POVERTY POINT, A LATE ARCHAIC SITE IN LOUISIANA

JAMES A. FORD AND CLARENCE H. WEBB

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IN COLLABORATION WITH
JUNIUS B. BIRD AND MICHAEL BECKMAN

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PREFACE

A LOGICAL SEQUENCE to the archeological work at the Jaketown Site in Mississippi[1] was a program of investigation at the type site, Poverty Point. Although, unfortunately, neither Phillip Phillips nor James B. Griffin was able to participate in the field-work because of teaching commitments, this project can be considered as a continuation of the work of the informal "Lower Mississippi Valley Archaeological Survey" reported in two previous papers.[2]

A brief history of the field-work at Poverty Point is given below. At this point we wish to express our appreciation to the numerous individuals who have contributed to the success of the work. Randolph F. Marston of Shreveport, Louisiana, owner of the Poverty Point Plantation, very generously gave permission for the series of excavations. We are also indebted to D. A. Whitfield of Delhi, Louisiana, manager of the properties, for numerous courtesies.

Junius Bird of the American Museum spent six weeks working at Poverty Point. He made most of the comprehensive surface collections and has contributed a study of the material recovered from his principal excavation, Trench 4. Robert S. Neitzel of the Louisiana State Parks Commission assisted in the work during the short field seasons of 1942 and 1943 and for most of the more extended 1955 season. William W. Wells, Director of the Louisiana State Parks Commission, not only authorized Neitzel's participation, but also made available for the entire 1955 season a tractor equipped with front loader and rear scoop, an invaluable aid in the work. Parks Commission trucks were also provided when needed for transporting specimens and camping equipment. These courtesies were a generous return for assistance which the senior author had given in planning exhibits for the Archeological Museum at Marksville State Park.

While camped at Poverty Point we enjoyed assistance from a number of visitors. James B. Griffin and Albert C. Spaulding of the University of Michigan, and several graduate students, came for the week of Easter vacation. Spaulding established a net of level stations on the Motley Mound that greatly facilitated the making of a contour map. George I. Quimby of the Chicago Natural History Museum visited for a week and made the excavations that are numbered 5 and 6. Clarence Webb and Michael Beckman of Shreveport, and William G. Haag of Louisiana State University, visited the project several times and participated in the discussions of the numerous archeological problems that arose. Robert Greengo of Peabody Museum, Harvard University, who was then excavating at the Manny Site in Mississippi, was also a frequent visitor. We are indebted to him and to Philip Phillips for the use of radiocarbon dates for materials from their excavation.

Other frequent visitors were E. C. Makin, Jr., and Ray Hammons of El Dorado, Arkansas. For several years these gentlemen have been surface-collecting at the Poverty Point Site and have accumulated sizable, well-catalogued collections. Most generously they consented to lend their collections for study and permitted inclusion of the results in this report.

Also included in this report are the results of study of the surface collections made by Clarence Webb and Michael Beckman. These collections are so large and representative that they provide most of the evidence used in the sections on artifact description; Beckman's collection is particularly large. Originally they had planned to submit for publication a separate study of artifact types, but by mutual agreement the reports were combined, which thus prevents duplication and gives herein the presently available information about Poverty Point. Webb and Beckman did the major part of the work of classification, particularly of projectile points, and provided reams of data on these and other artifacts that were incorporated directly into the type descriptions. Representative samples of each class of artifacts were sent to New York for selection of material for illustrations. Webb wrote the section on Trade and Travel.

Charles Ward, graduate student at Columbia University, spent the summer of 1955 working on the collections at the American Museum.

Raymond Baby of the Ohio State Museum,

[1] Ford, Phillips, and Haag, 1955.

[2] Phillips, Ford, and Griffin, 1951; Ford, Phillips, and Haag, 1955.

Irving Peithmann of Southern Illinois University, and Glenn Black of the Indiana Historical Society have identified varieties of chert that appear to have been transported from quarries in the Lower Ohio River drainage. Paul Sears of Yale University has examined samples of clay from the site to determine whether they contained corn pollen, with results that are described below.

Several determinations of radiocarbon dates from the Poverty Point and Jaketown sites have been made by the laboratories of the Humble Oil Company under the direction of H. Dayton Wilde, manager of research and development. Arrangements for this work were made by Harold N. Fisk, director of geological research. Fisk has also reviewed the interpretation of his study of stream channel changes as they relate to the history of the Poverty Point Site. A number of radiocarbon dates that reulted from his field-work in coastal Louisiana have been provided by William McIntire. Additional radiocarbon assays have been made by the University of Michigan Laboratory through the intercession of James B. Griffin. Through an arrangement with the Department of Anthropology of the American Museum, the Lamont Laboratory of Columbia University has also provided several radiocarbon dates. We are also indebted to Fred Schatzman of Highland Park, New Jersey, for two additional determinations.

Junius Bird has contributed the section that describes the excavation of Cut 4, the tabulation of items from this cut, and observations which are scattered through the descriptive sections.

The drawings in this report are by Marilyn Weber. Bella Weitzner has performed her usual capable task of making as good English as possible out of bad.

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FIELD-WORK AT POVERTY POINT

HISTORY OF THE SITE

THE BEST KNOWN and certainly the most remarkable site of the Poverty Point cultural complex is located in West Carroll Parish, Louisiana, on the Poverty Point and Motley plantations (Fig. 1).[1] This was first described by Samuel H. Lockett in the Smithsonian Institution Report for 1872.[2] This brief mention apparently includes the site on the adjacent Jackson Place. His estimate of the large Poverty Point and Motley mounds as being "between 20 and 30 feet in height" certainly errs on the side of caution.

