men, they had no name for them, other than *kulky* (any piece of wood, great or small, thick or thin). The use of these tongs is an accomplishment possessed by old and young alike. This dexterity almost seems an aboriginal gift, as few, if any, white men have ever attained to any degree of proficiency in their use.
>
> After the hot clay is removed from the hole, the ashes are carefully swept out, and a thin layer of

grass slightly moistened, placed over the bottom, and round the sides, upon which the prepared opossums are nicely packed, and then covered over with more damp grass. The hot clay nodules are then spread equally over the top of the grass, when the whole oven is then closed with the finer earth which originally came out of the excavation. Should this covering be too thin to keep the steam from escaping, it is supplemented by earth, dug in immediate proximity (this supplemented soil accounts fully for the depressions always found about the bases of these ovens). Ashes are never employed for the outside covering, because, being fine, they would percolate through the interlining both of the grass and clay nodules, thereby adding an amount of grit which would not improve the flavour or appearance of the food. Before the heat in the clay nodules, and the bottom of the hole has become exhausted, the opossums are beautifully cooked, as perfectly so indeed as though the operation had been performed in the most improved kitchen range extant.

When the cooking has been completed the covering is scraped off, and this debris, consisting of calcined clay, ashes, and burnt earth, becomes the nucleus of a black-fellow's oven. This process being repeated at short intervals, over a series of years, perhaps indeed for centuries, results in the mounds, which are in reality blacks' ovens, although frequently termed (most improperly so) tumuli.[1]

[1] Beveridge, 1889, 32–34.

BAKED CLAY OBJECTS OF TETRAHEDRAL FORM

ONE OF THE BIG SURPRISES at Jaketown in 1951 came at the very beginning of the excavations. The eastern end of Trench 1, as already noted, was involved with the mutilated remnant of Mound A. We had put one shovel hand in each 2-meter square with a specimen tray and instructions as to what to put in it. Everything was proceeding in the normal first-day unsatisfactory manner, when it was observed that the man working in the easternmost section (0-S2, W8-W10) had not only filled his tray, but alongside it had erected a huge pile of baked clay objects that we assumed to be of Poverty Point type. His neighbor to the west had done almost as well. They continued to mine baked clay objects all day and for many days thereafter, while their colleagues farther along in the trench, not uncovering so much to collect, buried themselves deeper in the earth. It is not exaggerating unduly to say that the deposit (mound fill, outwash slope, or whatever) was virtually solid with baked clay. The interpretation of this intriguing feature and its place in the history of the site are discussed in a section below; we are concerned here simply with the objects so abundantly represented.

When the first lot of these objects was cleaned it was apparent at once that they were not Poverty Point objects, at least not of any type with which we were then familiar. They were fragments of baked clay objects of tetrahedral form. They were either intentionally destroyed or so unusually subject to breakage that of the thousands of specimens counted during the course of the excavations only a handful were substantially complete.[1] A few of these, shown in Fig. 16, are selected to give the full range of size and shape. The only significant variation is a fairly common tendency for the corners to be drawn out as in the fragments illustrated in Fig. 17. No complete specimens of this extruded variant were recovered, so we are unable to say whether all four corners of these tetrahedrons were drawn out in this fashion or possibly only one of them was. In any case a form markedly different from the specimens illustrated in Fig. 16 is indicated. With this trifling exception, the objects were so distinctive and uniform in shape that the name "tetrahedron" immediately suggested itself as a convenient way to distinguish them from Poverty Point objects. That they differ *in kind* as well as in shape is suggested by a number of intrinsic characteristics and also the special nature of their occurrence. To begin with, the clays used in their manufacture seem to have had a heavier sand content, or possibly sand was added as an aplastic; the correctness of this could be ascertained only by thorough investigation of local clays, which has not been done. More striking, however, is the almost uniform ashy gray color of the tetrahedrons, in sharp contrast to the buff, orange, and red tones of the Poverty Point objects, indicating either original firing under reducing conditions, or subsequent refiring under reducing conditions through accidental or other causes. A decision in favor of either of these two alternatives has important bearings on the relationship of tetrahedrons to Poverty Point objects and the question of function. The problem is complicated, but also rendered more interesting, by the fact that the tetrahedron-bearing deposits in Trenches 1 and 5 also contained Tchula Period sherds, many (not all) of which exhibited the same signs of reduced firing as the tetrahedrons.

Samples of these sherds, together with fragmentary tetrahedrons and Poverty Point objects, were sent to Mr. F. R. Matson, School of Mineral Industries, Pennsylvania State College, whose observations and tests, modestly characterized by him as "casual," are gratefully acknowledged as the basis for the inferences we are able to make here.[2]

A general characteristic of Tchula Period pottery at Jaketown is a tendency to buff and pinkish paste color, indicating that firing was normally under oxidizing conditions. Deviations are of course present, but (except in the tetrahedron deposit) quite rare. We are therefore inclined to infer that the darker colors of sherds associated with tetrahedrons are the result of subsequent firing under reducing condi-

[1] Figures showing the number of tetrahedron fragments per level in Fig. 39a are misleading. Although it could have been assumed that all fragments pertained to tetrahedrons, we counted only pieces large enough to show at least one corner intact. As an indication of the actual content of the deposit, it would be safe to multiply these figures several times.

[2] Letter of June 19, 1953.

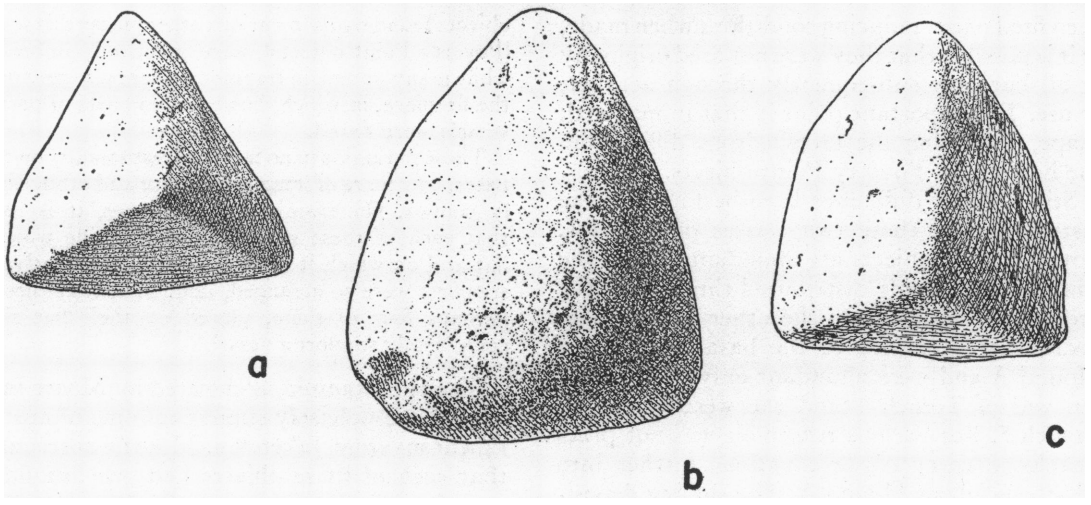

FIG. 16. Clay tetrahedrons of typical form.

tions. Matson points out that one would expect to find in the cores of these twice-fired sherds some trace of the original lighter color. Very few of the sherds in question (and none of the tetrahedrons) have lighter cores.[1] However, Matson also says,

If they [referring to both sherds and tetrahedrons] were subjected to a long reducing period, no vestige of the oxidized color would remain, for the gases penetrating through the porous body would reduce all the available iron.

[1] None of the sherds examined by Matson showed lighter cores, but, on breaking a larger number after receipt of his report, we found that a few cores showed a slight tendency towards buff and orange shades, amounting to about 10 per cent of the sherds examined.

It is apparent that we cannot come to any certain conclusion as to what occurred. The hypothesis that seems best to cover the facts is that the vessels represented by the sherds in the tetrahedron deposit were originally fired in the normal Tchula manner and subsequently, as sherds, were subjected along with the tetrahedrons to prolonged firing under reducing conditions sufficient to eliminate virtually all traces of their former color. Note that this theory does not require that the tetrahedrons also suffered the same change. They may have

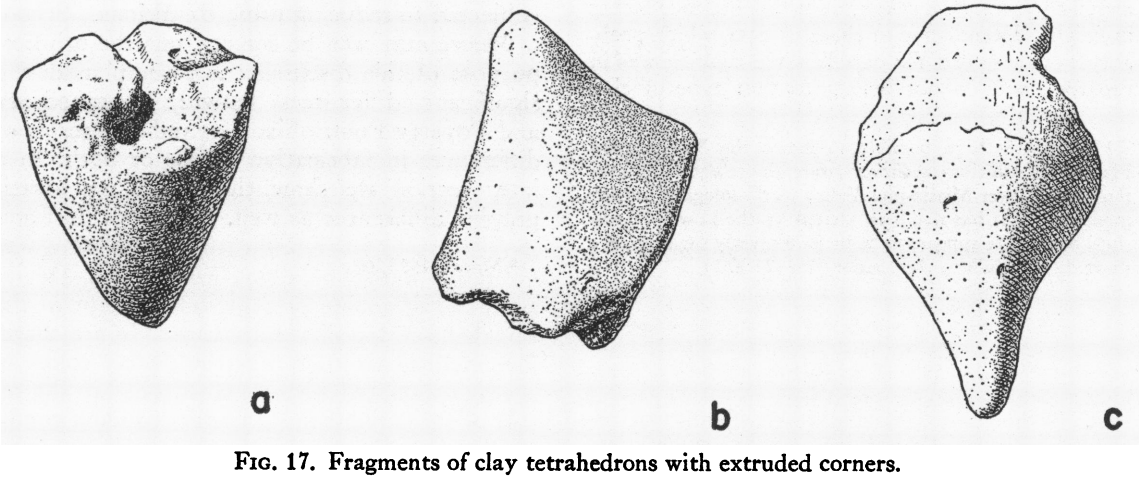

FIG. 17. Fragments of clay tetrahedrons with extruded corners.

been fired under reducing conditions when made, or it is possible that they were not fired originally at all but only subsequently through accident or use. The important point is that in material, shape, and firing the tetrahedrons differ from the baked clay Poverty Point objects.

Still another difference is to be found in the distribution of these two classes of artifacts. Poverty Point objects are abundant and on the whole rather evenly distributed throughout the preceramic midden. On the other hand, tetrahedrons are confined to the basal deposits of Mound A and were abundant only in the eastern end of Trench 1 and the western end of Trench 5. For various reasons it was not practicable to carry our excavations farther into what was left of Mound A. The sloping deposition of the tetrahedrons (cf. Fig. 8) seemed to indicate that we had penetrated into a kind of talus deposit. A possibility is that some sort of practices took place on top of an early stage of the mound in which masses of tetrahedrons were reduced to fragments and thrown down the slope. If they had been swept off as unbroken objects, we would probably have found a greater quantity of complete specimens.

Clarence B. Moore is the only investigator who has observed these objects, or at any rate the only one who thought them worthy of notice. At the Montgomery Place on Bayou Macon, Franklin Parish, Louisiana,[1] at the base of a conical burial mound, he found a circular fireplace about 1 foot in depth and 32 inches in diameter.

> Within this fireplace was some charcoal and a number of objects of half-fired earthenware, rude, triangular pyramids in shape, from three to four inches in height. Twenty-five of these objects, which probably were supports for vessels while cooking was in progress, and do not belong to that type of clay objects found by us in various other places this season [Poverty Point objects], were practically unbroken, while many others, in fragments, were also present in the fireplace, in which, however, no parts of pottery vessels were found.
>
> These pyramids in no instance rest steadily on their bases, which are of irregular surface and often slightly convex. On examination, however, it is found that each of these supports has one side which is flat and on which it rests firmly. Consequently, the supports were so arranged, doubtless, that three or perhaps four of them, placed on their flat sides, could firmly support a vessel.[2]

The two examples illustrated by Moore in his Fig. 26 are precisely similar to some of our tetrahedrons from Jaketown. Moore's observation that each of these objects had one flat side is not particularly pertinent at Jaketown, where all the faces of most of the whole specimens recovered were fairly flat.

It must be admitted that Moore's theory that these objects were pot-stands might fit the conditions at Jaketown. Such a use would account for the high proportion of fragmentary specimens, for they would presumably be used until broken. It would also account for the evidence of prolonged firing under reducing conditions. While in use as pot-stands the tetrahedrons would be partly buried in the ashes and as fragments wholly so. It is altogether possible that this is the only firing they received, thus accounting for their extreme friability. If they were pot-stands, the association with sherds seems natural enough, though it is strange that Moore found none in the fireplace at the Montgomery Site. The sherds, too, might be presumed to have lain in the ashes and there been subjected to reducing firing conditions.

Moore may well be correct, but the primary purpose of this discussion is to emphasize the significant differences between tetrahedrons and Poverty Point objects, whether a result of differences in fabrication or use or both. In a later section we show that there are stratigraphic differences as well.

[1] It has not been possible to locate the Montgomery Place with sufficient accuracy from Moore's map to give the site a Lower Mississippi Valley Archaeological Survey number, and it has not been visited by the Lower Mississippi Survey. It appears to be in the Waverly quadrangle a short distance above the Lamar Site (23-K-1).

[2] Moore, 1913, 60.

POTTERY

POTTERY-BEARING REFUSE in the Jaketown Site is very rich. However, as the primary object of the 1951 operation was to investigate the underlying preceramic levels, the areas selected for excavation were not those that afforded deep sherd-bearing deposits, and the total yield of sherds, slightly over ten thousand (Table 5), was not large in relation to the amount of dirt moved. As a matter of fact, the richest part of the pottery-bearing midden was destroyed by the highway engineers in excavating the borrow pit described in a preceding section. Fortunately, this portion of the site was tested by Phillips and Gebhart in 1946.[1] The abundance of pottery in this no longer existent midden is demonstrated by the fact that several 10-centimeter levels in a 2-meter-square cut yielded more than a thousand sherds apiece.[2] These 1946 tests were more successful in revealing the stratigraphic relationships on the site *within the ceramic period* than the far more extensive excavations described here, so it is not possible to add very much under that heading. What we are able to do here, thanks to larger samples, is to describe more fully some of the constituent types, particularly those of the Tchula Period that were represented by very small samples in the 1946 strata tests.

CLASSIFICATION

Classification of the Jaketown pottery offers no serious difficulties. In fact it is perhaps becoming too easy; we are led to suspect that the law of diminishing returns is beginning to operate so far as present typological methods are concerned. Apart from the usual number of stray sherds in the unclassified column, no pottery was encountered at Jaketown in 1951 that did not readily fall into pre-existent categories. Consequently it is not necessary to burden our text with formal type descriptions. Instead we discuss each type in general terms, noting any departures from previously published descriptions, but concentrating on the immediate significance of its occurrence at Jaketown and its wider bearings, if any, on general dating problems in the Southeast. If some types that appear in Table 5 are not discussed, it is because we have nothing new to add.

SEQUENCE TERMINOLOGY

The usual method of constructing a working chronology for an area as large as the Lower Mississippi Valley is to compare local or regional sequences. These may be defined as series of cultural phases determined by stratigraphy or seriation on one or many sites within an area small enough to permit the assumption that cultural changes are primarily temporal. To date, only one sequence, that of Ford and his co-workers, has been established in the lower part of the valley. This centers about the mouth of the Red River. The Lower Mississippi Survey, on the other hand, achieved an area chronology of greater geographical extent by short-cut methods based on pottery alone.[3] It was tacitly understood that additional sequences would subsequently be set up as more complete data became available through excavation.

It now appears that the later cultures in the vicinity of Jaketown differ enough from what was considered typical of the area called "Lower Yazoo" in our 1951 report to warrant a separate sequence. Unfortunately, for the reasons stated above, the 1951 excavations did not furnish good stratigraphy for the later periods, and the results of tests made on other sites in the area more favorable from this point of view are not yet available. One of the present authors (Phillips) devoted two seasons of survey work in 1949–1950 to the Lower Yazoo

[1] Phillips, Ford, and Griffin, 1951, 274–276.

[2] The total yield of sherds in Cut A was 6929. It should be noted, however, that material from this cut was screened, whereas the not much larger total excavated in 1951, with about 40 times as much dirt moved, was recovered mainly by the shovel—an interesting comparison.

[3] Phillips, Ford, and Griffin, 1951, 427.

Area, but, except for the important Lake George Site (21-N-1), the collections have not been analyzed. It should be possible to set up a satisfactory regional sequence on the basis of this work, but it was not thought desirable to defer publication of the excavations at Jaketown until this was completed. Consequently, we are confronted with a choice of dealing with the Jaketown material either in terms of Ford's Red River sequence, which does not quite fit, or in terms of the more generalized Lower Mississippi Survey chronology (Phillips, Ford, and Griffin) which does fit, but loosely. The latter alternative appears to be preferable at the present time. It has the advantage of permitting us to deal with the long Baytown Period, considerably telescoped in the deposits revealed by our trenches, as a single entity. Accordingly, in the pages that follow, pottery types are discussed under three major period headings: Tchula, Baytown, and Mississippi.

Because frequent reference is made to the Louisiana sequence about the mouth of the Red River, hereinafter referred to simply as the "Red River sequence," the rough correlation printed in the Survey report[1] has been modified to conform to our current ideas and is reproduced as Fig. 18.

POTTERY AND THE POVERTY POINT PERIOD

At this point we can make one of the few unqualified statements in this report, to wit, that pottery was *not* used at Jaketown in the Poverty Point Period. We are less positive as to whether it "comes in" at the close of the period, thus effecting a smooth transition to the succeeding Tchula Period, or whether there is a break in continuity coincidental with its first appearance. This is not an idle question. It is one that confronts us almost invariably, wherever an early pottery horizon is found superimposed on a preceramic culture. In the Southeast the usual interpretation is that the use of pottery is simply incorporated into the preexisting culture unaccompanied by corresponding changes in other elements of the complex.[2] As a result, the earliest phases of pottery making in the Southeast, particularly those represented by fiber tempering, are usually assigned to the close of the Archaic rather than to the beginning of the succeeding Burial Mound I (Early Woodland) Period.

This kind of interpretation does not appear to be supported by the evidence at Jaketown. While it is not possible to demonstrate any clean stratigraphic break between the Poverty Point and Tchula levels on the site (such breaks occur in the dream world of archaeology, but seldom in reality), there is every indication that pottery appeared at Jaketown abruptly as a fully developed complex. Elsewhere, as we have seen, the use of the Poverty Point objects may have continued for a considerable time after the introduction of pottery, but this does not seem to have been the situation at Jaketown. This point is discussed at length in the section on stratigraphy.

With some slight reservations, therefore, we are able to assume that Poverty Point, as represented at Jaketown, is a wholly preceramic culture lacking a closing phase in which pottery plays a part. It is curious, however, that in addition to their emphasis on the use of fired clay in the peculiarly diagnostic Poverty Point objects, the bearers of this culture had also reached the point in ceramic development of making excellent pottery pipes. Strictly speaking, this can be called a preceramic culture only by using the term in a narrow sense, as applied to the making of pottery vessels. That the occupants of the Jaketown Site reached the point of making pipes without experimenting with vessels seems remarkable. A purely conjectural explanation might be that the practice of cooking with clay balls was so thoroughly integrated into the culture as to bar the development or even the acceptance from outside of pottery and the different cooking practices made possible by its use. Whatever the reason, it seems fairly clear that pottery had undergone considerable development elsewhere before it appeared at Jaketown and that its appearance here marks an important shift in cultural emphasis.

[1] Phillips, Ford, and Griffin, 1951, 455, Fig. 73.

[2] Cf. Sears and Griffin, 1950, Fiber-tempered Statement, 1.

TABLE 5

POTTERY TYPE COUNTS IN TRENCHES 1, 2, 3, AND 5[a]

Type	Trench 1	Trench 2	Trench 3	Trench 5	Totals
Alexander Pinched	2	—	1	8	11
Arcola Incised	—	—	—	1	1
Barton Incised	1	—	—	1	2
Baytown Plain	7127	40	15	771	7953
Bell Plain	—	3	13	6	22
Belzoni Incised	2	—	—	7	9
Bluff Creek Punctated	—	—	—	2	2
Chevalier Stamped	3	—	1	7	11
Churupa Punctated	5	—	—	1	6
Coles Creek Incised	4	—	—	8	12
Coles Creek Polished Plain	9	—	—	60	69
Evansville Punctated	16	—	—	10	26
French Fork Incised	1	—	—	1	2
Jaketown Simple Stamped	26	1	15	71	113
Lake Borgne Incised	5	4	4	16	29
Larto Red Filmed	90	—	—	101	191
Leland Incised	1	2	5	4	12
Mandeville Stamped	—	—	—	1	1
Marksville Incised	22	—	—	6	28
Marksville Stamped	39	—	—	1	40
Mazique Incised	1	—	—	9	10
Mulberry Creek Cord-marked	80	3	1	183	267
Neeley's Ferry Plain	209	33	146	279	667
O'Neal Plain	3	—	—	2	5
Orleans Punctated	—	—	—	1	1
Oxbow Incised	6	—	—	7	13
Parkin Punctated	1	—	—	1	2
Rhinehart Punctated	—	—	—	2	2
Salomon Brushed	4	—	—	15	19
Tammany Pinched	55	5	26	52	138
Tchefuncte Incised	6	2	4	8	20
Tchefuncte Plain	52	9	72	67	200
Tchefuncte Stamped	17	—	8	30	55
Troyville Stamped	1	—	—	—	1
Wheeler Plain	—	—	2	—	2
Wheeler Simple Stamped	—	—	1	—	1
Withers Fabric-impressed	2	—	—	—	2
Woodville Red Filmed	3	—	—	11	14
Yokena Incised	2	—	—	7	9
Unclassified	47	2	12	27	88
Totals	7842	104	326	1784	10056

[a] Excavation 4 (Mound G) had no pottery.

POTTERY TYPES OF THE TCHULA PERIOD

The lowest pottery-bearing deposits at Jaketown were marked by the presence of most of the types described in the original Tchefuncte report, including those belonging to the so-called Alexander series.[1] Because the site lies so much nearer the Pickwick and Wheeler basins

[1] Ford and Quimby, 1945.

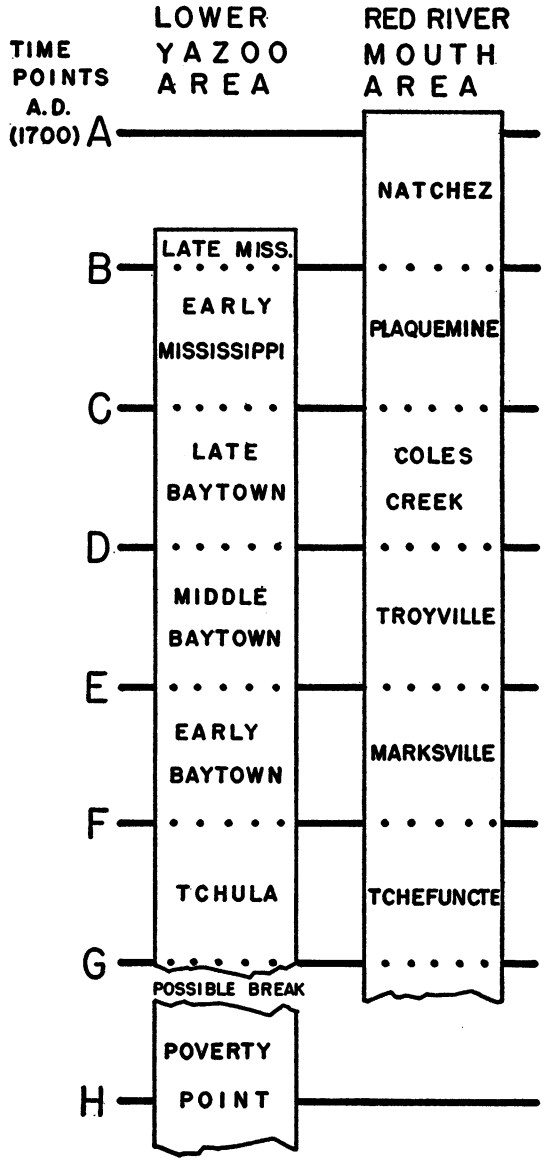

FIG. 18. Comparison of the Lower Yazoo Area chronology (Phillips, Ford, and Griffin, 1951) with the Red River Mouth Area (Ford, 1952, Fig. 2).

in northern Alabama, it might be expected that the Alexander types would be more abundant than in the Louisiana Tchefuncte middens, but this does not seem to be the case. Nor do these sherds tend to assume an intermediate position typologically. Thanks to the rather obvious difference between sand and clay tempering, no great difficulties were encountered in distinguishing between Alexander and Tchula types at Jaketown.

Certain departures from the Louisiana assemblage, however, must be noted. The types Tchefuncte Red Filmed, Mandeville Plain, and Chinchuba Brushed were not identified at Jaketown. The first, an extreme minority type, was not present in all the Tchefuncte sites. Its absence in the early Big Oak Island and Little Woods middens, combined with its presence in considerable strength in the Lafayette Mound, suggests a relatively late position for it in the Tchefuncte Period.[1] Absence of Mandeville Plain is of no apparent significance. There was a sand-tempered plain minority at Jaketown, but we chose to call it O'Neal Plain, because it was associated with decorated types of the Alexander series. Chinchuba Brushed is something of an anomaly. In the main, the technique of brushing is late in the Lower Mississippi Valley. Chinchuba Brushed apparently has no derivatives in the southern part of the Lower Valley throughout the long period represented by Marksville, Troyville, and Coles Creek. The technique was revived in Plaquemine Brushed in the period that bears that name. Farther north this revival of brushing seems to have taken place a little earlier, in the type Salomon Brushed, which we have so far been unable to place chronologically, but which probably reached its maximum use in the Late Baytown Period.

The Tchefuncte type Orleans Punctated was almost entirely absent at Jaketown (one sherd). This seems a little strange because the type was fairly well represented in surface collections farther north in the Tallahatchie drainage, although for some unexplainable reason (possibly our uncertainty as to its proper identification), the existence of the type was not even mentioned in the Survey report. Its unique appearance at Jaketown in the bottom level of Analysis Unit 2 confirms the Tchula Period position previously assumed.

So much for the Tchula deviations from the Tchefuncte party line. The more interesting problems, such as the relationship of Tchula to the fiber-tempered and Alexander series, can be discussed more profitably after the individual types of these complexes have been passed in review.

[1] Ford and Quimby, 1945, Table 1, 71; Ford, 1952, Fig. 2.

Fiber-tempered Types

Figure 19

Some explanation is in order before fiber-tempered pottery of the Tchula Period is discussed. According to the authorities, fiber tempering lies at the base of all pottery development in the Southeast. It is distinguished as the pottery that "comes into" the Archaic without any other revolutionary development and brings that period to a close. It can be dated as Late Archaic or Early Burial Mound I (Early Woodland) according to personal predilection. The important fact is that in all three of the principal regions of fiber-tempered pottery (the Wheeler and Pickwick basins of northern Alabama; Savannah River and the Georgia coast; and the Indian and northern St. Johns rivers in Florida) there seems to have been an interval when the only pottery in use was fiber tempered.[1]

So far as present evidence goes, this is not true in the Lower Mississippi. No site has yet been found in which fiber-tempered is the only, or even the dominant, ware. On the contrary, its typical occurrence is in very small quantities. In Louisiana Tchefuncte it was present at one site only, to a total of five sherds, with no stratigraphic indication of priority over the standard clay and sand-tempered Tchefuncte Period types.[2] The Lower Mississippi Survey recorded the presence of fiber tempering on six sites, with an average of about one and one half sherds per site.[3] In the 1946 strata tests at Jaketown a few sherds classified as Bluff Creek Punctated (now Wheeler Punctated)[4] were found above the Tchula-bearing levels.[5] On reexamination these sherds appear to be somewhat doubtful and have been reclassified as Tammany Pinched (cf. discussion of Wheeler Punctated).

In short, the situation to the present is that we have no evidence for the priority of fiber over clay and sand tempering in the Lower Mississippi Valley. The Jaketown Site might have been expected to provide such evidence, because here, for the first time, we have an early ceramic culture superimposed on a preceramic one. However, as we have already pointed out, there is an apparent break in continuity be-

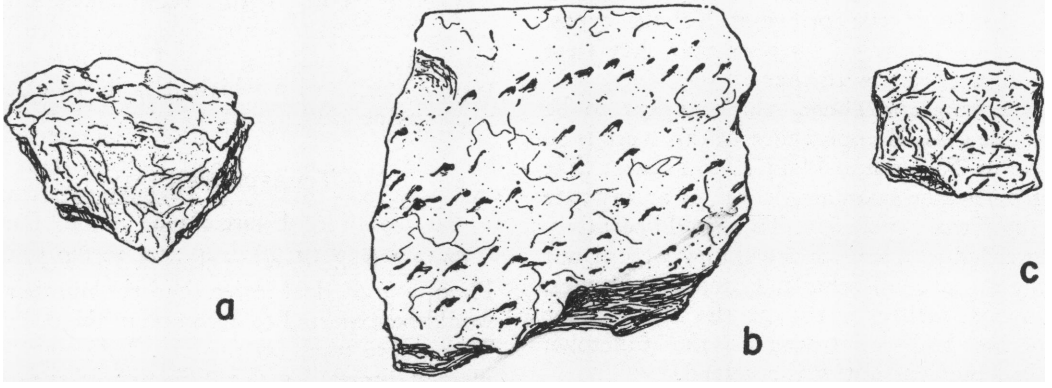

Fig. 19. Tchula Period types: fiber-tempered. a. Wheeler Plain. b. Wheeler (formerly Bluff Creek) Punctated. c. Wheeler (formerly Pickwick) Simple Stamped.

[1] This statement should perhaps be qualified for the northern Alabama Area. Actually only one site, Bluff Creek (Lu °59), gave stratigraphic evidence for a pure fiber-tempered period.

[2] The Little Woods Site, Ford and Quimby, 1945, Table 1, 71.

[3] Phillips, Ford, and Griffin, 1951, 70.

[4] The unfortunate and confusing effect of changing the names of pottery types after they have once been formally described and named is well illustrated in the following discussion. Here we attempt to follow the nomenclature proposed by Griffin and his co-workers in the loose-leaf handbook of "Prehistoric Pottery of the Eastern United States" issued by the Museum of Anthropology, University of Michigan, at irregular intervals. However, it is questionable whether the highly debatable advantages of giving the same name to supposedly related types excuse the compounded confusion that results from the changing of type names already cited in publications.

[5] Phillips, Ford, and Griffin, 1951, 275, Fig. 44.

tween them. It remains a possibility that the gap in time, if such there was, represents that theoretical fiber-tempered horizon. In that case the few fiber-tempered sherds found in the Tchula Period levels might be interpreted as survivals from the earlier period. This, however, can be regarded only as a remote possibility, as may be deduced from the extremely scanty evidence that follows.

Wheeler Plain

Figure 19a

Only two sherds from the 1951 excavations were typed as Wheeler Plain. Both were in the Tchula Period deposit of Trench 3, one in the lowest level containing pottery, the other in the lowest but one. Both were directly associated with sherds of the principal Tchula types. Nothing in the record suggests that they were not contemporary with them.

Aside from the fibers, which appear to be grass, the general appearance of this ware is so similar to Tchefuncte Plain as to suggest that the grass is merely an accidental, or at any rate non-significant, inclusion. This would certainly be regarded as a serious possibility were it not for the presence of other fiber-tempered types. It appears, rather, as though the idea of fiber tempering had penetrated to the Jaketown locality, but was not well received.

Wheeler Simple Stamped

Figure 19c

Of the type Wheeler Simple Stamped (formerly Pickwick Simple Stamped) we have only one sherd, also from Trench 3, in the lowest pottery-bearing level directly overlying the non-ceramic Poverty Point occupation. There were only five other sherds in this level, four Tchefuncte and the other shell-tempered, the latter an obvious intrusion. In this case there can be no question of accidental inclusion of grass fibers in the paste. The sherd is so heavily tempered with them as to rule out any possibility of confusing it with the type Jaketown Simple Stamped.

Wheeler Punctated

Figure 19b

This type (formerly Bluff Creek Punctated) has proved a little difficult to handle. We have already referred to our misidentification of this type in the 1946 strata test material. The reason is that at Jaketown a good many sherds are typologically intermediate between Wheeler Punctated and Tammany Pinched. That is to say, they are punctated in precisely the same manner as Wheeler, but show either very minor indications of fiber tempering or none at all. Because Tammany Pinched is the commoner type at Jaketown we have sorted all these doubtful examples into that category, except a few that are sandy enough to qualify as Alexander Punctated. Only sherds that are clearly fiber-tempered have been retained, cutting the number down to three, one from the surface and the other two from the basal Tchula Period deposit in Trench 5.

The net result of this very insufficient evidence is that fiber tempering at Jaketown shows no sign of preceding the Tchefuncte-Tchula type material with which it is in all cases directly associated.

Tchefuncte Plain

Figure 20a–d

Only 200 sherds were classified as Tchefuncte Plain, a good deal fewer than the number that would be expected to accompany the decorated Tchefuncte types on the site. This may be explained simply by the difficulty in separating Tchefuncte from Baytown Plain, in which type we have been including nearly all the clay-tempered plainwares of this region. Only those sherds that showed extreme Tchefunctoid characteristics were so typed. The borderline cases, regardless of level, were classified as Baytown. As a result, some of the deepest pottery-bearing deposits at Jaketown actually show higher plainware counts of Baytown than Tchefuncte.

This is, however, not the whole story. One of the outstanding general characteristics of the Tchula complex at Jaketown is the high percentage of decorated types in relation to plain. This can be readily observed in all stratigraphic diagrams, where the heavy blocks of Tchula Period decorated types in the lower levels are the direct outcome of a significant drop in percentages of plainware (not shown). For example, in Cut A (Fig. 41) in the predominantly Baytown deposits, Levels 4–10, plainware averages 95.4 per cent as compared with 79.5 per cent in the Tchula Period, Levels 13–16.

Figures for the bottom levels of Analysis Units 1 and 2 (Figs. 43, 45) would be still lower. To anyone accustomed to the overwhelming preponderance of plainware in the Lower Valley throughout the Baytown and Mississippi periods, this drop of 15.9 per cent is very significant.

Comparable figures for Louisiana Tchefuncte are extremely interesting. Plainware percentages (Tchefuncte Mandeville and O'Neal combined) in Midden A of the Tchefuncte Site are given in Table 6.[1] Averages compare closely with the Tchula Period in Cut A averages of 79.5 per cent, but more interesting is the consistent trend towards reduction of plainware frequencies with depth. In other words, the earliest Tchefuncte Period pottery is the most likely to be decorated. The generalization, based on fiber-tempered ware in other areas of the Southeast, that the earliest pottery was undecorated either does not hold for the Lower Mississippi, or the earliest pottery has not yet been found.

TABLE 6

PLAINWARE FREQUENCIES IN THE TCHEFUNCTE SITE

Level	Analysis Unit 1 Per Cent	Analysis Unit 2 Per Cent
A	88.9	88.4
B	87.6	84.0
C	79.8	64.7
D	75.9	69.9
E	63.1	70.7
Average	79.1	75.5

To return to Tchefuncte Plain at Jaketown, the type is as described by Ford and Quimby,[2] except as enumerated below.

No powdered red ocher adheres to surface cracks as in the Louisiana material, a fact probably related to the absence at Jaketown of the type Tchefuncte Red Filmed.

Exterior marginal thickening of rims is less common and, where present, less pronounced.

Rim bosses are fairly common in the Jaketown material. Nine out of 26 Tchefuncte Plain rims show this feature (Fig. 20a–c). In five cases the holes are left open; in the other four, they are plugged and smoothed in the usual manner. Rim bosses do not occur on clay-tempered Louisiana Tchefuncte types, but are present on the associated sand-tempered Alexander types from the Louisiana middens. The significance of this fact is not immediately apparent. The rim bosses at Jaketown are larger and more widely spaced than is typical in the Alexander series. The greater frequency of rim bosses at Jaketown undoubtedly reflects the fact that this site lies near the frequency center for this trait in the Central Mississippi Basin.

Crack-lacing holes are not present, but the sample is too small for this fact to be significant.

Bottoms are flat or flattened. There is no evidence of annular bases or legs, a conspicuous departure from Louisiana Tchefuncte, in which some sort of basal feature is very common. This statement also applies to the other types from the Tchula Period levels at Jaketown. One unusual sherd suggests a triangular base unlike anything previously described (Fig. 20d). It is hardly necessary to add that this base may have come from a vessel belonging to one of the decorated types.

TCHEFUNCTE INCISED

Figure 20e–i

Tchefuncte Incised is not common at Jaketown. Most of the features described by Ford and Quimby,[3] including the characteristic "wiggled" line, are present (Fig. 20i). One rim shows bosses, but there are no other modifications worthy of record.

TAMMANY PINCHED

Figures 20j–l, 21a–l

This type is fairly abundant at Jaketown, but does not quite conform to Ford and Quimby's original type description.[4] Some of the differences were discussed in the 1951 Survey report,[5] but we failed to point out that Ford and Quimby's statement that the impressions "appear to have been made with the finger nail"[6] does not apply to a large percentage of the Jaketown sherds. The term "pinched" therefore is not really applicable, though we have let it stand to

[1] Ford and Quimby, 1945, Tables 3 and 4, 75–76.
[2] Ford and Quimby, 1945, 52–54.
[3] Ford and Quimby, 1945, 58.
[4] Ford and Quimby, 1945, 58–60.
[5] Phillips, Ford, and Griffin, 1951, 71.
[6] Ford and Quimby, 1945, 59.

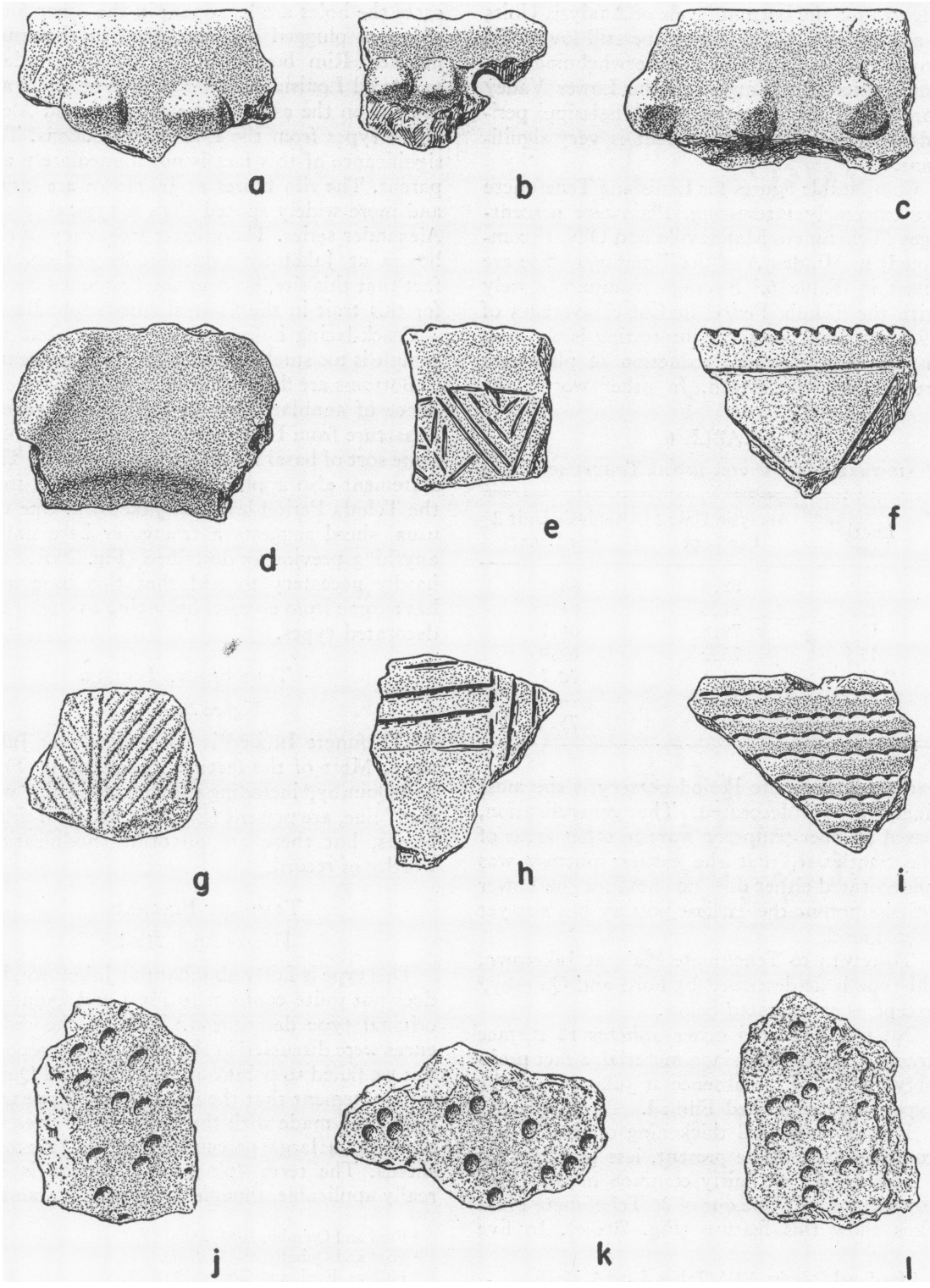

FIG. 20. Tchula Period types. a–c. Tchefuncte Plain, rims with bosses. d. Tchefuncte Plain, unusual triangular base. e–i. Tchefuncte Incised. j–l. Tammany Pinched, sherds with round punctations.

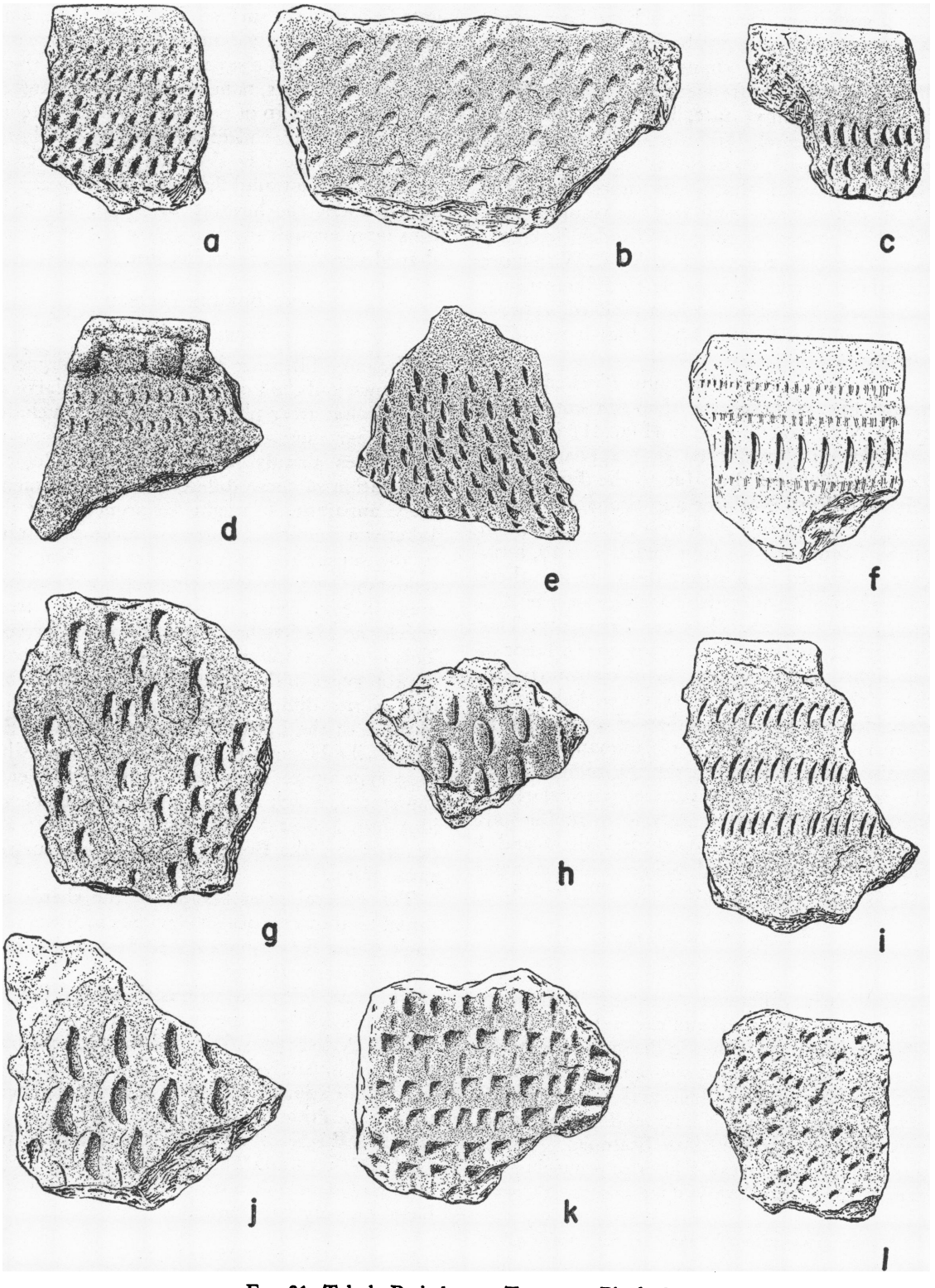

FIG. 21. Tchula Period type: Tammany Pinched.

avoid confusion. Punctations have been made with various implements besides the finger nail, and their size and shape vary considerably. Probably the most frequent arrangement is, as Ford and Quimby state, in parallel rows encircling the vessel, but in many examples the punctations seem to occur at random. Among these are sherds that bear impressions of a blunt, round instrument and the result is very like the fiber-tempered type Wheeler (formerly Bluff Creek) Punctated (Fig. 20j–l). With more material it might be possible to differentiate a punctated, as distinct from a pinched, type; if so, it would seem quite likely that it would be earlier.

It is possible that Tammany Pinched had a longer life at Jaketown than its companion types. Note that in Cut A (Fig. 41) it is the only Tchula Period type that appears above Level 11. This could be due to the difficulty of sorting it from the later and probably derivative type Evansville Punctated. Reëxamination of the Tammany sherds in Levels 7 to 10, however, prompted by a strong desire to sort them with Evansville in order to clean up the diagram, was fruitless. They are Tammany. This apparent carry-over is an argument in favor of our lightly held assumption of continuity between the Tchula and Baytown periods on the site. However, the possibility of an accidental disturbance that cast a few Tammany Pinched sherds up into higher levels in the midden seems the more probable explanation, particularly in view of the fact that there was no similar evidence of persistence in Analysis Units 1 and 2 (Figs. 43 and 45) or indication of higher mean vertical position in the trenches (Table 7).[1]

Tchefuncte Stamped

Figure 22a–h

The chief difference between Tchefuncte Stamped of Louisiana[2] and the material so classified at Jaketown is that in the latter the stamp is not usually impressed so deeply at the end of each rocking motion. This makes it more difficult to sort from the later and probably derivative type, Indian Bay Stamped. Also in most sherds the parallel lines of stamping are rather close together, giving a sort of corrugated effect to the surface (Fig. 22c). The stamp employed was rarely dentate—in only three out of 55 sherds. Of the seven rims available, three showed rim bosses, none of which were plugged (Fig. 22b). The lip of one rim has deep notches (Fig. 22a). The collection contains no basal sherds, but one low side-wall sherd suggests junction with a round flat base. Nothing can be added under the heading of shape. The only rims large enough suggest a deep pot or barrel-shaped vessel with insloping rim.

Lake Borgne Incised

Figure 23a–i

The only difference between Lake Borgne at Jaketown and the Louisiana type material[3] is in a somewhat freer play of design that includes curvilinear motives, and in the possession of rim bosses already noted.[4] The chronological implication of these differences is not immediately apparent. It might be argued that the Jaketown material suggests greater proximity to the succeeding Marksville types. Note the tendency towards contrasting plain and hatched areas in Fig. 23h–i, a sort of treatment from which the Marksville style could have derived. This is not an unimportant point. The absence of prototypes in the Tchefuncte Period presents one of the difficulties in supporting the hypothesis of the Lower Mississippi origin of the Marksville-Hopewell style. The only possible prototype up to the present has been Orleans Punctated, which at least introduces the zoned idea into Lower Valley ceramics. Now it appears that Lake Borgne Incised also does the same thing.

The general resemblance, in the sherds referred to above, to design elements in Alexander Incised and Smithsonia Zoned Stamped is particularly worth noting.

There are faint indications that Lake Borgne may be slightly younger than its companion Tchula Period types. It failed to reach the bottom level in Analysis Unit 2 (Fig. 45). Although it does not appear in Analysis Unit 1, the mean vertical position for the whole trench was considerably higher than the other Tchula types (Table 7, p. 109). The latter would be fairly strong evidence were it not that the position is based on only five sherds.

[1] For an explanation of "mean vertical position," cf. p. 107.

[2] Ford and Quimby, 1945, 56–57.

[3] Ford and Quimby, 1945, 61–62, Pl. 4.

[4] Phillips, Ford, and Griffin, 1951, 72, Fig. 76.

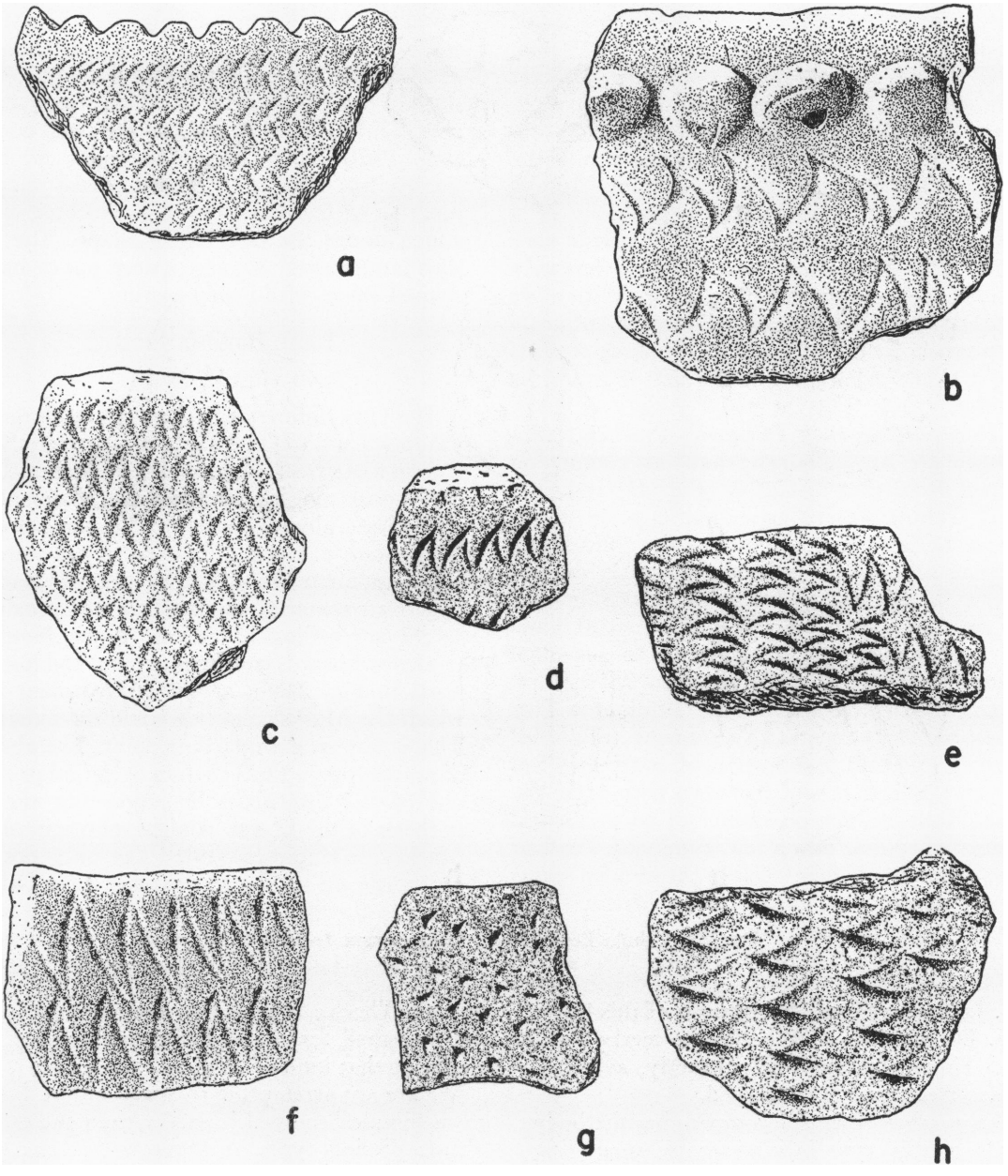

FIG. 22. Tchula Period type: Tchefuncte Stamped.

JAKETOWN SIMPLE STAMPED

Figure 24a–l

In the Southeast the term "simple stamping" has been applied to two different varieties of treatment. Most common is that in which the vessel has been malleated with a grooved or thong-wrapped paddle or other tool, which produces a number of parallel linear impressions simultaneously. This is perhaps the most acceptable use of the term. However, it has also been applied, in one case at least (Wheeler Simple Stamped), to pottery malleated with an implement making a single impression, possibly the edge of a paddle, resulting in haphazard linear impressions in a generally parallel direc-

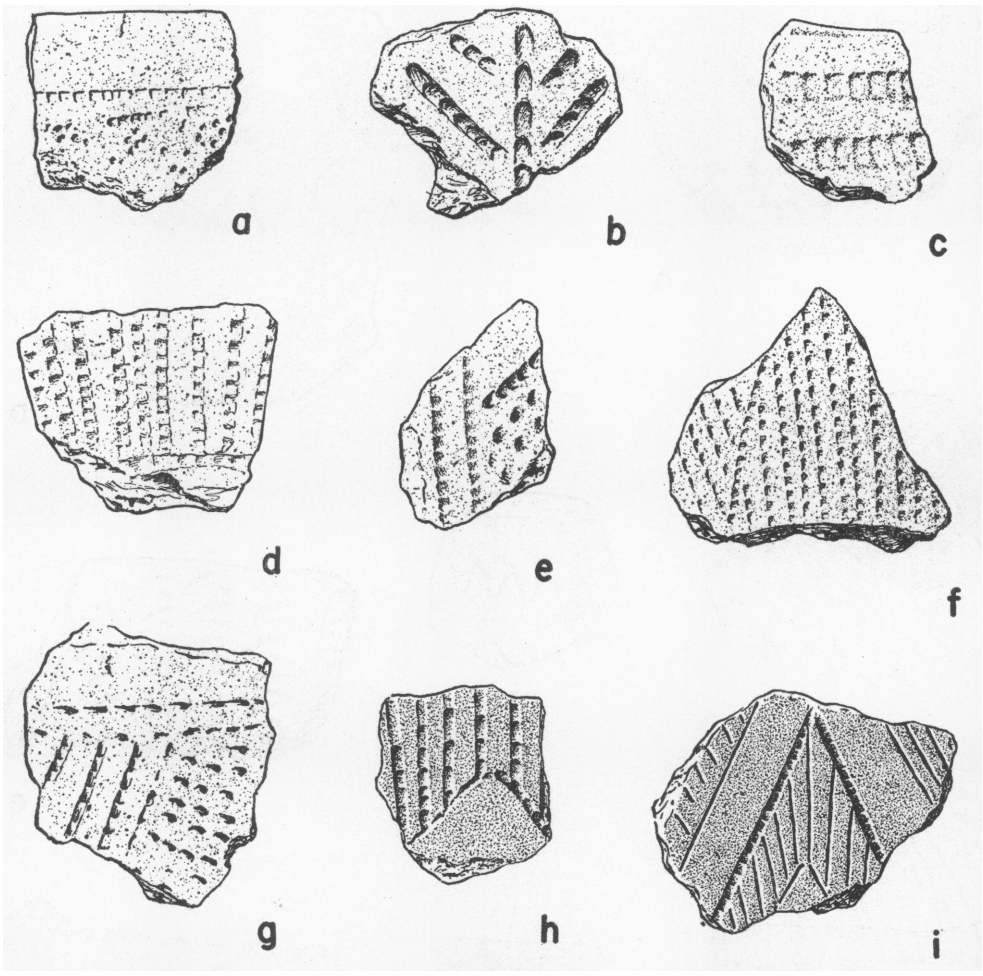

FIG. 23. Tchula Period type: Lake Borgne Incised.

tion. Jaketown Simple Stamped is of this latter type. Descriptions of Wheeler (formerly Pickwick) Simple Stamped fit it exactly, as far as surface treatment is concerned.[1]

The number of rims accompanying the body sherds of this type is inadequate, suggesting that in some vessels the stamping was not carried up to the lip. For the same reason the lack of rim bosses in the sample may not be significant. Basal sherds are also virtually missing. Most bottoms seem to have been round with no stamping carried down onto them. Only one sherd suggests a bowl with a round flat bottom, precisely similar to that said to be characteristic of Wheeler Plain.[2] The few rims available are too small for shape determination, but all would fit that kind of bowl.

We are not attempting to suggest that Jaketown Simple Stamped is earlier than the other Tchula Period types at Jaketown. It has the lowest mean vertical position in Trench 1 (Table 7), but does not show up so significantly earlier in Cut A or Analysis Units 1 and 2. Nevertheless, it relates typologically to an acknowledged very early ceramic tradition, and from its presence here and absence in Louisiana Tchefuncte it might reasonably be inferred that Tchula is closer temporally as well

[1] Haag, 1939, 3; Sears and Griffin, 1950, 2-1.

[2] Sears and Griffin, 1950, 1–2, second cross-section from left.

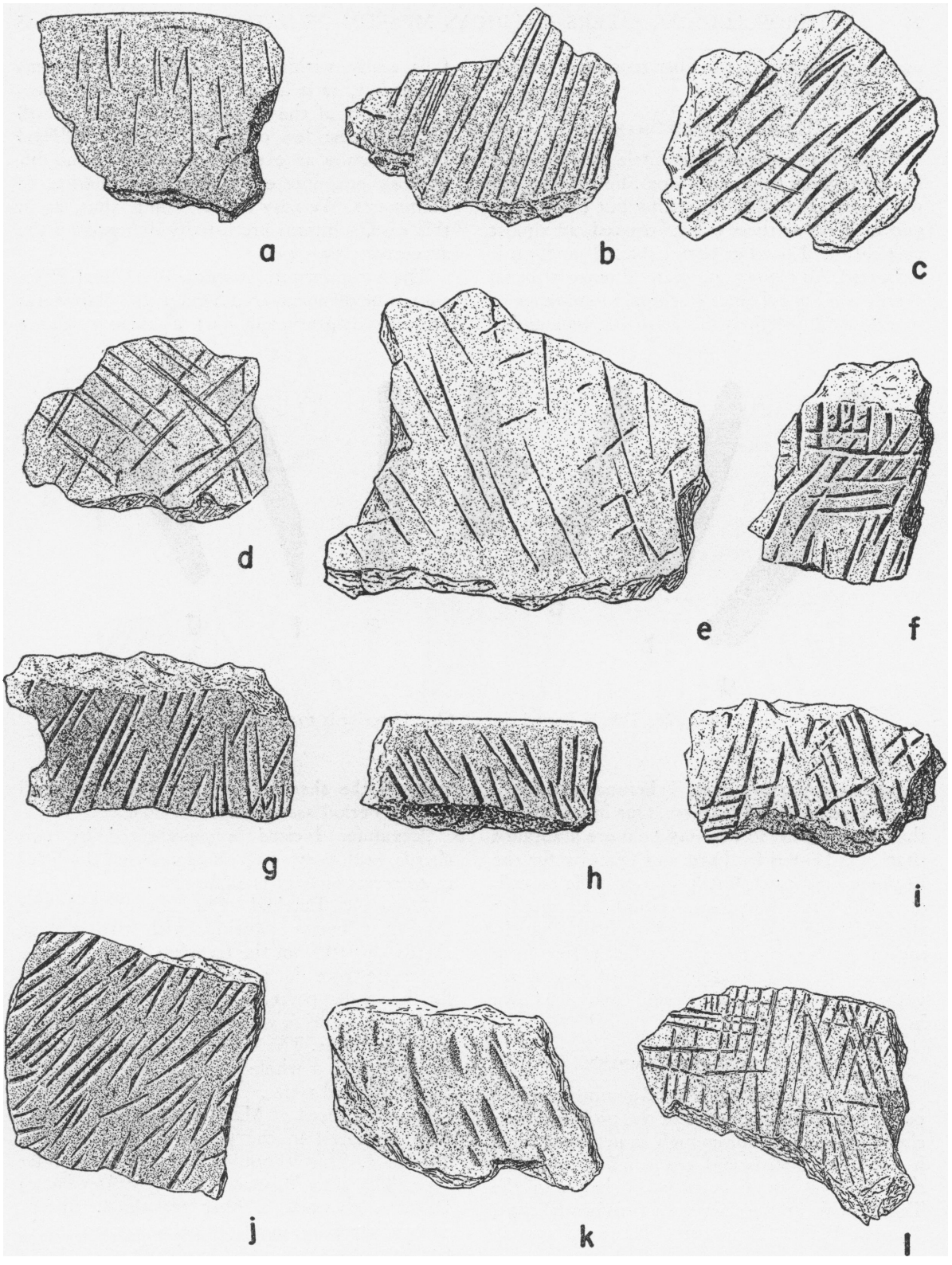

FIG. 24. Tchula Period type: Jaketown Simple Stamped.

as geographically to the fiber-tempered horizon in northern Alabama.

Tchula Period Shapes

In the above descriptions little consideration has been given to vessel shapes. Few rim sherds were large enough for anything but the wildest guess. So far as these can be trusted, an almost vertical-sided bowl or barrel-shaped jar form is indicated. An almost complete absence of basal sherds is clear evidence of the predominance of round or only slightly flattened bottoms and—a distinct departure from Tchefuncte norms—there were no podal features. Our impression is that simple bowl forms may be more abundant than is indicated by Ford and Quimby for the Louisiana material, but it is impossible to validate this with the present sample. Except for the fairly common bosses and occasional notching of the lip, rims are remarkably free from elaborations and modifications of diagnostic value. Profiles of Tchula Period rims are shown in Fig. 25.

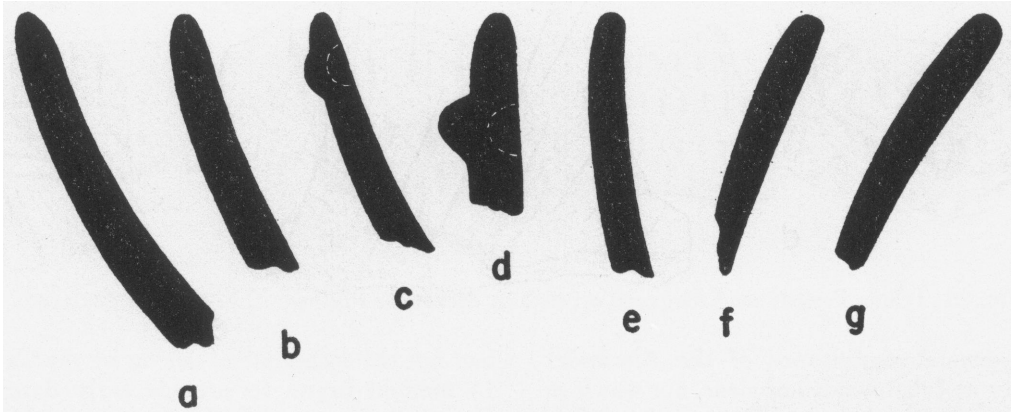

Fig. 25. Tchula Period rim profiles. Exterior is to the left.

The Alexander Complex

There is just enough sand-tempered plain pottery at Jaketown to raise the problem of its classification, but not enough to help in solving it—26 body sherds and one small unmodified rim. With a larger number of sherds in the Tallahatchie area we set up a provisional type, Thomas Plain.[1] The scanty Jaketown sample falls easily within the definition of Thomas Plain, but, as it is associated here with decorated types of the Alexander Complex, it will perhaps cause less confusion to call it O'Neal Plain. This is an excellent example of the difficulties encountered in the classification of plainwares. We may as well admit that, as in this case, solutions are usually dictated by the accompanying types.

The stratigraphic position of O'Neal Plain cannot be demonstrated here, as the plainwares are not diagrammed, but a cursory glance through the sherd counts indicates a general Tchula Period association.

Alexander Incised is represented by two sherds, both very small and somewhat doubtful as to correctness of classification.

Alexander Pinched (Fig. 26a–c) makes a somewhat better showing, with two surface sherds and 10 from the trenches, but six of the latter are from the same vessel. That accounts for the sizable percentage of the type in Analysis Unit 2, Level 5, which tends to make it seem later than it is. The mean vertical position for the trench as a whole is well down among the Tchula Period types.

One rim sherd of Mandeville Stamped (Fig. 26d) appeared in the post-Tchula deposit in Trench 5. This is not properly an Alexander type. The type Wheeler (formerly Alexander) Dentate Stamped is fiber tempered. Apparently there is no sand-tempered equivalent in northern Alabama, but Mandeville was closely associated with the Alexander types in Louisi-

[1] Phillips, Ford, and Griffin, 1951, 141–142.

ana Tchefuncte sites and was regarded there as an intrusion from the north.[1] The type is of interest to us, because it may have introduced the idea of dentate stamping into the Lower Valley. We have noted that a minority of the rocker stamping in Tchefuncte Stamped was dentate. This may be the source of the idea. Add the principle of zoning, which first appears in Lake Borgne Incised and Orleans Punctated, and we have the ingredients of Marksville Stamped. The theory is not helped very much, however, by this particular sherd, which was in refuse of the Baytown Period.

firmation, it has also been established as earlier than the limestone-tempered types of that region. The position of Alexander, then, in the northern Alabama sequence is bracketed between fiber and limestone tempering, possibly nearer the first than the second.

This was substantially the position taken by Griffin in 1946.[3] By this time, the Tchefuncte conclusions had been made known, and the association of Alexander types with that culture fortified the assumption of a Burial Mound I (Early Woodland) date for both complexes. Doubtless this is where it would have remained

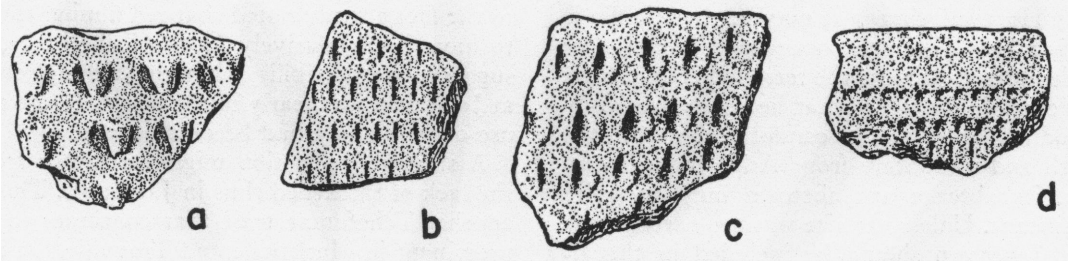

FIG. 26. Tchula Period: sand-tempered types. a–c. Alexander Pinched. d. Mandeville Stamped.

The general significance of the Alexander minority at Jaketown is not clear, nor was it in Louisiana for that matter. There is, by definition, a considerable quantity of sand in Tchefuncte paste. Are these merely extremely sandy examples of the corresponding Tchefuncte types? Apparently not in Louisiana, for they were virtually confined to one site (Tchefuncte); furthermore, they had rim bosses, whereas the local Tchefuncte types did not. The evidence here at Jaketown is too scanty, but we are inclined to think that Alexander pottery is an intrusion here also.

The dating of the Alexander complex is a thorny subject, probably because its real center has never been found. In the Wheeler and Pickwick basins, Alexander pottery was almost invariably associated with fiber tempering of the Wheeler types, so it was recognized as at least partly contemporary with that earliest pottery of the area. Only one site, Bluff Creek (Lu °59), gave clear stratigraphic evidence of the priority of the Wheeler complex over Alexander,[2] but it has been generally accepted as a fact. With somewhat better stratigraphic control had not the technique of dating by the Carbon 14 method begun to provide early dates for Hopewell, but not for Tchefuncte and Marksville. In a recent statement Griffin appears to regard it as proved that Alexander types are of the "Middle Woodland-Hopewellian time period."[4]

JAKETOWN TCHULA AND LOUISIANA TCHEFUNCTE

Though outweighed by similarities, the differences between these two complexes are not to be ignored. Most striking perhaps is the absence of simple stamping in the Louisiana complex. The fact that Jaketown Simple Stamped is the single impression, "paddle-edge" variety allies it closely with the early fiber-tempered type Wheeler (formerly Pickwick) Simple Stamped and suggests the possibility that the Jaketown complex may be slightly earlier than Tchefuncte. This is a very slight lead, but other circumstances point in the same direction.

In this connection we cite the lack of tetrapodal bases so characteristic of Tchefuncte

[1] Ford and Quimby, 1945, 63–64.
[2] Haag, 1942b, 520.
[3] Griffin, 1946, 47–49.
[4] Sears and Griffin, 1950, 4-1.

pottery in Louisiana. They are also present in Adena and Hopewell, in the Alexander and limestone-tempered series of northern Alabama, and in central Alabama.[1] Griffin has stated that the most probable place of origin for this trait is in the Lower Mississippi Valley and produced evidence to show that its appearance in the northern centers was relatively late. Thus it appears on limestone-tempered pottery at a time when plain (Mulberry Creek)[2] and check-stamped (Wright) surfaces are increasing at the expense of the earlier fabric-impressed type (Long Branch).[3] He also suggests that the tetrapod appears late in Adena and carries on into early Hopewell times.[4] It may be that Griffin is forcing this evidence somewhat for a Lower Valley origin, because the tetrapod is one of the few ceramic traits on what he terms the Early Woodland level that he cannot derive from the north and ultimately from Asia. If he is correct, its absence at Jaketown may be quite significant. Unless the site was too early or too late, Jaketown should be included in the alleged spread of the tetrapod from Louisiana to northern Alabama and beyond. In view of the fact that in Louisiana tetrapods persisted into Marksville times, the first alternative may be the more logical one.[5]

Another element bearing on this discussion is the presence at Jaketown of a type of punctation identical with Wheeler (formerly Bluff Creek) Punctated, except for the absence of fiber tempering. At the moment, as explained above, its identity is largely submerged in the type Tammany Pinched. If it is not far-fetched to think of this variant as early, its absence in the Tchefuncte middens of Louisiana may be significant.

Absence of redware in Jaketown is another point. Tchefuncte Red Filmed is almost certainly the direct ancestor of Larto Red Filmed, which first appears in Louisiana in Marksville and reaches its peak in Troyville times. The later type Larto is abundant in the Lower Yazoo; consequently, the absence of the older Tchefuncte version may be significant. Added to the fact already noted that red filming seems to have been relatively late in Tchefuncte, it suggests the possibility that the Tchula levels at Jaketown were early in the period before the use of red filming had become general.

A similar implication might be drawn from the lack of thickened rims in Jaketown. This is another Tchefuncte trait that continues to be prominent in Marksville and Troyville. On the other hand, it must be admitted that thickened rims are not generally common in the Lower Yazoo Area until Mississippi times, so their absence in the Tchula Period may be discounted.

The comparisons thus far cited suggest that Tchula at Jaketown may be earlier than Tchefuncte. However, these inferences are not conclusive, and we must leave the question open.

POTTERY TYPES OF THE BAYTOWN PERIOD

The 1946 strata tests indicated that the Baytown occupation at Jaketown was predominantly in the early and middle portions of that period.[6] This tentative conclusion was confirmed in the 1951 excavations. In terms of the Red River sequence, therefore, many of the types discussed under this heading related to the Marksville and Troyville periods in Louisiana. Late Baytown, corresponding roughly to the Coles Creek Period in time, is represented at Jaketown by a complex which, though it includes some Coles Creek types, is markedly divergent from the Coles Creek complex as a whole and thereby presents a problem which is discussed at length *passim*.

Baytown Plain

Figure 27

It must be confessed that we have gotten our Lower Mississippi plainwares into a muddle. We are not apologizing for it, because we have at least tried to deal with them, which is more than many archaeologists have done. In any case, explanations are in order, particularly in respect to the dominant clay-tempered types. In the Red River sequence, the following clay-

[1] Griffin, 1946, 50–51.
[2] Not to be confused with Mulberry Creek Cord-marked.
[3] Griffin, 1945, 233.
[4] Griffin, 1945, 237.
[5] Ford and Quimby, 1945, 53.
[6] Phillips, Ford, and Griffin, 1951, 276.

tempered plain types have been distinguished: Tchefuncte Plain,[1] Marksville Plain,[2] Troyville Plain,[3] Coles Creek Plain,[4] Coles Creek Polished Plain,[5] and Addis Plain.[6] In the Lower Mississippi Survey only one clay-tempered plain type was set up, Baytown Plain.[7] This illustrates two equally unsatisfactory methods of dealing with plain pottery. In the first, a type was set up for every time period, more or less, and it was freely admitted that in most cases only typical pieces could be sorted.[8] In the second, the sorting difficulty was eliminated, but the type had such wide variability and range in time and space as to be virtually useless for comparative purposes. However, this is not a discourse on typology, but a brief review of what has been done.

Our problem here is how to deal with the plainware at Jaketown. The site is near enough to the Louisiana area and covers enough time so that any of the above-listed types might be expected to appear. However, except for Tchefuncte and Coles Creek Polished Plain, we have not attempted to segregate them. The difficulties of sorting Tchefuncte Plain have already been discussed; those in connection with Coles Creek Polished Plain are described below. For the rest, we have fallen back on the Survey catch-all, Baytown Plain. It comprises the overwhelming majority of sherds in all levels, except the very earliest and the very latest. It is not, however, quite so difficult to pin down as that. At Jaketown, the interval corresponding to the Plaquemine Period is almost unrepresented, so we have very little if any plainware that would (in another context) be called Addis Plain. The late Baytown Period, corresponding to Coles Creek, is also lightly represented so the quantity of Coles Creek Plain, if we could sort it, would be small. Troyville Plain has turned out to be a kind of regional specialization, "an abortive trend toward crudeness in ceramics" that is perhaps commoner in Coles Creek than in Troyville times.[9] It is somewhat easier to sort; if it occurred in any strength at Jaketown, we probably could do so. Our assumption is that it did not range so far up the Mississippi Valley. With all these factors considered, it seems that the bulk of the sherds we are here calling Baytown Plain is the local equivalent to Marksville Plain, and to a less extent Coles Creek Plain, in Louisiana.

The most effective way to describe Baytown Plain at Jaketown is by reference to the original type description in the Lower Mississippi Survey Report.[10] Departures from that necessarily generalized description will be in the nature of sharper definition, as the range represented here is temporal only.

In matters of paste, it appears that sherd tempering is quite often employed. The "occasional" use of sherd tempering mentioned in the type description in the Survey report was, in fact, based largely on examples from the stratigraphic tests made at Jaketown in 1946. There is very little sand temper, whether accidentally included or otherwise. Sand-tempered plain, which we have called O'Neal, was readily sorted from Baytown, with few doubtful specimens. The carbonized particles mentioned in the original descriptions of Baytown and Marksville are likewise not much in evidence. This may be because the ware is fairly well fired. Dark cores are unusual. Hardness runs slightly above the 2.9 average originally given for Baytown. Color has about the same range, demonstrating how little reliance can be placed on this feature in classification. Thickness is almost exactly the same as the 7.1-mm. average given for Baytown in the southern portion of the Survey Area.[11] (Average of 40 sherds, 7.0 mm.; range, 5 to 11 mm.)

There is the usual variation in surface, but most characteristic is one that tends to be uneven and bumpy but slightly lustrous without showing actual polishing marks. Exterior and interior surfaces are about equally smoothed.

Under the heading of shape there are one or two significant departures from the original description. The number of simple open bowls is somewhat higher, 68 per cent of a total of 236 rims large enough for reasonably accurate determination (Fig. 27a–l). On the other hand, the percentage of incurved rims (Fig. 27m) is con-

[1] Ford and Quimby, 1945, 52–54.
[2] Ford and Willey, 1940, 59–65.
[3] Ford and Willey, 1939a, 3; Ford, 1951, 67–68.
[4] Ford and Willey, 1939b, 1–2; Ford, 1951, 70–74.
[5] Ford, 1951, 68–70.
[6] Quimby, 1942, 265–266; 1951, 107–109.
[7] Phillips, Ford, and Griffin, 1951, 76–82.
[8] Ford, 1951, 71.
[9] Ford, 1951, 68.
[10] Phillips, Ford, and Griffin, 1951, 76–82.
[11] Phillips, Ford, and Griffin, 1951, 77.

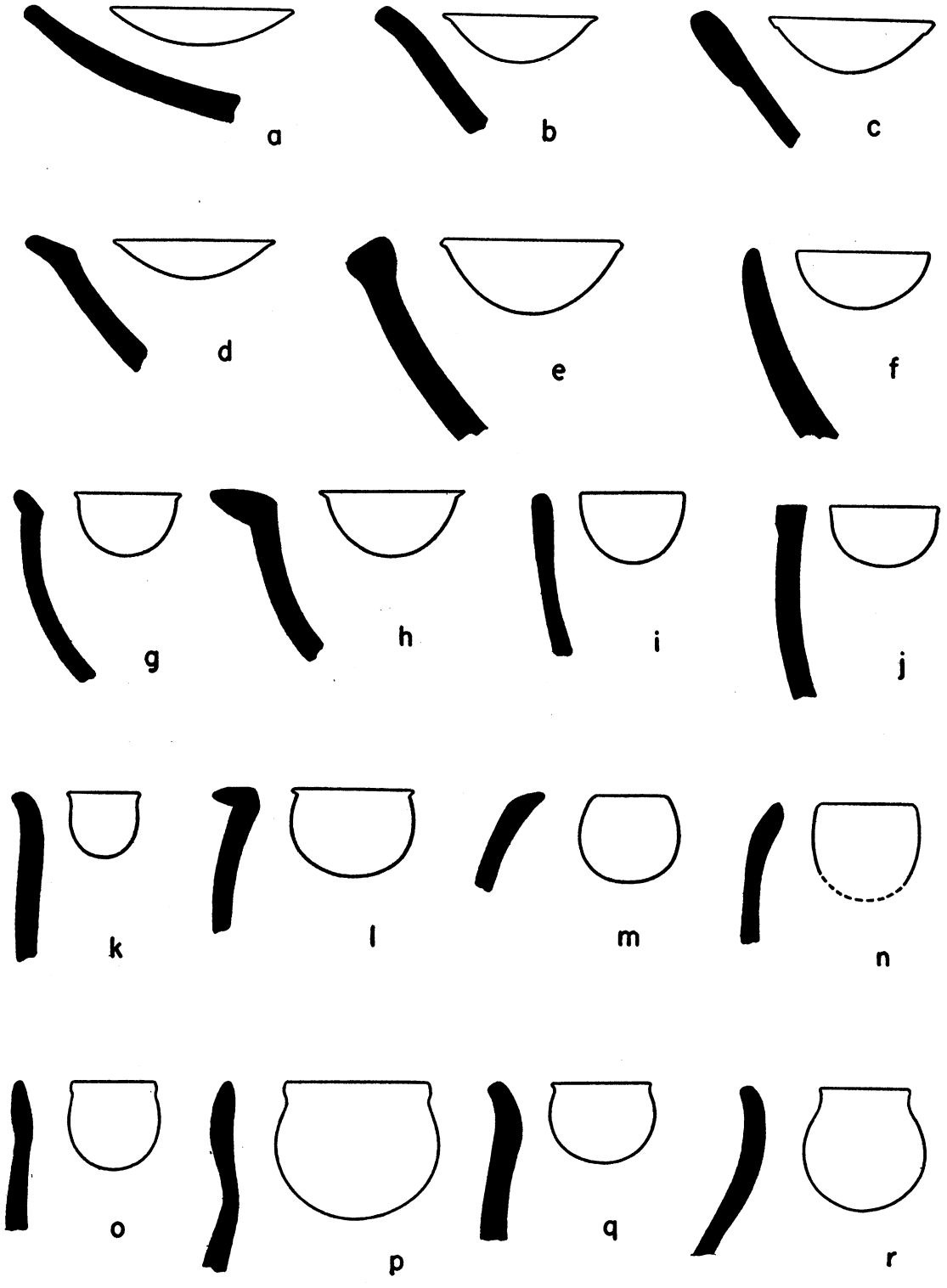

FIG. 27. Baytown Period. Rim profiles and reconstructed vessel shapes of Baytown Plain.

siderably below the previous figures, 7.5 per cent as compared with 29.5 per cent in the Survey report. Jars with recurved rims (Fig. 27r), which were next in frequency in the earlier analysis, have dropped way down to the vanishing point—only 2.1 per cent compared with the previous 26.7 per cent. This results from the sharp increase in straight incurved or inslanted rims that are apparently from vessels better described as cups, deep bowls, barrel-shaped vessels or beakers, which make up 21.6 per cent of the sample (Fig. 27n–q). We infer that most of the flat bases in the collection are associated with this category. Obviously this represents more than one shape. They are treated together, because it is impossible to tell which is involved unless the rim sherds are exceptionally large. All occur, but we cannot give reliable estimates of frequency.

Notwithstanding the difficulty of determining gross shape from rim sherds, it does appear that these departures from the over-all Baytown situation are significant. The outstanding feature is the low incidence of recurved rims that we associate with the jar form. Except for the cambered rim, Louisiana Marksville jars or "pots" show so little recurve that it would be difficult to recognize them from rim sherds alone.[1] The jar with restricted neck and recurved rim, which became the dominant vessel shape in the Mississippi Period, is assumed to have begun its career relatively late in the Baytown Period. Its absence, therefore, fortifies our assumption that most of the Baytown Plain at Jaketown represents the earlier portions of the life span of the type.

As in the original description, the great majority of Baytown rims at Jaketown are unelaborated. A minority, 2.2 per cent, are thickened exteriorly or interiorly by means of a fold that, in some cases, is welded onto the vessel wall so that a smooth contour is presented (Fig. 27c). More often the lower edge of the fold projects and is somewhat ragged in appearance. Often it is difficult to decide whether the potter intended to produce a rim fold or was simply careless.

Thickening of rims by folding is present in Louisiana plainwares from Tchefuncte through Coles Creek, but is more prominent in Troyville Plain where the frequency is considerably higher than at Jaketown. Unfortunately, until more is known about the northern distribution of Troyville Plain, we cannot say whether spatial or temporal factors are reflected in the difference.

Modification of rims by beveling is a fairly consistent feature in Baytown Plain at Jaketown (2.6 per cent). On the exterior, the beveling is often combined with folding. Interior beveling is even more common and produces a characteristic rim (Fig. 27d, g) that may have diagnostic value.

Some rims are decorated by nicking and notching (3.4 per cent). Impressions range from barely perceptible nicks to broad and sometimes deep notches or scallops. Apparently every sort of implement, including the finger, was used. One general characteristic, however, is shared in common; the impressions are made directly across the lip and are not confined to the exterior angle.

Additional methods of decorating rims covered by the original Baytown description, such as a single line or row of punctations on the exterior below the lip, indented rim strips, pinching, nodes, etc., are not in evidence. Previous studies gave reason to believe that most of these were northern and possibly late features, so their non-emphasis at Jaketown is to be expected.

The proportion of basal sherds to the total Baytown Plain sherd count (0.8 per cent), as compared with rims (24.5 per cent), indicates that the overwhelming majority of Baytown Plain vessels had rounded bottoms. This is undoubtedly corollary to the fact that bowls are the commonest shape, which in turn permits us to assume that most, if not all, of the jar, beaker, or barrel-shaped forms had flat bases. Because bases are smaller but thicker than rims and tend to make larger, hence fewer, sherds, the sample is adequate to justify the above statement. The breakdown as between round flat bases and square is about even, 15 per cent as compared to 18 per cent of a total of 62 bases. The majority are indeterminate, because square bases tend to have convex sides and rounded corners, rendering identification difficult.

Triangular lugs are more common (1.5 per cent) than might be expected from a sample assumed to be drawn largely from the early and

[1] Ford and Willey, 1940, Figs. 22e–f; 25, center; 28e; 31d; 34; and others.

middle Baytown Periods. In Louisiana this is a prominent Coles Creek Period feature.

The original Baytown definition includes a description of occasional "rims showing gourd features,"[1] which were designated as a "southern" element. Their presence in five examples at Jaketown confirms this and because none of them occurred at depths lower than 30 cm., a relatively late date is inferred.

The foregoing remarks have effected only a slight sharpening of the earlier definition of Baytown Plain. It is rather surprising that, with the spatial factor entirely eliminated, we cannot present a more coherent picture of the type as it appears at Jaketown. The result is not very encouraging to the prospect of clarifying our Lower Mississippi plainware muddle under existing methods of pottery classification. We still feel, however, that the solution is not to ignore the plainwares, as we are doing here, so far as stratigraphic interpretations are concerned, but to emphasize sortable attributes, such as rim form, bases, appendages, etc. Our excuse for failing to attempt an analysis of this kind here is that ceramic stratigraphy was not a primary aim of the Jaketown excavations.

Withers Fabric-impressed

Figure 29a–b

Jaketown is considerably to the south of the geographic range of this important early type, so its presence in only two sherds from Trench 1 and four from Cut A is not surprising. The maximum occurrence of Withers farther north, in its home area, was in the Tchula Period, but it persisted well into Early Baytown. Here at Jaketown it could be either period. One of the sherds in Trench 1 was at the base of a deposit containing Tchula Period types; the other was associated with Baytown material. Only the latter shows in the diagram of Analysis Unit 1 (Fig. 43). In Cut A (Fig. 41) the type occurs between the Tchula and Early Baytown Period complexes. In characteristics of paste, however, the sherds are definitely Baytown. It is largely for this reason that the type is here relegated to the Early Baytown Period. It is not unreasonable to assume that the numerical unimportance of Withers at Jaketown represents a late marginal situation, which does not detract from its presumed early position farther north.

Marksville Stamped

Figure 28a–l

This important Lower Valley type is not so well documented as one could wish. Apart from one vessel found by Moore at Anderson Landing on the Yazoo River,[2] the type was first encountered at Marksville in 1926 by Fowke, who illustrated a few vessels in a preliminary report,[3] but failed to publish any additional ceramic data in his final report.[4] Some years later, Setzler recognized the Hopewellian characteristics of Fowke's finds and published two short papers announcing the discovery and illustrating a few vessels and sherds.[5] Subsequent excavations at Marksville by Setzler and Ford in 1933 were briefly reported by the former in 1934 and some of the material was illustrated,[6] but the complete report has not yet appeared. Finally, Ford made stratigraphic tests at the site in 1939 and presented the results graphically in the Crooks Site report, but without illustrations.[7] Ford's description of Marksville pottery in his 1936 report on village site collections in Louisiana and Mississippi is based on a surface collection made on the site.[8] Published data on the "classic" Marksville material are therefore extremely limited.

However, a good deal of Marksville Stamped from other sites was illustrated by Ford in 1936,[9] in the Peck Site report,[10] and most fully in the report on the Crooks Site.[11] The last publication contains the only formal type description in print. When using it for comparative purposes, the reader should remember that

[1] Phillips, Ford, and Griffin, 1951, 80.

[2] Moore, 1908, 587, Fig. 3.
[3] Fowke, 1927, 254–259.
[4] Fowke, 1928, 405–555.
[5] Setzler, 1933a, Pls. 1–4; 1933b, Fig. 2.
[6] Setzler, 1934, 38–40, Figs. 44–46.
[7] Ford and Willey, 1940, Fig. 59.
[8] Ford, 1936, 229–231, Fig. 42.
[9] Ford, 1936, many figures, Type 31; $\frac{23}{101/102}$;1/2, but at this time no distinction was made between Marksville and Troyville Stamped so the type included both.
[10] Ford, 1935, Pl. 1, Type 14a.
[11] Ford and Willey, 1940, 65–74, Figs. 28–34.

it is based on pottery that is believed to be early within the Marksville Period.

Too small a quantity of Marksville Stamped was collected by the Lower Mississippi Survey up to 1947 for anything significant to be added to the above except that the type occurs consistently up to approximately the mouth of the Arkansas River and sporadically north of that region.[1] Subsequently Phillips located several sites in the Lower Yazoo Basin that yielded a fair amount of Marksville Stamped, but these collections have not yet been analyzed.

Marksville Stamped and the accompanying types of the Marksville Period were found in stratigraphic relationship to the Tchefuncte complex of types at several sites near the mouth of the Mississippi River.[2] However, the quantities were very small, and the slightly larger sample of 53 Marksville Stamped sherds from Jaketown offers an opportunity to re-assess the relationship. Since these stratigraphic columns were worked out, there has never been any doubt about the greater antiquity of Tchefuncte-Tchula. The question at issue is whether Marksville Stamped and Marksville Incised can be derived from these earlier complexes or whether we should seek their origin outside the Lower Mississippi Valley. The importance of this point justifies an apparently disproportionate interest in the small samples of these types obtained at Jaketown.

Initially, we have no reason to suspect that Marksville Stamped was not made locally. In paste and surface it corresponds closely to the plainware in the same deposits. Furthermore, the type at Jaketown and other sites in the Lower Yazoo differs from the classic Louisiana material in several important respects. The technique of decoration is substantially the same and the workmanship is not inferior, but the results are not quite identical. One point of interest is that, although the background roughening is made "by rocking a fine dentate stamp as it is moved sideways"[3] in accordance with the time-honored Marksville tradition, this is more often done in such a manner that the zigzag effect is minimized. On superficial examination some sherds resemble plain dentate stamping, as though the stamp had been lifted after each impression and carefully set down alongside for the next. The result is almost a fine grid similar to that produced by a check stamp (Fig. 28f, l). On closer examination under magnification, however, the effect of rocking can be seen in the minute striations caused by changing the direction very slightly without entirely lifting the stamp. This lightly rocked stamping occurs in all collections of Marksville Stamped, so far as we know, but with varying frequency. There are indications, not yet verified statistically, that it occurs more frequently in northern Louisiana and Mississippi. It is certainly common at Jaketown, where nearly all the stamping is of this type. That this delicate stamping is not necessarily significant of a later date, however, is indicated by its occurrence in about half of the specimens illustrated from the Crooks Site.[4]

Deviations of the Jaketown material from Louisiana Marksville in form and design are perhaps more significant. On the whole, the decorative treatment is less varied and complex, consisting mainly of simple curvilinear scroll and meander motives or rectilinear panels. None of the sherds even suggests the Hopewellian bird design, and only one has a fine cross-hatched rim (Fig. 29c).

In form the Jaketown material also appears to differ from Louisiana Marksville on the side of simplicity. Most of the rims large enough for shape determination, 10 out of 14, are from simple curve-sided bowls with incurved rim. Only three rims suggest the dominant Louisiana pot shape. Rims are generally unmodified, with lips tending to be squarish and sometimes insloping (interior bevel). Only one or two show a slight thickening, and only one has the camber characteristic of Marksville in Louisiana. There are no recognizable basal sherds; this is not surprising in view of the preponderance of simple bowl forms indicated by the rims.

The temporal position of Marksville Stamped at Jaketown is consistent in all three stratigraphic tests (Figs. 41–45). Its earliest appearance is uniformly in or immediately above the uppermost levels containing predominantly Tchula Period material. It shows considerable vitality, however, and in Cut A continues to occur in substantial frequencies through the

[1] Phillips, Ford, and Griffin, 1951, 91–94.
[2] Ford and Quimby, 1945.
[3] Ford and Willey, 1940, 72.
[4] Ford and Willey, 1940, Figs. 28a, b, d, f; 29b, e; 30a; 31c; 32a–c.

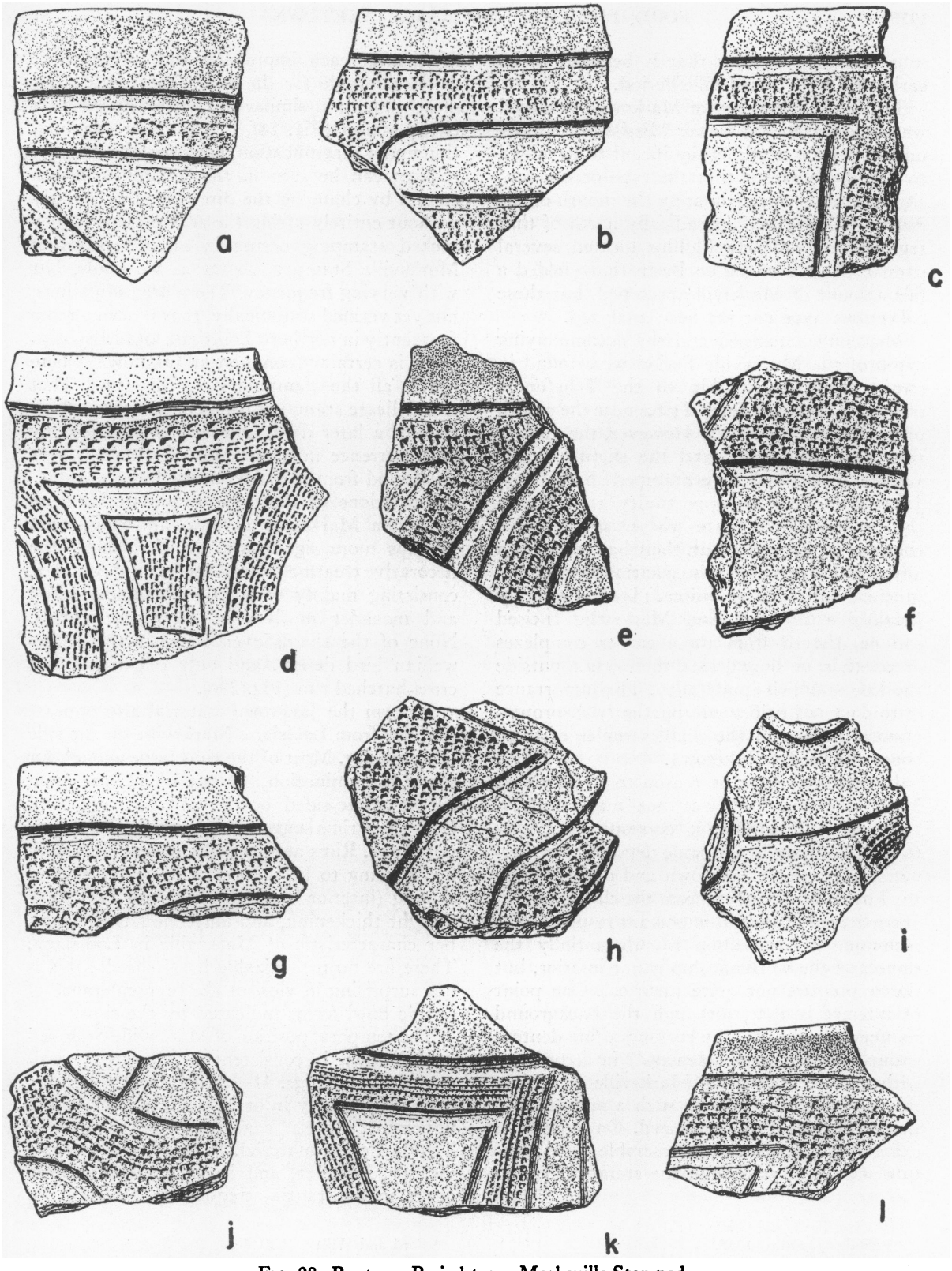

FIG. 28. Baytown Period type: Marksville Stamped.

middle levels, where it is associated with Churupa Punctated, Yokena Incised, French Fork Incised, and Evansville Punctated, which we have designated as Middle Baytown types. This raises a question of its reliability as an early Baytown time marker under all conditions. However, it is the best we have at Jaketown. Marksville Incised is subject to sorting difficulties, and Withers Fabric Impressed and Indian Bay Stamped are too rare. In any case, Marksville Stamped is certainly the earliest Baytown type on the site (with the possible exception of the very few Withers Fabric Impressed sherds), as is attested by its mean vertical position in Trench 1, which, on the basis of an adequate sample, is just above the Tchula Period types (Table 7). Its value as a time indicator, therefore, lies in that its first appearance marks the beginning of the Baytown Period in this area.

We have nothing to add here to Griffin's summary of the relationships of Marksville Stamped to comparable pottery elsewhere in the eastern United States.[1] Jaketown is still plainly within the Marksville orbit. On the whole, the divergencies noted above do not seem to be in the general direction of the Illinois zoned stamped material; consequently, the site does not help to clarify the relationship of northern and southern "Hopewellian" pottery, one of the outstanding problems in Eastern archaeology.

Troyville Stamped

Figure 29k–l

The difficulty of demonstrating the distinction between Marksville and Troyville Stamped outside the Louisiana Area, where these types were originally distinguished, has frequently been pointed out.[2] Apparently, in Louisiana, the zoned rocker stamped tradition underwent a degeneration in the Troyville Period during which plain rocker stamping tended to be substituted for dentate rocker stamping. Changes in paste, design motifs, and design distribution also occurred. Beyond the Red River Area, and this applies particularly to the Lower Yazoo, the shift to plain stamping was apparently not so complete, and changes in paste cannot be detected. Consequently we lack a practicable criterion for distinguishing a later type. Until we have more adequate information, therefore, we must admit the possibility that zoned dentate rocker stamping persisted in the Lower Yazoo Area well into the Middle Baytown Period; hence the sherds we are designating as Marksville Stamped at Jaketown may in part be later than the Marksville of the Red River Area.