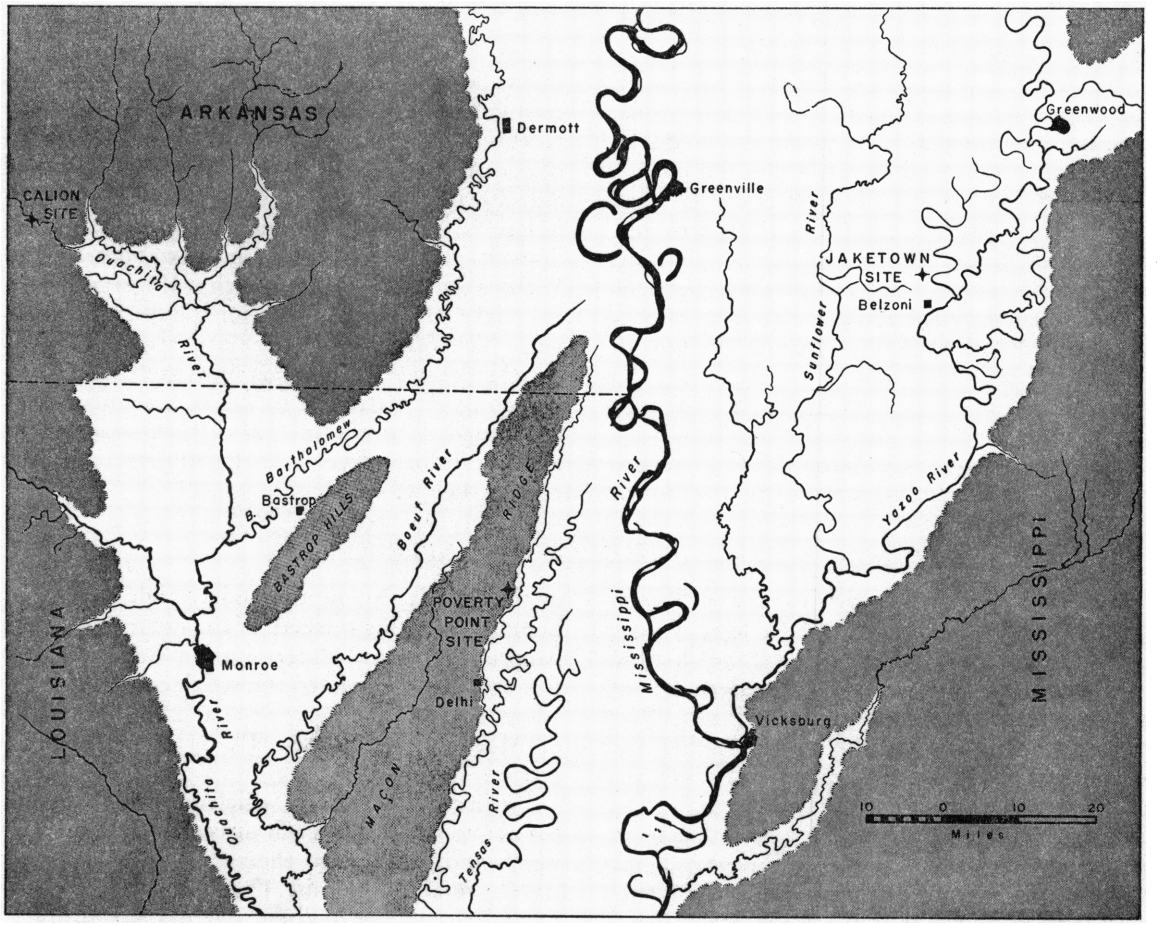

FIG. 1. Map of portions of Mississippi, Louisiana, and Arkansas showing the locations of known sites of the Poverty Point culture: Jaketown, Paxton Brake, Poverty Point, and Calion.

Clarence B. Moore who came up Bayou Maçon in his steamboat, the "Gopher," in the winter of 1912–1913 published the first adequate description of the sites in this vicinity.[3] He lists the mounds on the Jackson Place as a separate site from those on the Poverty Point Plantation. He has been justified in this, for

[1] This site is approximately 40 miles west and north from Vicksburg, Mississippi. The exact location of the Poverty Point Site is W. ½, sect. 13, E. ½, sect. 14, T. 19 N., R. 10 E. The Motley Mound lies a mile north of the northern part of the Poverty Point Site and is in the SW. ¼ SW. ¼, sect. 1, T. 19 N., R. 10 E.

[2] Lockett, 1873, 429–430.

[3] Moore, 1913, 64–76.

they are of different ages. The Jackson Site has six rectangular, flat-topped mounds in typical plaza arrangement. Pottery is fairly abundant, and surface collections have dated it in the Troyville and Coles Creek periods.

Moore's description of the Poverty Point-Motley Site is really very adequate in so far as can be determined from observations made on the ground. His map of the Poverty Point Mound, based on surveys made by M. G. Miller, is quite good, if the meager instrument work on which it was based is considered. This may be seen by a comparison of Moore's map with the plane table map (Fig. 3). If air photographs were not now available, it probably would be unnecessary to amend Moore's description.

Moore was also fully conscious of the contrast between his collections from this area and the more common kinds of antiquities that are found in this part of the South. He was particularly perplexed by the complete absence of pottery. His color plate of what are now thought to be artificial cooking stones[1] is undoubtedly the best illustration of these objects that will ever be published.