We failed to avoid the necessity of mentioning Troyville Stamped by just two sherds, neither of which can be called typical. One, in fact, is quite unusual (Fig. 29 l). A good example of Yokena Incised with a little rocked dentate stamping in one corner confirms our supposition that Marksville stamping survived in this area long enough to become involved with Middle Baytown Period features. This is almost certainly why so few sherds have been classified as Troyville Stamped in the northern part of the Lower Mississippi Valley.[3] However, the type *is* present on a number of sites in the vicinity of Jaketown, such as Polk, 19-0-8; Hunt, 19-0-10; Nichols, 19-0-11; Simmons, 19-0-12; and Paxton, 19-0-13. On all these sites it was associated with larger quantities of sherds, which were classified as Marksville Stamped. The general picture, therefore, seems to be that pottery classifiable as Troyville Stamped occurs, but fails to supplant Marksville Stamped in this area.

Marksville Incised

Figure 29d–g

If it is difficult to separate Marksville and Troyville Stamped at Jaketown, in the case of Marksville and Yokena Incised it is almost impossible. In commenting on this situation in the Lower Mississippi Survey report, the authors optimistically declared: "Perhaps this will be possible later on when larger amounts of material are available from excavations."[4] This hope was not realized at Jaketown. We have attempted to maintain the distinction between the two types, but without much conviction of its validity. A few sherds can be confidently thrown one way or the other (more on the

[1] Phillips, Ford, and Griffin, 1951, 91–94.

[2] Phillips, Ford, and Griffin, 1951, 91; Ford, 1951, 49–50.

[3] The Lower Mississippi Survey, up to 1947, collected only one Troyville Stamped sherd; Phillips, Ford, and Griffin, 1951, 91.

[4] Phillips, Ford, and Griffin, 1951, 94.

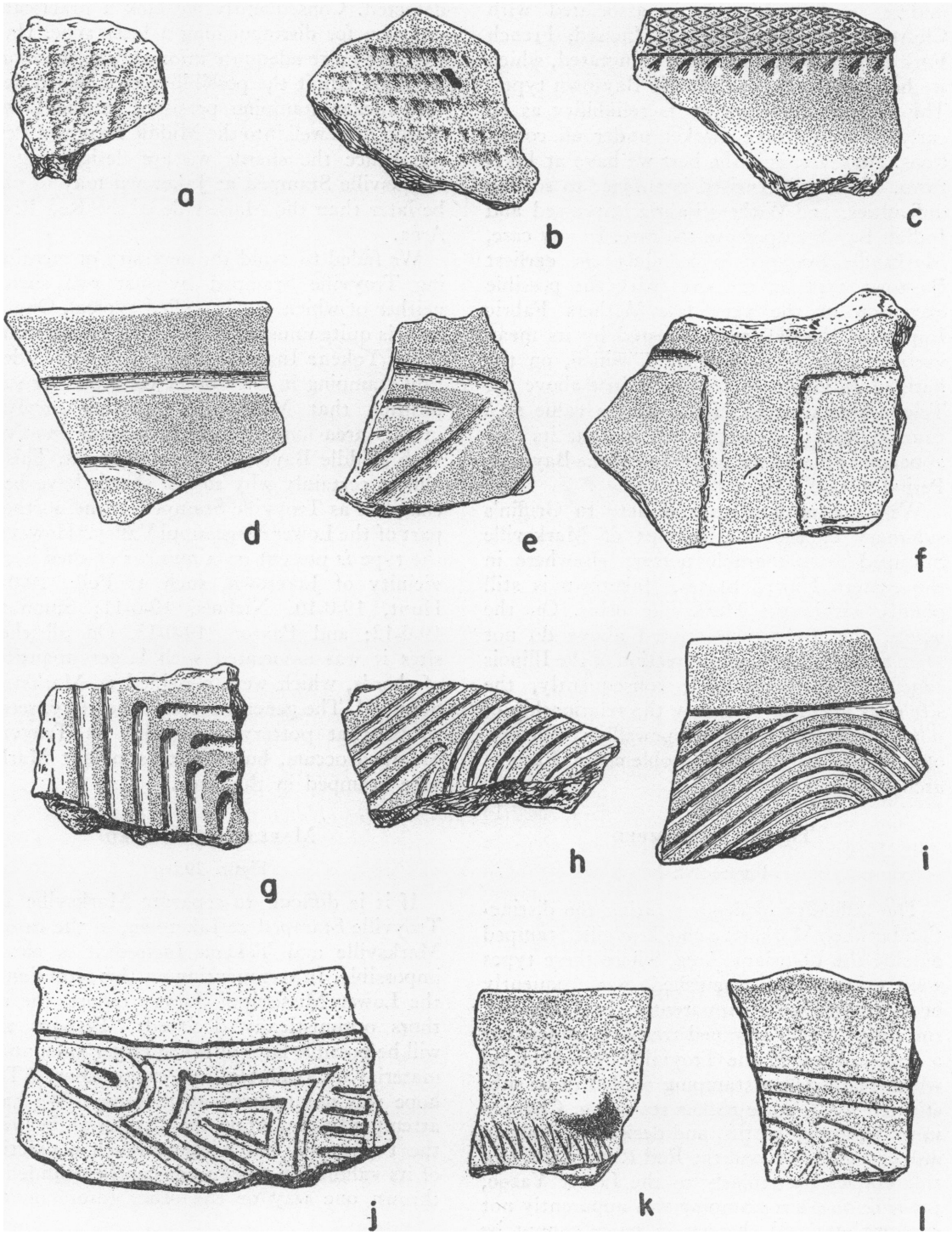

FIG. 29. Baytown Period types. a–b. Withers Fabric-impressed. c. Marksville Cross-hatched rim. d–g. Marksville Incised. h–j. Yokena Incised. k–l. Troyville Stamped.

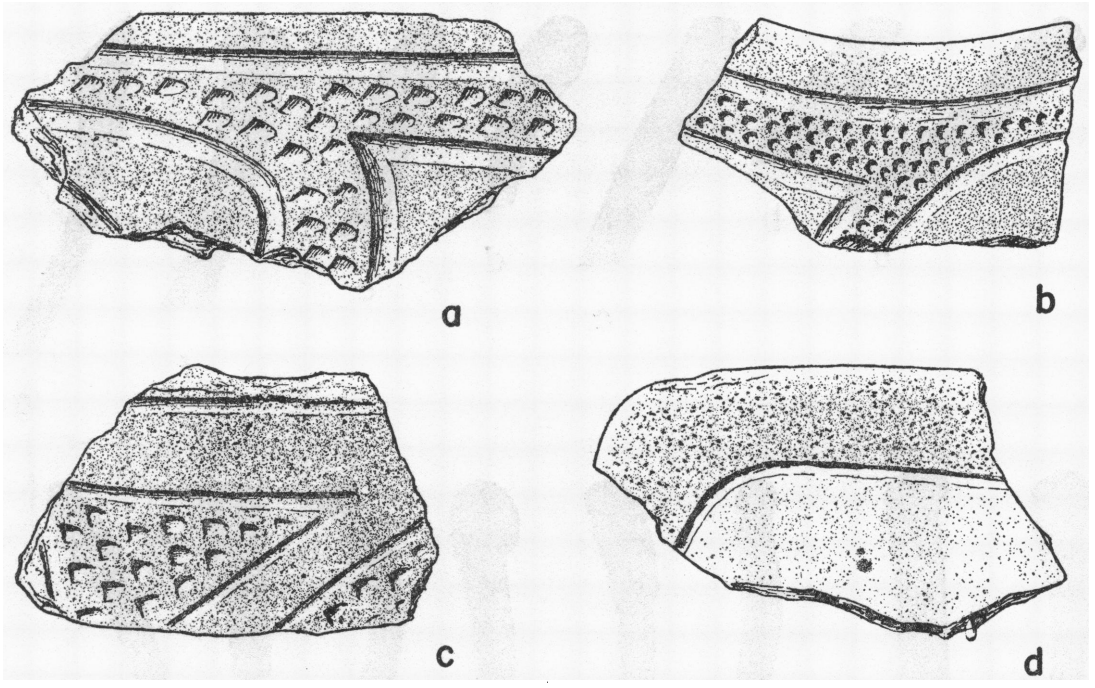

FIG. 30. Baytown Period types. a–c. Churupa Punctated. d. Woodville Red Filmed, triangular lug.

Marksville than the Yokena side as indicated by the totals, 23 Marksville as compared to eight Yokena), but many are typologically intermediate. Whether or not this indicates an intermediate time position is another matter. Occurrences are too rare and scattered for stratigraphic determination.

There is very little to be said about Marksville Incised at Jaketown. Its poor showing is comparable to its low numerical strength at some of the Louisiana sites.[1] Both close- and wide-spaced varieties are present, but the sample is too small for additional observations.

YOKENA INCISED

Figure 29h–j

The small sample of Yokena Incised is rendered less useful because four of the eight sherds are from a single vessel. The sherds conform closely to Ford's recent description based on the Greenhouse Site,[2] except that the finish is unusually fine, comparable to that of the best Coles Creek Period ware.

The chronological position of Yokena at Jaketown is far from clear. In Cut A (Fig. 41) it appears in the middle levels, just where it belongs, but in Analysis Unit 1 (Trench 1, Fig. 43) it is in levels that otherwise contain only Tchula and Early Baytown types. This would be alarming were it not that the number of sherds is so small. We shall therefore continue to regard Yokena as a Middle Baytown type.

CHURUPA PUNCTATED

Figure 30a–c

Our assumption has been that this rare type has a very limited distribution in the southern Lower Valley and that the few isolated sherds found north of the mouth of the Yazoo represented an extreme marginal situation.[3] This may not be altogether correct. The yield of nine sherds at Jaketown, while certainly not impressive, compares favorably with the frequency of the type at any of the Louisi-

[1] As between Marksville Stamped and Marksville Incised, the proportions were about three to one at Crooks (Ford and Willey, 1940, Fig. 42) and five to one at Marksville (Ford, 1936, Fig. 1).

[2] Ford, 1951, 50–52, Fig. 14 and Pl. 8.

[3] Phillips, Ford, and Griffin, 1951, 95; Ford, 1951, 53.

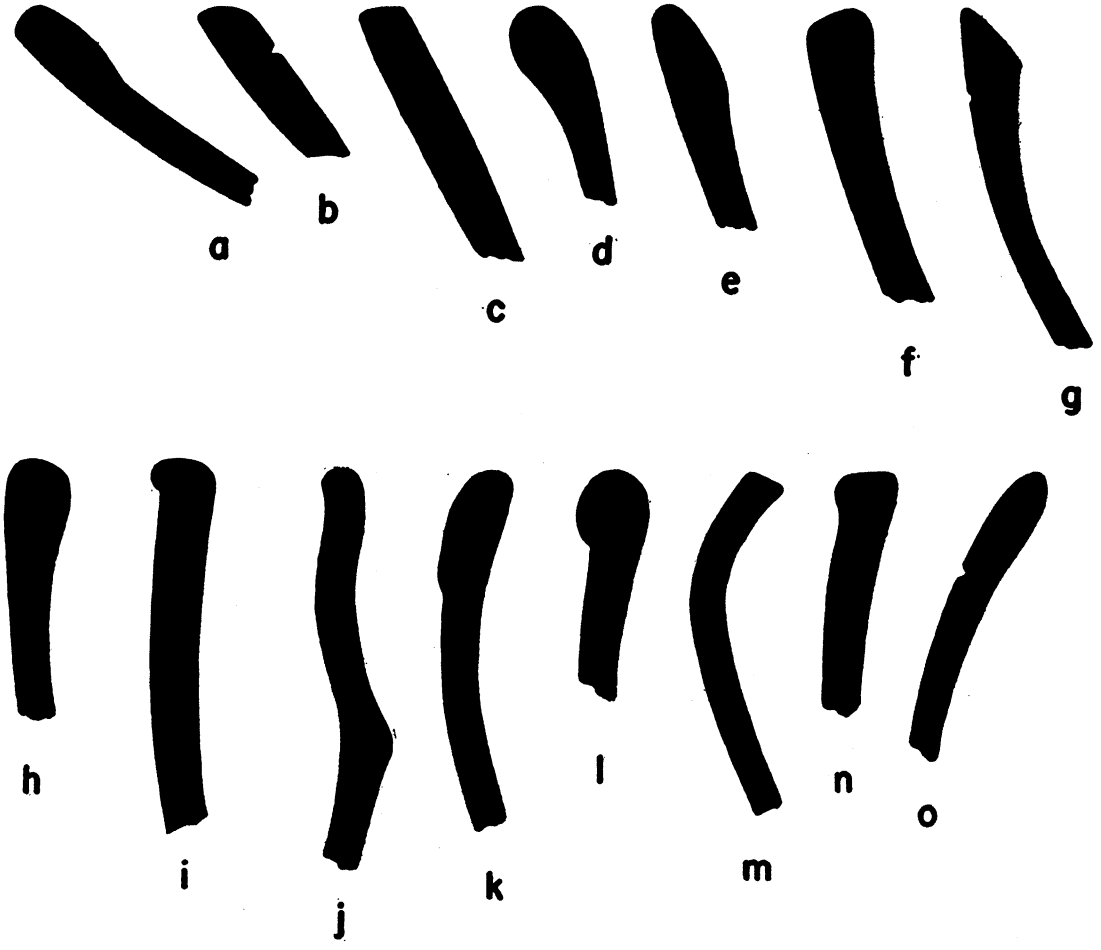

FIG. 31. Baytown Period. Rim profiles of Larto Red Filmed. Exterior to the left.

ana sites, including the type site Churupa Plantation itself.[1] Seriation of the Lower Mississippi Survey collections indicated an Early to Middle Baytown position,[2] earlier than the Troyville Period assignment in Louisiana.[3] Its associations here tend to support the Louisiana conclusions.

The pottery is definitely not marginal. It is very good Churupa. Sherds that are large enough indicate a bowl with insloping rim, which also appeared to be the commonest shape in Marksville Stamped.

[1] Ford, 1936, Fig. 1.
[2] Phillips, Ford, and Griffin, 1951, 96.
[3] Ford, 1951, 53.

LARTO RED FILMED

Figure 31

Little can be added here to recently published descriptions of Larto.[4] These referred to the curious absence in Louisiana of a plain red-filmed type in the Marksville Period that could have served to link the earlier Tchefuncte Red Filmed with Larto. The rare type, Marksville Red Filmed, actually a zoned red-painted ware apparently ancestral to the later Woodville Red Filmed, seems to be in another tradition. In the Greenhouse Site report, Ford suggested hopefully that the missing linkage

[4] Ford, 1951, 39–41; Phillips, Ford, and Griffin, 1951, 102–105.

material might be found in the Yazoo Basin, which seems to have been a popularity center for redware in general.[1] Unfortunately, owing to the telescoping of Baytown Period refuse at Jaketown, we were unable to segregate redwares by period and are consequently still without criteria for differentiating an Early Baytown (or Marksville) red-filmed type. In other words, the case of Larto is like that of Baytown Plain. Until large collections of excavated material are available for detailed studies of vessel shape and rim form, these types will continue to be useless for dating purposes.

Nevertheless, our subjective impression is that some of the redware at Jaketown is associated with the Marksville material on the site and belongs in the Early Baytown Period. Stratigraphy in Cut A (Fig. 41) and Analysis Unit 2 (Fig. 45) substantiates this impression. To this may be added the evidence of one cambered rim (Fig. 31j) which is certainly Marksville in character. All this permits us to continue to hope that eventually it will be possible to differentiate an early Baytown type that will close the present anomalous gap between Tchefuncte and Larto Red Filmed.

Whatever the initial date for Larto may eventually turn out to be, there is no question that it reached its maximum use at Jaketown, as in Louisiana, somewhere between E and D on the Lower Valley time scale, i.e., in the Middle Baytown Period. Its vertical distribution closely parallels that of Mulberry Creek in all three stratigraphic units, and the figures for mean vertical position of the two types are almost identical in both trenches (Table 7).

Woodville Red Filmed

Figure 30d

Little more than a dozen sherds of this type were found at Jaketown, most of them too small to provide any useful morphological information. The sherd illustrated indicates a shallow bowl or plate with triangular extensions of the rim or "ears," a common vessel shape of Larto and Woodville Red Filmed in Louisiana.[2] Vertical distribution in the trenches (the type was not present in Cut A) indicates a date somewhat later than the Middle Baytown (Troyville) position previously assigned, but the sample is too small to be considered conclusive.

Mulberry Creek Cord-marked

Figure 32a–h

This widely distributed and long-lived type has been abundantly described in recent publications.[3] The Jaketown sherds conform sufficiently to these definitions so that a specific description is unnecessary. A few characteristics, however, may have a bearing on the chronological position of the type at Jaketown and in the Lower Mississippi Valley generally.

To begin with, Mulberry Creek at Jaketown shows the coarser features, thick paste, large and widely spaced cord impressions, that "softer" look,[4] that we have reason to believe pertains to the earlier phases of cord marking in the Lower Mississippi Valley. The detailed studies necessary to prove this point have not been made, but there are a number of indications. For example, as we have already pointed out, when cord marking is associated with Late Baytown or Coles Creek features of shape and decoration, it is usually the finer type that is involved.[5]

Other details, unimpressive in themselves, point the same way. The Lower Mississippi Survey found that the simple bowl was the commonest Mulberry Creek shape in all parts of the Survey area,[6] and there were indications that bowls were becoming more popular in the later part of the life span of the type. Of the 19 rims from Jaketown large enough for shape analysis, however, 14 are from jars or barrel-shaped vessels and only five from bowls, a tenuous indication that the material may be relatively early. Another not yet validated suggestion is that the use of exterior rim folds tends to be late. More than half of the Mulberry Creek rims at Greenhouse were folded.[7] The type reached its maximum at that site in the lower levels which shows that the practice of folding was well established there in the Troy-

[1] Ford, 1951, 61.
[2] Ford, 1951, 60, 61, Fig. 19d.
[3] Phillips, Ford, and Griffin, 1951, 82–87; Ford, 1951, 53–55.
[4] Phillips, Ford, and Griffin, 1951, 82.
[5] Ford, 1951, 55.
[6] Phillips, Ford, and Griffin, 1951, 85.
[7] Ford, 1951, 55.

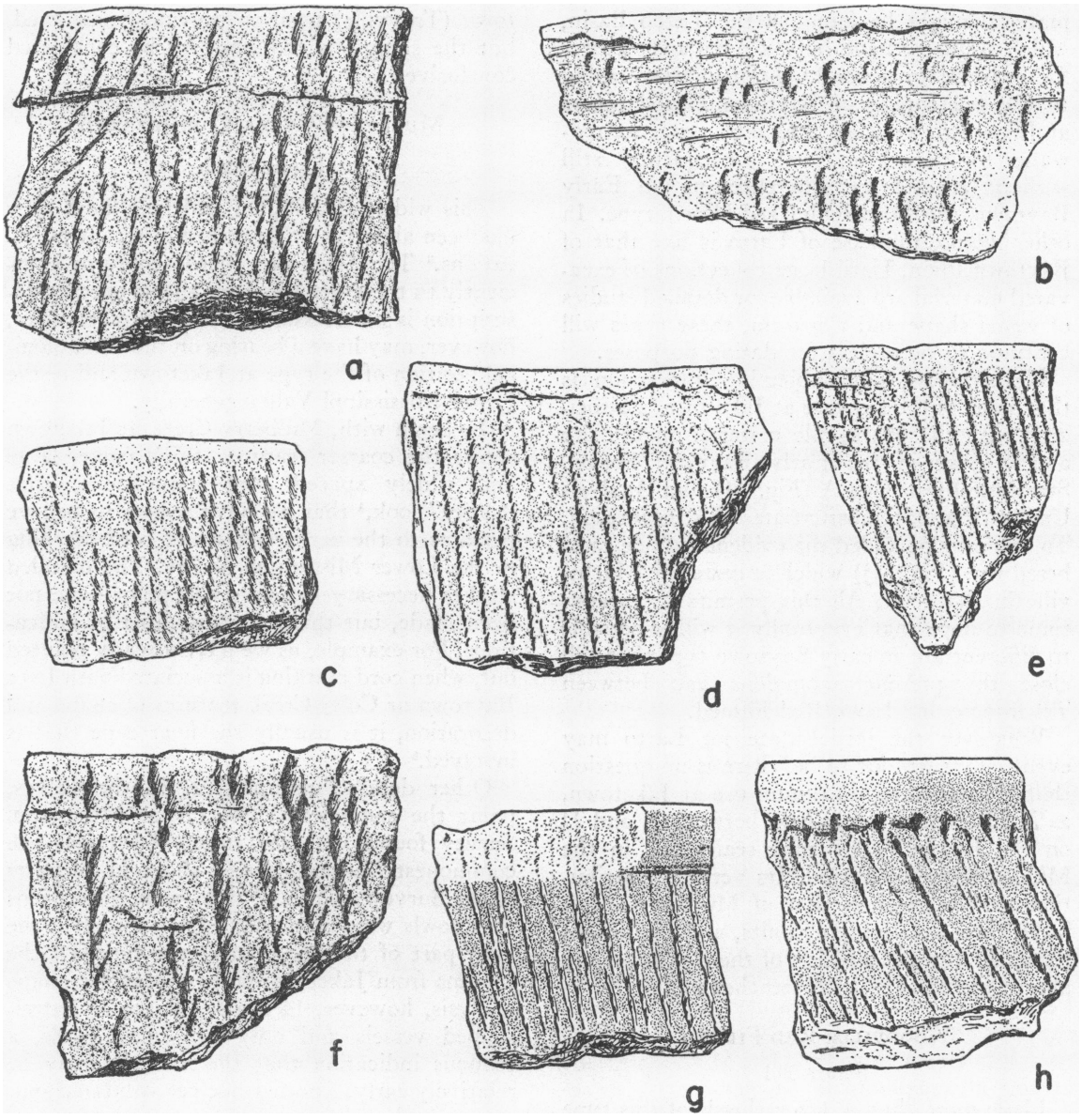

FIG. 32. Baytown Period type: Mulberry Creek Cord-marked.

ville Period. In contrast, Marksville Period rims are occasionally thickened by the addition of a strap or fold, but these are carefully smoothed onto the body wall and do not correspond to the treatment under consideration here.[1] The small size and low frequency (19 per cent) of Mulberry Creek rim folds at Jaketown may, therefore, indicate a relatively early date for the sherds. The high frequency of cord-marked lips (52 per cent) is possibly open to the same interpretation.[2]

Thus, on typological grounds alone, we would

[1] Ford and Willey, 1940, 59, 73.

[2] Phillips, Ford, and Griffin, 1951, 86.

be disposed to place most of the Mulberry Creek Cord-marked at Jaketown somewhere in the earlier part of the life span of the type.

MULBERRY CREEK CORD-MARKED AS A TIME MARKER

This type, notwithstanding its wide distribution and long time span in the Lower Mississippi Valley, is quite useful as a time indicator, providing certain differentials are considered. In the northern part of the Valley, at least that portion covered by the 1951 Survey report, it seems to have reached its maximum frequency approximately at Horizon E, the imaginary line between Early and Middle Baytown. The type was almost certainly diffusing south and west at this time. The frequencies decrease very markedly west of the Mississippi and south of the mouth of the Arkansas.[1] By the same token, the *time* of maximum frequency in any given area, the peak of local popularity, was moving up the time scale. At the Greenhouse Site, for example, the maximum of Mulberry Creek was about the middle of the Troyville Period. In other words, as between these two locations in the Lower Mississippi Valley, the maximum frequency had moved up from Point E to a position midway between E and D on the time scale.[2]

If these interpretations are correct, the maximum frequency of Mulberry Creek at Jaketown should be slightly earlier than at Greenhouse, but the difference would scarcely be measurable by the scales we are using here; it will be sufficiently precise to say that it should fall somewhere near the middle of the Baytown Period. Our only opportunity to check this supposition under sufficiently controlled conditions is in Cut A (Fig. 41). Here Mulberry Creek attains its maximum of 4.8 per cent in Level 7, precisely where we would judge the Middle Baytown to be located. It should be noted that the types Churupa Punctated, Yokena Incised, French Fork Incised, and Evansville Punctated, which we are using tentatively and with reservations as Middle Baytown marker types, are concentrated about this level.[3]

Thus it appears that the time of maximum frequency of Mulberry Creek at Jaketown agrees with the conclusions in other parts of the Lower Mississippi Valley and affords a welcome reënforcement of the chronological framework.

So much for the maximum occurrence of Mulberry Creek. Cut A and Analysis Unit 1 diagrams also show that the type was present on the site together with Marksville types in the Early Baytown Period. Cord-marking was possibly known here even earlier. Several sherds were picked up on the surface (unfortunately none were excavated) in which typical cord-marking was combined with an unmistakably Tchefuncte-Tchula type of paste. These sherds may or may not indicate that eventually it will be necessary to set up a cord-marked type in the Tchula Period; in any case they fortify other indications that Mulberry Creek was present at Jaketown along with the earliest Baytown material on the site. It is important to note that it appeared first in Louisiana in the *upper* levels of the Marksville Site.[4] This is probably merely further evidence of the downstream lag, referred to above in connection with maximum frequencies. However, we must not ignore the possibility that it indicates a later date for the Marksville material at Jaketown than at the type site in Louisiana—in other words, an upstream lag of the Marksville types. Unfortunately we can only suggest these alternative interpretations. It would be nice to have the answer, because the direction of Marksville-Hopewellian movements in the Mississippi Valley is a very interesting question just now.

EVANSVILLE PUNCTATED

Figure 33a–l

In the original description of Evansville Punctated and again in connection with Parkin Punctated,[5] attention was called to the close

[1] Phillips, Ford, and Griffin, 1951, Fig. 7.

[2] Ford, 1952, Fig. 18.

[3] Maximum frequencies of Mulberry Creek in the two analysis units are not very meaningful, because in one the predominating Baytown deposits are early and in the other they are late. Even so there is substantial agreement. In Analysis Unit 1 (Trench 1, Fig. 43) the Mulberry Creek maximum is at the top, which is expectable as the Baytown deposits are mainly early; in Analysis Unit 2 (Trench 5, Fig. 45) it is near the bottom which again makes sense because the Baytown deposits in this trench are predominantly late. The figures for mean vertical position in the two trenches (Table 7) tell the same story.

[4] Ford and Willey, 1940, Fig. 59; Ford, 1952, Fig. 2.

[5] Phillips, Ford, and Griffin, 1951, 90, 113; Ford, 1952, Figs. 8–9.

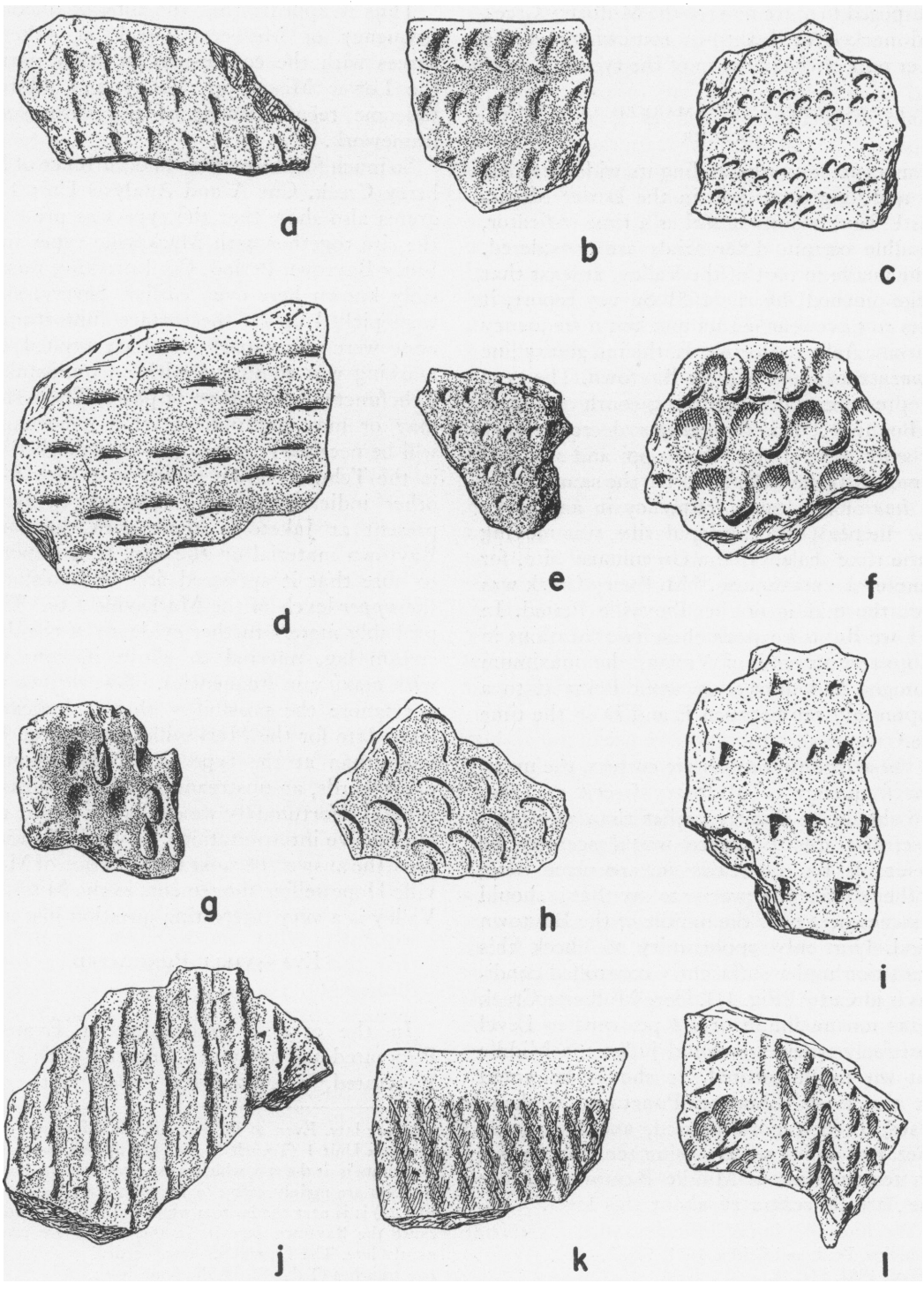

FIG. 33. Baytown Period type: Evansville Punctated.

typological continuity represented by the series Tammany-(Alexander) Evansville-Parkin. This is so true at Jaketown, as between Tammany and Evansville, that, on reëxamination, a group of sherds classified as Evansville that appeared to be out of stratigraphic context were all tossed into the Tammany box with no scruple. The only criterion is a difference in paste that is sometimes illusory. With one possible exception, the illustrations of one type could serve for both. Apparently the occasional ridge-pinched effect described for Evansville[1] does not occur in Tammany but does occur in Parkin. At one time we considered setting up a separate type for the latter. Griffin, with his irrepressible flair for alliteration, chose to name it Pouncey Pinched, a proposal vetoed by his co-workers, perhaps unwisely.[2] The clay-tempered and presumably earlier counterpart was to have been called Hollyknowe Pinched. A few sherds (Fig. 33j–l) of this ridge-pinched variant of Evansville were uncovered in the Jaketown excavations, but their stratigraphic occurrence does not enable us to date them. A Late Baytown position is inferred on purely subjective grounds. In future ceramic studies it might be well to segregate this variant, as it apparently represents a new idea in the otherwise remarkably conservative use of punctation in the area and may therefore be a useful time indicator.

To revert to Evansville Punctated as a whole, its stratigraphic position is not altogether clear. In Cut A (Fig. 41) it coincides neatly with that of the Middle Baytown marker types, Churupa Punctated, and Yokena Incised, and centers precisely at the level in which Mulberry Creek Cord-marked attains its maximum. Reasons have already been adduced for assigning this maximum to the Middle Baytown Period. The position in Analysis Unit 1 (Fig. 43) agrees, but the mean vertical position for the trench as a whole is the same as for Marksville Stamped (Table 7). Also, in Analysis Unit 2 (Fig. 45) the type seems earlier and the mean vertical position for this trench is low among the Tchula Period types.

We had the same difficulty with Evansville in the Survey collections and somewhat weakly concluded that the type "occurs in minor quantities throughout the entire Baytown period."[3] We can improve on this slightly, so far as Jaketown is concerned, by stating that the type seems to be mainly concentrated in Early and Middle Baytown, but is not a reliable period indicator.

Oxbow Incised

Figure 34a–d

Nowhere are the shortcomings of present Lower Valley ceramic typology more apparent than in the general category of clay-tempered incised ware, owing partly to the crudeness and low frequencies of the types involved and partly to the vacillations of the classifiers. In the Lower Mississippi Survey we found that the type Mazique Incised, previously described for the Red River Area,[4] was represented farther north by a few typical sherds and by considerably more examples of such extreme crudity that finally, after a great deal of internal dissension, we set up a new type (a kind of disorganized Mazique) which we called "Oxbow Incised."[5] Unfortunately this differentiation was made after the stratigraphic and seriation analyses had been completed and, although we thought there were indications that the crude Oxbow material might be earlier, it was not possible to objectify them.

At this time we assumed that Mazique was of Late Baytown date, in line with Ford's original placement of the type in the Coles Creek Period in the Red River sequence.[6] Consequently, when the seriation graphs showed that the combined Oxbow-Mazique extended throughout the entire Baytown Period, we thought that in all probability the Oxbow material accounted for the earlier portion of that range. Subsequent analysis of the Greenhouse Site data, however, resulted in pushing the point of maximum frequency for Mazique back into the Troyville Period,[7] so that reasoning is no longer sound.

Also subsequent to the Survey analysis,

[1] Phillips, Ford, and Griffin, 1951, 90. A similar treatment on the Florida Gulf coast has been given type status by Willey as Tucker Ridge Pinched (1949, 428–429).

[2] Phillips, Ford, and Griffin, 1951, 114.

[3] Phillips, Ford, and Griffin, 1951, 91.

[4] Ford and Willey, 1939b, 8–9; Ford, 1951, 57–59, Figs. 17–18.

[5] Phillips, Ford, and Griffin, 1951, 97–98.

[6] Ford and Willey, 1939b.

[7] Ford, 1951, 92, Fig. 35.

Quimby, and later Ford, described the type Manchac Incised in the southern part of the Lower Valley, also a broken-down Mazique, but stratigraphically later in time.[1] If similar pottery changes were taking place with any degree of synchronization over the Lower Valley, it seems very likely that our original "hunches" were incorrect and that Oxbow occupies the same position in relation to Mazique in the north as does Manchac in the south. The quantity of either Oxbow or Mazique at Jaketown is inadequate to settle this question with any confidence, nor do the several stratigraphic tests agree. The largest samples of both types were in Trench 5; here both in Analysis Unit 2 (Fig. 45) and in the figures for mean vertical position (Table 7) Oxbow appears to be the younger. It is mainly because of this that we have tentatively assigned the type to the Late Baytown Period.

The material itself offers nothing significant to add to the sketchy definition given in the Survey report. If the view that Oxbow is later than Mazique should be correct, the relationship of Oxbow and Manchac will have to be considered. The sherds classified here as Oxbow can be regarded as falling equally well within the range of Manchac. In short, it may be necessary to revert to our original position and return Oxbow to the limbo from which it emerged to a brief and so far useless existence. This is an excellent illustration of the fact that typology is not in practice pursued independently of time and space relationships.

Mazique Incised

Figure 34e–h

The position of Mazique at Jaketown has already been discussed in connection with Oxbow Incised. Although the sherds do not have the characteristic overhanging lines of "classic" Mazique, they conform closely enough to the type descriptions.[2] In the latest of these, Ford has suggested that this more generalized Yazoo style of Mazique "may range farther back in time than seems to be the case in Louisiana" and that consequently the Yazoo Area may have been the center in which the type evolved out of some earlier incised style.[3] It was hoped that Jaketown would furnish confirmation of this interesting possibility, but such is only partly the case. The earlier incised types, Tchefuncte Incised and Alexander Incised, were not sufficiently represented to afford useful comparisons. The Marksville Incised Rim suggested as an intermediate stage in the evolution of Mazique was also very poorly represented at Jaketown. One sherd, however, warrants special mention in this connection. This is a cambered rim, in itself a very useful Early Baytown (or Marksville) diagnostic, bearing a typical Mazique line-filled triangle treatment, with just enough of the shoulder portion attached to indicate that the body of the vessel bore a zoned dentate stamp decoration (Fig. 35). The sherd was classified as Mazique, but could with equal logic have been called Marksville Stamped. It was in Trench 5, 0-W2, Level G, at the very base of the pottery-bearing deposit in this trench (Fig. 45). Thus we have, in one instance at least, Mazique and Marksville treatment in combination in an early Baytown context, a sherd that illustrates the evolution of the later type.[4]

Except for one rim that has a row of close-spaced semicircular punctations in the flattened lip (Fig. 34h), the rest of the sherds classified as Mazique show no significant departures from established norms. The stratigraphic position of these few Mazique sherds is too erratic to justify any further remarks on the dating of the type.

Salomon Brushed

Figure 34i–k

This clay-tempered brushed type has the same sort of doubtful legitimacy as Oxbow Incised. It was originally set up in the northern part of the Survey area, but later abandoned on account of the difficulty of differentiating it from Mazique Incised.[5] At that time the type Plaquemine Brushed had not been formally described, so the question whether the sherds could be called Plaquemine or not was not considered. A good deal of clay-tempered brushed ware at Jaketown and in the Lower Yazoo Area

[1] Quimby, 1951, 111–113; Ford, 1951, 86–87.
[2] Ford and Willey, 1939b; Phillips, Ford, and Griffin, 1951, 98–100; Ford, 1951, 57–59.
[3] Ford, 1951, 59; 1952, Figs. 10–11.
[4] Ford, 1952, 348.
[5] Phillips, Ford, and Griffin, 1951, 98.

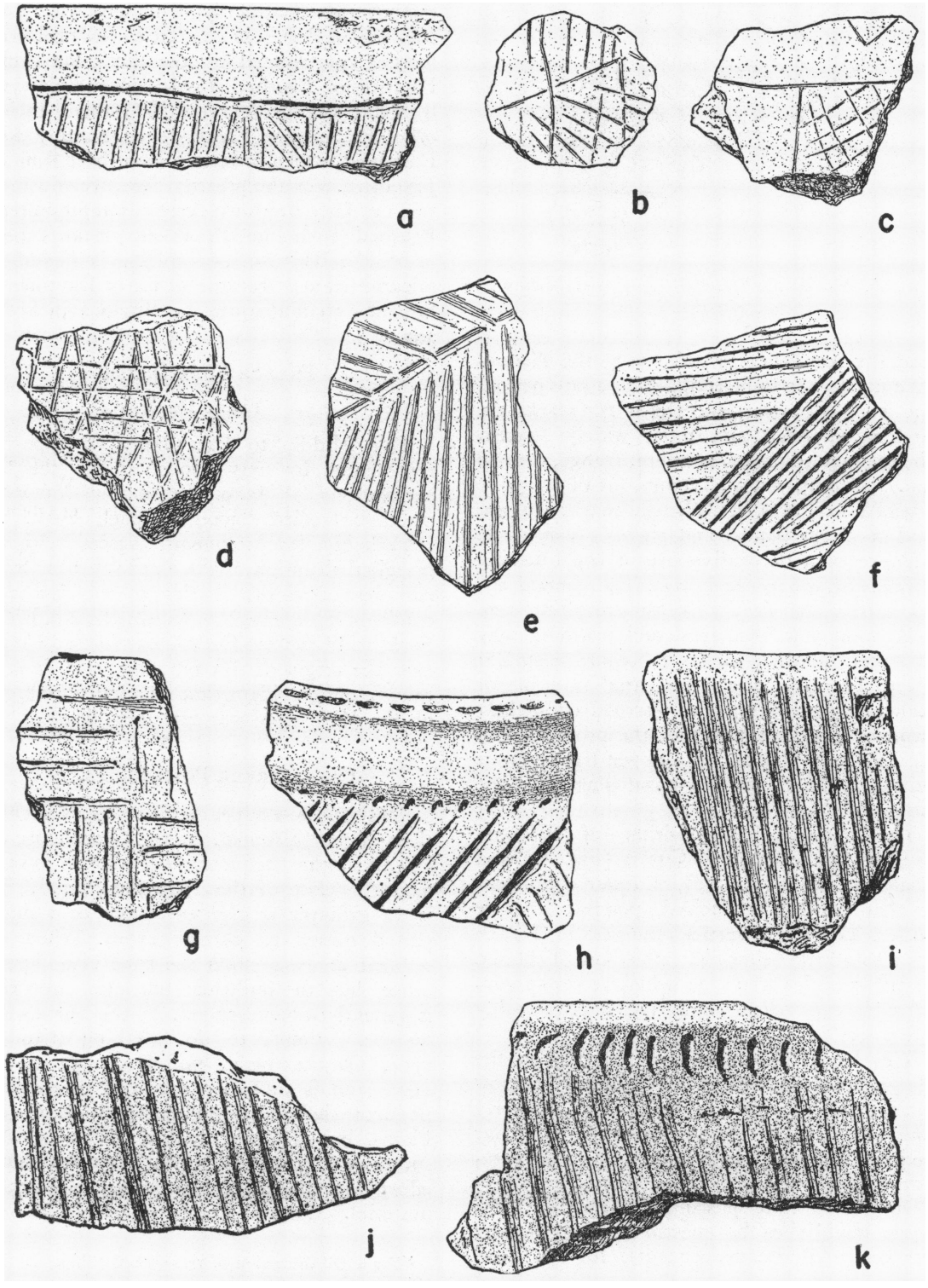

FIG. 34. Baytown Period types. a–d. Oxbow Incised. e–h. Mazique Incised. i–k. Salomon Brushed.

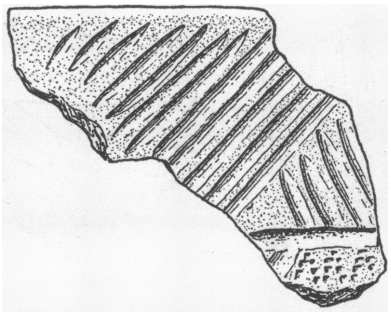

FIG. 35. Marksville Stamped sherd with Mazique Incised rim decoration.

generally seems not to conform to the Plaquemine norms nor to be confined to a late period. The ware is coarser, and the brush marks are carelessly applied and more widely spaced. The average thickness is 8 mm. (range, 6 to 10 mm.), as compared with 5 mm. for Plaquemine Brushed in Louisiana.[1] Brush marks do not tend to be in bands, and there is very little evidence of a decorative use of the brushing instrument, whatever it was. The general appearance is superficially like that resulting from cord-marking in this area, and brushing may be merely another means to secure a similar effect. The only shape indicated is a jar or beaker-shaped vessel with vertical or slightly incurved rim. Judging from the proportion of rims to body sherds, an all-over treatment is indicated. There are no basal sherds in the sample.

The chronological position of Salomon Brushed, as reflected in Cut A (Fig. 41) and Analysis Unit 2 (Fig. 45), is about equivalent to that of Oxbow Incised, possibly a little earlier. The mean vertical position in Trench 5 is also a little below that of Oxbow (Table 7). Together with Oxbow, to which it shows considerable typological similarity, it is probably safe to call it Late Baytown.

This has a very important bearing on the Plaquemine question in this area. If Oxbow Incised should prove to be a more northerly equivalent of the Plaquemine type Manchac Incised, Salomon might in turn be the equivalent of Plaquemine Brushed. The Late Baytown Period date postulated here for these types would then be questioned (and with it our entire Baytown concept), for we have temporarily equated Plaquemine with the Early Mississippi Period in this area. The problem is further complicated by the fact that typical Plaquemine Brushed sherds occur in the nearby Lake George Site (21-N-1) together with other Plaquemine Period types, notably Anna Engraved, which have so far not been found at Jaketown. For the present, then, we will maintain our Late Baytown designation for Salomon Brushed (with a good possibility that it began in Middle Baytown), accepting the logical implication that it represents an earlier phase of brushing than Plaquemine Brushed in Louisiana.

[1] Quimby, 1951, 110.

FRENCH FORK INCISED

Figure 36a–b

This Middle to Late Baytown type was represented by only two sherds in the 1951 excavations at Jaketown, neither of which could be called "good" French Fork. The remarkably low frequency agrees with the marginal situation of the site in respect to the east-west axial distribution of the decorative tradition represented by Weeden Island, French Fork, and Crockett Curvilinear Incised.[2] Whatever the origin of this pleasing style, it is becoming quite evident that its northward spread up the Mississippi was extremely limited.

COLES CREEK POLISHED PLAIN

This type now appears to be somewhat earlier than at first assumed. At the Greenhouse Site its maximum frequency occupies a position near the close of the Troyville Period.[3] This is an example of the unwisdom of assigning period names to pottery types. When subsequent analysis shifts the type into a period other than the one that shares its name there is general embarrassment. In the Survey area we were unable to do anything with this type. Clay-tempered polished plain pottery exists and is probably ancestral to the more popular shell-tempered polished ware (Bell Plain), but we were unable to distinguish it successfully from Baytown Plain. A similar effort was made in classifying the Jaketown material. A small number of sherds (41)

[2] For a full discussion of these relationships, see Ford, 1951, 65–67, and 1952, 354–360, Figs. 14–15.

[3] Ford, 1951, 92, Fig. 35.

were segregated as Coles Creek Polished Plain, but without much confidence. The sherds fall readily within Ford's latest description of the type, but their scattered distribution in the trenches was not such as to indicate a significant stratigraphic position.

There is a further complication in the fact that the lowest levels of Cut A, which contained decorated types of the Tchula Period only, yielded a considerable number of thin clay-tempered sherds, from small, simple, curved-sided and incurved rim bowls, which from the point of view of surface finish would easily fit the requirements for Coles Creek Polished Plain. Originally sorted as Baytown Plain, they have been left in that category pending further information and study. Apart from thinness the sherds in question probably could not be distinguished from Coles Creek Polished Plain. The only reason for mentioning them here is that, if the trait of polishing was already present in the Early Baytown Period, it can have little diagnostic value; consequently, the type Coles Creek Polished Plain loses its utility as a period marker in this area.

Coles Creek Incised

Figure 36c–h

Jaketown exhibits the same substandard variety of Coles Creek Incised as was described in more general terms for the Survey area farther north.[1] If at that time the type Hardy Incised had been formally described, it is probable that a large part of the material classified as Coles Creek would have been called Hardy. We are faced by the same problem here. Most of the sherds in question at Jaketown could be classified as Coles Creek Incised only with the widest possible latitude in typing. On the other hand, they fit no more readily into the Hardy category. There is a good possibility that additional information will result in the establishment of a new type to include this material. It may perhaps be a nucleus around which a distinct Late Baytown or Early Mississippi complex will be set up in this area. This general problem is discussed below (p. 98). Here we are concerned with departures from "classic" Coles Creek Incised as defined.[2]

Most striking perhaps are the general coarseness of finish and carelessness of execution. Of the 12 rims in the 1951 collection, none attains the average standards of Louisiana Coles Creek in these respects. There is also a marked tendency towards wider spacing and reduction in number of lines forming the decoration. These are most often only two or three in number. The "overhanging" character of the lines is not present at all, and none of the sherds has a row of punctations below the lines. A single additional incised line on the lip is present only in two examples.

Also shapes are different. Of the few rims large enough for safe determination, all are from simple bowls. No rims are identifiable as belonging to straight-walled beakers or barrel-shaped vessels, the dominant Coles Creek Incised vessel shape in Louisiana.[3]

Five rims represent a specialized variant that has not been described elsewhere, a shallow bowl with horizontal incised lines on the rim interior (Fig. 36f–h), usually in addition to the exterior decoration. The exterior is plain on only one rim. In every other respect the treatment is the same as that described above.

These differences in detail, though individually within the range of variability of the type as described, add up to a significant departure in general. Typical Coles Creek Incised, however, does occur at the near-by Lake George Site (21-N-1),[4] so the explanation is probably a chronological one. In theoretical terms, this crude material that we are calling Coles Creek is either an earlier generalized variety or a later derivative. The stratigraphic evidence at Jaketown is insufficient to settle the point. At present we can only state that the material equates roughly in time with Oxbow Incised and Salomon Brushed, with which we have reason to believe the type is closely associated in this area. We can begin to speak of a local Baytown "complex" that has relationships both to Coles Creek and Plaquemine. This possibility and its wider implications are discussed below.

Chevalier Stamped

Figure 36j–l

The total of 11 sherds from the 1951 trenches classified as Chevalier Stamped afford little

[1] Phillips, Ford, and Griffin, 1951, 96–97.
[2] Ford, 1951, 74–76.
[3] Ford, 1951, 75, Fig. 27.
[4] Phillips, MS, in preparation.

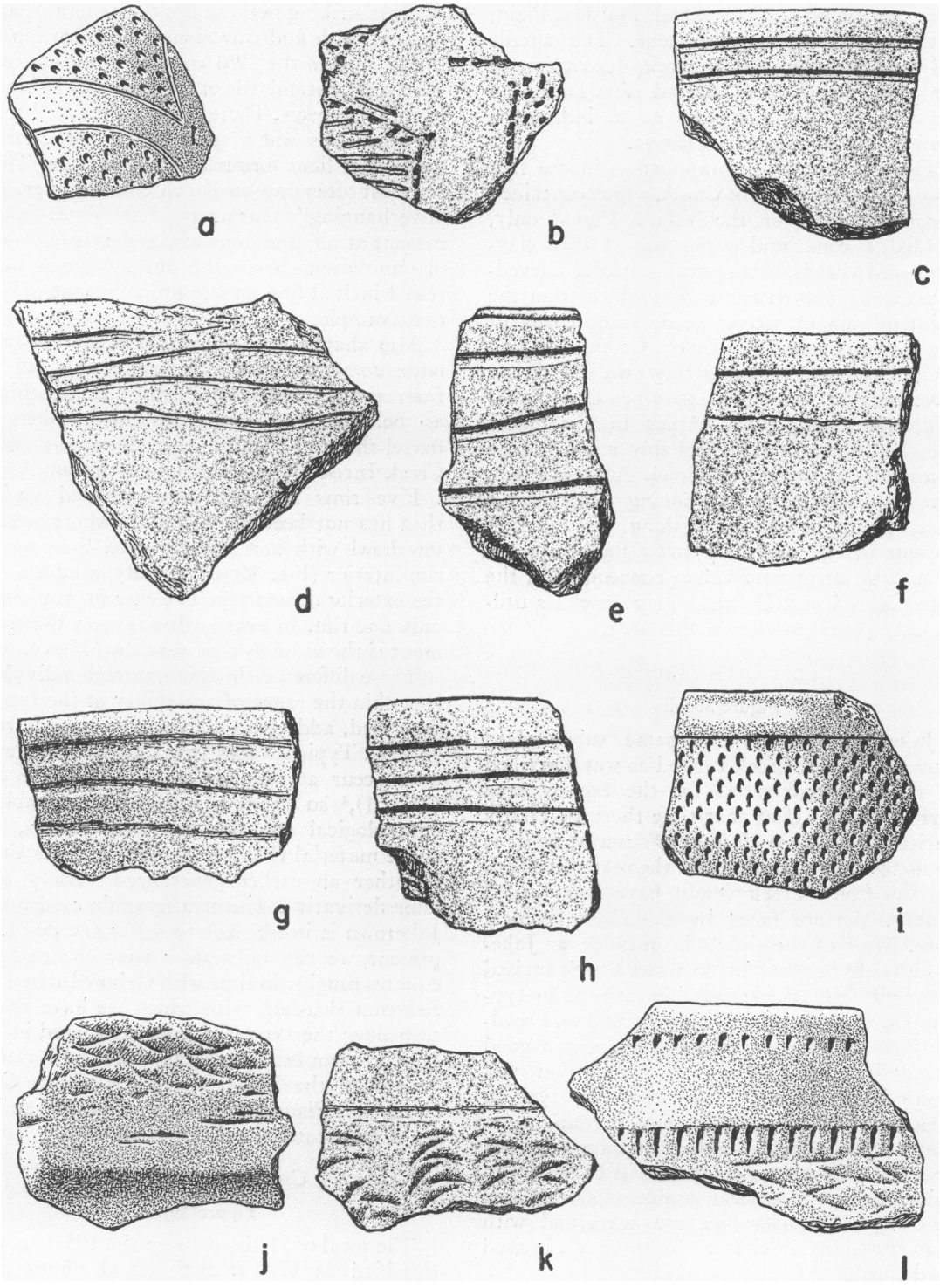

FIG. 36. Baytown Period types. a–b. French Fork Incised. c–h. Coles Creek Incised (f–h with decoration on rim interior). i. Rhinehart Punctated. j–l. Chevalier Stamped.

opportunity for anything to be added to our brief statement about the type in the Survey report.[1] That it does not entirely conform to the Louisiana type description is suggested by one sherd on which the rocker stamping is carried down to a flat square base (Fig. 36j). In Louisiana the stamping is "always arranged to form a band about the upper walls of the vessels."[2] The other sherds are too small for determination on this point, but it may be significant that there are no rims among them. If this apparent tendency towards over-all body decoration should prove to be constant, it might be advisable to set this up as a separate type. Under these circumstances, the question of relationship to the Early Baytown type Indian Bay Stamped would also come under consideration. Indian Bay Stamped is, so far as we know, an all-over rocker-stamped treatment that appears to center about midway between Memphis and Vicksburg. It is possible, then, that the material we are considering here may be a descendant of Indian Bay Stamped rather than a marginal appearance of Chevalier Stamped.

The maximum frequency of Chevalier Stamped in Louisiana is now thought to be in the Coles Creek Period.[3] The few sherds classified as Chevalier in the Survey collections appeared somewhat earlier in seriation, centering approximately at Time D, the division point between Middle and Late Baytown.[4] This agrees with the stratigraphic position at Jaketown in Cut A (Fig. 41) and Analysis Unit 2 (Fig. 45), but the evidence is too slender for any positive conclusions. Pending further investigation, it would be safer perhaps to assign this Chevalier or Chevalier-like material to the Late Baytown Period.

Rhinehart Punctated

Figure 36i

The four sherds of Rhinehart so far encountered at Jaketown are barely sufficient to permit the assumption that the type is part of the Late Baytown complex in the area. The sherd illustrated, however, warrants attention because of the unusually careful execution of the decoration.

The Late Baytown Period Complex at Jaketown

Before the Mississippi Period types are discussed, it may be well to elaborate some points mentioned in passing. In connection with several of the Baytown Period types we refer to typological and chronological uncertainties that are meaningless in respect to the individual types but seem to form a consistent pattern when considered from a more general point of view.

Our comments on pottery types were organized according to the area chronology set forth in the Lower Mississippi Survey report, a scheme already out of date when printed. The pottery analysis for that report was completed in 1946–1947, when very little organized information was available concerning the Plaquemine Period in Louisiana.[5] As a result, pottery that might have been related to the Plaquemine complex was either associated with Coles Creek counterparts or, in one or two cases, assigned separate type status. For example, many sherds called Mazique Incised were doubtless closer to the Plaquemine type Manchac Incised. If they differed too greatly from Mazique, they were placed in a new type, Oxbow Incised. By the time the report was finished, it was recognized that what we thought of as Early Mississippi in the Survey area was approximately coeval with the Plaquemine Period to the south,[6] but the meaning of the term Early Mississippi, typologically speaking, bore no relation to the Plaquemine complex of types. We envisaged an early shell-tempered complex for which we actually found very little evidence; consequently we were unable to define it to anyone's satisfaction, including our own. We were no doubt influenced by our choice of the term "Mississippi" as the late period designation, and the demarcation between Baytown and Mississippi was all too conveniently made to coincide with the shift from clay to shell tempering. It is time to correct this anomaly.

[1] Phillips, Ford, and Griffin, 1951, 100.
[2] Ford, 1951, 81.
[3] Ford, 1951, 81; 1952, Figs. 2, 17–18.
[4] Phillips, Ford, and Griffin, 1951, 228, Fig. 17.
[5] The first publication that dealt with the Plaquemine complex as such was Quimby's Medora Site report which appeared in 1951. Cotter's excellent paper on the Emerald and Anna sites was already in press at that time.
[6] Phillips, Ford, and Griffin, 1951, 455, Fig. 73.

It is now clear that in the southern part of the Survey area, at least in the section that includes the Jaketown Site, there is a late clay-tempered complex that corresponds closely item by item with Plaquemine. It is not well represented at Jaketown, but at the near-by Lake George Site (21-N-1) all the principal Plaquemine type names and definitions can be used with only the normal amount of adjustment.[1] Thus, unless we abandon the concept of Mississippi as a broad temporal designation, we must include in it (in the Yazoo Basin Area) a clay-tempered "period" analogous to the Plaquemine farther south. It will annoy many students who think (as we have tended to do) that Mississippi and shell tempering are an indissoluble combination. We must face the fact that in the southern part of the Lower Valley by Coles Creek times the Mississippi "revolution" was well under way and by Plaquemine times it was completed, though shell tempering had not yet appeared.

It may help if we visualize the situation as a slow spread of shell tempering and associated ceramic features moving down the river in the late period. The shift from clay to shell tempering, therefore, moves up in time as it moves south in space, until about the mouth of Red River it approaches the historic period. It was moving, however, into an area already "Mississippi-ized," in a broad cultural sense, with the temple mound type of socio-economic organization, to mention only the most important nexus of traits, firmly established. In sum, in the area under consideration here, shell tempering is no longer an indispensable criterion of Mississippi culture, if it ever was.

We may now turn to a group of types, already discussed individually, as pertaining to the Late Baytown Period because of obvious relationships to Coles Creek in Louisiana, but which have relationships to the later Plaquemine Period as well.

The types in question are Coles Creek Incised (of the crude "marginal" variety described here), Salomon Brushed, and Oxbow Incised. Chevalier Stamped and Rhinehart Punctated may possibly belong to the group, but can be ignored because of their poor quantitative representation. These types, together with the inevitable Baytown Plain and Larto Red, and some Mulberry Creek, which has passed its frequency peak by this time, appear to constitute the Late Baytown complex in the area. But, as we show above, each has disconcerting resemblances to Plaquemine counterparts. Therefore we are obliged to consider the possibility that the complex is Early Mississippi, in terms of the scheme used here, rather than Late Baytown. There is, in other words, an apparent gap in the sequence at Jaketown. If, under the influence of Plaquemine similarities, we push this complex up into the Early Mississippi, it leaves a void in the Late Baytown Period; if, on the other hand, we relegate it to the Late Baytown Period, we are left with a gap corresponding to Early Mississippi. For the present, the solution must be based on somewhat uncertain typological and stratigraphic criteria.

On the typological side it may be pointed out that, however much the types in question resemble their Plaquemine counterparts in decorative treatment, they are much closer to the local Early and Middle Baytown material in paste texture, thickness, and finish. For example, the type Salomon Brushed at Jaketown could be sorted with relative ease from sherds classified as Plaquemine Brushed at Lake George on these characteristics alone, although photographs of the two types would probably be indistinguishable. On the stratigraphic side there is no sharp division, much less a break in continuity, between the earlier Baytown deposits and those containing these types. In the "telescoped" situation with which we are dealing this argument cannot be given very much weight. Nevertheless, for the time being at least, it seems advisable to regard this Plaquemine-looking Coles Creekified complex as representative of the Late Baytown Period at Jaketown, and if, to satisfy logical requirements, there must be a break in the sequence, let it come between the Late Baytown and Mississippi periods on the site.

[1] Phillips, MS, in preparation.

MISSISSIPPI PERIOD TYPES

Because the excavations at Jaketown were located to reveal as much as possible of the earlier phases of the history of the site, a negligible quantity of late material was obtained. This is apt to give the impression that the Mississippi Period occupation was very thin and superficial. Such may have been the case, but from surface indications it would appear that the area surrounding Mound B, and to a less extent Mound C, was the scene of a fairly intense occupation in this period.

The Mississippi Period types represented form a complex that has not yet been adequately described for this area, though with one exception type definitions based on norms encountered farther north in the Survey area have already been published. A redefinition of some of these types, with emphasis on local characteristics, is desirable, but the small samples obtained at Jaketown do not afford a favorable opportunity.[1] It will be sufficient here to list the types with very brief comments.

Neeley's Ferry Plain

Neeley's Ferry rims in the present sample are small in size and number. In all observable characteristics they conform to the type as originally described.[2]

Bell Plain

In the original description of Bell Plain it was pointed out that there is a discontinuity of distribution of polished shell-tempered plainware in the Lower Mississippi Valley and that eventually it will probably be necessary to set up a separate type for the Lower Yazoo Basin.[3] This is becoming more evident, but the small yield at Jaketown makes this a poor time to do so. When such a type is set up it will be based almost entirely on rim form; the number of Bell Plain rims in the present sample is exactly two!

Old Town Red and Painted Types

The very small sample of red and painted types makes it unnecessary to do more than allude to the fact that the Mississippi complex in the Lower Yazoo Area is generally deficient in these types, notwithstanding the high popularity of Larto Red Filmed throughout the Baytown Period. Several very good Nodena Red and White vessels have, however, been found in burials at Jaketown. One very fine stirrup-mouth pot from the collection of Mr. L. S. Bradley of Belzoni warrants mention as the most southeasterly occurrence of this type of vessel so far reported.

Parkin Punctated

The few small sherds of this type show no significant departures from the published description[4] and are therefore not illustrated.

Barton Incised

Unless there is an undetected chronological factor involved, it is surely significant of an extreme marginal situation that the extensive 1951 excavations added only two examples to those previously recorded from this site. The usual explanation in the Lower Yazoo Basin that Barton has been replaced by Arcola Incised does not seem to apply. The number of Arcola sherds was even smaller than Barton. Neither of these types is represented by sherds worthy of illustration.

Belzoni Incised

Figure 37a–b

This, the only new shell-tempered type presented here, was set up in an effort to deal with a portion of the residue of curvilinear incised sherds that up to now have been ignored in our Survey counts. The number of such sherds increased steadily towards the south in the Survey collections, but because our typology was fairly well "set" by the time they began to come in, they were placed in the unclassified column. What would have happened had the Survey started at the mouth of the Yazoo and worked north is another matter—a clear example of the accidental factors that enter into the formulation of typologies.

Unfortunately, although found in greater strength than other decorated Mississippi Period types at Jaketown, we still do not have

[1] This will be done in a forthcoming publication by Phillips.

[2] Phillips, Ford, and Griffin, 1951, 105–110.

[3] Phillips, Ford, and Griffin, 1951, 125.

[4] Phillips, Ford, and Griffin, 1951, 110–114.

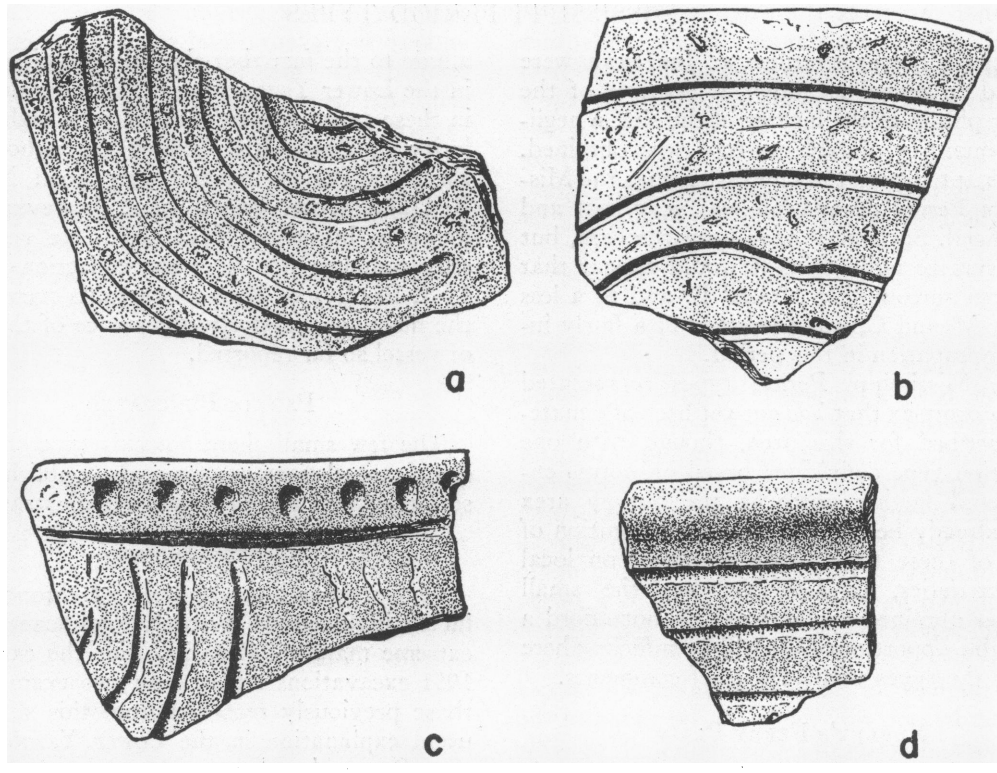

FIG. 37. Mississippi Period types. a–b. Belzoni Incised. c–d. Leland Incised.

sufficient material for a proper description of the type. It is characterized by a coarse shell-tempered paste and unpolished surface, comparable to that of such types as Barton Incised and Parkin Punctated, and decorated by rude curvilinear incised or trailed lines in simple scroll, concentric circle, or festoon patterns. The very unsatisfactory shape information that is available suggests a dominance of jar and bottle forms, but there are also simple bowls. Apparently the decoration had an "all-over" distribution on the body of the vessel, and the paucity of rims suggests that it usually terminated some distance below the lip. No appendages or basal features have been noted.

A convergence between Belzoni and Leland Incised suggests a close relationship between them. We have been inclined to wonder whether many of these sherds are not simply coarse examples of Leland, in which they might be included by enlarging the defined limits of variability. Against this view is the fact that Leland is primarily associated with bowl forms with characteristic thickened rims. This form does not seem to be represented in the sherds we are calling Belzoni. A more important criterion perhaps is the fact that Leland is tempered with very fine shell or no shell at all, whereas Belzoni is unfailingly tempered with shell, and coarse shell at that. It is tempting to speculate that Belzoni may be broken-down Leland, with the obvious temporal implications, but we have as yet no stratigraphic confirmation of such a relationship.

Another possibility is that Belzoni is a curvilinear version of Arcola Incised. Favoring this theory is the fact that Belzoni is common at Jaketown, where Arcola is virtually absent, whereas the exact reverse is true at the Lake George Site near by. More distant relationships to Rhodes and Ranch Incised are also indicated.

In sum, with this material we are confronted with the familiar dilemma that besets the classi-

fier. Shall we relax the existing definitions of Leland, Arcola, Rhodes, or Ranch, and other related types, and squeeze these sherds in now here, now there, or shall we try to set up a separate pottery type? We have chosen the latter alternative, but it obviously will take more information to establish Belzoni Incised firmly as a historically useful entity.

Leland Incised

Figure 37c–d

This Lower Yazoo type *par excellence* has not yet been adequately described.[1] Though present in considerable quantities in some of the Deer Creek sites and at Jaketown (20-O-1) and Silver City (20-O-5) on the Yazoo, it was not until the Survey reached the great Lake George Site (21-N-1) that a really adequate sample was obtained under conditions of stratigraphic control. We have already referred to a forthcoming report on Lake George and related sites.

On the basis of the present Jaketown sample (12 sherds) not very much can be added to the published description. One detail of possible significance, not sufficiently emphasized in the 1951 Survey report, is that in the area that includes Jaketown and Lake George the type seems to lie at the precise borderline between clay and shell tempering. In about half the sherds it is impossible to detect any traces of shell. All efforts to classify the type on a tempering basis fail, because there do not seem to be any other differentials that segregate with tempering. This kind of situation is familiar to those who have worked farther south in the Mississippi Valley. For example, Quimby describes the paste of Fatherland Incised, the historic Natchez type, as "very fine, granular and extremely compact. Tempering is variable, but always very fine particles were used. These particles include ground shell, very fine grit, or very fine ground and charred organic matter."[2] If for "grit" we may substitute "clay-grit," the description applies closely to Leland Incised at Jaketown.

On the other hand, the Jaketown sherds in general fail to show the careful decoration and high degree of finish that obtain at Silver City and Lake George farther south, suggesting a marginal situation. It may be noted that the distribution map in the Survey report[3] shows only two occurrences on the Yazoo above Jaketown. From this it seems reasonable to infer that wherever the original "center" for this type may have been, whether in the Deer Creek region or on the Lower Yazoo, or even farther south, its movement was up the Yazoo, and Jaketown was about the limit of effective penetration. The importance of this inference lies in the fact that Leland is almost certainly ancestral to Fatherland and Natchez Incised, and its distribution may reveal the former limits of influence of Natchez culture.[4]

The Historic Period

This brings us down to the verge of the historic period which in this locality means about 1680–1700 A.D. There is no evidence that Jaketown was occupied at so late a date. A handful of sherds from the surface or extreme upper levels has been classified with considerable uncertainty as Fatherland Incised. They could as well have been called Leland. The near-by Lake Dawson Site (19-N-6) yielded a few good Fatherland Incised sherds in a situation that suggested late, and possibly intrusive, burials, so it is altogether likely that Natchez or closely related people were in the general area. As we have about reached the conclusion that historic Natchez and Tunica pottery was virtually indistinguishable, these recent occupants may have been Tunica-speaking people.

MISCELLANEOUS POTTERY OBJECTS

Tubular Pipes

Figure 38a

Simple tubular pipes of both steatite and clay have been reported from the Poverty Point Site,[5] and more elaborate forms, in clay only, are diagnostic for the Tchefuncte cul-

[1] Phillips, Ford, and Griffin, 1951, 137–140.

[2] Quimby, 1942, 264.

[3] Phillips, Ford, and Griffin, 1951, Fig. 14.

[4] Ford, 1952, Fig. 12.

[5] Webb, C. H., 1948, 229, Fig. 44.

ture.[1] Their occurrence at Jaketown, therefore, was to be expected. Our collection includes 20 fragmentary and one complete specimen. Fourteen of these were excavated from the "lower" or Poverty Point midden; one was in a mixed Poverty Point-Tchula deposit; and the remaining six were surface finds. Thus the association of this pipe form with the Poverty Point Period occupation at Jaketown is firmly established.

These pipes are made of the same fine sandy-textured clay as the Poverty Point objects. As in the latter case, it is assumed, without positive evidence, that sand was *not* added as a tempering material. Colors range through orange and reddish tones, indicating firing under oxidizing conditions, but there are darker "clouds" on most specimens, and cores are frequently gray to black. The single complete specimen (Fig. 38a) is 110 mm. long, 26 mm. and 8 mm. in diameter at the bowl and stem ends, respectively. Bore diameters are 15 mm. and 5 mm. The bowl portion constitutes about 30 mm. of the total length, and an interior constriction marks the beginning of the stem portion as specified for Tchefuncte pipes.[2] There is no evidence that forms represented by the fragmentary specimens depart significantly from this description.

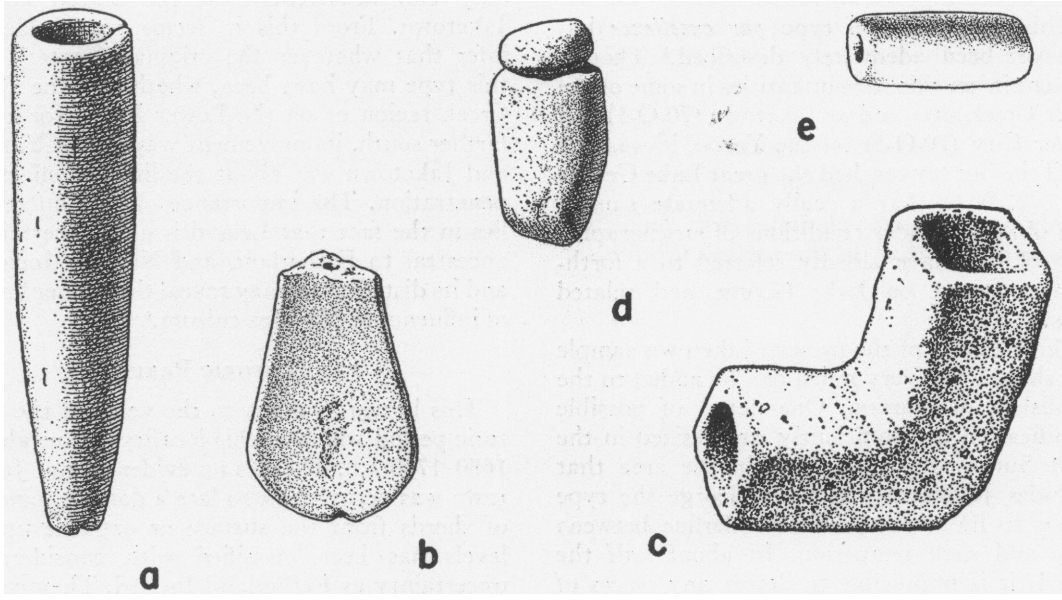

FIG. 38. Miscellaneous pottery objects. a. Tubular pipe of Poverty Point Period. b. Fragment of platform (?) pipe. c. Elbow pipe of Mississippi Period. d. Plummet. e. Bead.

PLATFORM PIPE

Figure 38b

A single fragment of what is assumed to have been the base of a clay platform or "monitor" pipe was found in a large pit in the upper levels at the eastern end of Trench 5, a locus that permits us so say nothing whatever about its cultural associations. An Early Baytown date would be in line with previous occurrences of this class of pipe in the Lower Mississippi Valley.

ELBOW PIPE

Figure 38c

One elbow pipe was found in Trench 5 (N22-24, W4-6, Level I). Its perfect condition renders observations on paste difficult. So far as can be determined from examination of the surface, it is either untempered or lightly tempered only with small clay-grit particles. The surface is well smoothed, even polished, and the color is predominantly a pinkish buff with darker firing clouds. All-over dimensions are 73 mm. long by 65 mm. high. As is usual for this class of pipes, bowl and stem holes are about equal in

[1] Ford and Quimby, 1945, 28, Fig. 7.
[2] Ford and Quimby, 1945, 29.

size, 20 mm. in diameter. Although the stem portion, like the bowl, is outwardly rectangular, it is made to take a cylindrical stem. Traces of carbon appear on the inside of the bowl.

This interesting pipe appears to have been out of context in Trench 5. The level in which it was found contained only tetrahedron fragments, Tchula Period sherds of various types, and one Mulberry Creek Cord-marked sherd. No signs of disturbance were recorded, but its general stylistic relationships are with Coles Creek Period pipes or (at the earliest) with stone pipes of the Copena Culture in northern Alabama. It hardly seems possible that the pipe can date from the Tchula Period.

Pottery Plummet

Figure 38d

Only one pottery plummet was found at Jaketown, and that on the surface. Plummets of fired clay have so far been reported from the Lower Mississippi Valley only at Poverty Point.[1] Our specimen, 48 mm. long, closely resembles types illustrated in the Tchefuncte report, but these are made of stone.[2]

Pottery Bead

Figure 38e

A single tubular bead, 35 mm. long by 16 mm. in diameter, was found in a mixed deposit in Trench 1. In paste, color, and general character of workmanship it so closely resembles the tubular pipe and fragments described above that it can safely be attributed to the Poverty Point occupation of the site. Webb illustrates a very similar stone bead and writes that such beads are "very numerous" at Poverty Point.[3]

[1] Webb, C. H., 1948, 229,
[2] Ford and Quimby, 1945, Fig. 10.
[3] Webb, C. H., 1948, Fig. 44, No. 20.

STRATIGRAPHY

THE PRINCIPAL STRATIGRAPHIC PROBLEMS

THE STRATIGRAPHIC EXCAVATIONS of the 1951 season at Jaketown have been described. To these may be added the information derived from study of the borrow pit profile, bore holes, and the results of the strata tests made in 1946 and reported elsewhere.[1]

The over-all situation, so far as it can be inferred from these data, is as follows: the primary and most extensive occupation of the site was in the Poverty Point Period, in which baked clay objects constitute the chief materials for analysis. Refuse of this period was laid down on, or even in, a clean sand that we have interpreted as a point-bar deposit pertaining to an early phase of the C_1 Stage Ohio River channel, and continued to accumulate to a varying depth during the upbuilding of the natural levee of the Wasp Lake course of the C_1 Stage. The resulting soil profile for this earliest period of occupation is characteristically banded with alternating thin lenses of midden and sterile water-laid silts and clays. The maximum thickness of this kind of deposit encountered in our trenches was 10 feet.

Whether the above-described banded effect is the result of intermittent occupation of the site, separated by periods of flooding and consequent levee building, or merely denotes a shifting of habitations from one part of the site to another cannot be determined from the evidence at hand. For present purposes it is sufficient to note that the intervals represented by sterile beds do not separate one type of culture from another. All such banded deposits appear to be in the Poverty Point Period. A corollary inference is that all pottery-bearing deposits were laid down subsequent to the period of active levee building by the old Ohio channel.

In those portions of the site selected for excavation these earlier deposits were overlain by a mantle of pottery-bearing refuse of varying thickness in which most of the known pottery complexes of the locality, from Tchula to Mississippi times, were represented. This deposit, which for convenience we have termed the "upper midden," was thickest in the area, now converted by the highway engineers into a borrow pit, where in Strata Cut A (1946) it measured about 5 feet.[2] In the trenches excavated in 1951, the upper midden was considerably thinner and therefore not particularly favorable for stratigraphic analysis. Slow accumulation, combined with an unusual amount of disturbance and redeposition incident to mound building and other activities centering around Mound A, had telescoped the sequence. The archaeologist is obliged to wring what information he can from his data, however unpromising, and we have therefore organized portions of the upper midden of Trenches 1 and 5 into analysis units which are described below. It is sufficient to note here that, in the main, Tchula Period types were neatly concentrated near the bottom, Mississippi types on top; in between were nearly all known Baytown types in the general order of what we already knew to be their proper sequence but without the clear-cut patterning that would add to that previous knowledge.

In other portions of the site, judging from bore holes and surface indications, the upper pottery-bearing midden thins out to a very superficial deposit, and in many places it is absent. The spatial dimensions of the site were apparently greatest in the Poverty Point Period, but we have of course no means of knowing how much of the site was occupied at any one time.

In several locations in our 1951 trenches the topmost levels of what we have interpreted as Ohio natural levee deposits consisted of sterile clays and silts, suggesting an interval between the deposition of the preceramic and upper midden deposits. No such sterile layer intervened in other sections, and it was sometimes difficult to plot the cleavage between the two. Interpretation is further complicated by the lens of tetrahedron-filled refuse that wedges between the upper and lower midden in the immediate vicinity of Mound A. In general, however, the two types of deposit can be readily distinguished. The upper midden tends to be

[1] Phillips, Ford, and Griffin, 1951, 273–281.

[2] Phillips, Ford, and Griffin, 1951, 275, Fig. 44.

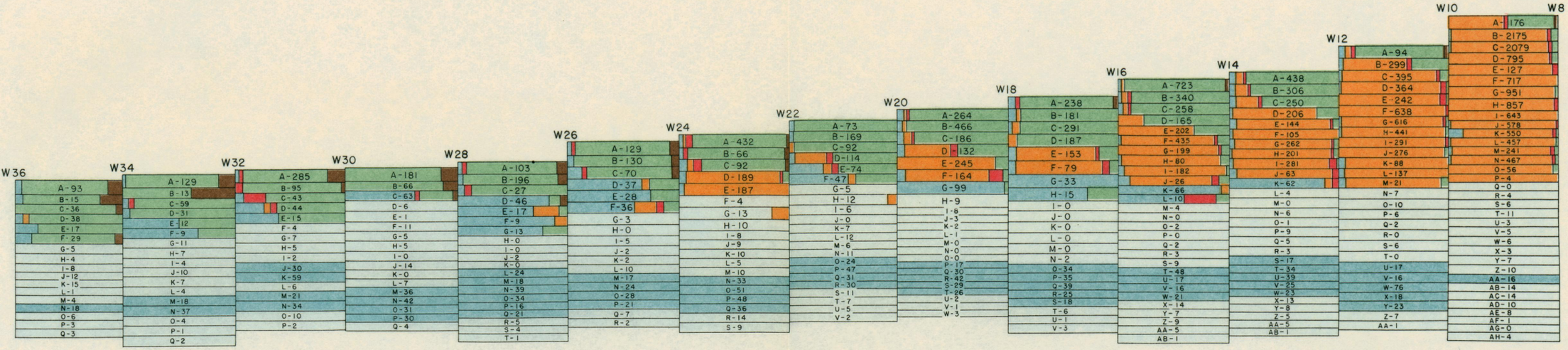

FIG. 39a. Stratigraphy in Trench 1
(overlay for Fig. 40a).

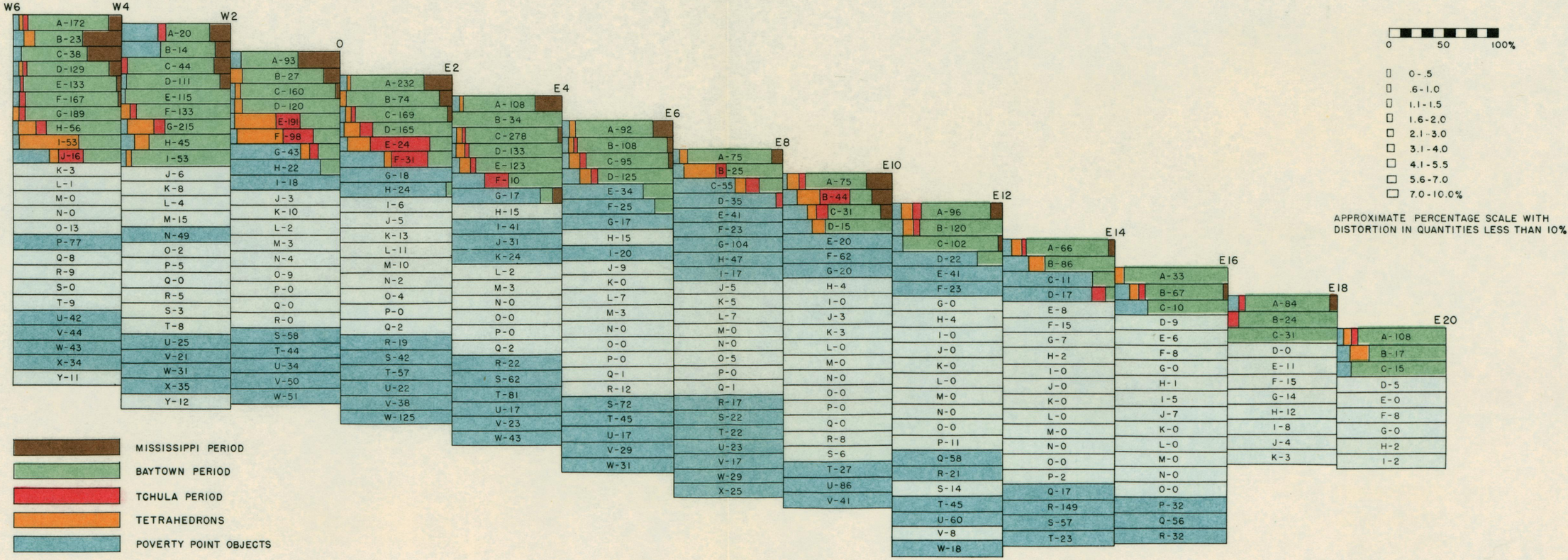

FIG. 39b. Stratigraphy in Trench 5
(overlay for Fig. 40b).

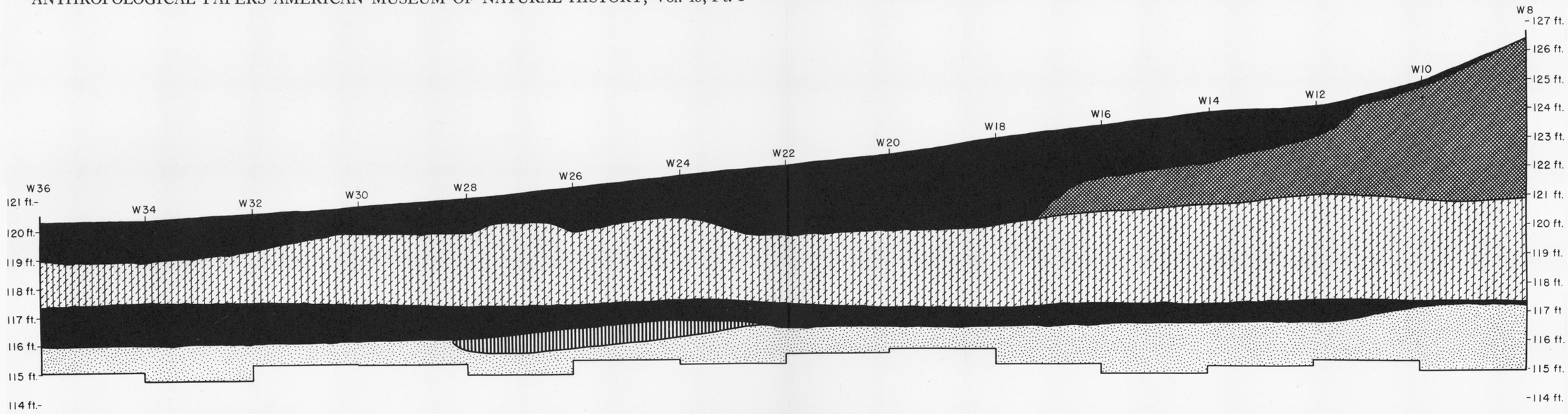

FIG. 40a. Stratification in Trench 1.

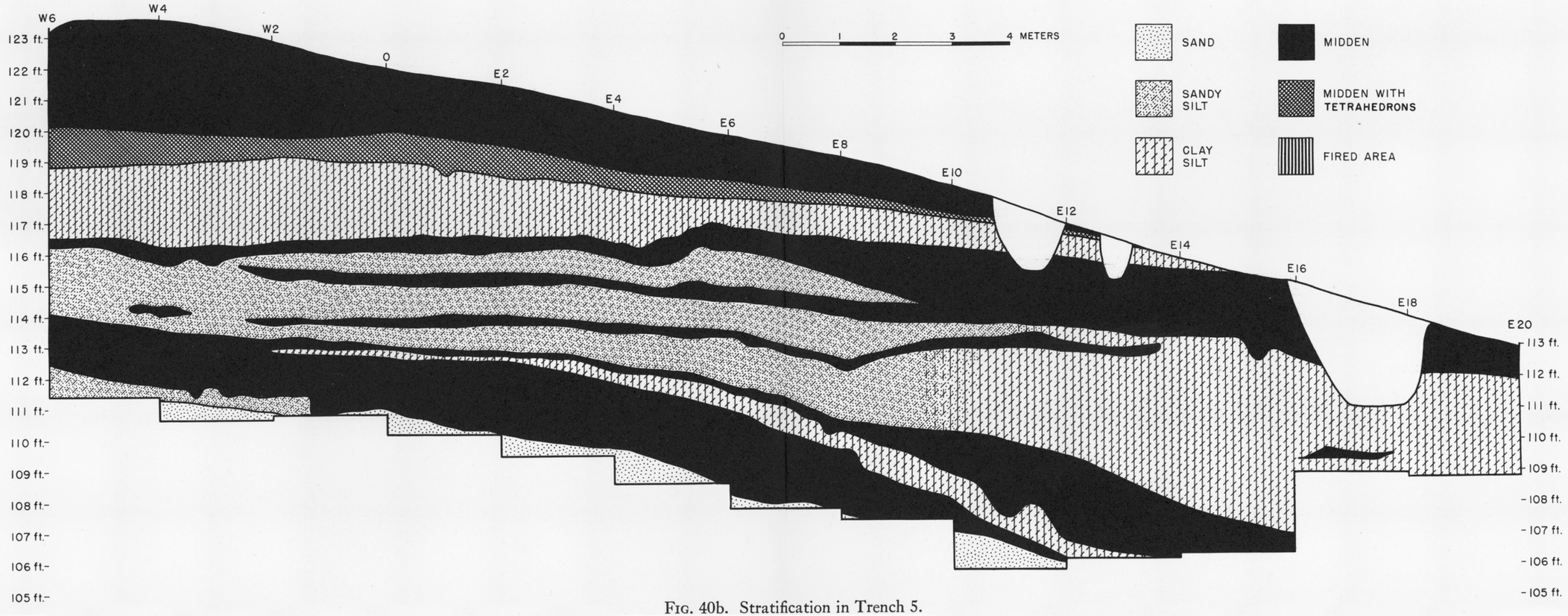

FIG. 40b. Stratification in Trench 5.

less consolidated and contains many more bone fragments and a considerable quantity of mussel shells, which are completely absent from the lower midden. Within the upper midden it has not been possible to distinguish any discontinuity in soil stratification that could be correlated with changes in the ceramic sequence.

With this brief recapitulation in mind, it may be seen that the stratigraphic problems, in order of our ability to furnish answers, are as follows:

1. Stratigraphy within the Poverty Point Period
2. The relationship of Poverty Point to the succeeding pottery periods, especially to the earliest one, the Tchula
3. Placement of the "tetrahedron deposit"
4. The relationship of Tchula to the succeeding Baytown Period complexes on the site
5. Stratigraphy within the Baytown Period
6. Baytown-Mississippi relationships

ANALYSIS AND PRESENTATION OF STRATIGRAPHIC DATA

The stratigraphic problems listed above, particularly 2 and 3, were studied by comparing percentage frequency diagrams with trench profiles, in an effort to determine whether or not significant changes in artifact distribution were associated with corresponding changes in soil stratification. This was effected by means of transparent overlays in color drawn to the same scale as the trench profiles, as reproduced in Figs. 39 and 40. Because these diagrams were designed to demonstrate only major relationships, rather than the detailed interaction of individual types, materials were grouped into five broad categories and colors were assigned as follows:

Poverty Point objects	Blue
Tetrahedrons	Yellow
Tchula Period types	Red
Baytown Period types	Green
Mississippi Period types	Brown

In the calculation of percentages for these colored overlays, sherds and baked clay objects, or fragments thereof, were treated as equivalent units. In the latter case, it will be recalled, only fragments large enough for identification were counted. The actual number of fragments found, especially of tetrahedrons, was very much higher than the figures indicate. Totals for each block are given beside the letter designating the level. These totals are usually below the minimum customarily required for legitimate percentage analysis. However, it must be pointed out that percentages are used here merely as an aid to visual comparison. The actual number of specimens drawn to a unit scale would have been preferable, but the quantities are too variable from level to level, ranging from one to over 2000, to permit that kind of presentation. As a matter of fact we tried it, but the results were not satisfactory. In these diagrams the only concession made to statistical propriety is that percentages were not calculated for blocks with specimen totals lower than 16. Fortunately, with a single exception, these contained almost nothing but Poverty Point objects and fragments and are therefore shown in a lighter shade of blue.

For the more limited questions of relationships within and between the various ceramic periods, items 4–6 in our list above, we have depended very largely on the stratigraphic tests made in 1946, particularly the one designated as Cut A.[1] Fortunately the sherds had not been dispersed, so it was possible to resort them in accordance with what we fondly believe to be a more precise typology. The new results are diagrammed in Fig. 41.

To this exceptionally clear stratigraphic picture we have added the results of two arbitrary analysis units (Trench 1, W16-24, and Trench 5, W6-E2) diagrammed in Figs. 43 and 45. Both of these units are in deposits accumulated on a slope. It took considerable juggling to combine levels from the constituent sections so as to minimize the blurring effect of the slope. Such an operation can be regarded as legitimate only if the details of such juggling are clearly set forth. Figures 42 and 44 show how the individual levels were combined to form these units. Comparison of these figures with the trench profiles and overlays in Figs. 39 and 40 will enable the suspicious reader to judge the extent and propriety of these manipulations.

It remains to mention another device that

[1] Phillips, Ford, and Griffin, 1951, 273 ff.

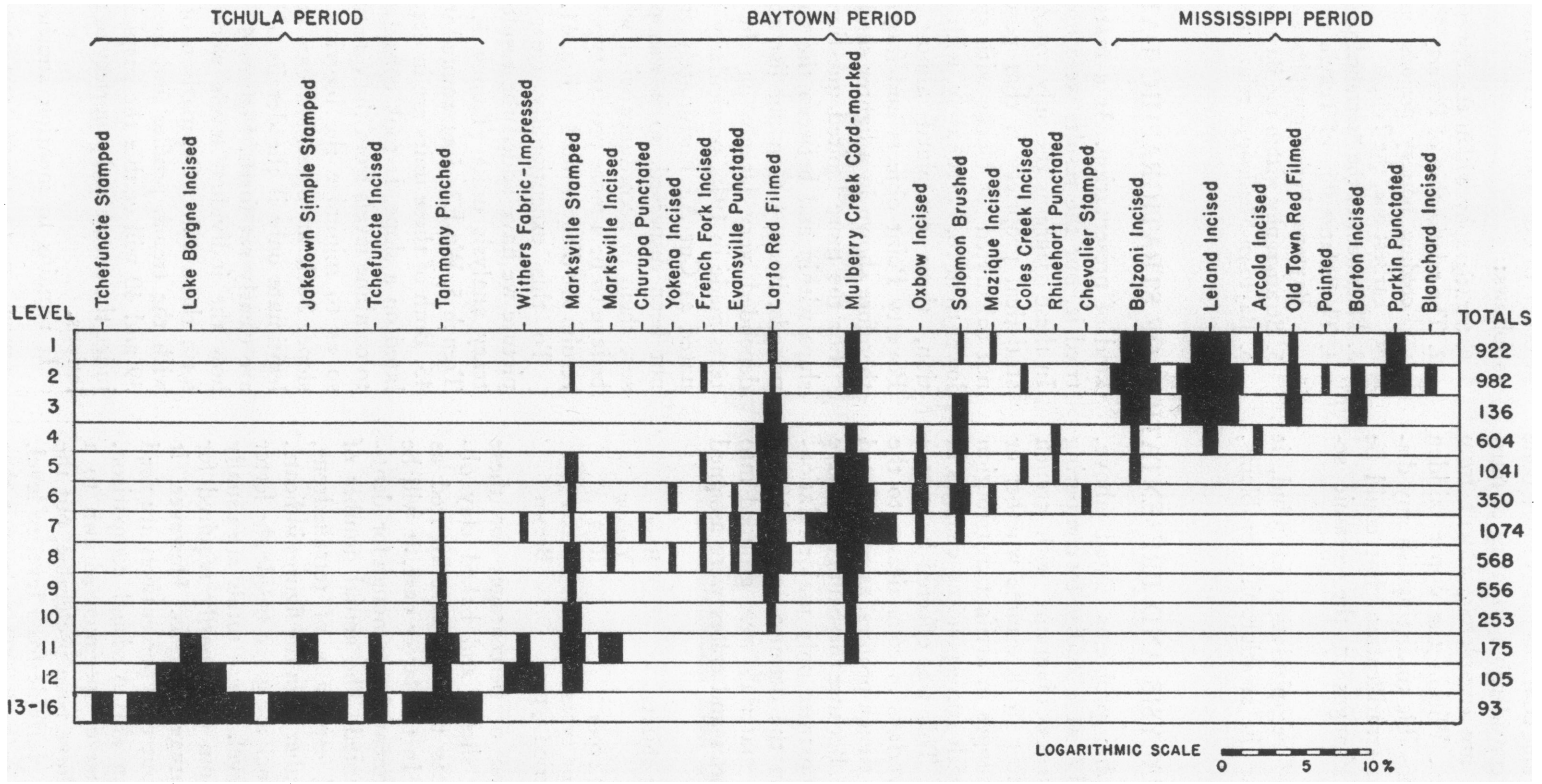

FIG. 41. Stratigraphy in Cut A, excavated in 1946.

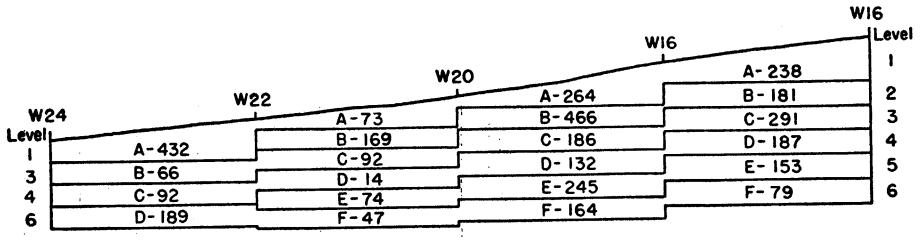

FIG. 42. Diagram showing how arbitrary levels of section of Trench 1 were combined to compensate for slope of strata. Levels are marked A, B, C, etc., and figures indicate the total number of sherds in each level. This is Analysis Unit 1.