For a number of years after Moore's report appeared, archeologists working in the South were fully cognizant of the unusual nature of this site and of the artifacts to be found there. Although the locality was visited a number of times, no one was prepared to undertake additional work. Other problems more readily solvable were too numerous for much time to be spent on a unique culture that did not fit into the gradually clarifying outline of Southeastern prehistory.

Clarence H. Webb of Shreveport, Louisiana, was the first archeologist to describe adequately the artifacts from the Poverty Point Site and to define its relationship to other early cultural complexes in the East.[2] Comparisons were made to the early pottery-using Tchefuncte Culture of southern Louisiana, the preceramic Lauderdale Focus of the shell mounds along the Tennessee River, and the Laurentian and Coastal Aspects of early Woodland in New York State. Webb's tentative conclusion that Poverty Point is "a late Archaic or transitional culture, coeval with Tchefuncte and the late stages of the Southeastern Archaic" has now been shown to be too conservative in so far as Tchefuncte is concerned. It predates this cultural stage; the actual number of years is the subject of a discussion below.

DESCRIPTION OF THE SITE

The Poverty Point Site is situated on Maçon (pronounced "Mason") Ridge, a low, almost level, terrace-like elevation that extends for 100 miles north and south along the western side of the Mississippi Alluvial Valley (Fig. 1). The origin of this ridge and the physiographic history that contributed to its present form are of considerable importance to the dating of the site and are discussed at length below. The most prominent feature, the great Poverty Point Mound, lies on the ridge about one-half mile west of the 15-foot bluff that separates Maçon Ridge from the lower flood plain of the Mississippi to the east. Bayou Maçon meanders along the foot of the bluff.

The highest part of the Poverty Point Mound, a small flattened area, is about 15 feet in diameter. The contour map (Fig. 3) shows an elevation above the reference point of 64.75 feet, but this point is on the northeastern side at the toe of the mound on fairly high ground—actually, on talus washed off the mound. Miller, Moore's surveyor, determined a height of 70 feet from the terrain to the south of the mound which is lower and nearer the average elevation of Maçon Ridge. (View Pl. 1 with a stereoscope.)

Rather narrow ridges, which descend by steps for about 180 feet in each direction, extend due north and south from the small flattened area on the mound summit. The step-like arrangement of the tops of these narrow, steep-sided ridges is not so clear on the map as it appears from direct observation. Perhaps this detail was not mapped with sufficient care. The tops of these flanking ridges are not exactly straight, but are slightly sinuous. This feature is also more apparent from observation than it appears on the map. The western slope of the mound is fairly steep, but opposite the mound summit it swells outward, forming a rounded bulge with a slightly gentler slope. On the eastern side of the mound summit a marked outward swell of the

[1] Moore, 1913, Pl. 2.
[2] Webb, C. H., 1944, 1948.

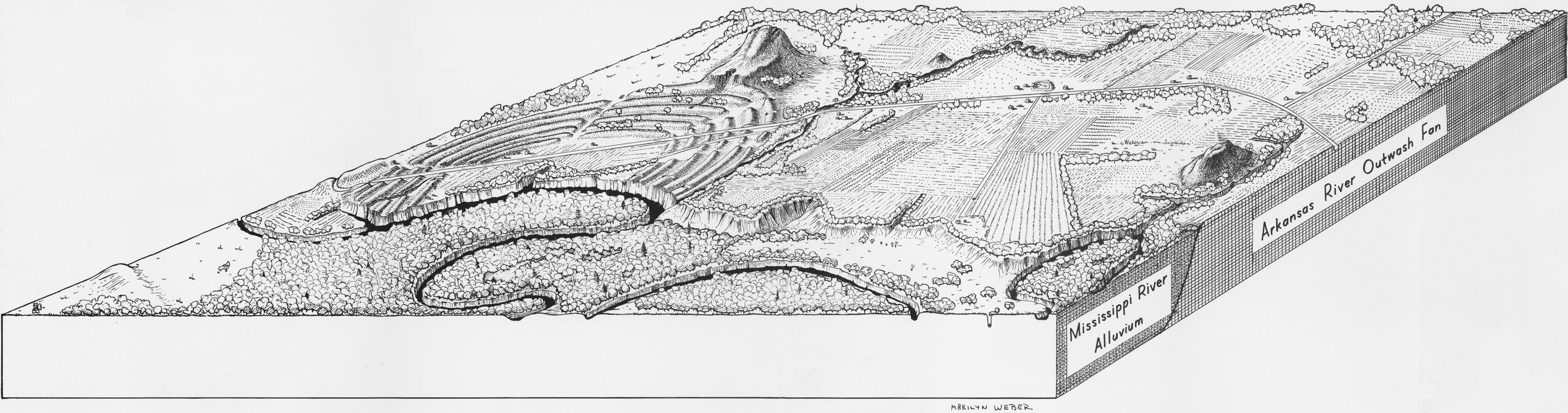

FIG. 2. Block diagram of the Poverty Point Site. Bayou Maçon lies at the foot of the low bluff that forms the eastern edge of Maçon Ridge. The natural levee on the east bank of the Stage H course of the Arkansas River can be seen at the left corner of the block. The heights of the artificial ridges, the Poverty Point Mound, and the Motley Mound have been exaggerated.