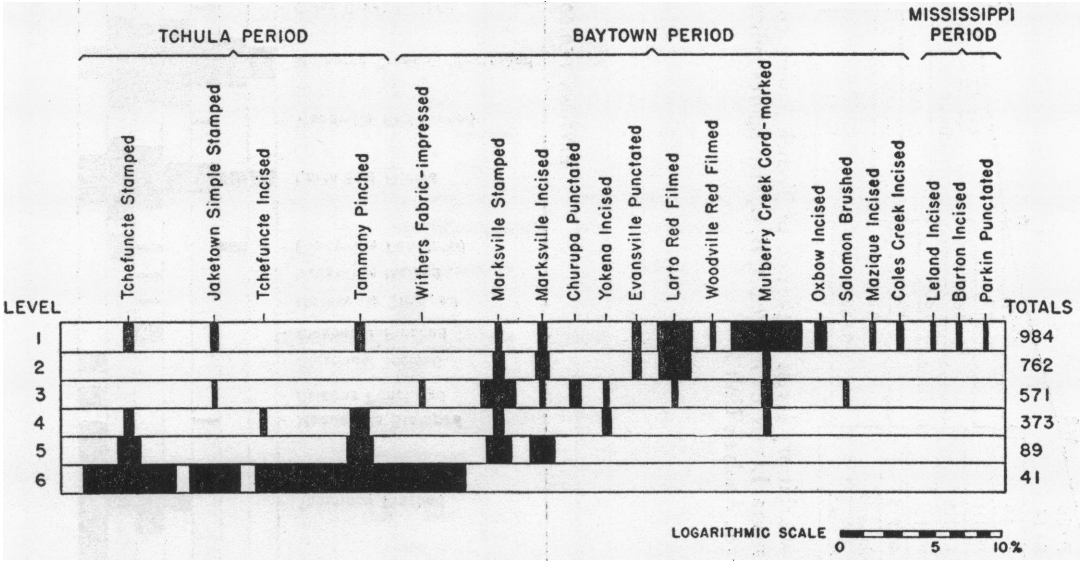

FIG. 43. Ceramic frequency graph produced by combining material from arbitrary levels in Trench 1 as shown in Fig. 42.

has served in some instances as a useful check on results obtained by the more conventional stratigraphic methods described above. This has already been referred to under the designation "mean vertical position"; it is, in effect, the mean or average depth of all the occurrences of a given type in the whole trench. It is arrived at by a very simple arithmetical calculation that is, like most simplicities, rather difficult to describe. In brief, this magic number is obtained by multiplying the number of objects of a given type in each level of a 2-meter section by the number of the level (counting down from the top), adding all these products together, and dividing by the total number of objects in the section. A simple example may clarify this part of the explanation. Let us assume that Type X occurs as follows in a given trench section; 1 in Level B (which for this purpose we will call Level 2), 2 in Level F (6), and 1 in Level H (8). Then:

$$\begin{array}{r} 1\times 2 = 2 \\ 2\times 6 = 12 \\ 1\times 8 = 8 \\ \hline 4 \qquad 22 \end{array}$$

Total number of objects of Type X in section = 4
Total of products as shown = 22
22 ÷ 4 = 5.5 which is the mean position of Type X in the section

The resulting figure (5.5) is neither in feet nor meters; it simply indicates that the mean vertical position of Type X is in the middle of the fifth level from the top, in this case Level E. The mean vertical position for the entire trench is simply the average of the figures obtained for

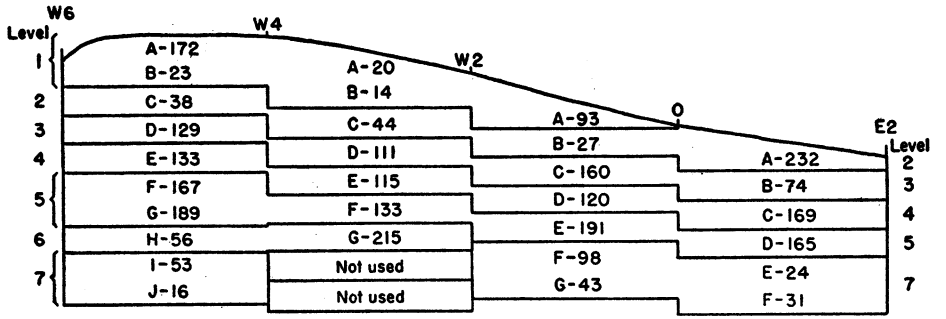

FIG. 44. Diagram showing how arbitrary levels in portion of Trench 5 were combined to compensate for slope of strata. Levels are marked A, B, C, etc.; figures indicate total number of sherds in each level. Analysis Unit 2.

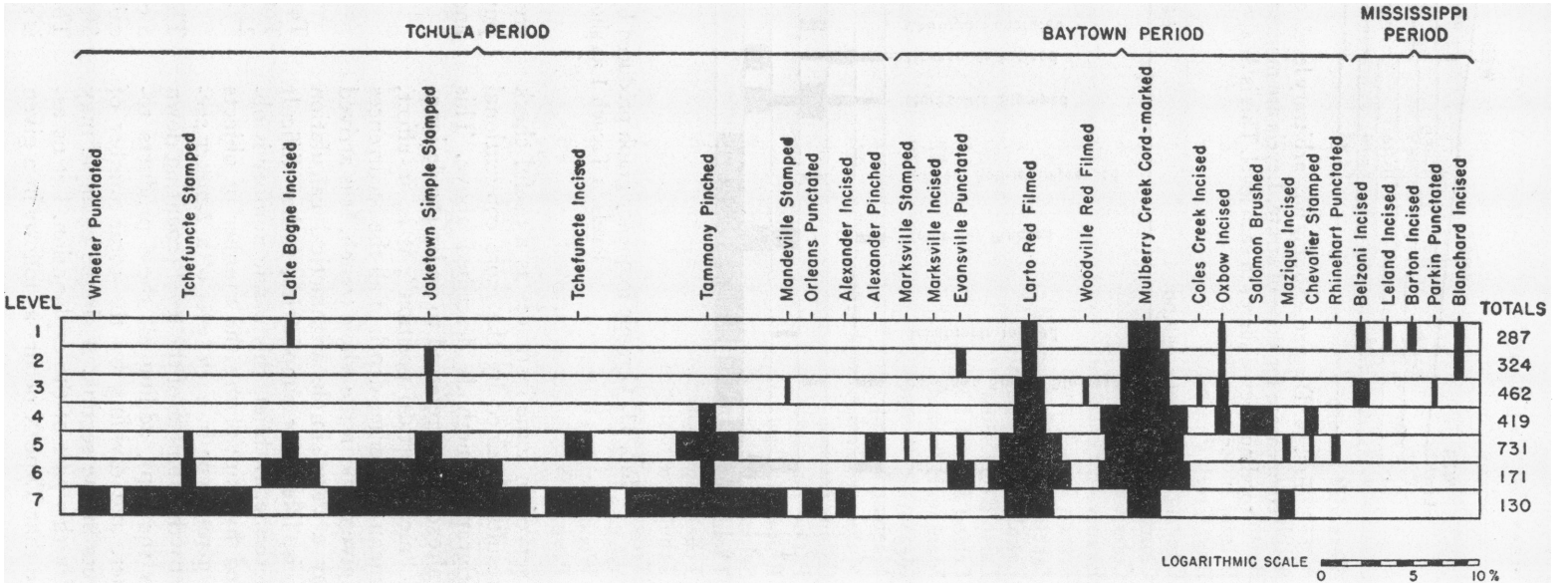

FIG. 45. Ceramic frequency graph produced by combining material from arbitrary levels in Trench 5 as shown in Fig. 44.

TABLE 7

MEAN VERTICAL POSITION OF POTTERY AND POVERTY POINT OBJECT TYPES IN TRENCHES 1 AND 5[a]

Type	Trench 1		Trench 5	
	Number of Sherds	Mean Vertical Position	Number of Sherds	Mean Vertical Position
Alexander Incised	2	3.0	—	—
Alexander Pinched	1	1.0	8	4.7
Arcola Incised	—	—	1	3.0
Barton Incised	—	—	2	1.0
Belzoni Incised	2	1.0	7	2.4
Bluff Creek Punctated	—	—	2	5.5
Chevalier Stamped	3	2.3	7	3.3
Churupa Punctated	5	2.4	1	9.0
Coles Creek Incised	4	1.0	8	2.7
Evansville Punctated	16	1.9	10	4.7
French Fork Incised	1	1.0	1	3.0
Jaketown Simple Stamped	26	5.7	71	5.1
Lake Borgne Incised	5	2.4	16	4.6
Larto Red Filmed	90	1.3	101	4.1
Leland Incised	1	1.0	4	1.0
Marksville Incised	22	1.9	6	5.0
Marksville Stamped	39	2.5	1	7.0
Mazique Incised	1	1.0	9	4.3
Mulberry Creek Cord-marked	80	1.5	183	3.8
Oxbow Incised	6	2.5	7	3.5
Parkin Punctated	1	1.0	1	4.0
Rhinehart Punctated	—	—	2	4.0
Salomon Brushed	4	1.0	15	3.9
Tammany Pinched	55	4.3	50	4.5
Tchefuncte Incised	6	5.3	8	6.5
Tchefuncte Stamped	17	3.3	30	5.3
Troyville Stamped	1	2.0	—	—
Withers Fabric-impressed	2	5.0	—	—
Woodville Red Filmed	3	1.0	11	2.5
Poverty Point objects: biconical	76	14.0	37	15.2
Poverty Point objects: cylindrical	323	8.7	505	10.9
Poverty Point objects: cross grooves	124	14.6	158	17.0

[a] Mean vertical position of plain types were not calculated. Some decorated types listed in Table 4 were not calculated, because occurrences were in pits or otherwise non-significant.

the individual sections. It is at best a very rough average, as deposits of the same age do not lie at the same depths in all parts of a trench. For this reason, position figures for different trenches are not comparable. In the case of Trenches 1 and 5, our chief reliance in the present study, they are rendered still less comparable by the unpedantic system of excavation already described; the former was dug in 10-centimeter levels and the latter in 6-inch levels.

This primitive arithmetical device is by no means recommended as an alternative to percentage frequency analysis. It has a number of shortcomings, prominent among them being the fact that it gives no indication of the relative duration or popularity trends of the various types. Also it is affected by the differing frequencies of specimens in the various levels. It has been resorted to here, because in many parts of our excavations, and this applies especially to the lower Poverty Point period deposits, the level totals were insufficient for percentage analysis. It was only by arbitrary combination of adjacent levels in selected por-

tions of our trenches that we are able to present the analysis units described above. The mean vertical position device is merely a rough check on these *partial* stratigraphic data based on the *total* sample for each trench. In this limited sense it seems to have worked rather well.

Table 7 gives the figures for mean vertical position of pottery types and Poverty Point objects in Trenches 1 and 5, the only excavations in 1951 that yielded pottery samples adequate for this type of analysis. Later, the figures for Poverty Point types alone are given for Trenches 1, 2, 3, and 5. It will be noted in Table 7 that the figures for all types represented by a reasonable sample, say 10 sherds or more, are fairly consistent as between one type and another. For example, we have already inferred from other evidence that the maximum frequencies of Mulberry Creek Cord-marked and Larto Red Filmed at Jaketown were at approximately the same time. In Trench 1, the mean vertical positions are 1.5 and 1.3, respectively; and in Trench 5, 3.8 and 4.1—a very satisfactory agreement. The Early Baytown types, which should be a little earlier and therefore should show higher figures, do so. In Trench 1, Marksville Incised and Marksville Stamped have mean vertical positions of 1.9 and 2.5, respectively. Again, the Tchula Period types, Jaketown Simple Stamped, Lake Borgne Incised, Tammany Pinched, Tchefuncte Incised, and Tchefuncte Stamped, give figures of 5.7, 2.4, 4.3, 5.3, and 3.3; in Trench 5 the same types run 5.1, 4.6, 4.5, 6.5, and 5.3. These figures are reasonably consistent and significantly higher (i.e., earlier) than those for the Marksville types. The figure for Lake Borgne in Trench 1 (2.4) is manifestly out of line, but the sample consists of only five sherds; in Trench 5 the type is in its correct position. The only serious discrepancy in the above figures is the high position of Tchefuncte Stamped in Trench 1, 3.3 on a sample of 17 sherds, which should be adequate. This suggests that we may have had difficulties in sorting this type; actually that is just what happened. Small sherds of the rocker-stamped sequence, Tchefuncte-Indian Bay-Chevalier, are difficult to sort. We finally omitted Indian Bay, casting all plain rocker-stamped sherds into Tchefuncte or Chevalier. Probably in Trench 1, which had a strong Early Baytown component (where Indian Bay belongs), we threw sherds into Tchefuncte Stamped that would have been classified more correctly as Indian Bay. Trench 5 presented no such difficulty, because the early Baytown Period was not well represented.

These first results permit us to suggest that, with due regard to adequacies of sample, the mean vertical position may be a useful device, particularly in situations like the present where conventional stratigraphic methods are difficult to apply.

STRATIGRAPHY WITHIN THE POVERTY POINT PERIOD

The classification used in sorting Poverty Point objects in the field has already been given. Of the five types classified at that time, only three were sufficiently numerous for stratigraphic analysis, as follows:

Biconical
Cylindrical with lateral grooves
Cross-grooved

The following discussion is concerned exclusively with these types. For the sake of brevity, the second type listed above is here called "cylindrical," without further qualification.

The yield of Poverty Point objects in individual levels of the 2-meter square sections of the various trenches was inadequate to permit a study of percentage frequencies as normally applied to pottery stratigraphy. Actual counts of the various types were therefore plotted on trench overlays in the hope that some consistent order would be discernible by mere inspection. In general the results were negative, but we obtained a few suggestive leads that may be worth recording. In Trench 1, for example, it was quite apparent that cylindrical objects, although present in significant quantity from top to bottom of the preceramic deposits, tended to be more numerous in the upper levels. Trench 2, on the other hand, so shallow as to constitute scarcely more than a surface collection, yielded an overwhelming majority of biconical objects, 190 out of a total of 224 classifiable objects, whereas the cylindrical form was represented by only four specimens. In this con-

TABLE 8

ARBITRARY DIVISION OF LOWER MIDDEN IN TRENCH 5[a]

Section N22-24	Upper Component Levels	Lower Component Levels
W 4- 6	K-R	T-Y
W 2- 4	J-N	R-Y
W 0- 2	I-O	S-W
E 0- 2	G-M	R-W
E 2- 4	H-M	Q-W
E 4- 6	G-M	Q-W
E 6- 8	E-L	Q-X
E 8-10	E-K	R-V
E10-12	E-H	P-U
E12-14	E-H	P-T
E14-16	D-J	P-R

[a] The last two sections of Trench 5 (E16–20) were not used.

nection, Trench 3 revealed little of interest beyond the fact that biconical objects seemed to lie at deeper levels than the other two types. In Excavation 4 (Mound G) there were no biconical objects, while cylindrical and cross-grooved objects were about evenly distributed in the mound fill and sub-mound deposits. Trench 5 was the only excavation unit that seemed to offer an opportunity for stratigraphic analysis, which is discussed below.

The net result of this preliminary inspection was to raise a problem the proper solution of which would require a good deal more excavation: to wit, the possibility that differences in type frequency are not altogether the result of differences in time but may reflect some other kind of variable. For example, the totally different frequencies in Trenches 2 and 3, notwithstanding their shallow depth and close juxtaposition on the site, incline us to wonder whether some unknown factor has caused marked differences in type distribution on the same time level. Preference on the part of individual households in favor of certain types would be the kind of factor we have in mind. Whatever the explanation, a certain amount of caution in further interpreting the stratigraphy of Poverty Point objects is strongly indicated.

TABLE 9

COMPARISON OF FREQUENCIES OF TYPES OF POVERTY POINT OBJECTS IN UPPER AND LOWER PORTIONS OF MIDDEN IN TRENCH 5

	Biconical Per Cent	Cylindrical Per Cent	Cross-grooved Per Cent
Upper component	0.8	86.5	12.6
Lower component	8.5	49.8	41.5

As already stated, Trench 5 is the only one that gave promise of such interpretations. Here the "lower" or Poverty Point Period midden was in most places divided by sterile or near-sterile levels into what we refer to (for this discussion only) as upper and lower components. Use of the word is not intended to imply that these are cultural components in a taxonomic sense. A more or less arbitrary separation of levels was made, as shown in Table 8.

Comparison of type frequencies in these two components gives fairly clear-cut results, as is shown in Table 9. Thus the results derived from mere inspection are validated to a certain extent. Biconicals and cross-grooved forms look definitely earlier than cylindricals—or let us say

TABLE 10

MEAN VERTICAL POSITION OF POVERTY POINT[a] CLAY OBJECTS

	Trench 1		Trench 2		Trench 3		Trench 5	
	MVP[b]	No.	MVP	No.	MVP	No.	MVP	No.
Biconical	14.0	76	3.2	190	6.2	58	15.2	37
Cylindrical	8.7	323	2.5	4[c]	4.6	153	10.9	505
Cross-grooved	14.6	124	4.5	20	4.9	19	17.0	158

[a] Cut 4 (Mound G) not calculated.
[b] Mean vertical position.
[c] Inadequate sample.

their popularity appears to have declined earlier. As between biconicals and cross-grooved forms, the very low incidence of the former in the upper component appears to indicate that it went out of use earlier than the latter.

These indications are borne out by the figures for mean vertical position of types in the various trenches, as shown in Table 10. Note that cylindrical forms have the lowest figure, i.e., the highest (shallowest) mean position in all four trenches, with biconicals and cross-grooved specimens approximately even. In Trenches 1 and 5, where the samples are most adequate, the differences are great enough to be significant.

As already noted, the biconical variant forms, extruded, punched, and grooved, were not sorted in the field, but a sufficient number of the first two forms were among the collections shipped to Cambridge to give not quite adequate samples for calculation of mean position in Trenches 1 and 5, as follows:

	Trench 1		Trench 5	
	MVP[a]	No.	MVP	No.
Biconical extruded	20.4	14	18.0	8
Biconical punched	15.6	11	18.4	6

[a] Mean vertical position.

When these figures are compared with those given in Table 10, it appears that both of these variants lie significantly deeper than biconicals as a whole or any other type on the site.

It may also be of interest to note that five small biconicals (less than 4 cm. in diameter) in Trench 1 have a mean position of 5.8, as compared with 14.0 for all biconicals in the same trench. Single occurrences in Trenches 3 and 5 have positions of 5.0 and 8.0, respectively, also well above (in point of depth) the means for biconicals as a whole in those trenches. The samples are, of course, not as large as we should like, but they certainly indicate that these small biconicals are the latest baked-clay objects on the site. This agrees with the conclusions of our distribution studies in a previous section.

This is about all the interpretation the data will bear. Our tentative conclusions are that all three major types of Poverty Point objects were in use in the earliest period of occupation of the site, with special emphasis on extruded and punched biconical forms; that with the passage of time the laterally grooved cylindrical type gained in popularity at the expense of biconical and cross-grooved types, particularly the former; but, notwithstanding the decrease in biconical forms in general, the small fine biconicals seem to have been the latest of all.

If these tentative conclusions are correct, we may hazard a guess about the date of Mound G, which showed the following distribution of types:

	Plow Zone	Mound Fill	Sub-Mound
Biconical	0	0	0
Cylindrical	2	28	14
Cross-grooved	2	22	11

With no biconical and a majority of cylindrical objects in both the mound fill and sub-mound deposit, the mound must be placed fairly late in the history of the site, always on the assumption that changes in type frequency are the result of time factors only, which remains to be proved. The dating of Mound G, although we found very little in it, has an important bearing on the probable age of the microflint complex, which is discussed below.

Again, on the basis of these findings, we may, with even greater circumspection, place another guess on record. Comparisons of the gross percentage frequencies of laterally grooved cylindrical objects at Poverty Point and Jaketown (Table 3) appear to indicate that Poverty Point (at least those portions of the embankment excavated by Ford in 1952) is the earlier of the two sites. However, the low percentage of biconicals at Poverty Point militates against such a conclusion. Obviously we have as yet not enough data on the typology of baked clay objects to warrant time correlations over a wide area in the Lower Mississippi Valley.

THE RELATIONSHIP OF THE POVERTY POINT AND TCHULA PERIODS

The 1946 stratigraphic tests established a "strong presumption" that there was a pre-pottery occupation at Jaketown.[1] The amount of material recovered was too small for us to speak of a preceramic "culture" or "period," though we might safely have done so in view of the obvious relationships to the famous preceramic Poverty Point Site in Louisiana. The

[1] Phillips, Ford, and Griffin, 1951, 281.

1951 excavations abundantly confirmed the existence of such a period at Jaketown and identified the culture so closely with Poverty Point that no other designation was even considered. A glance at the areas of dark blue at the base of the stratigraphic overlays of Trenches 1 and 5 (Figs. 39–40) leaves no room for doubt regarding this major conclusion. It is almost equally certain, as we have already pointed out, that Poverty Point continued to be the dominant, if not the only, culture throughout the C_1 Stage of levee building, whether the site was continuously occupied or not. This is evidenced by the extensive light blue areas in these diagrams. From these levels, sterile or nearly so (less than 16 specimens), the only artifacts recovered were Poverty Point objects or fragments thereof. All interbedded lenses of refuse within the total zone of natural levee deposits likewise contained only Poverty Point material. The only possible conclusion therefore is that the period represented by these deposits antedated the introduction of pottery to the Jaketown locality.

What is not so certain, however, is the nature of the change represented by the imperfect cleavage separating natural levee and pottery-bearing deposits, between lower and upper midden. In a number of instances there are sizable percentages of sherds that are wholly below this line of cleavage. It will be noted, however, that in all such cases the actual number of sherds involved is small, no more than can be comfortably accounted for by minor disturbances that do not show up on the profiles. The only exceptions worth mentioning are in the eastern end of Trench 5 (E10-20) and in Trench 1 (W34-36). In the former case, it was difficult to trace the line of separation because the color of the black cultural deposits decreases in intensity at this end of the trench. Furthermore, here there was a series of pits, some of which are shown on the profile. An attempt was made, of course, to eliminate the contents of these pits from the strata collections, but one can never be sure that such efforts have been successful. No such easy explanation is available for the sherds in Trench 1 (W34-36), Levels E and F (13 and 24 sherds, respectively). If there was any disturbance here it was not detected. However, this one section is hardly sufficient evidence for the inclusive presence of pottery in the upper levels of what we have designated as natural levee deposits. It appears that the line between these levee deposits and the overlying midden really separates the preceramic and ceramic phases of occupation on the site.[1] Translated into more general terms, this eliminates support for the assumption that pottery "came in" towards the end of the Poverty Point Period and was incorporated into the culture with no break in continuity.

There remains the question of Poverty Point material in the upper midden above the line of separation. Note in Figs. 39 and 40 that almost every level in these deposits yielded a few Poverty Point fragments. The problem is how to interpret this fact. There are, it seems, only two possible explanations. Either Poverty Point objects continued to be made and used during subsequent periods, or the objects "migrated" up from lower levels. To assess these alternatives properly, it is necessary to repeat our statement about the abundance of Poverty Point objects on the site. From surface indications alone, one would guess that the Poverty Point occupation was more extensive and prolonged than that of any subsequent period. On large areas of the site today, baked clay objects and fragments are scattered over the surface, unmixed with later culture material. In areas where they have been overlain with later refuse, one can still pick up a good many on the surface. There can hardly have been a time in the history of the site when this was not true. Every time a Tchula, Baytown, or Mississippi Period Indian dug a hole, Poverty Point objects were sure to be thrown out. The quantities of such objects found in all levels of the upper midden are never greater than can be reasonably accounted for in this manner. Their presence in the tetrahedron deposit, to be sure, constitutes a special problem. Our speculations in an earlier section led to the tentative suggestion that this densely packed wedge represents a talus accumulation of refuse swept down from the top of Mound A in the Tchula Period. If the Poverty Point objects were swept down too, it would be evidence that they were still in use in the Tchula Period. This is altogether possible, but it is equally possible that they were washed out of the mound fill which we can assume to have been strongly impregnated with Poverty

[1] Cf. discussion of borrow pit profile, p. 27, where this conclusion was anticipated.

Point objects scraped up off the village site in the obtaining of building material for the mound. The talus, in other words, could very well have been a combination of outwash and refuse, and it would be difficult to distinguish one from the other.

In sum, it seems that the evidence so far does not justify the assumption that the use of Poverty Point objects was carried over into the subsequent ceramic periods, though many of the objects by one means or another came to rest in deposits of those periods. This looks like disagreement with interpretations based on the distribution of Poverty Point objects in the Lower Mississippi generally, in which it was tentatively concluded that these objects did continue in limited use into later periods. However, it will be recalled that a good many of the later occurrences are of the small fine biconical type, and it was suggested that these may have played a different cultural role from that of the coarser types characteristic of Poverty Point and Jaketown. It is interesting, in this connection, that all but one of the seven small biconicals that turned up at Jaketown were in the upper midden, the exception being in a section of Trench 3 (N228–230) in which the stratigraphic record was highly unsatisfactory, possibly owing to a large pit which is recorded on the profile. In the same level with this small biconical were typical Poverty Point objects and Mississippi Period sherds!

The above conclusion and our previous one that pottery did not come into the Poverty Point Period indicate a significant break in the history of the Jaketown Site. Whether or not this apparent cultural discontinuity has wider implications for the Lower Mississippi Valley generally is a question that does not come within the scope of the present report.

THE TETRAHEDRON DEPOSIT

The baked clay objects, provisionally designated as tetrahedrons, have been described and speculated upon in a previous section. Here we are concerned solely with the stratigraphic relationships of the deposit in which they were so densely concentrated. The superposition of tetrahedrons over Poverty Point objects (yellow over blue in Figs. 39–40), particularly in the eastern end of Trench 1, is about as neat as one could hope to see, and we have adopted the hypothesis that the tetrahedron deposit in Trench 1 represents an actual episode in the construction or use of Mound A.

We start therefore with the assumption that what might be called the tetrahedron phase is post-Poverty Point. Not quite so evident is its relationship to the pottery periods. In almost all the levels in the eastern part of Trench 1, where we find the greatest quantities of tetrahedrons, there is a consistent minority of Tchula Period sherds. Note in Fig. 39 how often a wide bar of yellow is accompanied by a thin bar of red. The totals are large, so the actual quantities of Tchula sherds represented by these thin bars are not negligible. In many of these levels there are similar minorities of Baytown Period sherds, but these are almost invariably Baytown Plain, with a scattering of Evansville Punctated. The difficulties of separating Baytown from Tchefuncte Plain and Evansville Punctated from Tammany Pinched have already been described, so it is possible that much of the green in this part of the diagram should have been red. In this connection it may be noted that the field tabulations for several of these levels bear the comment "Baytown Plain very Tchefunctoid." Without knowing more about the origin of this dense tetrahedron deposit, it would be idle to speculate how these significant quantities of Tchula Period sherds got into it. Their vertical distribution, particularly in Sections W8–12, shows pretty clearly that they did not work down from above. We have already discussed the characteristics of some of these sherds which seem to indicate subjection to the same reduced firing conditions as the tetrahedrons and concluded that they must have been swept down from the top of the mound together. Therefore, although both sherds and tetrahedrons almost certainly represent a redeposition, we believe that the association between them is a valid one.

This conclusion is confirmed in other parts of Trench 1 and in Trench 5 where tetrahedrons occur in less concentrated fashion. As may be seen in Figs. 39 and 40, almost every level con-

taining tetrahedrons also has a significant percentage of Tchula Period sherds. Until further evidence is available, therefore, we postulate a Tchula Period date for the tetrahedron phase at Jaketown.

TCHULA AND BAYTOWN RELATIONSHIPS

In approaching this problem we are again hampered by sorting difficulties already acknowledged. These can be summed up in the statement that many sherds classified as Baytown, particularly Baytown Plain, may actually belong in the Tchula complex. The result is that the stratigraphic cleavage between them, if there is such a thing, is very difficult to locate. No help whatever is to be had from the soil profiles; apparently both complexes occur in the same type of midden. It is not even clear, on the colored overlays of Trenches 1 and 5 (Figs. 39–40), that the Tchula types are stratigraphically earlier, though this basic relationship may be observed clearly enough in the more detailed graphs of Cut A (Fig. 41) and Analysis Units 1 and 2 (Figs. 43, 45). Note in Fig. 41 the clear indication of the priority of the Tchula types, Tchefuncte Stamped, Jaketown Simple Stamped, Tammany Pinched, and Lake Borgne Incised, over Marksville Stamped and Marksville Incised, the marker types for Early Baytown in this locality. We can therefore take this as settled so far as Jaketown is concerned.

What is not settled, however, is the nature of the change from Tchula to Baytown, the perennial question of abrupt replacement versus slow transition and cultural continuity. On the answer to this question depends in part the dating of both Tchula and Early Baytown complexes at Jaketown, not with respect to each other but in relation to presumed equivalent phases elsewhere. For example, we have produced some rather tenuous evidence that Tchula at Jaketown may be early in relation to Tchefuncte in Louisiana; on the other hand, we have the impression, difficult to objectify, that the Early Baytown complex at Jaketown is late in relation to Marksville. It has been assumed that no gap exists in Louisiana between Tchefuncte and Marksville. Therefore, if both the above surmises about the Jaketown material are correct, it would be logical to expect a gap between Tchula and Early Baytown. This is not submitted as evidence of such a gap, but merely as an illustration of the importance of such evidence, if obtainable. The difficulty of obtaining stratigraphic evidence of a cultural break was clearly demonstrated in the Lower Mississippi Survey findings, where, in 15 strata cuts involving two or more cultural phases on almost as many sites, only three showed positive evidence of discontinuity; yet even in these, it was not clear enough to convince all three members of the survey.[1] It is not, therefore, conclusive in any final sense that unequivocal evidence of a discontinuity between Tchula and Baytown does not appear at Jaketown, on either the graphs or the profiles of the 1951 excavations. In discussing the 1946 Strata Cut A in the Survey report, we called attention to the "rather definite break" between Levels 10 and 11, but were obliged to admit that nothing on the profiles of the cut indicated a corresponding change in the character of the deposits.[2] In the new diagram of this cut (Fig. 41) this break is not quite so evident, nor is there anything in Analysis Units 1 and 2 that would necessitate reopening the question.

A comment of possible interest in this context is offered by the somewhat dubious evidence of Trench 3, unrewarding from the general stratigraphic point of view and consequently not diagrammed here. There was a good deal of disturbance in this trench, but the over-all stratigraphy was apparent. The basal Poverty Point deposit was overlain by thin Tchula and Mississippi Period refuse with no Baytown sherds. This at least indicates a "pure" Tchula Period in the history of the site. Were we to interpret the stratigraphy in this trench without any previous knowledge of the relative time positions of Tchula and Mississippi, we would be compelled to say that there is evidence of continuity between them. Here is a case, then, where we know that a break has occurred—the whole Baytown Period is missing—yet nothing

[1] Phillips, Ford, and Griffin, 1951, 292, 428.
[2] Phillips, Ford, and Griffin, 1951, 275, Fig. 44.

in pottery distribution or the profile indicates it.

We have already referred to another point that bears indirectly on this question of continuity or discontinuity, to wit, the sharp drop in the proportion of decorated to plainwares from the Tchula to the Baytown periods. The visual effect in all stratigraphic diagrams is very striking. It may be seen in the wide bars representing Tchula type frequencies in the lower levels. Although plainwares are not shown, all percentages are calculated against totals that include the plain sherds, so there is nothing spurious about these wide bars. This certainly argues for a rather abrupt change of emphasis in the ceramic tradition, though it might be going too far to regard it as evidence of an actual break in continuity.

One of the basic assumptions of Lower Mississippi archaeology has been that of a general continuity within the ceramic tradition throughout the entire period of pottery making. This has not been questioned for the area about the mouth of the Red River. It has been questioned farther north at one point in the time scale, represented by the shift from Baytown to Mississippi,[1] and we shall have more to say about this presently. Here we are dealing with the possibility of an earlier discontinuity between Tchula and Baytown, a point of some importance in the larger question of northern and southern Hopewellian relationships, but one on which unfortunately for lack of real evidence we are obliged to hold our peace.

In sum, notwithstanding certain faint indications to the contrary, we shall continue to postulate a ceramic continuity from Tchula into Baytown as a working hypothesis subject to further investigation.

STRATIGRAPHY IN THE BAYTOWN PERIOD

We have frequently alluded to the fact that our 1951 excavations at Jaketown were aimed to secure as much information as possible about the preceramic phase of occupation; consequently, there is not very much to add to previous knowledge of detailed relationships within and between the ceramic periods represented in the site.

In Cut A (Fig. 41) the Early Baytown marker types, Marksville Stamped and Marksville Incised, begin to show in lower levels that contain little else but Tchula types and continue through the middle levels of the cut. Slightly higher, in an intermediate position, are the types Churupa Punctated, Yokena Incised, French Fork Incised, and Evansville Punctated, which identify the "middle" Baytown Period, and these are followed by a later group consisting of Oxbow Incised, Salomon Brushed, Coles Creek Incised (of a crude "marginal" character), Rhinehart Punctated, and Chevalier Stamped. The first three of this last group are marker types for a complex that also includes a substantial percentage of Larto Red Filmed and Mulberry Creek Cord-marked and, of course, the numerically dominant Baytown Plain. This complex apparently falls into what has been defined as the Late Baytown Period in the Lower Yazoo Region and probably equates roughly with the Coles Creek Period in the Red River Region though it may overlap with a portion of the Plaquemine.

Larto Red Filmed and Mulberry Creek Cord-marked are manifestly too long-lived to be useful markers for any subdivisions of the Baytown Period. With these types it can only be a question within which temporal subdivisions their maxima fall. In Cut A it is fairly clear that these are in the Middle Baytown, though it is equally apparent that both types continued to be in use throughout the Late Baytown as well.

Though the relatively shallow pottery-bearing deposits of Trenches 1 and 5 afford only a telescoped stratigraphy, they accord rather well with the outline given above. The Trench 1 deposits (Fig. 43) were laid down chiefly in the Tchula and Early Baytown periods, with Middle and Late Baytown and a thin overlay of Mississippi crowded together in the top levels. There is a little difficulty with some of the supposed Middle Baytown types, such as Yokena Incised and Churupa Punctated, which appear to be too early. This wavering of Middle Baytown types has been noted before and is one of the reasons the period is not represented by a well-defined pottery complex.[2] In Trench 5 (Fig. 45) the Early and Middle Baytown types

[1] Phillips, Ford, and Griffin, 1951, 291–292.
[2] Phillips, Ford, and Griffin, 1951, 440 ff.

make a poor showing, and the bulk of the deposits appear to have been laid down in the Late Baytown Period. If these two units were combined, the total picture would be approximately that given by Cut A (Fig. 41). This procedure would be entirely defensible methodologically, but has not been carried out.

The net result of this not entirely satisfactory analysis of the Baytown Period at Jaketown can be summarized very briefly in outline form:

1. Early Baytown
   Well represented in Cut A and Trench 1, directly in contact, but overlying Tchula Period deposits; poor showing in Trench 5
   Marker Types:
   Marksville Stamped
   Marksville Incised
2. Middle Baytown
   Moderately well represented in Cut A; poor showing in Trenches 1 and 5
   Marker Types:
   Churupa Punctated
   Yokena Incised
   French Fork Incised
   Evansville Punctated
   Woodville Red Filmed
   Mazique Incised
   In this period Larto Red Filmed and Mulberry Creek Cord-marked attain maximum frequencies
3. Late Baytown
   Well represented in Cut A and Trench 5; poor showing in Trench 1
   Marker Types:
   Oxbow Incised
   Salomon Brushed
   Coles Creek Incised
   Rhinehart Punctated
   Chevalier Stamped

THE BAYTOWN-MISSISSIPPI PROBLEM

There is not very much to add under this heading. The 1946 tests indicated an "abrupt replacement of Baytown by Mississippi types," without accompanying soil change[1]; the 1951 excavations had the same result. In fact, the superficial character of the Mississippi occupation, on all parts of the site so far investigated, is rather striking. There are no levels, even in the plow zone, where Mississippi types predominate, and the percentages dwindle very rapidly with depth. Furthermore, everything points to a late position for the complex within the over-all Mississippi Period as understood farther north. The types that have local diagnostic value are Leland Incised, Arcola Incised, and Belzoni Incised. Stratigraphic studies, not yet completed, indicate a post-Plaquemine date for this complex,[2] bringing it up very close to the historic period. It is in fact the same complex formerly called "Tunica" by Ford and assigned to the historic period.[3] The combination of a late date, thin deposits, and a weak showing of the preceding Late Baytown types suggests almost certainly a break between the Baytown and Mississippi occupations of the site.

This is the logical place to refer briefly to the problem of dating the mounds. We know from our excavation of Mound G and the Highway Department's slicing of Mounds D and E that some kind of mound building was already going on at Jaketown in Poverty Point times. The tetrahedron deposit in Trench 1 indicates that Mound A was started at least as early as Tchula times, but we do not know the sort of mound it was or how much later it was finished. We have no dating information whatever on the big pyramidals, B and C, but it would be a reasonable guess that they were completed in the Mississippi Period. The absence of abundant house remains (clay daub) and refuse in the immediate vicinity of these big mounds is characteristic of a ceremonial center of this period.

[1] Phillips, Ford, and Griffin, 1951, 276.
[2] Phillips, MS, in preparation.
[3] Ford, 1936, 98–114.

BONE ARTIFACTS AND BONES OF ANIMALS

BONE ARTIFACTS

IN CONTRAST to the fairly abundant fragments of animal bones recovered from the Jaketown midden, the number of artifacts made of bone is quite limited; only 13 specimens are available for study. Five of these were found on the surface: a fragment of a large awl probably made from a deer tibia or femur with a point highly polished, apparently from use; a splintered bone with one end rounded and blunted, possibly by use as a flint flaker (Pl. 8f); two awls fashioned from long splinters of bone; an awl made from the distal end of a cannon bone; and the perforated portion of a raccoon ramus rounded by grinding (Pl. 8c).

A deer ulna, with the tip broken, and two thin splinter bone awls were found at a depth of 1 foot in Trench 1. Also from this trench, at a depth of 2 feet, came two splinter awls made from long bones of deer and the proximal end of a deer scapula broken off and possibly utilized as a blunt-ended flaker.

The distal portion of a deer humerus that had been incised all around and snapped off was secured from the 2-foot level of Trench 5; at 3½ feet a blunt bone awl was found.

All these bone artifacts are of the generalized types common not only in Archaic or Early Woodland horizons of the United States, but also later. However, the proveniences of these finds suggest that all these artifacts are related to the ceramic-bearing levels of the site.

ANIMAL BONES

Animal bones occurred at all levels in the Jaketown Site, but the majority were in the upper 2½ feet of deposit. Below that level, and extending down to 12½ feet in the deepest trenches, nearly all the bones were of deer. Many of the bones found at these greater depths showed heavy mineralization.[1] A few fragments of human bone were found in the upper few feet where Mississippian Period burials are found, but none came from the lower (Poverty Point) zone.

A list of the identified species is given below in order of their frequency of occurrence:

Deer
Birds of various small species
Snapper turtle
Fishes, including garpike
Terrapin
Turkey
Raccoon
Bear, probably black
Opossum
Rabbit
Miscellaneous small mammals, such as mink, marten, bobcat, beaver, and squirrel

All the animal remains are typical of the indigenous forms and, with the exception of deer, bear, and beaver, are still extant in the locality.

[1] We are grateful for the able assistance of Mr. Malcolm Franklin, Department of Zoology, University of Mississippi, for aid in determining the degree of mineralization of these bones.

STONE TOOLS

ROUGH AND GROUND STONE TOOLS

Flint Abraders

Figure 46a–c

Fifty-eight roughly chipped stones, with considerable abrasion or battering on one or more edges, are called abraders (Fig. 46a–c). Admittedly the term suggests a conjectured function, especially since these artifacts could also have been used for hammering. In any case, these rather common surface finds are also more or less well distributed throughout the midden at various depths. The materials most commonly utilized are chert or jasper, although some specimens are made of quartzite, and one is of crystalline quartz. Forty-nine abraders were collected from the surface, 12 were associated with pottery, and seven came from preceramic levels.

Abraders and choppers alike are common artifacts in Archaic sites in Kentucky.[1] The reported absence of abraders from Alabama Archaic may be largely due to classification or failure to recognize the artifact. However, they are apparently not present at all in Northeastern Archaic sites. Perhaps this is too unspecialized a form to be given a name or a distinct function; many of these artifacts may have been classified as "cores" or "blanks" in other trait lists.

Choppers

Figure 46d–e

Two types of large scraping or cutting tools, a large flake 3 to 4 inches in diameter with retouched edges and an ovate bi-faced knife, prominent in the Archaic of Alabama and Kentucky, are notably absent from the Poverty Point complex. The tools here designated "choppers" are the only ones found at Jaketown that might have been for these or similar functions.

A common artifact at Jaketown is the heavy-bodied ovate chopper shown in Fig. 46d–e. Complete examples range in length from 45 to 65 mm. Some incomplete specimens may have been 80 to 100 mm. long, but these are not common. A typical chopper measures 50 by 30 by 15 mm., a ratio that is fairly representative. Many specimens are highly polished as though from use; the polish is equally distributed over each specimen.

Twenty-nine choppers are included in the surface collections; nine were excavated in association with pottery, and seven came from the preceramic Poverty Point midden.

Pebble Celts

Figure 46f–g

Small celts chipped from pebbles have a rather wide distribution in the Lower Mississippi Valley. The two examples shown in Fig. 46f–g are made from jasper or red chert. Rather large flakes were detached in fashioning these tools, and the flake scars have been partially obliterated by grinding, particularly near the blade. Pebble celts frequently are ground to a rather sharp edge, but the three specimens from Jaketown are battered and dulled, apparently by hard use.

Celts of this type are usually found on late Mississippian or Caddoan sites. The provenience of the three from Jaketown need not cause us to question this cultural association. Two celts were collected from the surface, and one came from levels that yield shell-tempered Mississippian pottery. So far as we know, the pebble celt is not an element of the Poverty Point complex.

Whetstones

Figure 47e, g

Twenty-four small stone slabs may be classified as whetstones. The material is usually a fine-grained, well-indurated sandstone, rather highly ferruginous. Other materials represented are coarse-grained sandstone and novaculite, the latter probably obtained from Arkansas. Some fragments, several inches square, with convex or concave surfaces, are usually not over 7 mm. thick. Both sides are often worn smooth. One example indicates that both surfaces were used until the slab was worn so thin that it broke.

Thick slabs (up to 40 mm.) of abrasive stone

[1] Webb, W. S., 1946, 277.

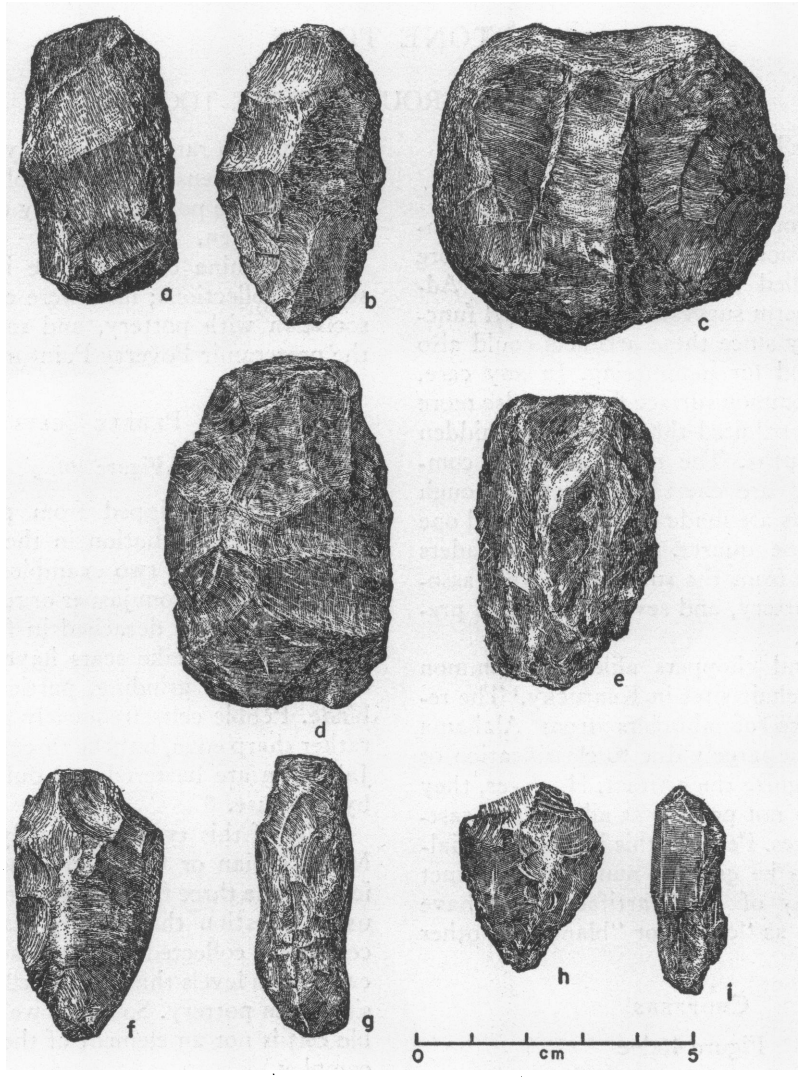

FIG. 46. Rough stone tools. a–c. Flint abraders. d–e. Choppers. f–g. Chipped and polished pebbles. h–i. Chipped quartz crystals.

show use on only one side. Some of these have grooves, often quite narrow (Fig. 47g), probably made by sharpening bone or wood implements. Two thick standstone discs were found (Fig. 47e). These may have been used as counters or game stones, but their fragmentary condition suggests a more utilitarian role. The disc illustrated is 15 mm. thick and 65 mm. in diameter.

Nineteen fragments of whetstones were collected from the surface, one was found in pottery-bearing midden, and four came from the preceramic cultural horizon. Evidently this is an item of the Poverty Point cultural complex.

SANDSTONE SAWS

Figure 47h

The sandstone saw shown in Fig. 47h represents another variety of abrading tool. These saws are thin slabs about 5 mm. thick and usually from 2 to 4 cm. square. The type of wear along one edge suggests that the implement was used with a sawing motion. Eight of these saws were collected from the surface; two came from the upper levels of Trench 1, where they were associated with the Tchula pottery complex. There is no evidence that these tools are a part

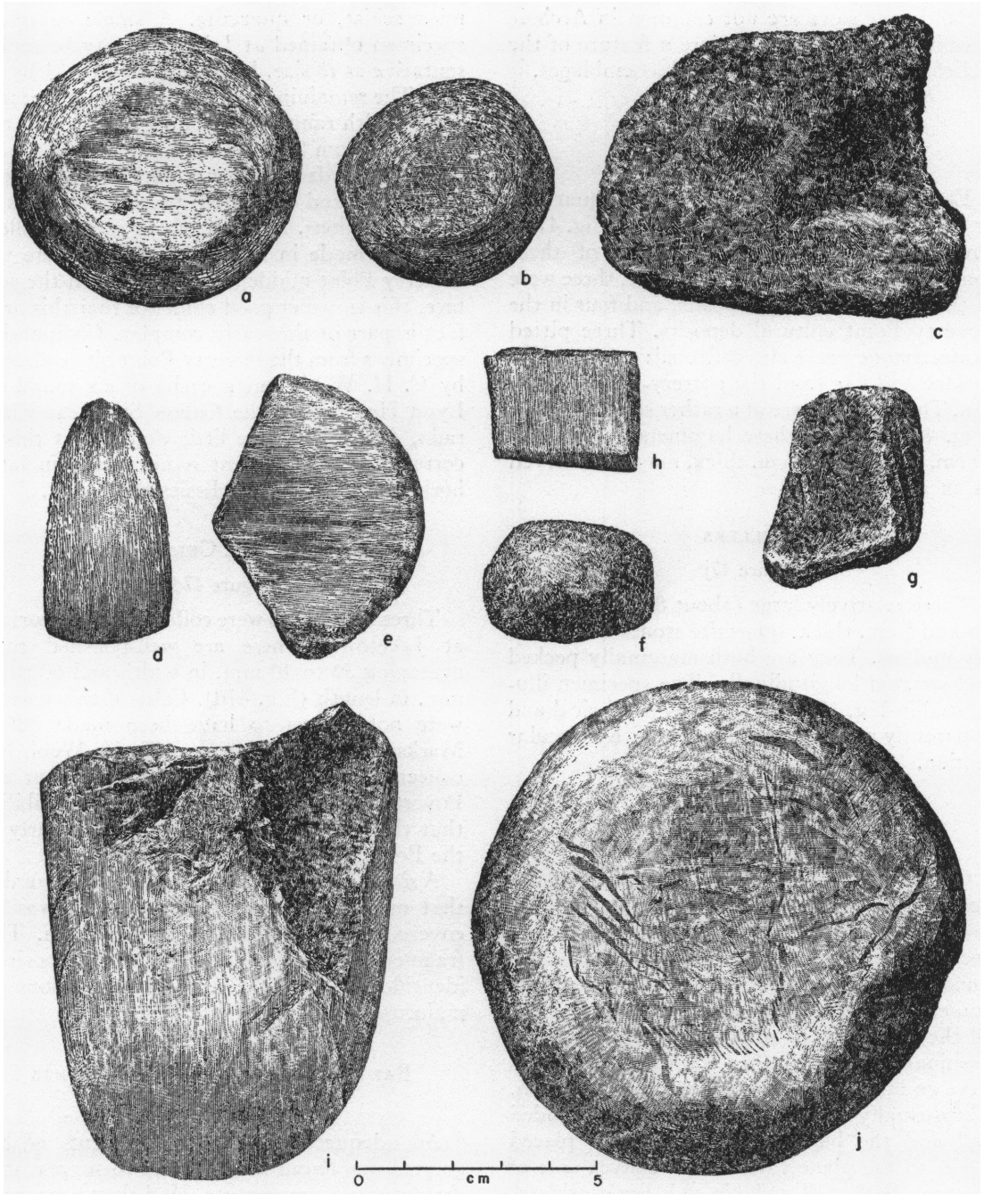

FIG. 47. Ground stone tools. a–c. Hammerstones. d. Small celt. e, g. Sandstone grinding stones. f. Loaf-shaped piece of granite. h. Sandstone saw. i. Adze. j. Muller.

of the Poverty Point complex.

Sandstone saws are not common in Archaic sites in the Southeast, but are a feature of the Tchefuncte and Adena cultural assemblages.

Hammerstones

Figure 47a–c

Eleven roughly spherical cobbles of quartzite or chert are probably hammerstones (Fig. 47a). One was of diorite (Fig. 47b). Five of these tools were collected from the surface, three were in the pottery-bearing deposits, and four in the Poverty Point cultural deposits. Three pitted hammerstones were also collected: two from the surface and one from the pottery-bearing midden. These latter were of a rather soft sandstone (Fig. 47c). One of these hammerstones, about 10 cm. square and 6 cm. thick, may have served as an anvil.

Mullers

Figure 47j

Three relatively large (about 8 cm. in diameter and 5 cm. thick) quartzite stones are probably mullers. They are both marginally pecked and striated longitudinally. The specimen illustrated in Fig. 47j is roughly hemispherical and apparently was used for grinding with a circular motion.

Adzes

Figure 47i

One of the most characteristic artifacts of the Poverty Point Period assemblage from Jaketown is the crude adze. Formed mainly by pecking, with the surfaces very carelessly smoothed by rubbing, their appearance is crude. The surfaces are bumpy and uneven, but all the fragments of sufficient size for such determination show that, in addition, these tools have an intentional plano-convex cross-section. They usually have a blunt pointed or rounded poll and the blade is asymmetrically placed closer to the plane than to the convex side of the tool. Both poll and bit ends are considerably battered. Many of the specimens are broken through the middle, but none bears any suggestion of either notching or grooving. No grooved axes were found at Jaketown. The blade end of the adze shown in Fig. 47i has a better finish than the majority.

Rough adzes were made of an olivine basalt, mica schist, or quartzite. A single complete specimen obtained at Jaketown may be representative as to size. It measured 14 by 31 by 61 mm. The remaining specimens are fragmentary. Their width ranged from 58 to 77 mm. and the thickness from 28 to 31 mm.

Eighteen adze fragments were collected from the surface and eight from preceramic levels in the excavations. As most of our surface collection was made in areas of the site where the Poverty Point midden was exposed on the surface, this is rather good evidence that this artifact is part of this early complex. Comparable specimens from the Poverty Point Site collected by C. H. Webb and a cache of six found by Lynn Howard[1] at the Calion Site near Eldorado, Arkansas, leave little doubt that this is correct. This implement is not found in later horizons in the Lower Mississippi Valley.

Small Celts

Figure 47d

Three small celts were collected on the surface at Jaketown. These are well-polished tools averaging 30 to 40 mm. in width and 60 to 65 mm. in length (Fig. 47d). Celts of this variety were not known to have been made before Marksville times. However, C. H. Webb has collected several similar specimens from the Poverty Point Site,[2] suggesting the possibility that this type of artifact may date as early as the Poverty Point complex.

A single fragment of a chipped sandstone slab that may be part of a celt or an ax was recovered as a surface find at Jaketown. This fragment is too indeterminate for positive identification, and its cultural connections remain uncertain.

Bar Gorgets and Atlatl Weights

Figure 48a–d, f

An adequate number of fragments of bar gorgets was found at Jaketown to suggest that they were in common use. Had they been worn as ornaments, as the name suggests, it would be difficult to account for the fact that they are usually found in fragments, for such use would

[1] Personal communication.

[2] Webb, C. H., 1948, 229.

hardly be destructive. Perhaps the best interpretation is that they are another variety of atlatl weight. Even this interpretation would not explain the frequent breakage, unless the atlatls to which they were attached were rather limber and broke the thin slabs of stone by flexing. Whatever function these artifacts may have served, it appears that the breakage usually passes through one of the drilled holes.

ment, of Chattanooga black shale, was a surface find. Presumably these three shale specimens originally had several shapes, but an oblong with rounded corners appears to be the most probable. Another fragment of polished fine-grained sandstone is doubtfully referred to the bar gorget category.

Eight fragments have been classed as bar gorgets, but two of them may have been stone

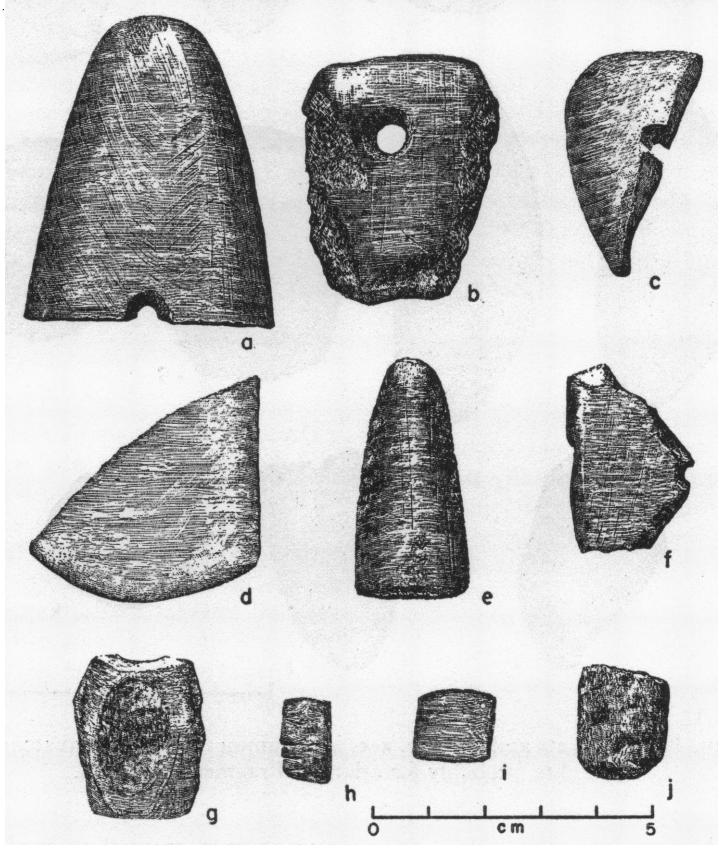

FIG. 48. Ground stone tools. a–d, f. Fragments of bar gorgets. e. Unidentified polished stone fragment. g. Fragment of bannerstone. h–i. Fragments of stone beads. j. Soapstone fragment.

Several shapes are represented among the bar gorgets found at Jaketown. Fig. 48 shows five of these specimens: Fig. 48a is a fragment of an oval, perhaps two-hole gorget, of fine-grained sandstone or silt stone. The hole was drilled from both sides. The artifact with the complete hole (Fig. 48b) is a reworked specimen of ferruginous sandstone, with its broken edge reground. The other two specimens illustrated (Fig. 48c and f) are of shale; an additional frag-

tablets. The specimen shown in Fig. 48d is of fine-grained limestone very uniform in thickness, although the curved end does not indicate a very symmetrical product. It is quite reminiscent of stone tablets that grace the Adena and Hopewell collections. Another fragment is broken along what may have been a groove in its face, but whether or not this groove was part of a design cannot be ascertained. Six gorget fragments are from the surface and two from

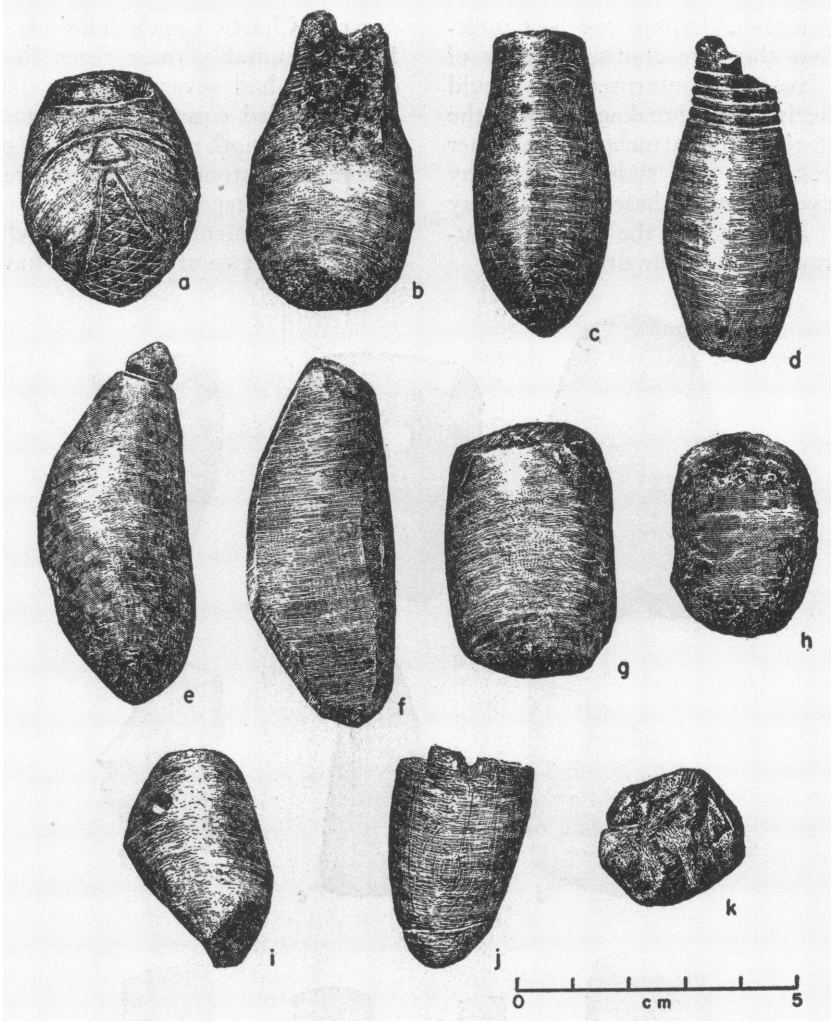

FIG. 49. Plummets and weights. a–e, i–j. Plummets. f–h. Shaped stone weights, probably for atlatl. k. Fragment of galena.

pottery-bearing midden.

Most of the surface collecting, it should be remembered, was in areas where Poverty Point Period refuse was exposed; we are rather certain that these items are a part of the earlier complex.

In addition to the various bars, which are probably atlatl weights, a number of other Jaketown artifacts may also be weights. Two polished specimens of hematite collected from the surface, shown in Fig. 49f and g, are presumably weights. They are loaf-shaped and are probably crude, ungrooved boatstones. A number of fragments or lumps of hematite (one with a transverse groove) may also have served as atlatl weights (Fig. 49h). A loaf-shaped piece of granite or syenite (Fig. 47f), although small, may also have been a weight.

One fine-grained specimen (Fig. 48g), found on the surface, may have been broken from the center of a winged bannerstone. This has part of the wall of a drilled hole on the side not shown in the illustration. It is apparently neither a broken bead nor pipe fragment; the broken edge of each outer side extends laterally from the center, suggesting that in the complete object two wings extended from the perforated central portion. If this reconstruction is correct, the re-

sulting bannerstone would be like one C. H. Webb found represented by a miniature bead at the Poverty Point Site.[1]

Plummets

Figure 49a–e, i–j

Plummets are numerous at Jaketown and also common at Poverty Point. These objects are nearly all of one type, a rounded-end or pointed tear-drop shape either perforated or grooved at the smaller end. Of 18 specimens found, 16 are of hematite; one is galena (Fig. 49j) and the other is basalt (Fig. 49i).

Although the form of these plummets is similar, there are variations worthy of note. Except for perforations or grooves, the plummets are usually plain and polished, but two of the Jaketown specimens are incised. One long slender broken plummet had five decorative lines incised about the neck (Fig. 49d). Of special interest is the specimen shown in Fig. 49a; the neatly incised design is shown expanded in Fig. 50. It is significant perhaps that the filled-in portion of the design is the same type of cross hachure that occasionally characterizes Hopewellian design.[2] Incised plummets were found at the Spiro Site in Oklahoma, but none has designs precisely comparable to this specimen from Jaketown.[3]

Twelve of the plummets obtained at Jaketown were found on the surface, three were in refuse associated with pottery, and three were excavated from the preceramic deposits.

We are inclined to agree with the interpretation of Stephens[4] that plummets were used as bolas weights. In the eastern United States plummets are rare in late Archaic sites, but were apparently used with maximum frequency in the Burial Mound I and II stages (Early and Middle Woodland). Hematite plummets are particularly abundant in the region around St. Louis, Missouri.

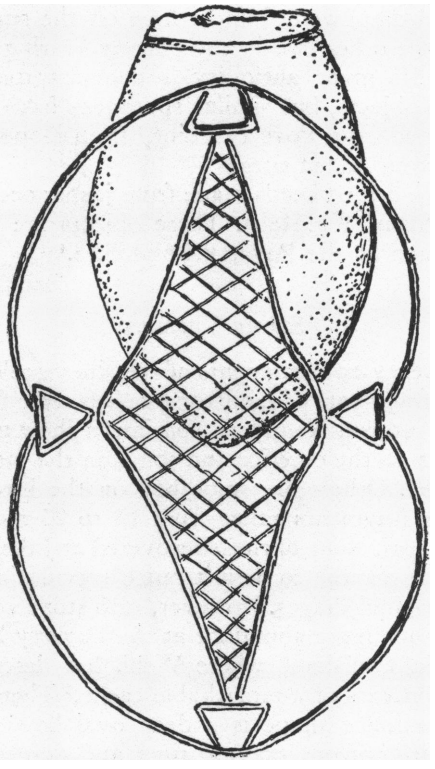

Fig. 50. Projection of incised design on hematite plummet shown in Fig. 49a.

MISCELLANEOUS OBJECTS

A few lumps of hematite with pronounced, smoothed faces are classified as polishing stones.

Several other objects do not lend themselves to definite identification but are worth mentioning. A small lump of steatite appears to have been broken from a longer rod of the same material (Fig. 48j). A shapeless lump of galena was found at a depth of 9.5 feet (Fig. 49k). A cigar-shaped piece of fine-grained sandstone, circular in cross-section and pecked roughly to a point, is illustrated in Fig. 48e.

Quartz crystals have been reported on numerous Archaic and Hopewellian sites, so that the utilization of such crystals may be considered a cultural trait. However, their use is not confined to any early period. A crystal found on the surface at Jaketown is shown in Fig. 46i.

[1] Webb, C. H., 1948, Fig. 44.

[2] For example, the vessel shown in Pl. 9, Fig. 1, Baker *et al.*, 1941; and the shale tablet illustrated in Mills, 1916, Fig. 113.

[3] Hamilton, 1952, 46, Pl. 57.

[4] Stephens, 1951.

Five others were found: three on the surface, and the other two in the pottery-bearing midden. No great antiquity is demonstrated for these objects, but similar specimens have been reported from Poverty Point,[1] from Hopewell,[2] and from Adena sites.[3]

Two drilled beads made from jasper occur at Jaketown (Fig. 48h). These objects are more common at the Poverty Point Site.[4]

Stone Vessels

Twenty-two fragments of steatite vessels and nine fragments of sandstone vessels were found at Jaketown. Nearly all specimens show gouge marks on the exterior and some on the interior as well. Others are smoothed on the interior. These fragments range from 15 to 25 mm. in thickness. None of those recovered at Jaketown is large enough to permit much speculation on the original shapes. However, such stone vessels are much more abundant at the Poverty Point Site in Louisiana, where Webb has described the contents of a remarkable cache.[5] There the predominant shape is a deep oval bowl with rounded bottom, straight rims, and simple lips.

Sandstone vessel fragments average a few millimeters thicker than those of steatite. The interior of specimens was burned deeply. Sandstone vessels, like those of steatite, were fashioned from single blocks of rock. No sandstone formation of the density and massiveness indicated by these artifacts has been found as yet anywhere in Mississippi. The probable source of the material therefore is to the northeast in Alabama or Tennessee.

Thirteen steatite fragments were collected from the surface, mainly in areas where Poverty Point Period refuse was exposed. Two fragments came from pottery-bearing midden and seven from the preceramic levels. Of the sandstone fragments six were excavated with pottery associations and three in the pre-pottery levels. We have little doubt that these items belong to the Poverty Point cultural complex; they have not been found on other sites of the pottery periods in the Lower Mississippi Valley.

In excavations along the Tennessee River in northern Alabama, Webb and DeJarnette[6] describe steatite and sandstone vessels in great numbers, both complete and ceremonially broken. Lewis and Kneberg[7] report that steatite vessels are minor occurrences in the Hamilton Focus. Haag's excavation of the as yet unpublished Wolf Creek Site (Ru 17) in the Cumberland River Wolf Creek Reservoir in Kentucky revealed a fragmented steatite vessel arranged as a mosaic upon which a cremation was piled. This site can probably be equated with Hamilton Focus. The occurrences cited and a number of other discoveries of stone vessels in the Southeast seem to date very near the end of the Archaic, close to the beginning of the Burial Mound I, or Early Woodland, cultures.

CHIPPED STONE TOOLS

As has been noted in the foregoing, the Poverty Point cultural levels are marked by a scarcity of bone and a complete absence of shell materials. A similar condition prevails at the extensive Poverty Point Site in Louisiana where no calcareous remains are found. This circumstance shortens the trait list available for this cultural period and makes it necessary to place greater emphasis on imperishable artifacts such as chipped stone.

No stone occurs on the surface of the alluvial valley of the Mississippi. However, in hills flanking the valley to the east and west there are extensive deposits of chert, jasper, and other stone suitable for chipping. These deposits are in the form of gravels, ranging up to 3 or 4 inches in diameter. This gravel is found in beds that are the basal deposits of earlier Pleistocene interglacial valley fills, elevated by isostatic action so that the remnants of these valley fills form terraces on either side of the present valley. These gravel beds appear to have been the source from which the Poverty Point people selected materials for chipping. This is suggested not only by the character of the stone but also by the frequency with which remnants

[1] Webb, C. H., 1948.
[2] Moorehead, 1922, 131.
[3] Webb, W. S., 1940, 58.
[4] Webb, C. H., 1948.
[5] Webb, C. H., 1944.
[6] Webb, W. S., and DeJarnette, 1942.
[7] Lewis and Kneberg, 1946, 118.

of the water-worn cortex of the original pebble can be seen on small finished implements.

The variety of "pretty" stone implements and flakes scattered over the Jaketown Site is notable. Brightly colored red, yellow, black, and banded chert are very common. Evidently the people of the Poverty Point Period were interested in handsome stone and made a deliberate selection. The same thing seems to be true of the Poverty Point Site in Louisiana.

PROJECTILE POINT TYPOLOGY

A total of 177 projectile points was secured in the course of the work at Jaketown. Unfortunately, only 48 of these were excavated; the majority were surface finds that can be assigned a provenience only according to the portion of the site where they were found. Projectile point provenience is listed in Tables 11 and 12.

In classifying the points from Jaketown, we attempt to follow the system of assigning names to clearly recognizable groups, as proposed by Kelley and Krieger. We are fully in sympathy with this trend, but hesitate to assign formal names to certain ill-defined groups until we are more certain of their chronological and areal significance. These are given temporary descriptive names. Several of Krieger's type groupings can be used for the Jaketown projectile points, thus avoiding the necessity of repetitious formal descriptions.

Gary Stemmed

Figure 51

Krieger[1] has named one of the widespread, somewhat inclusive, projectile point types of the East, Gary Stemmed. It has been described as a "dart" point including "many variations in size, workmanship, and stem and blade form, but in general is a heavy point with the stem contracting to a sharp or rounded tip." The blade tends to be thick in cross-section, and the chipping is rather crude. Obviously this comprehensive definition cannot be expected to define a type of short-time duration or very limited geographical range. Here an attempt is made to subdivide the whole group that would be classifiable as Gary Stemmed according to Krieger's description.

Little that is new can be contributed to the description of the over-all type Gary Stemmed, except to indicate its possible sub-types. At Jaketown, the range in length is between 45 and 70 mm.; the width varies between 22 and 31 mm. This compares favorably with the Greenhouse specimens.[2]

Krieger and Ford have suggested that Gary Stemmed has a wide distribution in Eastern sites, probably most commonly in preceramic and Early Woodland cultures. It is almost impossible to determine the chronological position of points conforming to this type from the available reports on deep preceramic middens in the East. While at the Kentucky Museum of Anthropology, Haag completed two flint typology analyses. These studies showed that Gary Stemmed is a minority type in the Kentucky archaic sites examined and, where present, is stratigraphically higher (later) than are many other types.[3] Although the stratigraphic position of Gary Stemmed at Indian Knoll cannot be established from the literature, it is a minority type, "less than one per cent of the total."[4] In the Indian Knoll report Gary Stemmed is called "short stem, expanding from base." The point called "straight-stemmed" more nearly equates with Krieger's Morrill Stemmed. It is not presently possible to determine the position of Gary Stemmed in Alabama Archaic sites, but future flint stratigraphic studies will probably reveal it as a late occurrence.

Typical Gary Stemmed

Figure 51a–e

"Typical Gary Stemmed," the apparent mean of the variation in the class, is illustrated in Fig. 51a–e. As can be seen, the chipping is fairly crude and careless, and there is little retouching along the edges. These points range in length from 45 to 79 mm. and in width from 22 to 31 mm.

Broad Gary Stemmed

Figure 51o–p

The variant here called Broad Gary Stemmed has all the characteristics of the type, except that the blade is comparatively broad. The length ranges again from 45 to 70 mm., but the

[1] Newell and Krieger, 1949, 164.

[2] Ford, 1951, 115.

[3] Webb, W. S., 1950, 309.

[4] Webb, W. S., 1946, 255.

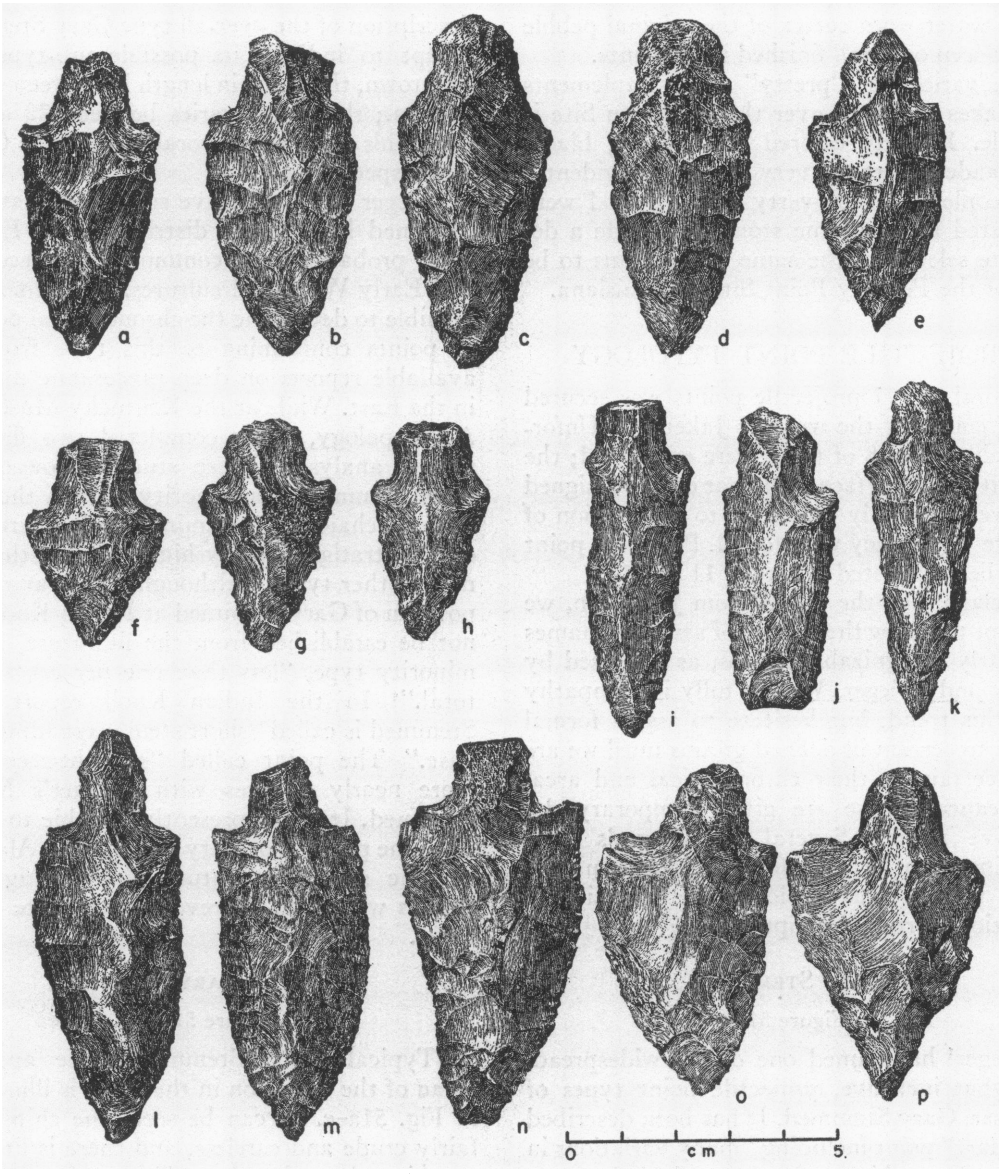

FIG. 51. Gary Stemmed projectile points. Variations: a–e. Typical. f–h. Small. i–k. Long. l–n. Thin. o–p. Broad.

width varies from 32 to 48 mm. Workmanship is generally good, with six out of seven specimens showing fine retouching along the edge of the blade; such retouching is rare on typical Gary Stemmed. This variant will probably ultimately prove to be separable into a distinct type, but at Jaketown there is no certain justification for it. If these points were found on Kentucky or Ohio sites, they would probably be called Adena or Grimes points. Except for a somewhat more well-defined shoulder, they resemble the Lewis Type V.[1]

THIN GARY STEMMED

Figure 51 l–n

The name is applied to a variety that is somewhat better made, yet preserves the over-all

[1] Cole, 1951, 169.

Gary appearance of misshapen, crude workmanship. These points are generally longer, but are nevertheless close in dimensions to the Broad variety. The length ranges from 55 to 75 mm.; width, from 30 to 36 mm. A constant feature is the relative thinness of the blades; only a few are flaked with large bold flakes, and these are thicker than average. Both the thin and the broad varieties are typologically very close.

Small Gary Stemmed

Figure 51f–h

A number of small Gary Stemmed points have been separated from typical Gary Stemmed, purely on the basis of size. These are not otherwise distinguishable from the larger Gary Stemmed. They range in length from 35 to 50 mm., and in breadth from 20 to 30 mm.

Long Gary Stemmed

Figure 51i–k

A final variant is called Long Gary Stemmed for purposes of the present classification. These points are smaller than the other Gary Stemmed forms and approach Krieger's Yarbrough Stemmed[1] in general configuration, but do not have the distinguishing Yarbrough features of a stem expanding towards the base. Subsequently it may be shown that this longer variant should be placed in the Yarbrough Stemmed category. However, points closely resembling the Long Gary Stemmed variety do not seem to be present at all in Archaic sites in Kentucky, Alabama, or New York, while Yarbrough Stemmed is found in all three areas. Both Yarbrough Stemmed and Long Gary Stemmed occur at Poverty Point Plantation.[2]

Ellis Stemmed

Figure 52d–f

Krieger differentiates Ellis from Gary by its generally smaller size and stem which expands towards the base. Only three points from Jaketown may be classed as Ellis Stemmed. These are illustrated in Fig. 52d–f. Ellis Stemmed is considered by Krieger to be a concomitant of Gary Stemmed, both appearing "through scores of publications . . . side by side."[3] This seems to apply to the Davis Site, but it is not true at Jaketown or Poverty Point where frequencies of the two types are notably different.

Motley Point

Figure 52a–c

On the Poverty Point Plantation and adjoining Motley Place, Webb[4] found a point that may prove to be a Poverty Point horizon marker. It has been named Motley, and because it is a new type it is here fully described.

Form: Large triangular, corner-notched, gently convex sides, well-executed blade. Notching is quite variable, but always pronounced or fairly deep; generally a rounded corner, rather than an oblique notch, is removed. Barbs are present, but never very pronounced. The stem always expands towards the base which is generally flat, though occasionally slightly convex.

Measurements: Length, 55–98 mm., average, 73 mm.; width, 28–35 mm., average, 30 mm.; thickness, 6–12 mm., average, 8 mm.

Technique: Apparently pressure chipped, though large flakes are most frequently seen. These are always bifacial. Despite large flaking, a neat, well-executed appearance is a constant feature.

Material: Flint or chert, ranging in color from light grays through tans to jet black.

Function: Because of large size, probably used as a dart point.

Geographical Range: Lower Mississippi Valley.

Temporal Range: Probably Archaic and Poverty Point.

Remarks: This type is numerically prominent in the projectile assemblage from Poverty Point and the Jaketown Site. On these two sites at least the points were apparently made by the same group of artisans; even the material is remarkably similar. They occur often as surface finds throughout the Gulf embayment. This point occasionally occurs also as part of the flint assemblage at Archaic sites in northern Alabama and in western Kentucky, but it is numerically rare and percentage-wise low.

Most of the corner-notched points at Indian

[1] Newell and Krieger, 1949, 168.
[2] Webb, C. H., 1948, 229.
[3] Newell and Krieger, 1949, 166.
[4] Webb, C. H., 1948, 229.

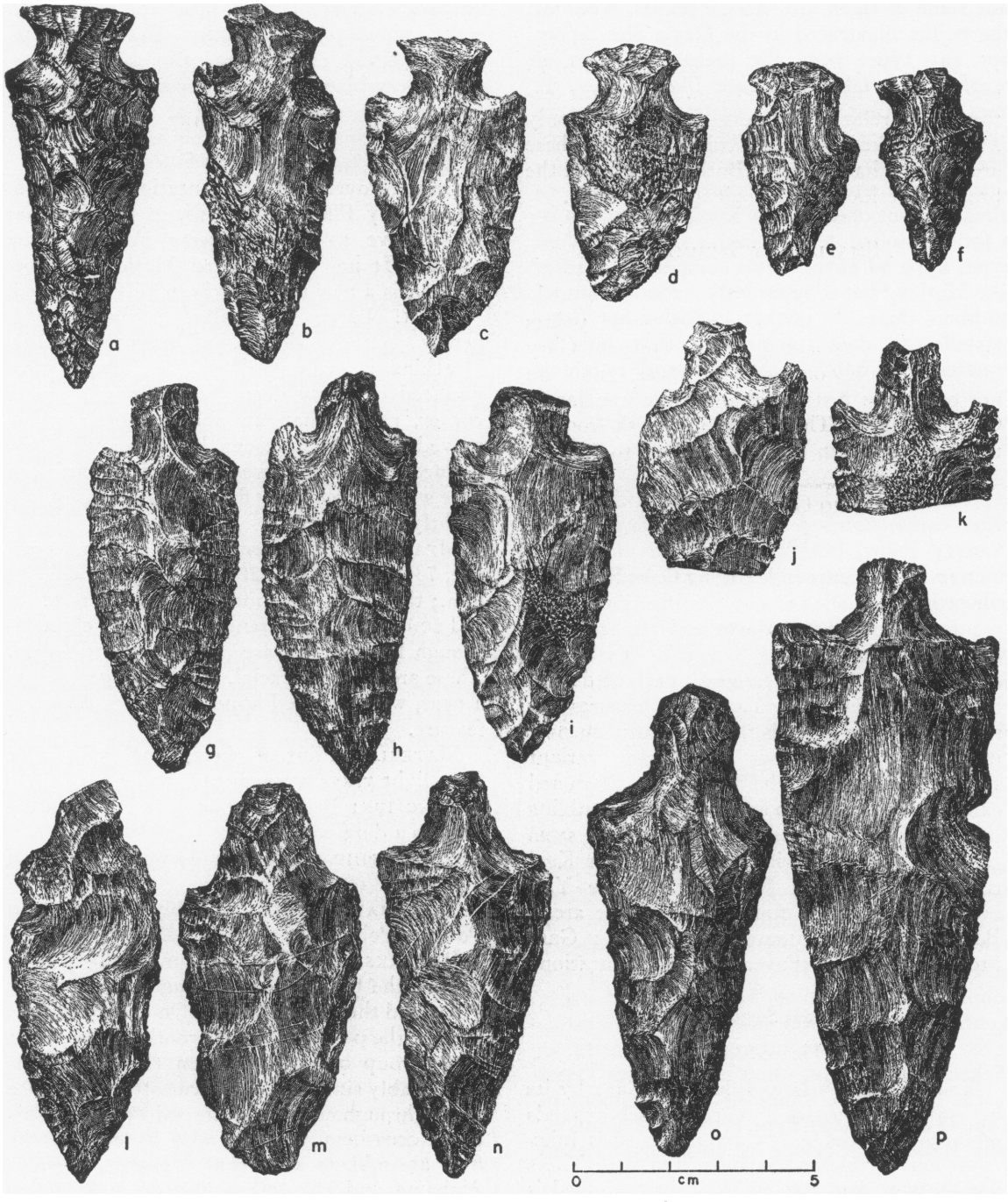

FIG. 52. Projectile points. a–c. Motley Point. d–f. g–i. Possibly Heavy Blade. Ellis Stemmed. j–k. Deeply notched points. l–p. Heavy Blade.

Knoll[1] are readily distinguishable from Motley, but some of them are Motley points. None of the points illustrated in the Davis Site report nor any types from the preceramic sites of northeastern Oklahoma[2] are like Motley. It does not appear to be an early type, or, more likely, it is not a type found in early northern sites. However, it has appeared in small quantity at such sites as Faulkner,[3] in addition to already-mentioned Indian Knoll. It seems to be a form included in MacNeish's corner-notched type. Type VI of the Lewis component is quite like Motley,[4] but it apparently is found in small numbers there. At neither Pickwick nor Guntersville sites does a point occur that could be equated with Motley, though corner notching is common. With some disturbance, it is noted that Quimby illustrates several points from the Bayou Goula Site that appear to be perfect examples of Motley,[5] although smaller than is typical. It should be pointed out that there are other corner-notched points at Jaketown and Poverty Point, but Motley is the most distinctive and apparently the least widely distributed.

Bibliography

Webb, C. H., 1948, 227–232.
Webb, W. S., and DeJarnette, 1942, Pl. 294, Type 48.
Webb, W. S., 1950, Fig. 10.

Deeply Notched Points

Figure 52j–k

Some additional examples of corner-notched points are illustrated in Fig. 52j–k. These deeply notched points occur at both Jaketown and Poverty Point sites, but they are not numerous at either; only two have been found at Poverty Point. This point apparently has counterparts at Indian Knoll,[6] but at other Kentucky Archaic sites its presence is doubtful. It is found in some appreciable quantity at Pickwick shell-heaps, where it is listed as Types 7, 13, 10, and 48.[7] Some of the specimens in Type Q and perhaps Type P from the Guntersville Basin sites belong to this deep-notched category.[8] Points referred to as "corner-notched," apparently the most common projectile points in Kentucky and Alabama Archaic sites, characteristically have fairly large heavy blades, with pronounced but shallow notching, slight barbing of shoulder, and stem expanding to base.[9] This is a rare form among this class at Jaketown (Fig. 53s).

Heavy Blade

Figure 52 l–p

In Fig. 52l–p are pictured a series of large points of rather uniform appearance. The most pronounced characteristic is their large size and the relatively small stem, contracting towards the base. These points range in length from 80 to 128 mm.; in width, from 30 to 45 mm.; and in thickness, from 9 to 12 mm. Smaller ones are differentiated from Gary Stemmed (thin variety) by their greater thickness and generally cruder, larger-flaked appearance. Webb reports that this point occurs at Poverty Point.[10] A number of fragments of large points from Jaketown may belong to this type, but have not been tabulated.

The points illustrated in Fig. 52g–i may belong to this category, but they differ in that fairly well-pronounced barbs are developed on one or both shoulders. Whether or not this is sufficient justification for setting up a distinct type will have to be the subject of future study; temporarily they have been included in the Heavy Blade category.

Madison Point

Figure 53q–r

A number of triangular points occur at the two major Poverty Point sites, but their inclusion in the Poverty Point horizon has not yet been established. They are presumed to belong to a much later time period, although certainly not necessarily associated solely with Mississippi materials. The Madison Point,[11] illustrated in Fig. 53q–r, is known from surface finds at Jaketown. Perhaps only three of these specimens may be classed as Madison, but all degrees of finished and unfinished workmanship seem to exist in this triangular point type.

[1] Webb, W. S., 1946, 253.
[2] Baerreis, 1951, 110.
[3] MacNeish, 1948, 237. Object 11 in Fig. 47.
[4] Cole, 1951, 169.
[5] Quimby, 1942, Pl. 16, Figs. 1, 6, 14–15.
[6] Webb, W. S., 1946, 253.
[7] Webb, W. S., 1950, 308.
[8] Webb, W. S., and DeJarnette, 1942, Pls. 293–294.
[9] Foster, 1951, 278, Pl. 78.
[10] Webb, C. H., 1948, 229, Fig. 44.
[11] Scully, 1951, 14.

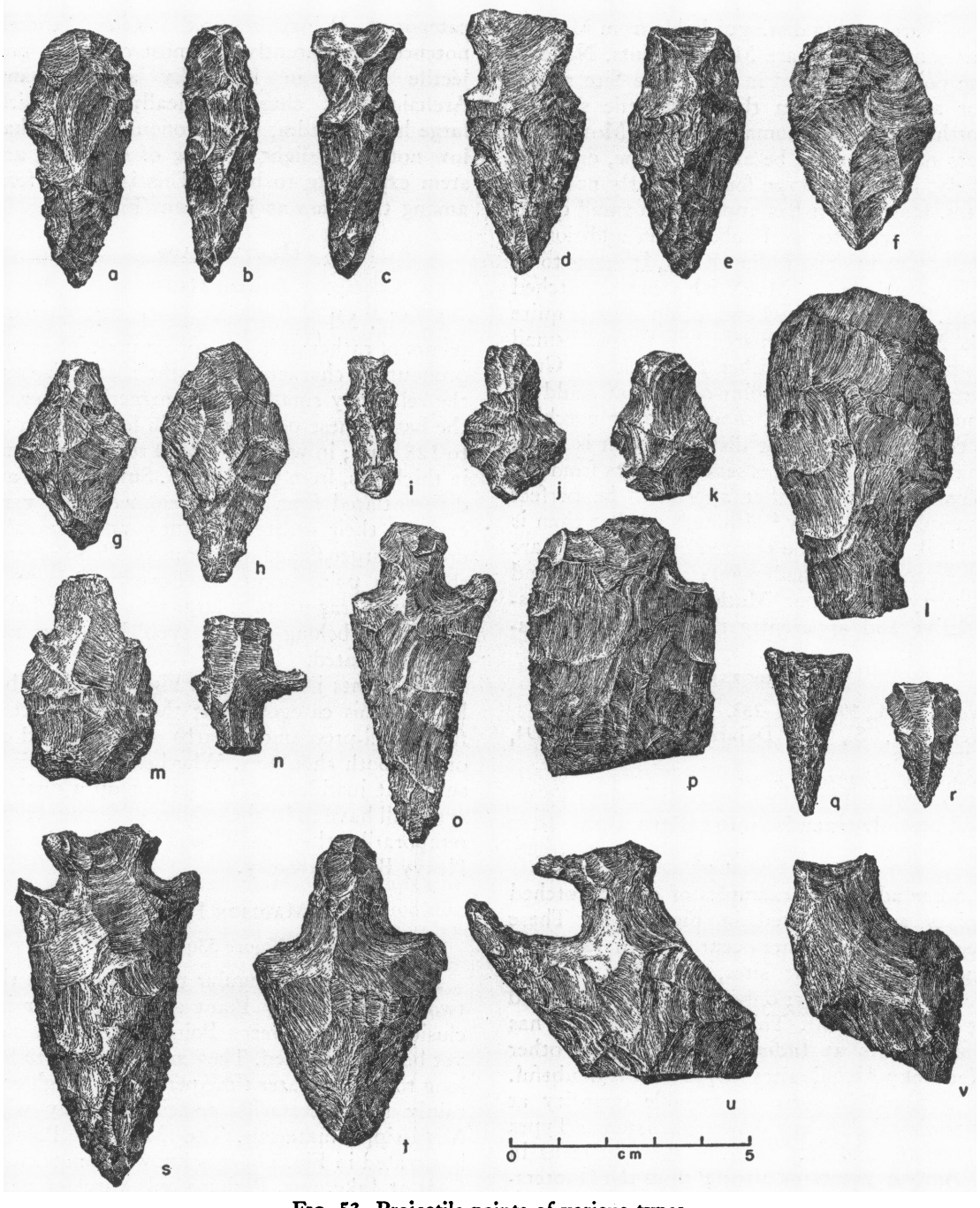

FIG. 53. Projectile points of various types.

SMALL OVATE POINT

Figure 53f

One form notably absent at the two sites is the large, thin, ovate blade so common on Archaic sites in Kentucky, Alabama, and New York. This type is distinguishable from the larger ovate or sub-triangular or double-pointed blade often called a flint knife or scraper. However, a few small ovate points were found at Jaketown (Fig. 53f).

Lozenge-shaped Points

Figure 53g–h

Quimby found a point in Mound B of the Medora Site and called attention to the fact that it is "a type found in the Coles Creek Period or later."[1] In the report on the Greenhouse Site, Ford illustrates some quite similar points, but classed them as small Gary Stemmed.[2] It seems warranted to treat this small point as a significant index artifact. Webb has already noted the type from Poverty Point.[3]

These points are shaped like small lozenges or pentagons; the blade portion is triangular, and the shoulder is either absent or so rounded as to be nearly non-existent. The stem always tapers towards the base which may be pointed, producing an over-all lozenge shape, or may be flat, giving a pentagonal appearance. In a cross-section the blade portion is always diamond-shaped. Length range, 36 to 45 mm.; width range, 20 to 31 mm.; thickness, 7 to 11 mm.; length-breadth ratio, 52 to 70, but clustering above 65.

The technique is probably largely percussion flaking. Rarely is retouching or pressure flaking evident along the sides of the blade. It is always a bifacial form. Several varieties of gray chert, tan chert, and a smoky translucent chert are represented. Lozenge-shaped points are known only in the Lower Mississippi Valley and possibly extended into eastern Texas. In so far as may be determined, the time range appears to be from Poverty Point to the Plaquemine Period. It seems obvious from published reports that this is another projectile point with no counterpart in the recognized Archaic assemblage.

Bibliography

Ford and Willey, 1940, Figs. 45e and 46e–f.
Quimby, 1951, 104.
Webb, C. H., 1948, 228.

Rare Projectile Types

Among points occurring in small numbers are the rather roughly made, long, unstemmed forms illustrated in Fig. 53a–b. This may represent a fairly widespread type of insignificant diagnostic value, It has been called "long, narrow, crude" when found in Kentucky shell-heaps.[4] The type, "long, shallow notch," from the same source is found at Jaketown (Fig. 53c–d). This is judged to be Krieger's "Yarbrough Stemmed, common in late Archaic prepottery cultures of northeastern Texas."[5] A single, large, pentagonal point, a surface find at Jaketown, is shown in Fig. 53e. Fig. 53i is a small, stemmed form.

A few other specimens illustrated in the same figure are worthy of mention. Among these is a basal fragment of an asymmetrical knife or point (Fig. 53p). No other large blades that might be construed as knives or large spearpoints occur at Jaketown other than those mentioned as the large heavy-bladed form of Fig. 52o–p. The point in Fig. 53o represents a unique asymmetrical point that may be an accidental shape. Below (Fig. 53t) is a specimen of a very heavy, thick-bodied type, made from a translucent milky chert. Two unique specimens are shown in Fig. 53u and v. A long-barbed point, similar to 53u, was collected at Poverty Point by Mr. Pete Gregory of Ferriday, Louisiana. This type form probably has a wider distribution than the Poverty Point culture sites. The specimen in Fig. 53v is a large, thick, very broad point that has been ground along the base and lateral margins of the stem.

In Fig. 53j–k are shown two specimens that may have been used as either projectile points or drills. They are small, stemmed, and the thick blades, now broken off, may have tapered to a sharp point. Had they been hafted as drills, this sort of breakage might be expected. Figure 53m seems to have been used as a scraper, perhaps fastened to a haft. The blunt working edge is somewhat battered. It may be a broken projectile point that was used as a tool.

Cultural Relationships of Projectile Point Types

The excavations did not produce projectile points in sufficient quantity to make it worth while to attempt a study of the relative ages of the above-described types within the ceramic periods. Besides, our primary interest is the content of the culture of the Poverty Point Period. Several of the excavations are useful

[1] Quimby, 1951, 104.
[2] Ford, 1951, Fig. 45j–l.
[3] Webb, C. H., 1948, 228.
[4] Webb, W. S., 1950, 308.
[5] Newell and Krieger, 1949, 168, Fig. 57W-AA.

TABLE 11

PROJECTILE POINTS FOUND IN EXCAVATIONS; OCCURRENCE IN PRECERAMIC POVERTY POINT MIDDEN AND LATER POTTERY-BEARING LEVELS COMPARED

	Gary Typical	Gary Broad	Gary Thin	Gary Small	Gary Long	Long Shallow Groove	Large Triangular	Motley Point	Heavy Blade	Deep Notch	Ellis Stemmed	Corner Tang
Pottery-bearing levels												
Excavation 1	1	—	1	—	2	—	—	—	—	2	—	—
Excavation 5	2	1	—	2	—	—	—	—	—	—	—	—
Poverty Point levels												
Excavation 1	4	—	3	1	—	—	—	—	—	—	—	—
Excavation 5	2	—	—	—	—	—	—	—	—	—	—	—
Excavation 4 (Mound G)	—	—	1	—	—	—	—	1	1	—	—	—

for this purpose. In Trenches 1 and 5, there is clear differentiation between the upper pottery-bearing midden and the lower midden containing only Poverty Point remains. The fill of Mound G (Excavation 4) also can be dated in this earlier period. Another aid in this regard is the surface collection from Area R (see map, Pl. 1), the plowed field near Mound G. This area has no ceramics or other identifiable refuse later than the Poverty Point Period. This may be accepted as a suggestion, not so positive as the excavated evidence, that the projectiles from there date from this time. The projectile points from these localities are listed in Tables 11 and 12.

It should be noted that all the variations of Gary Stemmed, except the "broad" and "long," were excavated from Poverty Point Period deposits. The only other types obtained from the preceramic levels were examples of the Motley and Heavy Blade form. This limited evidence from the excavations does not mean that the other types described above do not belong to the Poverty Point complex. As a matter of fact, we can be certain that most of the other types do belong, for they are also found at the Poverty Point Site, as is detailed above in the type descriptions.

SCRAPERS

Figure 57f–h, l

The Jaketown chipped stone assemblage includes 533 flakes that show evidence of use as either scrapers or knives. These flakes are irregular in shape and were struck from more or less spherical cores. They are not to be confused with the scrapers made from blades taken off prepared cores that are described below. Each of these implements shows retouching on one or more of its edges (Fig. 57f–h). In the excavations where cultural relationship could best be determined, 49 of these scrapers were collected from the surface, seven came from pottery-bearing levels, and six were found in preceramic midden. The balance were in surface collections. Perhaps these implements were used throughout the occupation of the site.

The smallest of these flake scrapers average nearly 25 mm. in greatest dimension, whereas the largest are about 45 mm. in the same dimension. With minor exceptions the material from which they were fashioned is red, tan, or gray chert. One small flake scraper was of clear quartz (Fig. 57f); another was of fossil palmetto or palm wood (Fig. 57 l).

TABLE 12

LOCATION OF PROJECTILE POINTS COLLECTED FROM THE SURFACE OF THE JAKETOWN SITE

(Localities are shown on the site map, Pl. 1.)