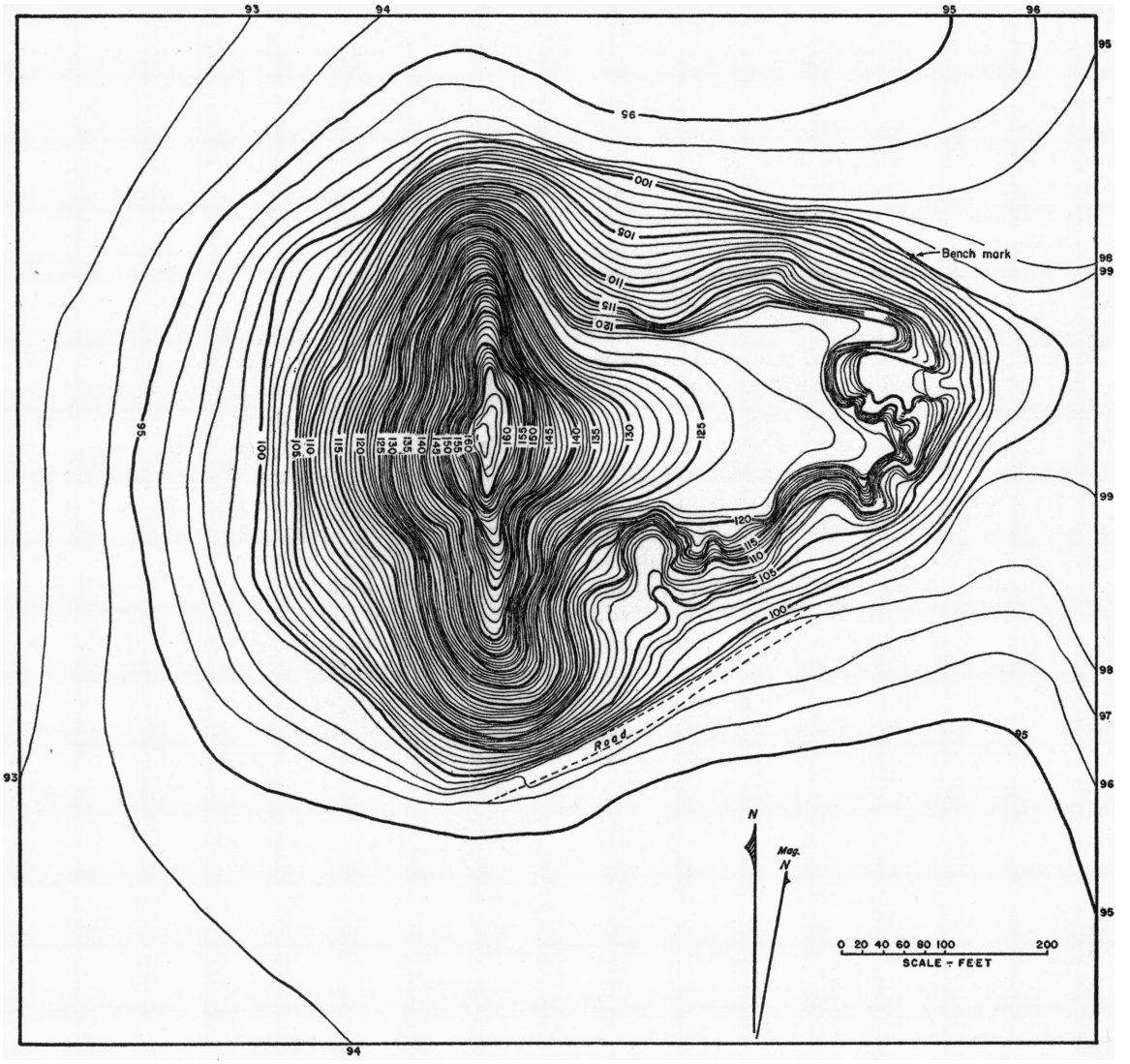

FIG. 3. Contour map of the Poverty Point Mound. The reference point was given an assumed elevation of 100 feet.

slope provides rather easy access from the large platform to the east, to the summit. This probably served as a ramp.

At the base, the high ridge portion of the mound that is aligned north to south measures almost 640 feet. The platform lying to the east is narrower, measuring about 250 to 350 feet across its base. The uncertainty of this measurement is due to the large talus slopes that have developed about the flanks as a result of erosion of the platform. The top of the platform is very nearly level, about 23 feet above the reference station. It was rectangular in form before large gullies were eroded in the eastern and southern sides. Its surface, which measures about 240 by 300 feet, provides an elongated rectangular area lying due east of the higher portion of the mound. The platform edges, where they have not been cut by erosion, are sharply defined, and the sides are steep, down to the point where they disappear beneath the talus.

Over-all basal measurements of the Poverty Point Mound are approximately 640 feet north

to south and 710 feet east to west. The form (whatever it may be) is aligned rather closely to the cardinal directions. The ridge that constitutes the highest part extends due north and south; the large platform is east of the mound summit. When it is also considered that this mound lies almost exactly on the western side of the large geometrical figure that is described below, the conclusion seems rather convincing that this entire arrangement of earthworks was laid out according to a carefully orientated plan.

Eroded out of the soil and scattered over the surface of the mound is a small amount of cultural material that lends credence to the theory that the mound was artificially constructed, a matter still in debate even after Moore's publication appeared. Gerard Fowke,[1] who visited here in the 1920's, was very positive that the large mounds were natural. Further corroboration of artificial construction was secured in the spring of 1951 when Webb, Phillips, Haag, and Ford found clear indications of basket-loading and Poverty Point clay balls in the soil profiles exposed in the gullies that have cut into the platform on its eastern and southern sides. There can be no doubt that the structure was intentionally given its present form. However, there still remained a possibility that the Indians took advantage of a natural erosional remnant as a core for beginning the construction of the mound. The nearest "island" of earlier origin that rises above the surface of Maçon Ridge is about 8 miles to the north. The utilization of such a core seems unlikely, because most of these exposures of earlier deposits are much larger than either this mound or the Motley Mound. That the soil forming Maçon Ridge could not have provided an eminence to serve as a core for these mounds becomes apparent when the origin of this geographic feature is discussed.