Area	Typical Gary	Gary Broad	Gary Thin	Gary Small	Gary Long	Long Crude	Long, Shallow Groove[a]	Pentagonal Large[a]	Small Ovate	Lozenge Shape	Madison[a]	Large Triangular	Long, Narrow, Small Notch[a]	Massive	Motley	Heavy Blade	Deep Notch	Ellis[a]	Corner Tang[a]	Ornate Notch[a]	Totals
A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1
D	2	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	4
E	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
G	—	1	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	—	1	—	5
H	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
I	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2
K	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	3
L	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	4
O	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Q	1	—	—	1	—	—	—	—	—	1	—	—	—	—	—	1	5	—	—	1	10
R	4	1	1	4	—	—	1	—	—	—	—	1	—	—	3	3	—	1	1	—	20
T	4	1	2	—	1	—	1	—	1	—	—	—	—	—	—	2	—	1	—	—	13
V	1	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
W	—	1	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	3
Unknown[b]	16	5	5	5	4	4	2	1	—	2	3	2	—	—	—	4	2	1	1	—	57
Totals	33	13	8	12	5	4	4	1	1	5	3	3	1	1	7	10	9	4	3	1	128

[a] These types occurred as surface finds only.
[b] Occasional finds by visitors, etc.

Many of these scrapers are undoubtedly the result of chance use and probably had little or no preparation. At this time it is not possible to see anything culturally diagnostic in these flake scrapers. It may seem remarkable, and probably is, that so few of the larger scrapers are found. However, this is in part a matter of classification. The artifact here called a chopper (p. 119) is often classified as a "turtle-back" or "hump-back" scraper.[1] True "snub-nose" or "thumb-nail" scrapers are entirely lacking at Jaketown (and at Poverty Point). They are present in great numbers in Kentucky Archaic sites, but are absent in the Archaic of northern Alabama.

[1] Webb, C. H., 1948, 228.

DRILLS

Figure 53n

Not many objects from Jaketown can be classified as "drills." Actually, there were only two doubtful specimens. What may be a hafted drill is shown in Fig. 53n, although no evidence of rotary use is present. This comes from the surface. Another broken portion of a large expanded base form was also found on the surface (Fig. 53 l). These tools are extremely rare at the Poverty Point Site, and it appears that drills are not a prominent feature of this complex.[2] This contrasts markedly with Archaic sites of the Southeast.

[2] The "drills" reported from Poverty Point by C. H. Webb (1948) are the unifacially chipped tools described below as "perforators."

Gravers

Figure 57i–k

In the description of the microflints, mention is made of the use of the term "graver." The objects discussed here are generally small nondescript flakes, with a small point 2 or 3 mm. long, chipped upon one edge. It is assumed that the primary function of a graver was to cut bone or wood by carving or incising a line along which the material can be broken off. The so-called microlithic "perforator" may well have served the same purpose. Only four gravers, all surface finds, occurred at Jaketown; three of these are shown in Fig. 57i–k.

These gravers are scarcely distinguishable from those found on early lithic sites in both western[1] and eastern[2] United States. An outstanding feature of all these tools is that they are unifacial artifacts.

[1] Roberts, 1935 and 1936.
[2] MacNeish, 1948 and 1952.

THE MICROFLINT INDUSTRY

At both Jaketown and Poverty Point an assemblage of related flint artifacts is found in such large numbers as to present a unique situation in Southeastern archaeology.[1] These objects may be most aptly described as microflints, as their closest resemblance is to small forms so-called in the European terminology of Upper Paleolithic archaeology. We do not mean to convey the idea that we are dealing with a duplication of a European microlithic assemblage, for the most typical forms found in Europe and Africa, viz., the burin and geometrics, are missing.

Although some of the terminology relating to flint types used in North America is similar to that used by European archaeologists, it does not always apply precisely to the same artifacts. Most notable is the term "graver," the English translation of "burin," but a North American graver does not remotely resemble a burin. Old World archaeologists believe that we should make some effort towards correcting the discrepancies in nomenclature, but unfortunately many misnomers are so embalmed in the literature that correction at this time may produce more confusion than clarification. Nevertheless, at least a negative attitude may prevent further confusion, so the term "burin" is not applied to any microflints described in this report.

Sooner or later visitors to the Lower Mississippi Valley discover that the soil contains no stones, a situation typical of most large alluvial valleys. All stone used for artifacts had to be imported from elsewhere by the early inhabitants. Flint artifacts and chips are so common on the areas marked R, S, and T that a very unusual situation is presented for this part of the country. Collecting in a rather casual fashion, when not occupied with the excavations, the authors gathered 5543 completed artifacts related to the core and blade industry. This is a true microlithic industry that includes prepared cores, unmodified parallel-sided blades struck from these cores, possibly used as knives, blades showing use as sidescrapers and endscrapers, notched flakes or lunate scrapers, and a remarkable form of flint awl or perforator. This same complex has been reported from the Poverty Point Site, where these tools are found in similar abundance.[2]

CORES

Figure 54a–d

The prepared cores from which small prismatic flakes were struck are very numerous at Jaketown. Several examples of cores, illustrated in Fig. 54a–d and Fig. 55, are representative of the more than 374 that have been collected. Nearly all have been prepared and utilized, according to a consistent pattern. A more or less egg-shaped pebble, not more than 3 inches in diameter, was selected, and a flake was taken off one end to provide a striking platform. Usually this platform was shaped with one blow, but occasionally two or more flakes were detached. Apparently an effort was made to remove this flake so that the resulting platform formed an angle of about 55 degrees to the long axis of the pebble. Then, presumably by indirect percussion on the edge of the platform, long narrow blades were detached from the sides of the pebble. The dimples left by the bulbs of percussion usually show clearly on the flake scars just below the edge of the platform. Measurements of the cores from Jaketown show that the resulting angle between the striking platform and the blade scars averages 55 degrees. A few have as sharp an angle as 45 degrees and none has one of more than 75 degrees (Fig. 55). This can hardly be a condition produced by some inherent mineral content of the rock, for approximately the same angle was found on all kinds of material.

As a result of this preference for an acute angle between the platform and the face, flakes were detached from only one side of the pebble core. The exhausted cores tend to be flattened ovals in cross-section, with flake scars forming one flattened side of the oval and the original

[1] Haag, 1951; Haag and C. H. Webb, 1953.

[2] Webb, C. H., 1948; Haag and C. H. Webb, 1953.

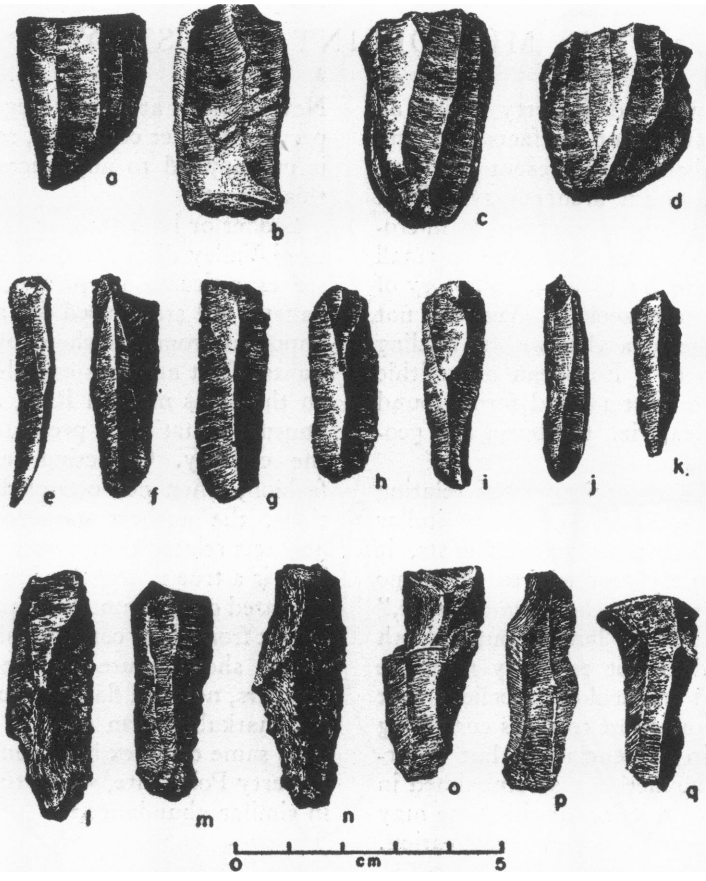

FIG. 54. Cores and blades. a–d. Cores. e–k. Unretouched blades. l–n. Sidescrapers. o–q. Endscrapers.

cortex of the pebble the other. Only very rarely were flakes detached on all sides so that a true polyhedral core resulted. Of equal rarity is the use of striking platforms at either end of a pebble. Where a core shows more than one striking platform it appears that these have been used successively rather than alternately as in the Mexican core and blade industry.

The cores in this complex are not large. They average about 4 cm. long on the face from which blades have been detached. Possibly this size is the result of the use of pebbles from the gravel beds on either side of the valley. However, this cannot be the sole limiting factor, for large pebbles are available in these deposits. More likely this size is correlated with the flaking qualities of the tan and reddish chert that was most commonly used. This does not fracture as evenly and cleanly as does the Flint Ridge flint of which the similar tools of the Hopewell Culture were made. Perhaps inability to draw longer blades is the limiting factor to the size of the cores. So far as we have been able to determine, the cores from the Jaketown Site show no evidence of secondary use as implements.

UNMODIFIED BLADES

Figure 54e–k

The Jaketown collection includes 1410 unmodified blades drawn from the cores described above (Tables 13–14). Apparently these were completed tools, ready for use as knives. Blades

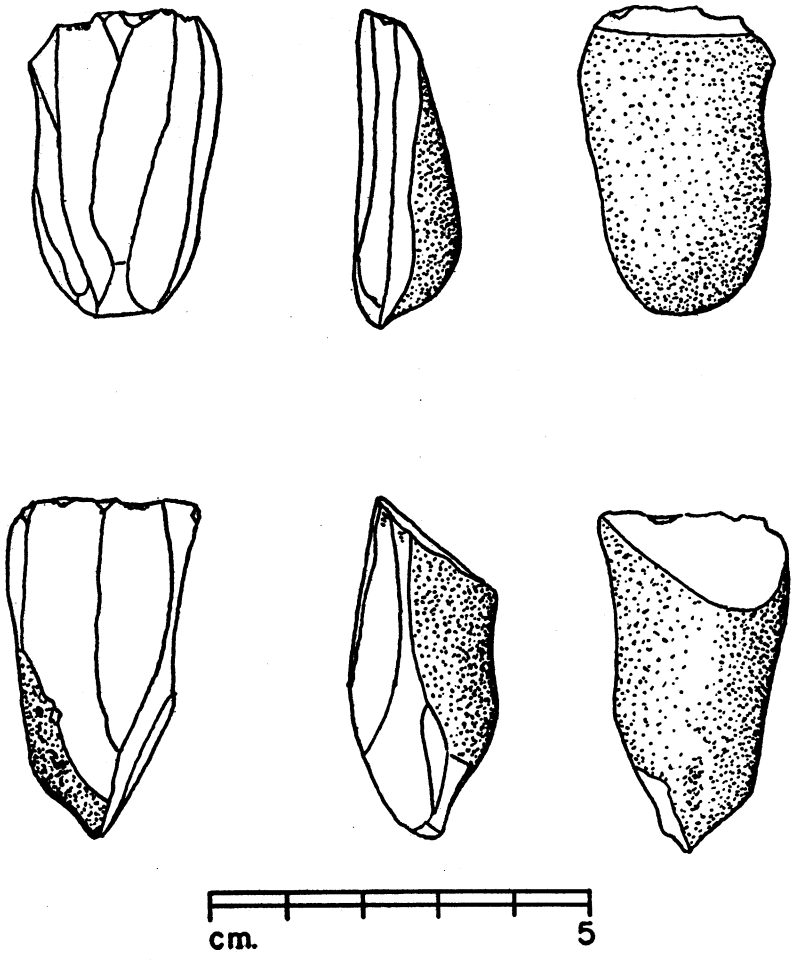

FIG. 55. Two typical cores.

range in length from 20 to 50 mm., in breadth from 8 to 23 mm.; thickness varies between 3 and 5 mm. The width-length index and the width-thickness index both average 33, very close to the width-thickness index of 28 which Watanabe found to be typical of the blades of North China.[1]

Each typical blade in the Jaketown collection has a small oval section of the striking platform at one end. The outer curved side of this platform shows slight battering from the blow that detached the flake, and opposite this, on the plane inner face of the flake, the bulb of percussion can usually be seen. Most blades curve towards this inner face. Judging from both cores and blades, the fracture that detached the blades very rarely terminated in a "hinge" break, but usually extended to the lower edge of the face of the core. As the lower end of the cores received no preliminary preparation, the lower ends of the blades break free with a thin, irregular, rounded, or pointed tip.

The cross-sections of most of the unmodified blades can certainly qualify them for the term "prismatic," with a flattened face on the side which was detached from the core and two or more blade scars on the opposite side. However, some are merely elongated flattened flakes. Still no oval or rounded flakes that did not come from prepared cores have been classified in this group. A small proportion of the blades show the cortex of the original pebble on the outer face, and these less perfectly formed flakes appear to have been detached in the

[1] Okada, 1951, 254.

preliminary steps of the shaping of a core.

None of the blades listed in this category shows retouching, but magnification reveals that on some, tiny chips have been removed, leaving a jagged edge. This probably results from use. Also it is possible that some of these blades were drawn for the purpose of making scrapers, or the curious perforators described below, but were discarded as unsuitable for the further stages of manufacture.

ENDSCRAPERS

Figure 54o–q

One hundred six of the blades in the Jaketown collection show evidence of use as endscrapers (Tables 13–14). Tiny chips have been removed from the end of the tool, generally the end opposite the striking platform. In some instances this chipping has had the effect of blunting the edge as on Fig. 54o, probably unintentional chipping resulting from use. On other blades (Fig. 54p, for example) tiny even chips have been removed from the inside face of the distal end of the blade, leaving a very sharp cutting edge. Possibly this is intentional resharpening. Concave cutting ends are noted on certain blades, but others have been retouched to flat square cutting tools. Nearly one-third of the endscrapers from Jaketown have a small notch chipped into the edge of the blade towards the end that does not bear the cutting edge. These notches may have been formed to facilitate hafting. However, there is also a series of tools with similar but larger notches that are described below as lunate scrapers. Possibly some of these notched endscrapers also were used as lunate scrapers.

The form of the edge and the wear on most of the endscrapers suggest that they were used as miniature chisels—probably held at an angle to the work and pushed away from the user. In contrast, a few have curved ends developed into a sort of beaked edge. These may have been pulled towards the user with a drawing motion.

SIDESCRAPERS

Figure 54 l–n

Blades with a portion of one or both sides retouched are called sidescrapers. The collection contains 671 of these tools (Tables 13–14). The basic blades altered to form sidescrapers are identical with the unmodified blades described above. The secondary chipping appears to be of two varieties. On most blades either a portion or the entire length of one or both edges has been steeply chipped from the plane side of the blade; the effect of this chipping is rather to dull the blade than to sharpen it. Possibly it was a means of providing a stronger edge for rough work, or we may be wrong in our assumption and these dulled edges were not intended as working edges, but were made to facilitate hafting. The second type of chipping is more irregular and apparently results from use. Small flakes of this class were taken from either the face or back edge of the blades.

JAKETOWN PERFORATORS

Figure 56a–m, r–v

As may be seen in the accompanying tabulation (Tables 13–14), 2547 flint awls or perforators were collected. The former name seems to be generally employed to describe similar implements in the Old World, but the term "perforator" has been used in the United States.[1] This, however, referred specifically to a Siberian occurrence. Actually, there is little evidence that the Jaketown objects were used to produce holes; in fact, it must be admitted that they give little evidence as to specific use. At least one specimen is highly polished at the pointed end, but this is a significant exception, because several thousand of these awls bear no evidence of polish as the result of a rotating motion. The ends of the points on most of them

[1] Nelson, 1937, 272.

are blunted, almost battered, and it seems certain that this tapered end was the working end and not a haft.

FORM OUTLINE: Roughly pear-shaped; one end small and tapering; opposite end larger, rounded or bulbous. Edges generally concave between the large end and the point. Frequently chipped completely around the perimeter. Generally convex on the side bearing the chipping. Range from 13 to 41 mm. in length; average, 22 mm. The expanded base varies from 7 to 25 mm. in width; average, 12.7 mm.

TECHNIQUE: The stock or blank from which these objects were fashioned is a prismatic blade removed from a core. Either end of the blade was chipped to form the "point," the percussion end most often. Pressure flaking from the flake surface to form a unifacial blade is a constant feature. The secondary chipping may be confined to the point or it may completely encircle the tool. The pressure was always applied on the face side of the flake so that a portion of this smooth surface was preserved all along the point. The chipping is quite steep.

MATERIAL: Yellow-tan chert grading into deep red jasper; rarely is a fossiliferous chert or a weathered, sandy-feeling chert employed. Size of the parent cores may be a controlling factor of the size of the final product, but this is doubtful because there is little range in size of the perforators as compared to range in gravel size.

FUNCTION: Some kind of perforating or incising seems indicated. Many specimens are so curved as to preclude their use as a projectile point, but this possibility should not be ignored; they faintly resemble tanged points found in European Mesolithic collections. It is quite possible that the function of the burin, namely, inscribing and incising, may have been the major purposes of this tool.

GEOGRAPHICAL RANGE: Now known from the Jaketown Site in central Mississippi, Poverty Point and Insley sites in northeastern Louisiana, and a site near Calion, Arkansas. The only other occurrence of this type of perforator thus far encountered is a single specimen found by Douglas Byers on the floor in the R. S. Peabody Foundation Museum, with a catalogue designation as from the vicinity of Chillicothe, Ohio.

TEMPORAL RANGE: Poverty Point Period.

REMARKS: Specimens such as these are unreported in phases of the Archaic of the eastern and southern United States. The closest counterparts are some chipped unifacial flake objects collected by Vernon Helman in 1948. However, this assemblage does not include prismatic knives or true perforators. Helman's specimens came from sites in Owen County, Indiana.

BLUNT PERFORATORS

Figure 56n–q

The specimens shown in Fig. 56n–q are fashioned like the perforators, but the narrow point or beak is not so long as in these tools. Ninety-two specimens have been placed in this category (Table 14). Possibly this form is produced intentionally, but all gradations occur between the very blunt variety and the typical perforators. It has been suggested that these blunt forms may be the remnants of perforators that have been repeatedly sharpened. However, rare specimens such as the one in Fig. 56q suggest that this form may be intentional. Like the longer perforators, so far as we can determine, these blunt forms are limited in distribution to sites of the Poverty Point complex.

NEEDLES

Figure 56w–z, a′, b′

Another form, related to the flint perforators or awls, we have termed needles.[1] The Jaketown collection contains 175 of these tools.[2] They range in length from 20 to 38 mm., and

[1] Similar forms in the British Mesolithic are called "steeply chipped rods" by Clark, 1932, 25, 28, 33, 38, etc.

[2] A similar form from Poverty Point is shown in Haag and C. H. Webb, 1953, Fig. 88j.

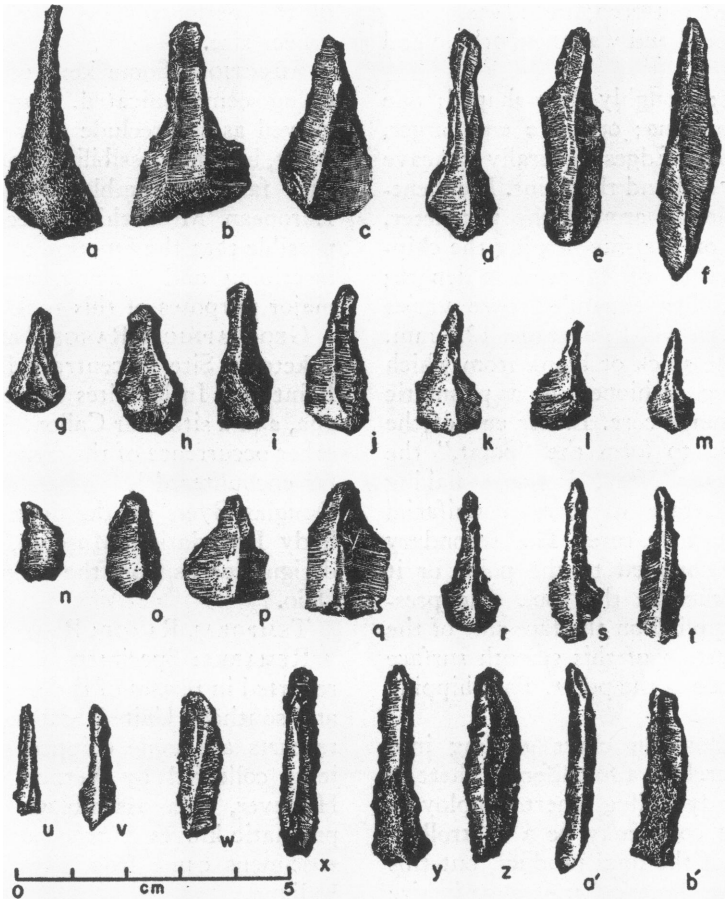

FIG. 56. Tools made by modifying blades. a–m, r–v. Perforators. n–q. Blunt perforators. w–b'. Needles.

in thickness from 3 to 5 mm. They are formed from blades steeply chipped along either edge, by pressure or light percussion, applied on the smooth blade face. On some the chipping has been carried so far that the tools are roughly rounded in cross-section (Fig. 56a'). It is almost certain that some of these specimens are the distal portions of the perforators described above, broken from the flared butt either in the course of manufacture or in use. However, it is plain that others should be classed as finished chipped objects; the careful, delicate chipping can be seen to extend around both ends.

We have no happy suggestions as to the function of these objects. Possibly these needles are a special class of the perforators described above and may also have been engraving tools. "Needles" fit neatly into the obscurity of the general problem of perforators.

NOTCHED BLADES

Figure 57a–e

Another feature of the microlithic assemblage from Jaketown is the small scraper called a "notched blade" (Fig. 57a–e).[1] These objects are sometimes referred to as lunate scrapers but that term should be reserved for larger objects

[1] The two artifacts shown in Fig. 57a–b are illustrated in Haag and C. H. Webb, 1953, Fig. 88, where they are incorrectly described as coming from the Poverty Point Site.

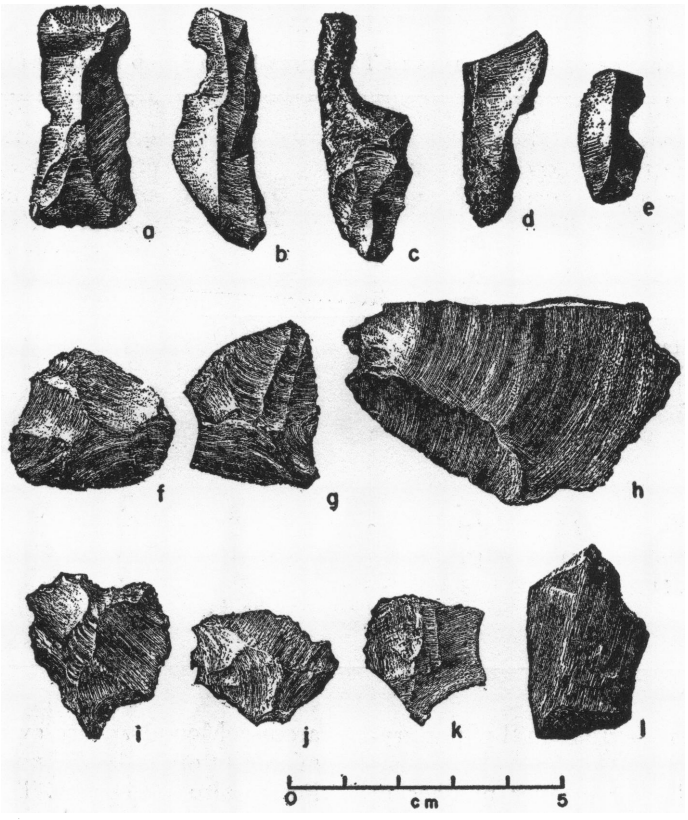

FIG. 57. Flint tools. a–e. Notched blades. f–h. Flake scrapers. i–k. Gravers. l. Flake of petrified palm wood.

such as occur at sites in Colorado[1] and Kentucky.[2] The small early lithic scrapers described here are truly microlithic and resemble Old World forms. Generally, the artifact is a typical prismatic blade as struck from a core, further modified by having a semicircular notch in one side. The position of the notch may vary considerably, but it is usually near the midpoint of the blade. Depth also varies between 3 and 5 mm.

These notched artifacts are usually formed from prismatic blades. However, they are also made of flakes of a variety of shapes; and again, the over-all size is very small. The semicircular scraping area is about the same on all specimens, that is, never over about 1 cm. in diameter.

Notched blades may have been used in several ways. If the notch is the functional part of the tool, it may have served to shape wooden shafts or similar small rounded objects. In some instances, at least, the notch was possibly formed as a result of use. On the other hand, these notches may have been intentionally made in the blades to facilitate hafting.

DISTRIBUTION AND STRATIGRAPHY OF MICROFLINTS

The proveniences of the 5543 microflints collected from the surface of the Jaketown Site are given in Table 14. The areas listed by capital letters in this table are identified on the map (Pl. 1). Particularly notable is the abundance of these tools in Areas R, S, and T. In these portions of the site, the Poverty Point cultural refuse was thin and lay on the surface in the plowed fields, accompanied by little or

[1] Roberts, 1936, 23.
[2] Webb, W. S., 1951, 444.

TABLE 13

OCCURRENCE OF MICROFLINTS IN TRENCHES 1 AND 5 AND EXCAVATION 4

	Cores	Blades	Endscrapers	Sidescrapers	Perforators	Blunt Perforators	Needles	Notch Blades	Totals
Pottery-bearing deposits									
Trench 1	1	4	—	3	1	—	2	—	11
Trench 5	1	—	—	—	—	—	—	—	1
Total									12
Poverty Point deposits									
Trench 1	—	7	2	2	7	—	—	—	18
Trench 5	1	10	2	4	5	—	—	—	22
Excavation 4 (Mound G)	—	8	—	2	—	—	—	—	10
Total									50

no evidence of later occupation by pottery-making people.

Distribution of the far smaller number of excavated specimens (62) is shown in Table 13 under headings that have already been explained. The results of this analysis support the implications of the surface indications that the entire microlithic core and blade industry belongs in the Poverty Point Period. Eighteen were found in the Poverty Point midden in Trench 1. Of the 10 microflints found in pottery-bearing levels of Trench 1, two were in the tetrahedron deposit. Both of these come from Level K in the W8-10 square. As may be seen in Fig. 39, this level contained an unusually large proportion of Poverty Point objects. It seems probable that both these and the microflints were brought up to this position together as a result of activities incidental to the construction of Mound A. All but one of the remaining specimens were found in the uppermost levels, within 20 cm. of the surface. The destruction of the western side of Mound A by road building and subsequent plowing has been described. It seems a fair assumption that these eight specimens came from the fill of this intentionally constructed mound.

Microflint distribution in Trench 5, farther away from the disturbances that took place around Mound A, are even clearer. Only one microflint out of 23 did not come from Poverty Point cultural deposits. This specimen, a core, was also found very near the surface, and it also may have come from the fill of Mound A.

The presence of 10 microflints in Excavation 4 (Mound G), which contained no material later than the Poverty Point Period, serves as additional confirmation of the temporal position of this complex.

It may be of some interest to discuss the relative proportions of cores, blades, and the tools made from modified blades. For this purpose it will be sufficient to use the large surface collections (Table 14), as the number of these tools gathered from the excavations is comparatively negligible. Of particular value are the collections from Areas R, S, and T (see map, Pl. 1) which have totals of 4044, 538, and 728 specimens, respectively. In Table 14 we show the relative frequencies of the various types of tools in each of these collections, as well as those from Area O that yielded only 80 specimens. The proportions in the three larger collections are remarkably consistent; the smaller collection is only slightly divergent: cores run about 7 per cent; unmodified blades about 27 per cent; endscrapers about 2 per cent; sidescrapers about 12 per cent; perforators about 45

TABLE 14

DISTRIBUTION OF THE TOOLS OF THE MICROFLINT INDUSTRY COLLECTED FROM THE SURFACE OF THE JAKETOWN SITE

(Areas E, G, etc., are shown on the site map, Pl. 1; frequencies are given for collections totaling more than fifty.)

Areas	Cores	Proportion	Blades	Proportion	Endscrapers	Proportion	Sidescrapers	Proportion	Perforators	Proportion	Blunt Perforators	Proportion	Needles	Proportion	Notched Blades	Proportion	Totals
E	—	—	3	—	—	—	—	—	1	—	—	—	—	—	—	—	4
G	2	—	15	—	1	—	6	—	14	—	—	—	—	—	—	—	38
H	—	—	1	—	—	—	—	—	1	—	—	—	—	—	1	—	3
I	—	—	—	—	—	—	1	—	1	—	—	—	—	—	1	—	3
K	1	—	7	—	—	—	2	—	15	—	—	—	—	—	1	—	26
L	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2
O	3	.037	35	.438	—	—	8	.100	26	.325	—	—	5	.062	3	.037	80
Q	5	—	6	—	1	—	11	—	7	—	—	—	—	—	2	—	32
R	267	.066	936	.232	69	.017	493	.122	1899	.470	71	.018	133	.033	176	.044	4044
S	36	.067	149	.278	13	.024	71	.132	231	.431	7	.013	11	.020	20	.037	538
T	53	.073	207	.285	16	.022	64	.088	327	.450	14	.019	24	.033	23	.032	728
V	4	—	19	—	2	—	4	—	12	—	—	—	—	—	3	—	44
W	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Totals	371	—	1381	—	102	—	660	—	2534	—	92	—	173	—	230	—	5543

per cent; blunt perforators nearly 2 per cent; needles about 3 per cent; and notched blades about 4 per cent.

Cores number 371; blades and the perforators, blunts, needles, sidescrapers, endscrapers, and lunate scrapers, all made by modifying blades, total 5172. If all the cores and rejects from this industry were discarded on the site, that is, if many of the blades were not detached from cores beyond the limits of the site, it would appear that, on the average, about 14 usable blades were detached from each core. A rapid count of the flake scars on a small sample of the cores shows that the average core has about six scars, not all of which were necessarily usable blades, and that the range of scars runs from three to nine. Consideration of the thinness of the blades and the rather small number taken from the average core confirms the impression that the shapes here illustrated are essentially those of the prepared cores while the craftsmen were detaching blades. These are not the exhausted remnants of "tongue-shaped" cores, oval in cross-section, from one narrow end of which numerous blades have been detached.

DISCUSSION OF THE MICROFLINT INDUSTRY

The specific complex of cores, flake blades, and endscrapers, sidescrapers, and perforators based on these blades is so far known from only four sites: Jaketown, Poverty Point in West Carroll Parish, Louisiana, the Tinsley Site, about 30 miles south of Poverty Point, and the Calion Site near Eldorado, Arkansas. Some, but not all, of these types were found at the Paxton Site near Jaketown.

In North America core and blade industries have been reported from the Arctic regions to Mesoamerica, ranging in age from as much as

6000 years ago down to the sixteenth century. In the eastern part of the United States, however, this industry is, with few exceptions, virtually confined to Hopewell and related cultures. The principal characteristics of the Hopewellian complex are cores with an acute angle between the striking platform and the face from which blades are detached, similar to those described above from Jaketown; the intentional selection of brightly colored and banded stones; unmodified blades showing little evidence of use; blades retouched for use as endscrapers; and blades that show use as sidescrapers.

The core and blade industry does not seem to have been a part of Lower Mississippi Valley Marksville or of the preceding Tchefuncte Culture. Two possible blades are illustrated by Cotter and Corbett from the Bynum Mound in eastern Mississippi.[1] Collins records the occurrence of blades "identical in every respect with the flaked knives from Flint Ridge in Ohio which, while abundant in the Ohio mounds, are rarely found in other localities." These were discovered in and about a small mound in eastern Mississippi that also had other Hopewellian characteristics.[2]

From the preceramic Faulkner Site in southern Illinois, MacNeish describes a flint complex that includes a number of artifacts characteristic of the Poverty Point complex: Gary Stemmed points,[3] Motley points,[4] Yarbrough points,[5] gravers,[6] flake sidescrapers and endscrapers.[7] These latter flake tools are somewhat larger than the Poverty Point specimens, and cores were not found.

The core and blade industry from the succeeding Crab Orchard culture period of the Carbondale Region in southern Illinois, the earliest pottery-making stage, shows some resemblances to the Poverty Point industry. Maxwell[8] illustrates slender flake blades from the Sugar Hill Campsite that seem to be of this period, but these are much larger than Jaketown blades. The "turtle-back" scrapers which he shows in his Pl. 11 may be the cores from which these flake blades were struck. In addition, the projectile point assemblage from the lower levels of Sugar Hill is very similar to that from Jaketown.

In Fulton County, in central Illinois, Cole and Deuel[9] describe the "simple flake knife" as "diagnostic" of the Illinois phase of Hopewell. Apparently no cores were found. Other central Illinois burial mounds of the Hopewellian Culture have yielded these blades. At least 15 were found in Mound 6 at the Havana Site,[10] and three are recorded from the Abbot Mound I of the Naples Group.[11] One blade at each of these localities has been retouched about the edges.

Bennett[12] illustrates flake knives from the Portage Site, an early Hopewell occupation in the extreme northwestern corner of Illinois. These blades are about 75 mm. long, considerably larger than the average Poverty Point specimen. No cores are illustrated.

In northwestern Wisconsin, flake knives are apparently rare elements in both the Trempealeau variant of Hopewell, described by McKern,[13] and the Cedar River variant reported by Cooper.[14] Quimby[15] lists flake knives at six of the sites on the eastern side of Lake Michigan, which he places in the "Goodall Focus" of Hopewell. Again, these knives are somewhat larger than the specimens from Poverty Point and Jaketown.

Flake knives of the type we are discussing are also an element of the variety of the Hopewell Culture which Wedel has described from near Kansas City, Missouri. The 36 blades found at the Renner Site[16] range from 40 to 80 mm. in length as compared to a range of 20 to 50 mm. for the Jaketown specimens. Wedel also describes flint cones, illustrated in his Pl. 15, and considers the possibility that they may have been either scrapers or cores. To us it appears that the latter identification is more likely to be correct. If these are the cores from which flake knives were struck, they exhibit the same

[1] Cotter and Corbett, 1951, 41, Pl. 13, Figs. 10–11, These artifacts are identified as flaked sidescrapers.
[2] Collins, 1926, 92.
[3] MacNeish, 1948, 1–4, Fig. 47.
[4] MacNeish, 1948, 9–12, Fig. 47.
[5] MacNeish, 1948, 13–15, Fig. 47.
[6] MacNeish, 1948, 29–30, Fig. 47.
[7] MacNeish, 1948, 35–36, Fig. 47.
[8] Maxwell, 1951, Pl. 14.
[9] Cole and Deuel, 1937, 222.
[10] Baker *et al.*, 1941, Pls. 2–19.
[11] Baker *et al.*, 1941, Pl. 34, Figs. 20–22.
[12] Bennett, 1945, Pl. 16h–l.
[13] McKern, 1931, Pl. 37, 2, A.
[14] Cooper, 1933, 83, Table.
[15] Quimby, 1941.
[16] Wedel, 1943, 54.

acute angle (approaching 55°) between the flat striking platform and the faces from which the flakes are detached as do the Poverty Point type cores.

In Ohio, flake knives and the cores from which they were struck are a characteristic feature of the classic Hopewell Culture. Here they more closely approach the smaller size of the Jaketown specimens. The most common type of flint implement found in the Edwin Harness Mound were blades. Accompanying burials, "it was a very common occurrence to find ten or twelve."[1] Occasionally cores accompanied these caches of knives. Five cores from here, examined by Ford, resemble Jaketown cores. Flint knives were not so numerous as burial goods at the Seip Mound, but quite a number were found scattered through the mound soil, and on the surface of the fields surrounding the mound the tools were "found abundantly."[2] (Two cores examined from here conform to those from Jaketown.) Flake knives are also mentioned from the cache in the Tremper Mound in "goodly numbers."[3]

At the Turner Site in Hamilton County, Ohio, "By far the most abundant flint implement is the flake knife. . . . "[4] These tools were usually found in graves, but many others were recovered in general digging.

Other cores and blades were examined by Ford in the Ohio State Museum, through the courtesy of Mr. Raymond Baby. These included one Poverty Point type core listed from the Hopewell Site, and four obsidian cores and a number of blades of the same material listed from Hopewell Mound 11. The obsidian cores also conformed to the characteristics described for the Jaketown specimens. From the Ginther Mound there were four cores of this same type and approximately 150 blades. Only one core from the Mound City Site was examined. This core had a 90-degree angle between striking platform and face and resembled the cores of the Arctic industry that are discussed below.

At the Illinois State Museum at Springfield, Illinois, only one core from a Hopewellian site was examined. This specimen from the Hubele Site[5] conformed to the majority of specimens from Jaketown.

In New York State, the flake knife first appears in and is a characteristic of Middlesex, Hopewellian, and Point Peninsula.[6] Retouched prismatic flakes show that these tools were also used as sidescrapers.

At least one flake knife or blade is reported from the Deptford Site on the coast of Georgia.[7] This site has given its name to a culture period that includes other Hopewellian type artifacts and probably equates in age with the early phase of Upper Valley Hopewellian.

Not all of the elements of the industry found at Jaketown are present throughout the geographical range of the Hopewellian core and blade industry. The only items appearing consistently are the blades and presumably the cores from which the blades were struck, although these are reported in only a few instances. We cannot be certain whether this failure to report them indicates that no cores were found, or, possibly, that they were not recognized.

The blades on northern Hopewellian sites differ from those on the Jaketown and Poverty Point sites in that they tend to be longer and thinner. The upper Mississippi Valley blades average about 50 mm. in length, the upper limit for the range in size of the southern specimens. Perhaps the more robust southern blades provided a better foundation for the manufacture of perforators. A notable point of similarity between the southern and northern aspects of this tradition lies in the fact that most of the cores examined exhibit an acute angle, approaching 55 degrees, between the striking platform and the faces from which the flakes are detached.

The Jaketown core and flake industry is strikingly different in two respects from the normal Hopewellian assemblage. First is the relative abundance of the artifacts. Most Hopewellian sites yield a handful of these artifacts; in contrast, they have been collected by the thousands from Jaketown and Poverty Point. The second unusual feature is the small tools here called "perforators." So far as we have been able to determine after rather extensive study, similar tools made from blades in the

[1] Mills, 1907, 69–70, Figs. 63–64.
[2] Mills, 1909, 50.
[3] Mills, 1916, 232.
[4] Willoughby, 1922, 89, Fig. 10a.
[5] Deuel *et al.*, 1952, 225–243.
[6] Ritchie, 1944, 324.
[7] Caldwell, 1952, 315, Fig. 170n.

same fashion have not been found anywhere in North America, with the single exception of the specimen from near Chillicothe, Ohio, mentioned above under the description of these artifacts. They are common in Siberia and Europe, as is described below.

Flakes that have been retouched in a somewhat similar fashion are illustrated from a site in southern California by Walker.[1] At Haag's request, B. K. Swartz, Jr., made a direct comparison of sample specimens from Jaketown and those excavated by Walker at Malaga Cove. In a letter Swartz writes,

> He found 25 specimens. Of these I have studied six and have viewed a number more in an exhibit. They are made of tan chert, though somewhat coarser than that of your microblades. They are crudely made, probably being flakes instead of blades. This is supported by the absence of nuclei materials. Indeed some may have been made of fortuitous flakes. In direct comparison, the techniques of manufacture are different, and your industry is far more refined. I doubt if the industries are related.

In the American Museum collections, there are several hundred very small blades from San Miguel and other channel islands, but none are retouched to form perforators.

A similar core and blade industry is widespread in Mesoamerica where the material utilized is usually obsidian. The symmetrical cores have striking platforms at a 90-degree angle to the faces from which the blades are detached. However, the blades are considerably longer than those found to the north. This technique dates from the earliest to the latest ceramic period in Guatemala and the Valley of Mexico, but appears in the Huasteca of northeastern Mexico rather late—in Period IV.[2] Kidder[3] has discussed the distribution of these tools in Mesoamerica. Just how this industry is related to those found farther north on the continent is not clear.

Within the past few years Rainey,[4] Giddings,[5] Irving,[6] Laughlin,[7] MacNeish,[8] and others have described an early lithic complex at several stations in Alaska and northwestern Canada that has obvious relationships to the Old World Mesolithic. This complex, which has been dated as early as 4000 B.C., includes a core and flake industry as well as burins, the characteristic Old World Mesolithic tool that has not been found in the Americas south of the Arctic region. The blades of the Arctic industry are characteristically smaller than those found at Hopewellian sites or in the Poverty Point complex, and there also seems to be a significant difference in the cores. While cores from the more southerly sites usually have an acute angle, approaching 55 degrees, between the face of the striking platform and the face from which the flakes were detached, the striking platforms of the Alaskan cores have an angle of about 90 degrees. This seems to indicate a difference in the technique of detaching the flakes, or at least a difference in the angle of the blow. A second difference is to be found in the form of the prepared cores. Those of the Arctic industry tend to be oval in cross-section, of a form sometimes called "tongue-shaped." The flakes were detached from the ends of the oval so that the exhausted cores are frequently true polyhedrals. Prepared cores of the mid-continental tradition are also oval in cross-section but, owing apparently to the desire to utilize a striking platform at an angle of 55 degrees to the flake face, the blades are detached from one of the long sides of the oval. However, an occasional Arctic example, such as the single core found by Levoshin at a site on the Chukchi Peninsula near Bering Strait, does conform to the mid-continental type.[9]

In the American Arctic the core and flake tradition was continued down to recent times as an element of the Cape Dorset Culture. Thin flake knives, 20 to 60 mm. long, are quite characteristic of Dorset Culture sites, but the cores from which these blades were struck are relatively rare.[10] Six Dorset Culture cores from Newfoundland have been illustrated by Harp,[11] and he has informed us that five of them have the 90-degree angle characteristic of the older flint complex. The remaining specimen has an angle of 60 degrees. Meldgaard[12] states that a special

[1] Walker, 1952, 44, Fig. 6.
[2] Ekholm, 1944, 489.
[3] Kidder, 1947, 14–16.
[4] Rainey, 1940.
[5] Giddings, 1951.
[6] Irving, 1953.
[7] Laughlin, 1952.
[8] MacNeish, 1954.
[9] Krader, 1952, Fig. 85, Specimen 7.
[10] Wintemberg, 1939, 1940; Leechman, 1943.
[11] Harp, 1953, Pl. 1-A. (Additional information in a letter, 1954.)
[12] Meldgaard, 1952, 225.

feature of a number of the cores he examined from Dorset Culture sites in the Disco Bay region of Greenland is an acute angle of 30 to 60 degrees between the striking platform and the face. However, as he has explained personally to Ford, these cores are the thin "tongue-shaped" or "spall-like" forms, with the blades detached from one end. They differ from the cores of the old Arctic industry only in the angle of the striking platform.

At this stage of our knowledge of culture history, it is not possible to make a definite statement as to the relationships of the Arctic and the mid-continental traditions, although it appears obvious that both must ultimately have derived from Asiatic Mesolithic techniques. The Hopewellian tradition seems the farthest removed typologically and may have developed from the earlier Arctic complex through some later survival related to the Dorset Culture. On the other hand, it may be a more direct import from the possible Siberian source of such early traits as burial mounds, ceramics, and the metal-working industries.

We may also look beyond the continental limits for typological comparisons with the Jaketown core and flake industry, for a microlithic core and flake industry is the hallmark of the widespread cultures of the Mesolithic of the Old World. In Europe, where they were first defined, the Mesolithic cultures date between the Palaeolithic and the subsequent Neolithic. However, as Clark has pointed out, the Mesolithic also has a tradition of flint working, which is not a stage of development between the earlier and later cultural stages, but is rather a third tradition, the origin of which

> may be traced to the changes of environment associated with the close of the Pleistocene period, the contraction of ice-sheets and the replacement of tundra and steppe by forests in northern Europe, and a progressive desiccation, caused by the northward movement of the cyclonic rain storms, in North Africa and parts of the Near East.[1]

Instead of the large herds of bison, reindeer, mammoths, and horses that had provided food supplies for men of the Palaeolithic periods, the forest offered smaller game that ranged singly or in small groups. Greater ingenuity and more refined tools and weapons were needed to subsist in the changed environment. The Mesolithic cultures were developed to meet these conditions. A microlithic core and flake industry, varying in content, but comprising a variety of small cutting and piercing tools, is the hallmark of these cultures. The domestication of the dog, invention of pottery, and perhaps the invention of the bow were other developments of the stage.

Old World archaeologists well appreciate the widespread distribution of Mesolithic cultures and techniques, but for the benefit of Americanists who may not have been working on related problems, a brief resume may be useful.

The typical remains of Mesolithic cultures are found all over the continent of Africa, and there can be little doubt but that they had the same basic roots as in Europe.[2] Few parts of eastern Europe or central Asia that have been investigated have failed to yield evidences of Mesolithic cultures.[3] Typical microlithic industries have been reported, dating from near the end of the prehistoric period in India.[4] Similar industries are scattered through Sumatra[5] and Java[6] and are very prominent in archaeological collections from the continent of Australia[7] where geometric forms bear a startling resemblance to those found in Europe. In this eastern distribution the microlithic tools are usually associated with typical Neolithic cultural elements, and there is little doubt but that the industries date somewhat later than in Europe. Farther to the northward on the east coast of Asia, Mesolithic-like microlithic industries are also reported to have been found in Sinkiang Province in China, northern Manchuria, the northernmost island of Japan (Hokkaido), and in Kamchatka.[8]

Unfortunately, only a limited amount of information is available to us as yet on microlithic cultural remains that in all probability exist in northeastern Asia. The nearest adequately described series come from Mongolia

[1] Clark, 1936, xiv.

[2] Wright, 1939, 180; O'Brien, 1939, 260; Leakey, 1952, 206.

[3] Bonch-Osmolovsky and Gromov, 1936, 1310.

[4] Zeuner, 1950, 24–25.

[5] Van Der Hoop, 1940, 200–204.

[6] von Heine-Geldern, 1945, 134–135, Fig. 35.

[7] Mitchell, 1949.

[8] Okada, 1951, quoting Hitoshi Watanabe, 1948, "The so-called Lames of Japan." Jour. Anthrop. Soc. Nippon, vol. 60 (688), 81–86.

and result from the work of Nelson,[1] and the final report on the work of Bergman written by Maringer.[2]

The core and flake industry first appears in Mongolia on what seems to be an appropriate Mesolithic time level, but on the majority of the sites cores, blades, and other typical tools are mixed with Neolithic elements such as polished celts, cord-marked, basketry-impressed, stamped, and even painted pottery. Maringer suggests that this industry may have lasted as late as 2000 B.C., perhaps even later.[3] In size, and in technique of detaching the blades, the Mongolian industry closely parallels the recently discovered industry of the American Arctic and so contrasts with the products of the industry with which we are immediately concerned. A prominent feature of many of the Mongolian sites was the presence of the substantial numbers of modified blades similar to the forms we have termed "perforators" and "needles" in the foregoing descriptions.[4]

Both Kroeber[5] and Giddings[6] have called attention to the fact that the spread of Old World cultural traits across Bering Strait into America did not necessarily involve mass migrations of people, but in many instances might have been the results of the operation of the process of diffusion. At least a part of the spread of the prepared core and blade industry undoubtedly must be explained in this way. Some idea of the time taken for this assumed spread of the technique may be gained from the dates estimated for the cultures that feature this technique. A prepared core and blade industry trending towards the production of smaller and smaller tools appeared in Europe as early as the Solutrean, if not Aurignacian. In northern Europe, however, the inception of Mesolithic-Microlithic has been dated at 8300 B.C.,[7] but Tardenoisian traditions may have survived in Norway into Bronze Age periods, and certainly generalized Mesolithic techniques survived elsewhere in Europe in Neolithic times.[8] Giddings[9] has given a tentative date to the rather Azilian-like Arctic culture of "as much as 6000 years ago." Our present guess, based on Fisk, for the earliest occupation of Jaketown is 1500 B.C., but a date of around 400 B.C. seems indicated by a radiocarbon sample. Our inability to date the first appearance of this tradition more precisely in these several regions is regrettable, but these approximations are sufficient to show that the earliest dates are in Europe and the latest in the Mississippi Valley.