East of the Poverty Point Mound, on the almost flat, elevated surface of Maçon Ridge, six concentrically arranged earth ridges form about half of a large octagon. These are shown on the map (Fig. 6), on the block diagram (Fig. 2), and on the air photographs (Pls. 1, 2), where the higher parts of these ridges appear as light streaks of soil. It is in this area of the site, in the plowed fields, that the greatest quantity of clay balls of Poverty Point type and other cultural refuse is found. Most of the material that has been collected from this site comes from these fields. There is also a scattering of artifacts west of the large mound, and it was in this area that Webb[2] uncovered a large cache of soapstone vessel fragments. The central portion of the octagon exhibits a paucity of artifacts, except along the slopes of the innermost ridges.

The ridges forming this concentric octagon are low, 4 to 6 feet high, gently rounded in profile, and from one depression to the other measure about 150 feet across. From crest to crest the six ridges are also about 150 feet apart and are spaced very regularly, as the air photograph (Pl. 1) shows. At present, water stands in the depressions between the ridges adjacent to the large mound, and there the swales have been left in woods and the tops of the ridges have been cleared to form long narrow fields. This shows clearly in Pl. 1.

At first glance this geometric arrangement may be mistaken for a portion of a circle, but closer inspection shows it to be an octagon with slightly curving sides. About 750 feet north and south of a line projected due east from the large mound, series of gaps in the ridges are now occupied by drainage ways. In the air photograph similar gaps may be seen on the south side of the figure, just west of the highway; there are similar gaps in the wood lot that covers the northern end. The latter are masked by the trees and do not show clearly in the photographs. Between these gaps (possibly "aisles" leading to the center) the parallel ridges are only slightly curved.

In the fields northeast of the large mound, another ridge, similar in height and spacing to those just described, parallels the artificial ridges but is only 900 feet long. This is apparently not artificial but is a natural levee of the adjacent old channel.

Previous investigators, including the present writers, failed to discover the presence of this geometrical arrangement, simply because it is on too large a scale. The diameter of the outer ridge is about 3960 feet, almost $\frac{3}{4}$ of a mile. The diameter of the innermost ridge is 1950 feet.

The desirability of designating areas of this large figure for purposes of surface collecting is

[1] Fowke, 1928, 434–436.

[2] Webb, C. H., 1944.

obvious. Fortunately, the symmetry of the arrangement suggested a very simple system. Beginning with the inside ridge, we have assigned numbers to the ridges (1 to 6). The sectors of each ridge are aligned with the cardinal directions and can be identified by this means. Thus Cut 4 was made in Ridge 6, northwest sector (see map, Fig. 6).

The principal drainage from the southern segment of the fragmentary octagon is to a gulley that runs down the Maçon Ridge bluff between the ends of Ridges 2 and 3. When the air photograph (Pl. 1) was taken in 1934, this gulley had cut back from the bluff only about 30 feet. Now, however, it has cut back about 100 yards and is 10 feet deep for most of this length. The rapid flow of surface water leading into this depression has resulted in sheet erosion of the near-by fields, so that the ridges are virtually obliterated. Naturally, the floor of this gulley is an excellent area for surface collecting, and every rain produces a new harvest.

The low bluff that forms the eastern edge of Maçon Ridge is steep, almost precipitous in many places, for the 100-mile length of the formation. Bayou Maçon lies at the foot of this bluff, along the northern half of the geometrical earthworks, and here the bluff is quite steep. To the south the slope of the bluff is more gentle, and low terrain subject to flooding lies between the foot of the bluff and the Maçon. The artificial ridges described above continue to the edge of this bluff at both ends but terminate abruptly, as though their builders had chosen to ignore this physiographic obstacle to their plan. It seems most likely that the bluff was cut after the earthworks were constructed, erasing half of what may have once been a complete octagonal figure. In an effort to check this possibility, the land lying between the foot of

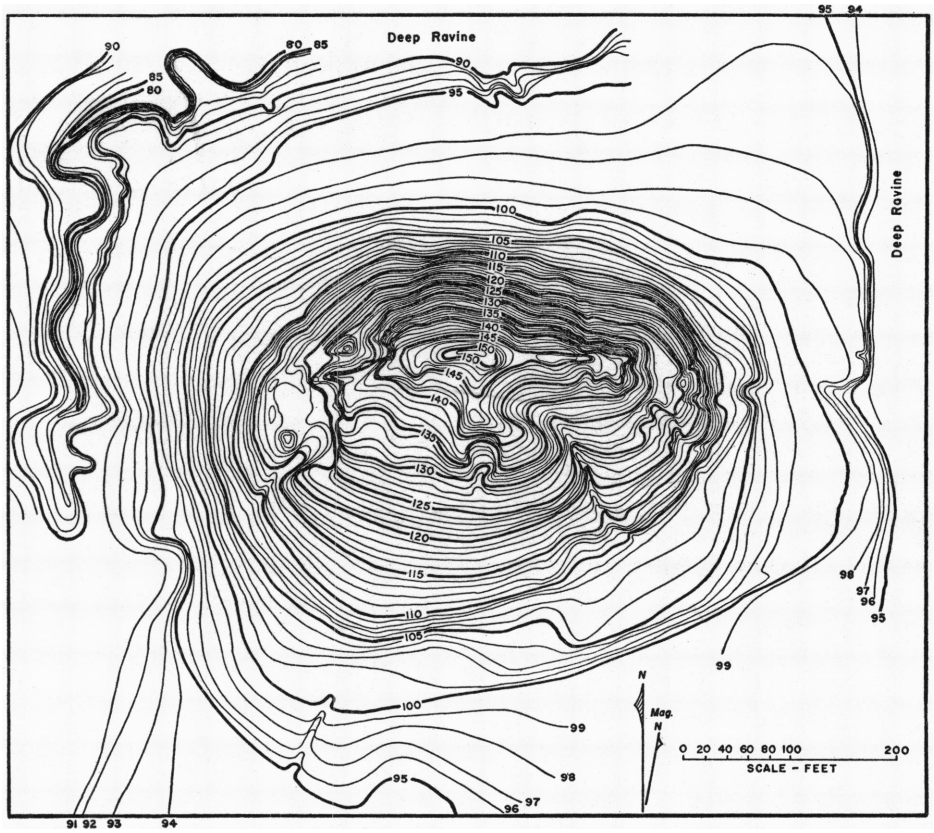

FIG. 4. Contour map of the Motley Mound. The reference point was assigned an assumed elevation of 100 feet. The shape of the mound has been modified by eroded gullies and by a large borrow pit made on its western flank about 20 years ago.

the bluff and the bayou along the southeastern side of the site was examined. All the cultural material found here was included, neatly water-sorted and worn, in small talus fans that had been built by the small gullies that had developed in the Maçon Ridge surface. The men who plow the fields that now lie between the bluff and the bayou say that they never find baked clay balls, arrowpoints, or plummets such as are abundant on the site immediately above. Indians living on the bluff above could hardly have avoided scattering some refuse, so the soils of the flood plain must have been deposited after occupation ceased.

The air photograph (Pl. 1) shows an area of darker woodland lying east of Bayou Maçon that, at first glance, gives the illusion of completing the geometrical figure of the earthworks. However, the darker shade is due to the fact that this patch of swamp land is damper than the surrounding woods, and it bears no relation to the artificial constructions. Similar areas of wet swamp may be seen at other places in this photograph; these are usually attributable to filled-in stream channels.

A nicely preserved conical mound lies 740 yards due north of the Poverty Point Mound, outside the arrangement of ridges just described (map, Fig. 6). Moore gives its diameter at the base as 195 feet and its height as 21 feet and 6 inches. This is Moore's Mound F.[1] In addition to Mound F, Moore thought he had discovered four other low mounds which, with the large Mound A, formed a "rude circle or irregular ellipse." He dug at three of these localities, finding mixed soil and refuse 6 to 7 feet deep, but nothing else worthy of mention. When Moore's directions and distances are followed, it is evident that these supposed mounds, B to E, are portions of the above-described ridges —slight elevations that occur where the ridges have been protected against cultivation and erosion.

Because of Moore's misinterpretation it seems best to abandon his system of designations and refer to the conical mound described above as Mound B. The large mound is referred to as Mound A, or by the commonly accepted name, "Poverty Point Mound." Moore recognized that the large mound on the Motley Plantation north of Poverty Point also belonged to this site, and his deduction seems correct.

[1] Moore, 1913, 69.

The Motley Mound is located 1½ miles due north from the center of the fragment of the octagonal figure just described. A plane table map was made of this mound in 1955 (Fig. 4). Basically it resembles the Poverty Point Mound, except that its features are not so clearly defined. Possibly it is an unfinished approximation of the intended shape. Further, it has been extensively damaged by the borrowing of soil for road construction from several places on its southern and western sides. Eroded gullies must also be taken into account in visualizing its former shape.

If the peculiar shape of the Poverty Point Mound is considered to be orientated towards the west, away from the center of the octagonal arrangement of ridges, then the Motley Mound is orientated towards the north, also away from the center of this figure. The summit is formed by a high, narrow, east-west ridge. Again, a small flattened platform lies at the highest point, near the center of the ridge. The crests of the ridges on either side of the platform descend by poorly defined steps, and a slight sinuosity of the ridge line is observable. The western end of the west ridge has been severely damaged

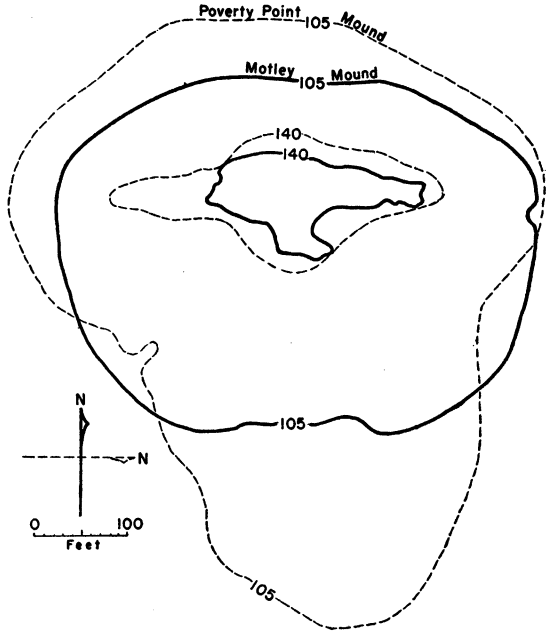

FIG. 5. Comparison of the sizes and shapes of the Poverty Point and Motley mounds by means of the 105- and 140-foot contour lines. As the directional arrows show, the superimposed outlines actually lie at 90 degrees to one another.

by recent borrow pits, made not more than 20 years ago. Vertical walls in these pits expose basket-loaded soils.