The foregoing statements seem to have only one implication: that the core and blade industry found at Jaketown is related to the Old World Mesolithic flint-working techniques. That is exactly what we wish to suggest. Perhaps a glance at a world map, upon which the occurrences of this peculiar flint-working technique had been marked, would lessen the initial shock produced by this suggestion, for the distribution is continuous and age estimates are appropriate.

At this point it is only fair to record a certain divergence of opinion among the present authors—opinion as to emphasis rather than fact. In the Mesolithic tool assemblage of western Europe, practically exact parallels occur to the cores, blades, endscrapers, sidescrapers, notched blades, perforators, and needles ("steeply chipped rods") that we have described from Jaketown. These are illustrated in Clark's two volumes published in 1932 and 1936. As detailed above, this assemblage is not duplicated in any of the comparable North American industries, the most striking omission being the absence of the perforators, except possibly at Malaga Cove in California. Haag, in his original draft for this section, emphasized the Old World resemblances of this complex. Taking unfair advantage of his location near the elbow of the editor, Ford has shifted the emphasis to a comparison with the Upper Mississippi Valley Hopewellian industry. Phillips disapproves of Ford's tactics, but points to the fact that we do not yet have sufficient data to determine where the emphasis really belongs.

[1] Nelson, 1926; Berkey and Nelson, 1926.
[2] Maringer, 1950.
[3] Maringer, 1950, 208.
[4] Maringer, 1950, Figs. 24, 26, 27, 31, 33; Pl. 23, 10–14; Pl. 29, 1–17.
[5] Kroeber, 1948, 777.
[6] Giddings, 1952, 98.
[7] Clark, 1936, 53.
[8] Clark, 1936, 216.
[9] Giddings, 1952.

CONCLUSIONS

THE BRIEF 1951 season of field-work at the Jaketown Site has added only a few data to the bare chronological skeleton presented for the ceramic periods in this region by Phillips, Ford, and Griffin in the same year. It has reaffirmed, but not refined, the ceramic chronology based on the two stratigraphic excavations by Phillips and Gebhart in 1946.[1] However, the more abundant ceramics provided by these new excavations make it clear that on the earliest ceramic time level the complex is more closely related to Tchefuncte than to Tchula as originally defined. But we retain the name Tchula for this period to avoid adding further ambiguity to the record.

The occupation of this period does not seem to have been a direct outgrowth of what preceded. In other words, a break of some kind between Poverty Point and Tchula is indicated but not proved. An episode in the Tchula Period is represented by the tetrahedron deposit at the foot of Mound A, resulting, we think, from something out of the ordinary that occurred above. It is significant that some portion of Mound A was in existence at this time. Subsequently a more protracted occupation of the site lasted throughout most of the Baytown Period as now defined, but showed its greatest intensity in the earlier portions of the period. The usual uncertainty surrounds the question of continuity or discontinuity between Tchula and Baytown. If there was a break, it cannot be demonstrated on present evidence; consequently, we adhere to previous assumptions of continuity for these early ceramic phases of Lower Mississippi prehistory. The final period is represented by a thin veneer of Mississippi culture that we have reason to think is late with reference to that tradition as a whole. This and other circumstances suggest a discontinuity in the sequence between Baytown and Mississippi, and we are inclined to think that this reflects a strong invasion of new ideas into the region, and possibly a new people.

THE POVERTY POINT COMPLEX

The outstanding results of the season of field-work at the Jaketown Site were the identification of the preceramic occupation with the Poverty Point Complex and the association of this occupation with the C_1 course of the Ohio River. Traits for this complex are listed in Table 15. For comparison, traits found at the Poverty Point Site[2] are also listed.

The virtual identity of the cultural contents of the lower levels at Jaketown and the large Poverty Point Site in Louisiana is clearly apparent; we have, therefore, no hesitation in using the name Poverty Point Complex to include the Jaketown artifacts.

The list given in Table 15 is undoubtedly considerably shortened by two circumstances. The first is the almost complete absence from these levels of all artifacts of bone, horn, or shell. Only unworked animal bones were discovered. At the Poverty Point Site in West Carroll Parish, Louisiana, no bone is to be found at all—neither artifacts nor unmodified animal remains. Bones of humans, animals, and fragments of mussel shell are fairly numerous in the upper levels at Jaketown, from the first appearance of pottery in Tchula times to the end of the occupation. Perhaps a mild acid condition of the soil has destroyed most of the calcareous material in the time that has elapsed since the lower deposits were made, and the remaining bone is mineralized, some to a considerable degree. This suggests that there may be a substantial time interval between the Poverty Point Complex and the beginning of the ceramic occupations at Jaketown, a suggestion seconded by the 3-foot thick sterile zone of Ohio River natural levee soils that separate these levels in the north wall of the borrow pit.

On the other hand, this argument may not be tenable. The differential preservation of bone and related materials may possibly be due to the fact that the lower levels of the deposit were more frequently and thoroughly saturated by ground water. However, this same argument can hardly apply to the Poverty

[1] Phillips, Ford, and Griffin, 1951, 273–281.

[2] Poverty Point Site traits are based on C. H. Webb, 1944, 1948; Haag and C. H. Webb, 1953; Ford, 1954.

Point Site in Louisiana, which is situated on Macon Ridge, about 20 feet above the floor of the alluvial valley and consequently not subjected to annual flooding.

This disappearance of bone may explain why no burials have so far been found, at either Jaketown, Poverty Point, or the other lesser known sites of this complex. Very scanty, or no grave deposits are characteristics of preceramic cultures in other parts of the Southeast, and our few trenches at Jaketown may possibly have cut through the sites of burials which we failed to recognize as such. This also may explain our failure to find old skeletal material in the small domed Mound G. In view of this situation it must be admitted that Mound G and the other small structures scattered along the old natural levee near by may well have been burial mounds; in fact, that seems to be the most logical explanation for them. Similar lack of calcareous remains has been reported for other sites on this general cultural level, notably the Late Archaic Faulkner Site in southern Illinois.[1]

RELATIONS OF THE POVERTY POINT CULTURAL COMPLEX

The excavations at Jaketown demonstrated conclusively a fact about which there had been little doubt in the last few years, i.e., that this preceramic cultural complex preceded the Tchula-Tchefuncte periods in this region. It appears obvious, even without a lengthy argument, that the limited portion of the Poverty Point cultural remains that we have recovered demonstrate fairly close relations with Tchefuncte-Tchula and may very well be ancestral to that culture, at least in part. Items such as bannerstone atlatl weights disappeared by Tchefuncte times, but neither these nor grooved axes were ever an important part of Poverty Point culture.

Part of the Poverty Point cultural complex as recovered so far agrees with the complex Griffin has defined as the "Late Archaic."[2] Diagnostic traits are such items as ground celts, bannerstones (two only), boatstones used as atlatl weights, plummets of hematite, steatite vessels (probably from the southern Appalachians), tubular pipes of both stone and pottery, and the fully grooved ax (a single specimen).

Similarities are noted with the closer Late Archaic manifestations: the Lauderdale Focus of northern Alabama, the Eva Focus of western Tennessee, and the Faulkner Complex of southern Illinois. However, until we can provide a more complete inventory of the Poverty Point Complex, including tools of bone and shell, and until more is known of the temporal phases of these presumably long-lived manifestations, detailed comparisons do not seem necessary.

The typical late Archaic traits listed above also persist into Hopewellian times, if this term may be expanded to include earlier related manifestations such as Adena, Baumer, and the "Central Basin Phase" of Illinois. Some generalized term for this cultural tradition is needed, and the reader may choose between "Early and Middle Woodland" or a "Burial Mound Stage." In addition to those traits suggesting a Late Archaic relationship, at least two very impressive features in the Poverty Point complex suggest relationship to a generalized Hopewellian. The first of these is the practice of mound building. The small dome-shaped mounds that dot the outer bank of the early C_1 Ohio River meander at Jaketown have been described. The remarkable earthworks at the Poverty Point Site have also been described recently in a brief note by Ford.[3] These concentric octagonal ridges, with gaps at the corners, are similar to geometric earthworks found at Hopewell sites in Ohio. There is a possible difference in that at Poverty Point, at least, the ridges appear to have been utilized and in part accumulated as a result of having been dwelling areas. In this respect they are similar to the large circles made of discarded shells on Sapelo and neighboring islands off the coast of Georgia. In the publication cited above, Ford has ventured the suggestion that the large 65-foot high mound at the Poverty Point Site may have been intended to represent a bird. If this should prove to be correct, this is

[1] MacNeish, 1948.
[2] Griffin, 1952b, 355–356.
[3] Ford, 1954.

TABLE 15

COMPARISON OF TRAITS RECORDED FROM THE JAKETOWN AND POVERTY POINT SITES

	Jake-town	Poverty Point		Jake-town	Poverty Point
Mounds—conical, possibly built for burials	x	x	Steatite vessel fragment with relief carving	—	x
Large mound, possibly bird effigy	—	x	Sandstone vessels	x	x
Earthworks, octagonal concentric	—	x	Quartz crystals	x	x
Small circular building	x	—	Tubular beads of jasper and other hard stone	x	x
Poverty Point baked clay objects			Effigy beads	—	x
Biconical	x	x	Gary Stemmed	x	x
Cylindrical, plain	x	x	Broad Gary Stemmed	x	x
Cylindrical, laterally grooved	x	x	Thin Gary Stemmed	x	x
Cylindrical, spiral grooved	—	x	Long Gary Stemmed	x	x
Cylindrical, perforated	x	x	Small Gary Stemmed	x	x
Cross grooved	x	x	Motley Point	x	x
Spheroidal	x	—	Deeply notched points	x	—
Tubular pipe, clay	x	x	Lozenge-shaped points	x	x
Tubular pipe, steatite	—	x	Heavy Blade	x	x
Small, crude, baked-clay human effigies	—	x	Yarbrough Stemmed	x	x
Whetstones of ferruginous sandstone	x	x	Long barbed point	x	x
Thin sandstone saw	x	x	Triangular chipped scrapers	—	x
Spherical hammerstones	x	x	Core and blade industry		
Pitted hammerstones	x	x	Cores	x	x
Muller	x	—	Blades	x	x
Adzes	x	x	Blade endscrapers	x	x
Small celts	x	x	Blade sidescrapers	x	x
Full-grooved stone ax	—	x	Jaketown perforator	x	x
Flattened two-hole bar gorgets	x	x	Blunt Jaketown perforators	x	x
Bar atlatl weights	x	x	Blade "needles"	x	x
Solid boatstone atlatl weights	x	x	Blades, notched	x	x
Bannerstone atlatl weights	x	x	Gravers	x	x
Grooved and perforated plummets, mostly of hematite	x	x	Crude flake scrapers	x	x
Steatite vessels	x	x	Choppers	x	x
			Flint abraders	x	x

another trait that occurs on the general Hopewellian cultural level; for example, in Wisconsin in the so-called Effigy Mound Aspect, and in central Georgia in the form of effigy cairns made of stones. Birds are also very common motifs in Hopewellian ceramic designs and carved objects.

The projectile point assemblage from Jaketown as a whole resembles early Hopewellian in the upper part of the Mississippi Valley. However, the classic Hopewell projectile point is not found among the Poverty Point specimens. The size of the Poverty Point projectile points suggests that they were used for atlatl darts rather than arrows. This deduction is further substantiated by the numerous bar weights, crude, ungrooved boatstones, and rare bannerstones, artifacts that are now interpreted as atlatl weights.

DATE OF THE POVERTY POINT COMPLEX

In addition to the difference in preservation of bone and shell already cited, correlation with the river channel sequence also suggests that there may be a substantial time lapse between the date of the Poverty Point and the Tchula complexes. In the above pages we have advanced arguments for relating the early occupation at Jaketown to an old Ohio River channel of Stage C_1 (see Table 1). Although data have not yet been presented in detail, there are suggestions that the Poverty Point Site was also occupied when the Stage C_1 channel of the Mississippi was active. At any rate, it is certain that the latter site cannot date after Stage H, when an old course of the Arkansas cut away part of the earthworks.[1] If Fisk's time estimates are correct, this association would date the Poverty Point cultural complex about 1500 B.C.

However, this dating does not agree with the one radiocarbon date which we have for the lower deposits in the Jaketown Site. This date was based on the charcoal fragments from a charred post in the western end of Trench 5, at a depth of 10.3 feet beneath the surface, in the lowest Poverty Point midden, 0.75 of a foot above the surface of the old sand bar that underlies the deposit.[2] Two runs were made on this specimen, giving elapsed times of 2400 ± 150 and 2300 ± 150. The average of these runs is 2350 ± 80.[3] Translated into the Christian calendar, the average date is 399 B.C., with a two-thirds probability that the actual date of the specimen falls between 319 B.C. and 479 B.C.

Obviously the estimate based on river channel sequence and the radiocarbon measurement do not agree. They are about 1000 years apart. However, on the basis of only one radiocarbon date, we think that we are not prepared to choose between this date and the estimates based on channel sequence.

Previous channel association studies suggest that the earliest ceramic-making cultural complexes, the Tchula and Tchefuncte, seem to be associated with channel Stages 6 and 7 of Fisk's chronology.[4] Fisk estimates a date of 600 or 700 A.D. In addition, there are two radiocarbon dates from Tchefuncte Period sites in southern Louisiana.[5] The first of these (Sample 150) was run on charcoal from the top 6 inches of Midden A of the Tchefuncte Site. This gave an elapsed time measurement of 633 ± 150 years (1318 A.D.). The second measurement (Sample 151) utilized shell from the same level of this deposit and gave an elapsed time of 1233 ± 250 years (718 A.D.). We agree with Griffin[6] that both of these dates are highly suspect and cannot be considered as providing reliable dates for this cultural complex. For one thing, the cultural association of the specimens is not beyond question. However, it is interesting that the measurements taken on the shell yield a calendrical date of 618 A.D. ± 250 years, about the same as the dating of this period based on the geological estimates. We merely cite this for what it is worth; we think it is not worth very much.

The uncertainties of the calendrical chronology will undoubtedly be cleared up in a few years, as additional radiocarbon measurements are made and the cultural evidence becomes firmer. However, there is no uncertainty about Fisk's river channel chronology when it is viewed in relative rather than calendrical terms. A number of river courses were occupied between Stage C_1 and Stages 6 and 7 of the present Mississippi River meander belt, and this also suggests that there was a considerable lapse of time between the Poverty Point culture we have examined and Tchula-Tchefuncte. We do not yet know what filled that interval. Perhaps it was occupied by a slowly changing Poverty Point complex. Or our association of Tchula and Tchefuncte with Stages 6 and 7 may be incorrect; perhaps they are earlier. We have no satisfactory answers at present.

If the radiocarbon date of about 400 B.C. obtained at Jaketown proves to be correct, and if the majority of the dates that have been obtained for the Hopewellian culture of Illinois

[1] Ford, 1954.

[2] Exact location was directly beneath Stake North 24 meters, on the north–south axis line. Sea level elevation of the specimen was 111.79 feet. See Fig. 40 for location of the specimen and cultural associations.

[3] Kulp, *et al.*, 1951, 566, Sample 114.

[4] Phillips, Ford, and Griffin, 1951, 295–306.

[5] Johnson, 1951, 6, Samples 150–151.

[6] Griffin, 1951, 26.

and Ohio are accepted,[1] then the Poverty Point culture would be approximately contemporaneous with at least the earlier phases of Hopewellian. The evidence cited in the foregoing pages strongly suggests a cultural connection between the Poverty Point cultural complex and Hopewellian.

Phillips and Haag prefer to withdraw from the discussion at this point for lack of foundation evidence upon which to erect further hypotheses. Ford, with a typical lack of reasonable caution, wishes to register a guess. The preceramic Poverty Point culture may possibly represent an early southward thrust of the mid-continental Hopewellian culture. Perhaps the rather sophisticated bearers of this culture invaded the Lower Mississippi Valley in small numbers, conquered the local Archaic peoples, and set up a class-structured society with themselves as the ruling class. Certainly such an arrangement would have been necessary to have permitted the construction of such large geometrical earthworks as those at Poverty Point. This possible interpretation would, in turn, conform to the accumulating body of evidence that suggests that the "Hopewell Culture," "Woodland Culture," or "Burial Mound Stage" (however one may choose to designate it) was derived from some as yet unidentified part of northeastern Asia by routes that also remain unknown.

[1] Griffin, 1952b, 367.

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CATALOGUE DATA FOR CERTAIN ILLUSTRATIONS

PLATES

5. Poverty Point objects
   a. Biconical plain, Trench 1, SO-2, W10-12, 30–40 cm. (20.2-6197)
   b. Biconical plain, north profile of borrow pit (20.2-6198)
   c. Biconical plain, Trench 2, W130-132, N224-226, 30–40 cm. (20.2-6199)
   d. Biconical plain, Trench 3, W88-90, N238-240, 40–50 cm. (20.2-6200)
   e. Biconical grooved, Trench 1, SO-2, W10-12, 70–80 cm. (20.2-6201)
   f. Biconical grooved, Trench 2, W130-132, N218-220, 20–30 cm. (20.2-6202)
   g. Biconical grooved, Trench 2, W130-132, N232-234, 10–20 cm. (20.2-6203)
   h. Biconical plain, Trench 2, W130-132, N226-228, 40–50 cm. (20.2-6204)
   i. Biconical extruded, lower midden deposit, north wall of borrow pit (20.2-6205)
   j. Biconical extruded, Trench 1, S0-2, W12-14, 2.10–2.20 m. (20.2-6206)
   k. Biconical extruded, Trench 5, N22-24, W2-4, 9.0–9.5 ft. (20.2-6207)
   l. Biconical extruded, Trench 1, S0-2, W16-18, 1.80–1.90 m. (20.2-6208)
   m. Biconical punched, Trench 5, N22-24, E4-6, 9.0–9.5 ft. (20.2-6209)
   n. Biconical punched, Trench 5, N22-24, W2-4, 9.0–9.5 ft. (20.2-6210)
   o. Biconical punched, Trench 1, S0-2, W24-26, 1.50–1.60 m. (20.2-6211)
   p. Biconical punched, Trench 1, S0-2, W18-20, 50–60 cm. (20.2-6212)
6. Poverty Point objects; all of the cylindrical grooved variety
   a. Trench 1, S0-2, W24-26, 50–60 cm. (20.2-6165)
   b. Trench 1, S0-2, W20-22, 60–70 cm. (20.2-6166)
   c. Surface, Area Q (20.2-6167)
   d. Trench 3, N238-240, W88-90, 10–20 cm. (20.2-6168)
   e. Trench 1, S0-2, W18-20, 50–60 cm. (20.2-6169)
   f. Surface, Area Q (20.2-6170)
   g. Trench 5, N22-24, E16-18, 2.5–3.0 ft. (20.2-6171)
   h. Trench 1, S0-2, W18-20, 50–60 cm. (20.2-6172)
   i. Trench 1, S0-2, W30-32, 80–90 cm. (20.2-6173)
   j. Trench 3, N238-240, W88-90, 10–20 cm. (20.2-6174)
   k. Trench 1, S0-2, W30-32, 80–90 cm. (20.2-6175)
   l. Trench 3, N238-240, W88-90, 30–40 cm. (20.2-6176)
   m. Trench 3, N222-224, W88-90, 40–50 cm. (20.2-6177)
   n. Trench 5, N22-24, E0-2, 0–0.5 ft. (20.2-6178)
   o. Trench 5, N22-24, E14-16, 8.0–8.5 ft. (20.2-6179)
   p. Trench 1, S0-2, W30-32, 80–90 cm. (20.2-6180)
7. Poverty Point objects, all of the cross-grooved variety
   a. Trench 5, N22-24, E4-6, 9.5–10.0 ft. (20.2-6181)
   b. Trench 5, N22-24, E12-14, 9.0–9.5 ft. (20.2-6182)
   c. Trench 5, N22-24, W0-2, 3.5–4.0 ft. (20.2-6183)
   d. Trench 1, S0-2, W16-18, 1.50–1.60 cm. (20.2-6184)
   e. Trench 5, N22-24, W0-2, 9.0–9.5 ft. (20.2-6185)
   f. Trench 1, S0-2, W10-12, 1.00–1.10 m. (20.2-6186)
   g. Trench 3, W88-90, N238-240, 30–40 cm. (20.2-6187)
   h. Trench 5, N22-24, E2-4, 9.0–9.5 ft. (20.2-6188)
   i. Lower midden deposit in north profile of borrow pit (20.2-6189)
   j. Trench 5, N22-24, W2-4, 11.0–11.5 ft. (20.2-6190)
   k. Trench 1, S0-2, W22-24, 1.00–1.10 m. (20.2-6191)
   l. Trench 5, N22-24, E12-14, 8.5–9.0 ft. (20.2-6192)
   m. Trench 5, N22-24, W0-2, 9.0–9.5 ft. (20.2-6193)
   n. Trench 5, N22-24, W4-6, 11.0–11.5 ft. (20.2-6194)
   o. Trench 1, S0-2, W12-14, 2.40–2.50 m. (20.2-6195)
   p. Trench 5, N22-24, E12-14, 7.5–8.0 ft. (20.2-6196)
8. Bone tools and fragments of animal bones
   a. Trench 5, N22-24, W0-10, 1.5–2.0 ft. (20.2-6213)
   b. Trench 1, S0-2, W20-22, 50–60 cm. (20.2-6214)
   c. Surface collection (20.2-6215)
   d. Surface collection (20.2-6216)
   e. Trench 1, S0-2, W22-24, 10–20 cm. (20.2-6217)
   f. Surface collection (20.2-6218)

TEXT FIGURES

46. Rough stone tools
    a. Flint abrader, Trench 1, S0-2, W24-26, 1.40–1.50 m. (20.2-6070)
    b. Flint abrader, Surface, general site collection (20.2-6071)
    c. Flint abrader, Surface, Area H (20.2-6072)
    d. Chopper, Trench 1, S0-2, W10-12, 2.10–2.20 m. (20.2-6073)
    e. Chopper, Trench 3, N224-226, W88-90, 60–70 cm. (20.2-6074)
    f. Chipped and polished pebble, Surface (20.2-6076)
    g. Chipped and polished pebble, Area T (20.2-6077)
    h. Chipped quartz crystal, Surface (20.2-6078)
    i. Chipped quartz crystal. Trench 5, N22-24, W2-4, 7.5–8 ft. (20.2-6079)
47. Ground stone tools
    a. Hammerstone, Surface, general collection (20.2-6080)
    b. Hammerstone, Surface, general collection (20.2-6081)
    c. Hammerstone, Surface, Area A (20.2-6082)
    d. Small celt, Surface, general collection (20.2-6083)
    e. Sandstone grinding stone, Surface, general collection (20.2-6084)
    f. Loaf-shaped piece of granite, Surface, general collection (20.2-6085)
    g. Sandstone grinding stone, Surface, general collection (20.2-6086)
    h. Sandstone saw, Trench 1, S0-2, W24-26, 0–10 cm. (20.2-6087)
    i. Adze, Surface, general collection (20.2-6088)
    j. Muller, Surface, general collection (20.2-6089)
48. Ground stone tools
    a. Fragment of bar gorget, Surface, Area R (20.2-6101)
    b. Fragment of bar gorget, Trench 5, N22-24, E14-16, 0.5–1.0 ft. (20.2-6102)
    c. Fragment of bar gorget, Surface, Area K (20.2-6103)
    d. Fragment of bar gorget, Surface, general collection (20.2-6104)
    e. Unidentified polished stone fragment, Surface, general collection (20.2-6105)
    f. Fragment of bar gorget, Surface, general collection (20.2–6106)
    g. Fragment of bannerstone, Surface, general collection (20.2-6107)
    h. Fragment of stone bead, Surface, general collection (20.2-6108)
    i. Fragment of stone bead (20.2-6109)
    j. Soapstone fragment, Surface, general collection (20.2-6110)
49. Plummets and weights
    a. Plummet, Surface, Area D (20.2-6090)
    b. Plummet, Surface, general collection (20.2-6091)
    c. Plummet, Surface, Area Q (20.2-6092)
    d. Plummet, Surface, general collection (20.2-6093)
    e. Plummet, Surface, Area T (20.2-6094)
    f. Shaped stone weight, probably for atlatl, Surface, general collection (20.2-6095)
    g. Shaped stone weight, probably for atlatl, Surface, Area G (20.2-6096)
    h. Shaped stone weight, probably for atlatl, Surface, general collection (20.2-6097)
    i. Plummet, Trench 5, N22-24, W4-6, 3–3.5 ft. (20.2-6098)
    j. Plummet, Trench 5, N22-24, E14-16, 3–3.5 ft. (20.2-6099)
    k. Fragment of galena, Trench 5, N22-24, E2-4, 9–9.5 ft. (20.2-6100)
51. Gary Stemmed projectile points: variations
    a. Typical, Trench 1, S0-2, W24-26, 0.3–0.4 m. (20.2-6149)
    b. Typical, Surface, general collection (20.2-6150)
    c. Typical, Surface, general collection (20.2-6151)
    d. Typical, Surface, Area L (20.2-6152)
    e. Typical, Surface, Area H (20.2-6153)
    f. Small, Trench 1, S0-2, W30-32, 0–10 cm. (20.2-6154)
    g. Small, Surface, general collection (20.2-6155)
    h. Small, Trench 5, N22-24, W4-6, 2.5–3.0 ft. (20.2-6156)
    i. Long, Surface, Area R (20.2-6157)
    j. Long, Surface, Area T (20.2-6158)
    k. Long, Surface, general collection (20.2-6159)
    l. Thin, Trench 1, S0-2, W22-24, 0.4–0.5 m. (20.2-6160)
    m. Thin, Trench 1, S0-2, W32-34, 1.30–1.40 m. (20.2-6161)
    n. Thin, Surface, Area R (20.2-6162)
    o. Broad, Surface, general collection (20.2-6163)
    p. Broad, Trench 5, N22-24, E2-4, 1.0–1.5 ft. (20.2-6164)
52. Projectile points.
    a. Motley Point, Surface, general collection (20.2-6111)
    b. Motley Point, Surface, Area L (20.2-6112)
    c. Motley Point, plow zone on Mound G (20.2-6113)
    d. Ellis Stemmed, plow zone on Mound G (20.2-6114)

e. Ellis Stemmed, Surface, Area I (20.2-6115)
f. Ellis Stemmed, Surface, general collection (20.2–6116)
g. Possibly Heavy Blade, Surface, Area R (20.2-6117)
h. Possibly Heavy Blade, Lower deposit, north profile of borrow pit (20.2-6118)
i. Possibly Heavy Blade, Trench 5, N22-24, W4-6, 11–11.5 ft. (20.2-6119)
j. Deeply notched points, Surface, general collection (20.2-6120)
k. Deeply notched points, Surface, Area K (20.2-6121)
l. Heavy Blade, Surface, Area R (20.2-6122)
m. Heavy Blade, Surface, general collection (20.2-6123)
n. Heavy Blade, Trench 3, N224-226, W88-90, 40–50 cm. (20.2-6124)
o. Heavy Blade, Surface, general collection (20.2-6125)
p. Heavy Blade, fill of Mound G (20.2-6126)

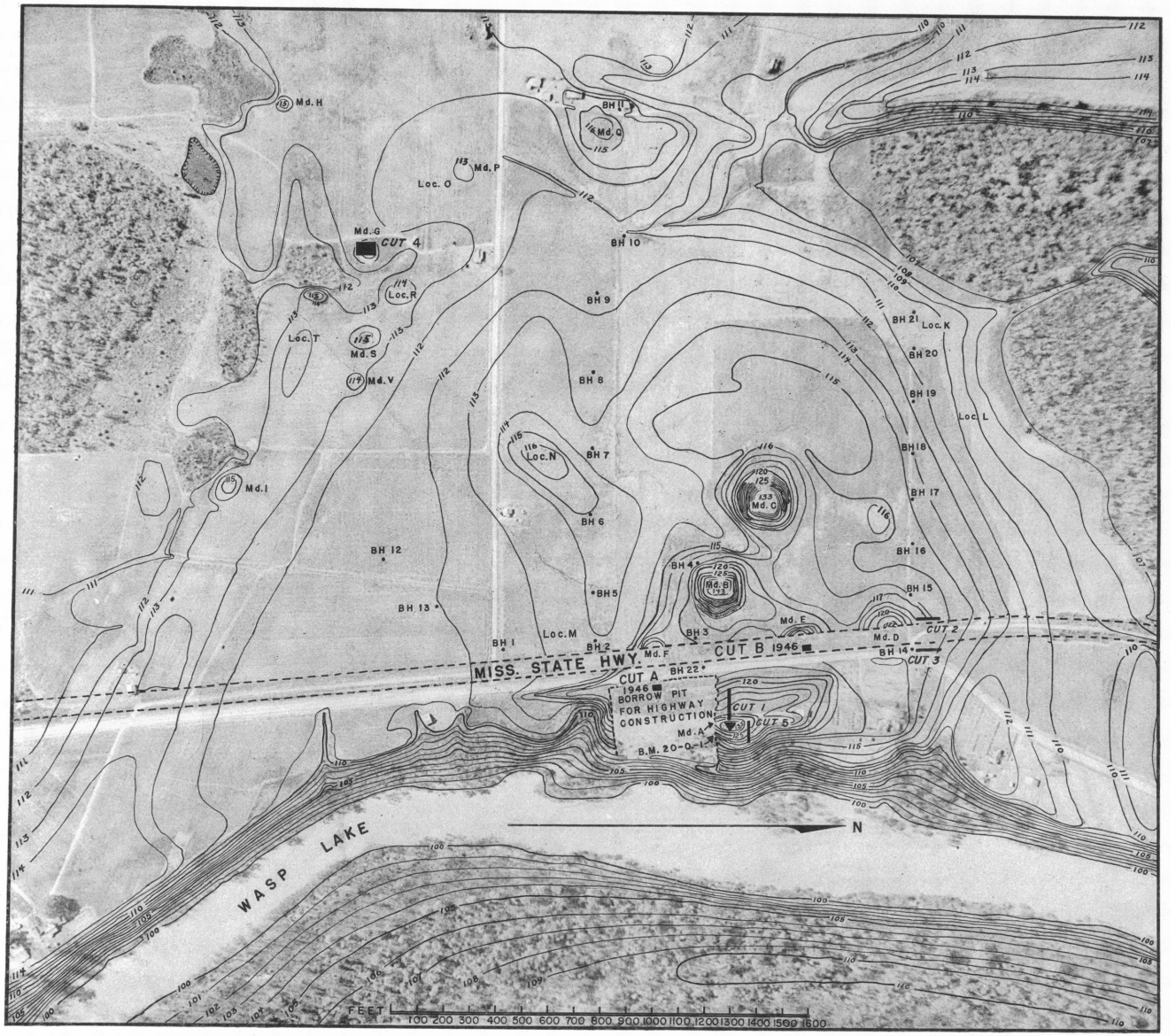
53. Projectile points of various types
a. Surface, general collection (20.2-6127)
b. Surface, general collection (20.2-6128)
c. Yarbrough Stemmed, Surface, Area T (20.2-6129)
d. Yarbrough Stemmed, Surface, Area R (20.2-6130)
e. Surface, general collection (20.2-6131)
f. Surface, Area T (20.2-6132)
g. Surface, general collection (20.2-6133)
h. Surface, Area Q (20.2-6134)
i. Surface, Area G (20.2-6135)
j. Surface, general collection (20.2-6136)
k. Surface, Area D (20.2-6137)
l. Trench 3, N240-242, W88-90, 20–30 cm. (20.2-6138)
m. Trench 1, S0-2, W12-14, 2.10–2.20 m. (20.2-6139)
n. Surface, Area K (20.2-6140)
o. Surface, Area R (20.2-6141)
p. Trench 3, N228-230, W88-90, 10–20 cm. (20.2-6142)
q. Madison Point, Surface, general collection (20.2-6143)
r. Madison Point, Surface, general collection (20.2–6144)
s. Trench 1, S0-2, W26-28, 1.40–1.50 m. (20.2-6145)
t. Trench 3, N240-242, W88-90, 70–80 cm. (20.2-6146)
u. Surface, Area Q (20.2-6147)
v. Trench 1, S0-2, W26-28, 1.20–1.30 m. (20.2-6148)

54. Cores and blades
a. Core, Surface, Area R (20.2-6013)
b. Core, Excavation 5, N22-24, W4-6, Level K, 1.00–1.10 m. (20.2-6014)
c. Core, Surface, Area Z (20.2-6015)
d. Core, Surface, Area R (20.2-6016)
e. Unretouched blade, Surface, Area O (20.2-6017)
f. Unretouched blade, Initial Trench in Mound G (20.2-6018)
g. Unretouched blade, Surface, Area R (20.2-6019)
h. Unretouched blade, Excavation 1, S0-2, W16-18, 0.6–0.7 m. (20.2-6020)
i. Unretouched blade, from south profile of borrow pit (20.2-6021)
j. Unretouched blade, excavation made on south side of Trench 1, no levels (20.2-6022)
k. Unretouched blade, Surface, Area R (20.2-6023)
l. Sidescraper, Surface, Area R (20.2-6024)
m. Sidescraper, N240-242, W88-90, depth uncertain (20.2-6025)
n. Sidescraper, provenience on site unknown (20.2-6026)
o. Endscraper, Surface, Area T (20.2-6027)
p. Endscraper, Trench 5, N22-24, E12-14, 8.5–9 ft. (20.2-6028)
q. Endscraper, Trench 2, N238-240, W130-132, 0–10 cm. (20.2-6029)

56. Tools made by modifying blades
a. Perforator, Surface, Area R (20.2-6030)
b. Perforator, Surface, Area R (20.2-6031)
c. Perforator, Surface, Area R (20.2-6032)
d. Perforator, Surface, Area R (20.2-6033)
e. Perforator, Surface, Area S (20.2-6034)
f. Perforator, Surface, Area R (20.2-6035)
g. Perforator, Surface, Area R (20.2-6036)
h. Perforator, Surface, Area R (20.2-6037)
i. Perforator, Surface, Area R (20.2-6038)
j. Perforator, Surface, Area R (20.2-6039)
k. Perforator, Surface, Area R (20.2-6040)
l. Perforator, Surface, Area R (20.2-6041)
m. Perforator, Surface, Area R (20.2-6042)
n. Blunt perforator, Surface, Area T (20.2-6043)
o. Blunt perforator, Surface, Area R (20.2-6044)
p. Blunt perforator, Surface, Area R (20.2-6045)
q. Blunt perforator, Surface, Area R (20.2-6046)
r. Perforator, Surface, Area R (20.2-6047)
s. Perforator, Surface, Area R (20.2-6048)
t. Perforator, Surface, Area R (20.2-6049)
u. Perforator, Surface, Area R (20.2-6050)
v. Perforator, Surface, Area R (20.2-6051)
w. Needle, Trench 5, N22-24, E14-16, 0–0.5 ft. (20.2-6052)
x. Needle, Surface, Area R (20.2-6053)
y. Needle, Surface, Area R (20.2-6054)

z. Needle, Surface, Area T (20.2-6055)
a′. Needle, Surface, Area T (20.2-6056)
b′. Needle, Surface, Area T (20.2-6057)

57. Flint tools
   a. Notched blade, Surface, Area R (20.2-6058)
   b. Notched blade, Surface, Area R (20.2-6059)
   c. Notched blade, Surface, Area R (20.2-6060)
   d. Notched blade, Surface, Area R (20.2-6061)
   e. Notched blade, Surface, Area R (20.2-6062)
   f. Flake scraper, Surface, Area Q (20.2-6063)
   g. Flake scraper, Surface, Area E (20.2-6064)
   h. Flake scraper, Trench 1, S0-2, W24-26, 50–60 cm. (20.2-6065)
   i. Graver, Surface, Area Q (20.2-6066)
   j. Graver, Surface, Area R (20.2-6067)
   k. Graver, Surface, Area R (20.2-6068)
   l. Flake of petrified palm wood, Surface (20.2-6069)



Air photograph of Jaketown Site, with contour lines drawn at 1-foot intervals. Wasp Lake lies in late C_1 channel of Ohio River. Buried early C_1 channel is faintly reflected by topography. Mounds I, V, S, R, P, and Q lie on crest of natural levee of this early channel. Excavated trenches shown by black lines and areas; black dots marked BH7, etc., are bore holes put down to test sub-surface soils

Mosaic of air photographs showing Jaketown Site and vicinity. C_1 course of Ohio River extends down center of photograph. This channel was filled in by an early course of Yazoo River, but original width is demonstrated by old oxbows, cut off while the Ohio still flowed in this course: Paxton Brake, Sky Lake, and Beckham Swamp

A

B

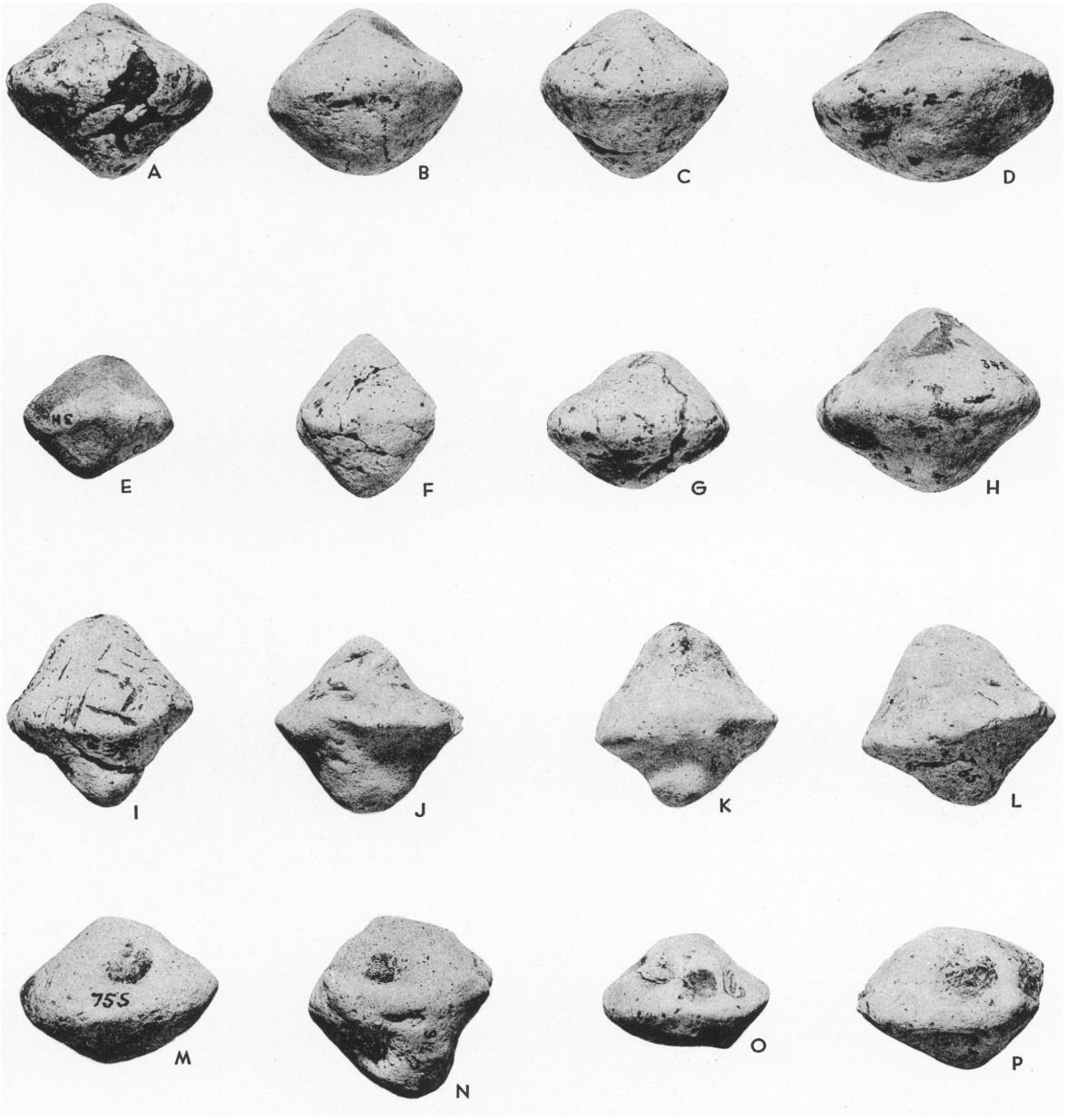
a. Profile provided by north wall of Highway Department borrow pit trimmed and prepared for recording (see Fig. 6). As it dried the clean sand at base of this section tended to flow, allowing overlying natural levee silt and midden to slump. Poverty Point Period midden is the dark soil immediately above sand

b. Trench 1 in course of excavation. Remnants of Mound A can be seen in background

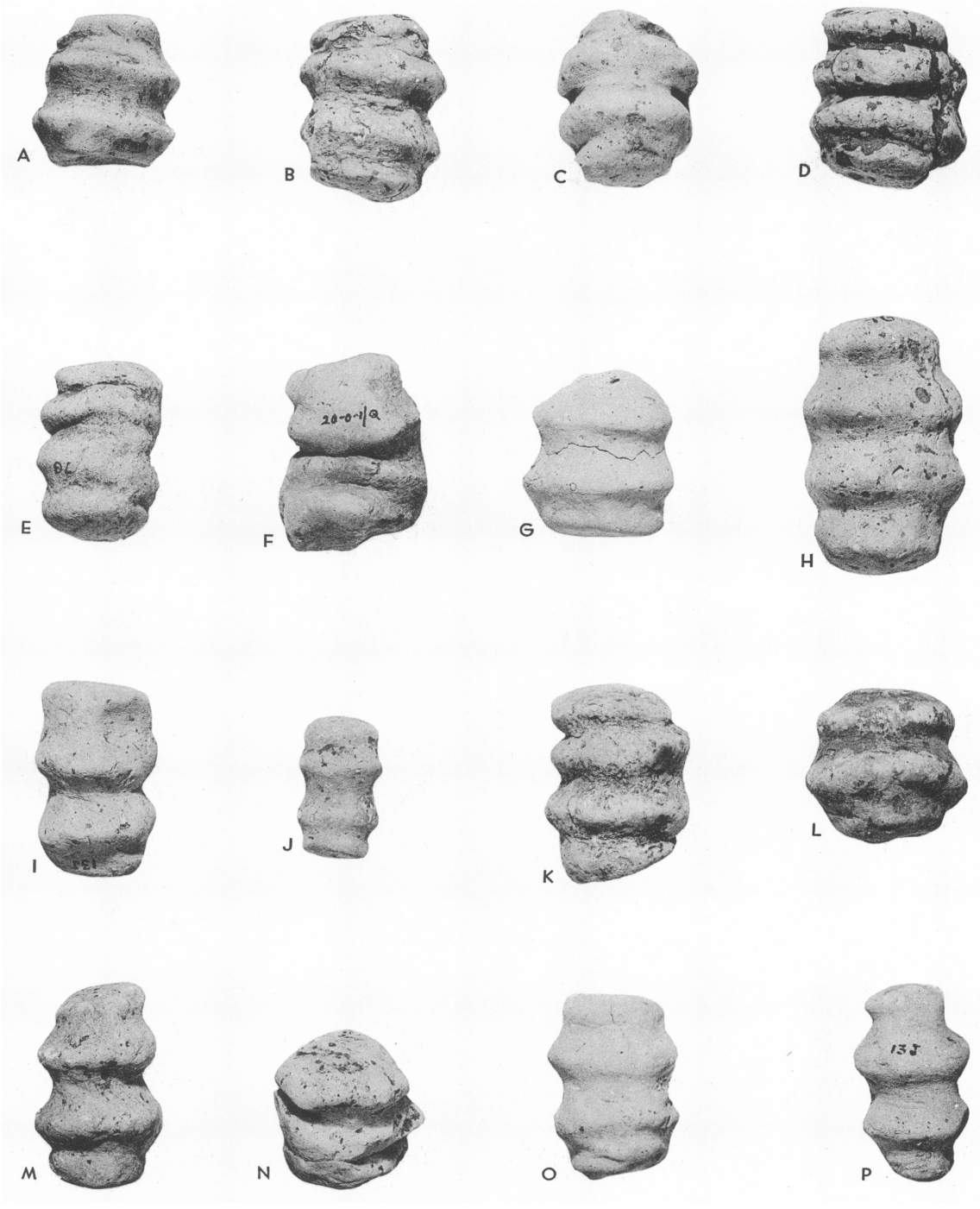
A

B

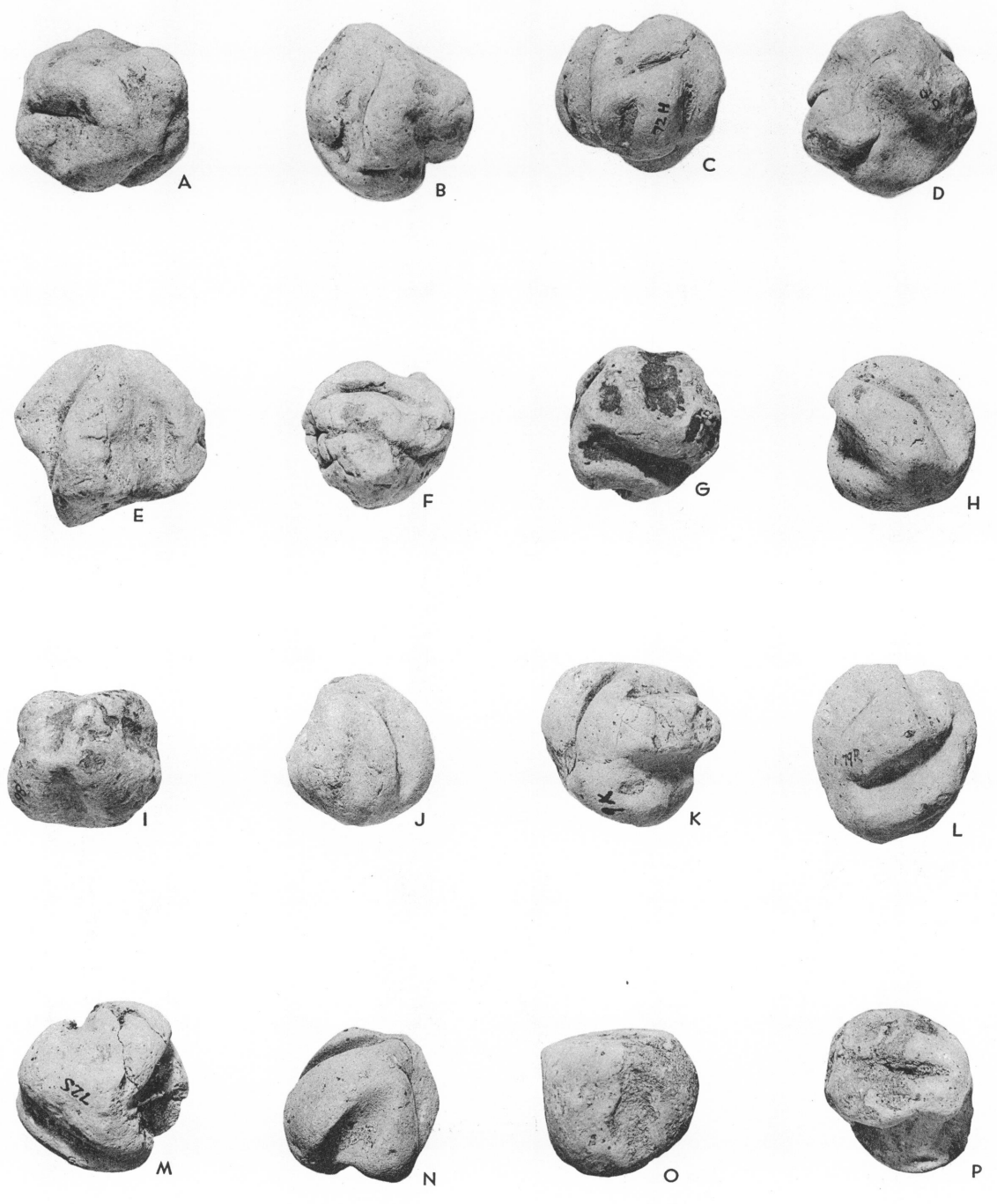
a. Western end of Trench 5 as excavation neared completion. Interbedded black midden soil and relatively clean sand and silt can be seen in lower part of trench wall. Pegs in wall mark bottom of each 6-inch level.
b. Poverty Point Period house pattern found in Trench 5. (See Fig. 10)



Poverty Point objects. a–d, h. Biconical plain. e–g. Biconical grooved. i–l. Biconical extruded. m–p. Biconical punched



Poverty Point objects, all of cylindrical grooved variety



Poverty Point objects, all of cross-grooved variety

Bone tools and fragments of animal bones

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PART 1. The Jaketown Site in West-Central Mississippi. By James A. Ford, Philip Phillips, and William G. Haag. Pp. 1–164, 8 plates, 57 text figures, 15 tables. 1955. Price $3.00.