The north slope of the Motley Mound is as steep as the west slope of the Poverty Point Mound. Motley Mound also has a rounded bulge opposite the highest point, in this case to the northward of it. Its southern slope is rather gentle. A slightly bulging ridge leading southward from the high point of the mound may correspond to the rounded ramp on the platform side of the high point of Poverty Point. However, there is no large platform on this side of the Motley Mound.

The correspondences in detail of shape of the two mounds can be appreciated better on the ground than from the contour maps (Figs. 3, 4). In an attempt to demonstrate that in gross outline they must have conformed to the same plan, in Fig. 5 we have superimposed the 105-foot and 140-foot contour lines of the two mounds as traced from the maps. It should be remembered that the datum points from which the two maps were made were arbitrarily chosen at the approximate mound bases, and each was given the value of 100 feet of elevation. This 100-foot contour line was not used for comparison, because it is more involved with talus fans than is the 105-foot line.

As the true north directional arrows indicate, the two outlines are orientated exactly at right angles. The resemblance in gross plan and size appears obvious. The Motley Mound is a slightly smaller version of the common plan but lacks the flat platform. The gently sloping southern side of the Motley Mound is probably an uncompleted platform.

PHYSIOGRAPHY RELATED TO THE POVERTY POINT SITE

Obviously the Poverty Point Site cannot be earlier than the surface of Maçon Ridge upon which it stands, but it must have been constructed earlier than the stream courses which cut the bluff along the east side of the ridge and apparently removed a portion of the earthworks. There is little possibility that the present Bayou Maçon could have done all this cutting, for it is now a sluggish stream with very little current. Nor do air photographs show scars of any extensive meander progression.

In a preceding paper[1] the Pleistocene and Recent history of the Mississippi Valley was briefly condensed from H. N. Fisk's physiographic studies. This should be referred to in order to obtain a background for the following discussion of physiographic events that have affected the Poverty Point Site. The time scale for these events is given as Table 1 in the Jaketown report cited above.

At the height of the last glacial period, apparently about 11,000 years ago,[2] so much water was trapped in the ice sheets that sea level was lowered more than 400 feet. In response to this the Mississippi and its tributaries cut entrenched valleys that now underlie their alluvial plains. During both the cutting and the valley-filling process that resulted from the disappearance of the ice the major tributary streams maintained steeper gradients than did the parent Mississippi.

With rising sea level and consequent valley alluviation, these tributaries built great alluvial fans on the valley floor as their currents were slowed up on the more gentle gradient of the Mississippi flood plain. These fans form a large part of the material with which the canyon of Late Wisconsin time was filled. Heavily laden with both fine- and coarse-grained sediments, the courses of the streams over these fans tended to be braided; the water spread out into a number of small interlacing channels that wandered back and forth as sediment was deposited. The process is familiar to anyone who has observed the formation of an alluvial fan at the outlet of a small gully.

Alluvial fans of the Arkansas River extend down the western side of the Mississippi Valley, and, on the present surface, fragments of the A_1 to A_3 period fans can be seen. With the exception of the few small "islands" of earlier soils that project through Maçon Ridge, the entire ridge was formed by the Arkansas between these dates, while sea level was rising from −20 feet to about the present level. The old braided channels show clearly on air photographs of the surface of the ridge (Pl. 3). The Poverty Point

[1] Ford, Phillips, and Haag, 1955, 15–18; Fisk, 1944.

[2] Before the radiocarbon age-measuring technique was developed, Fisk's estimate of 25,000 years for the fullest development of the last continental ice was the figure usually accepted. A number of determinations made in the last few years indicate that the Late Wisconsin ice sheet made its southernmost advances only about 11,000 years ago.

Site and the Motley Mound are on a surface of A_1 date and thus cannot be older.

During B_1, B_2, B_3, and C_1 times, the Arkansas shifted its fan construction to the west, and by C_2 date it was established in a meandering course now occupied by Bayou Bonne Idee and Beouf River.

At this same time the Mississippi River was flowing over an alluvial fan of its own, and it too was a braided stream. A main channel with meandering characteristics did not develop until somewhat later, after the valley slope became adjusted to a more gentle grade and the river was carrying only fine-grained sediments. The meandering pattern began in the lower part of the valley, where this slope adjustment was first achieved, and progressed up valley. However, the Mississippi was already flowing on a more gentle gradient at a lower level than the comparatively steep surfaces constructed by the Arkansas, and when in Stage C_1 its courses swung to the west and trimmed the edge of the Arkansas alluvial fan there was a difference of between 15 to 20 feet between the two surfaces. This cutting action substantially established the eastern edge of Maçon Ridge, the low bluff that bounds the ridge for 100 miles.

The C_1 braided Mississippi did much, but not all, of the final cutting into the eastern edge of the northern part of Maçon Ridge. From a point 4 miles north to 1 mile south of the Poverty Point Site, all traces of the Mississippi C_1 channels have been erased by a meandering course of the Arkansas River of Stage H. It is this Arkansas channel which carved the bluff at Poverty Point and which appears to have destroyed about half of the large geometrical earthworks described above. In the air photograph of the site and vicinity (Pl. 3) the banks of the Stage H Arkansas show plainly south of the Poverty Point earthworks. Bayou Maçon lies within the channel, and follows the outside of the bend of the old channel, over the talweg of the preceding stream. The inside bank is marked by several houses and a farm road that runs along the higher ground of the Arkansas natural levee. At the time the photograph was taken the water in Bayou Maçon had topped the banks and partially filled the depression of the Arkansas channel. Note that the steel highway bridge shown in the photograph extends from one Arkansas bank to the other. If further corroboration were needed, it can be found in the reddish brown soil that forms the natural levees of this old Stage H Arkansas course. This is the distinguishing color of the soils deposited by the Arkansas River and contrasts markedly with the predominantly gray soils deposited by the Mississippi.

It appears very probable that prior to Stage H the elevated surface of Maçon Ridge extended half a mile or more farther eastward in the vicinity of the site. Thus a complete geometrical earthwork could have been erected on this surface, located not far distant from braided channels of the Mississippi, flowing in the lower flood plain below a bluff similar to that existing today. This Mississippi channel was, as mentioned above, of date C_1.

This, however, does not complete the physiographic history of Poverty Point. At some period after the Arkansas was diverted from its Stage H course, the remnant stream, Bayou Maçon, carried enough current to develop a meandering pattern of its own. This pattern is formed of small arcs that do not exceed $\frac{1}{4}$ to $\frac{1}{3}$ of a mile in diameter, in contrast to the curves of $\frac{3}{4}$ to 1 mile in diameter of both ancient and present Arkansas courses.

While the meandering activity of the Maçon has not produced a mature meander belt, it has been pronounced enough to swing the channel outside the confines of the final Stage H Arkansas course at a number of points. One of these loops at present lies against the bluff that terminates the Poverty Point earthworks to the northeast, and it appears that the Maçon, rather than the parent Arkansas, has produced the final modification of the Maçon Ridge bluffs at this locality. The Arkansas channel of Stage H effected the final cutting of the bluffs for only the southern half of the earthworks.

Aside from a mention of its function as a remnant stream of the Arkansas, Fisk does not discuss the history of Bayou Maçon, nor is the complete set of air photographs available that would be desirable. However, some details that bear on the age of this cutting seem sufficiently clear from quadrangle maps of the Mississippi River Commission. On these maps the typical meanders of the Maçon can be traced northward to the vicinity of Watson, Arkansas, where they disappear, as they intersect a Stage

1 course of the Arkansas, now occupied in part by Amos Bayou.[1] To the south the typical meander pattern of Bayou Maçon can also be traced, but it does not extend so far. A few miles below Delhi, Louisiana, this stream connects with an old stream course now called Joes Bayou, a remnant stream occupying another portion of the same Stage 1 course of the Arkansas—apparently a very ineffective remnant stream, for it has left the sweeping curves of the old Arkansas course virtually unmodified by subsequent cutting (see Pl. 3). It is significant that downstream from where Bayou Maçon joins Joes Bayou, the large curves of the Joes Bayou Arkansas course are found rather than the small bends characteristic of the Maçon.[2] This indicates that at the time when the meander pattern of the Maçon was developing, Joes Bayou was occupied by a dominant stream, the Arkansas in Fisk's Stage 1, and that the modifications of the Maçon course have not occurred since that time.

When it is recalled that the Maçon meanders can be traced from the Stage 1 Arkansas channel near Watson, Arkansas, to its junction with Joes Bayou, it appears that during Stage 1, perhaps for a very brief time, this was a diversional course for a small part of the waters of the Arkansas. If this is true, the Maçon contributed its share in cutting into the eastern edge of the Poverty Point Site at this time.

EXCAVATIONS

In the spring of 1952 there was an opportunity to begin excavations at Poverty Point in a modest fashion. In this work Ford was assisted by Robert S. Neitzel of Marksville, Louisiana. Three 5-foot wide trenches (Nos. 1–3) were dug across the ridges at various points (see map, Fig. 6). These excavations served to establish the artificial nature of the ridges (a fact that was hardly in doubt after the first glance at the air photograph) and yielded a sample of the cultural material. This material was analyzed by Phillips and Haag and the results were already known to us as we finished writing the report on the Jaketown Site.[3]

In 1953 Ford returned to work at the site for two weeks, again accompanied by Neitzel. Two things were accomplished. First, we put down a bore hole in the highest point of the Poverty Point Mound with a 4-inch soil auger. We drilled to a depth of 61 feet, not quite to the base of the mound. As the drill descended, the soil continually changed in both color and texture, which indicated that the drill was passing through artificially loaded soils. A single chip of flint was recovered from a depth of 56 feet. It has been suggested that in building the large mounds the Indians had possibly taken advantage of the presence of small "islands" of pre-Wisconsin age, such as are found projecting through the outwash fan deposits of the Arkansas River farther to the south. The results of the drilling demonstrated that, for the Poverty Point Mound at least, this was not the case.

The second accomplishment was to complete a contour map drawn in 1-foot intervals (Fig. 3). For this purpose a datum point was selected near the northeastern flank of the structure, to which we assigned an arbitrary elevation value of 100 feet. A steel pipe with a brass cap was driven to mark the point. A traverse was run with transit, tape, and level to provide a skeleton of reference points and levels. Then the mound was mapped with plane table and alidade in the usual way. The thick brush and weeds that covered the mound were the principal obstacles encountered in this work.[4]

The campaign from February 15 to May 30, 1955, was conducted on a larger scale. Camp was established in the edge of the woods just east of the conical Mound B. Junius Bird of the American Museum spent six weeks working at the site, principally in excavating and sifting Trench 4, surface collecting, and photographing. Neitzel, now employed by the Louisiana State Parks Commission as curator of the Archeological Museum at Marksville, Louisiana, was able to spend most of the time in camp and did much of the work of supervising and recording the excavations.

[1] Fisk, 1944, Pl. 15, sheet 2.

[2] This can be seen on the Waverly, Louisiana, quadrangle.

[3] Ford, Phillips, and Haag, 1955, 43.

[4] A preliminary brief was published in Ford, 1954.

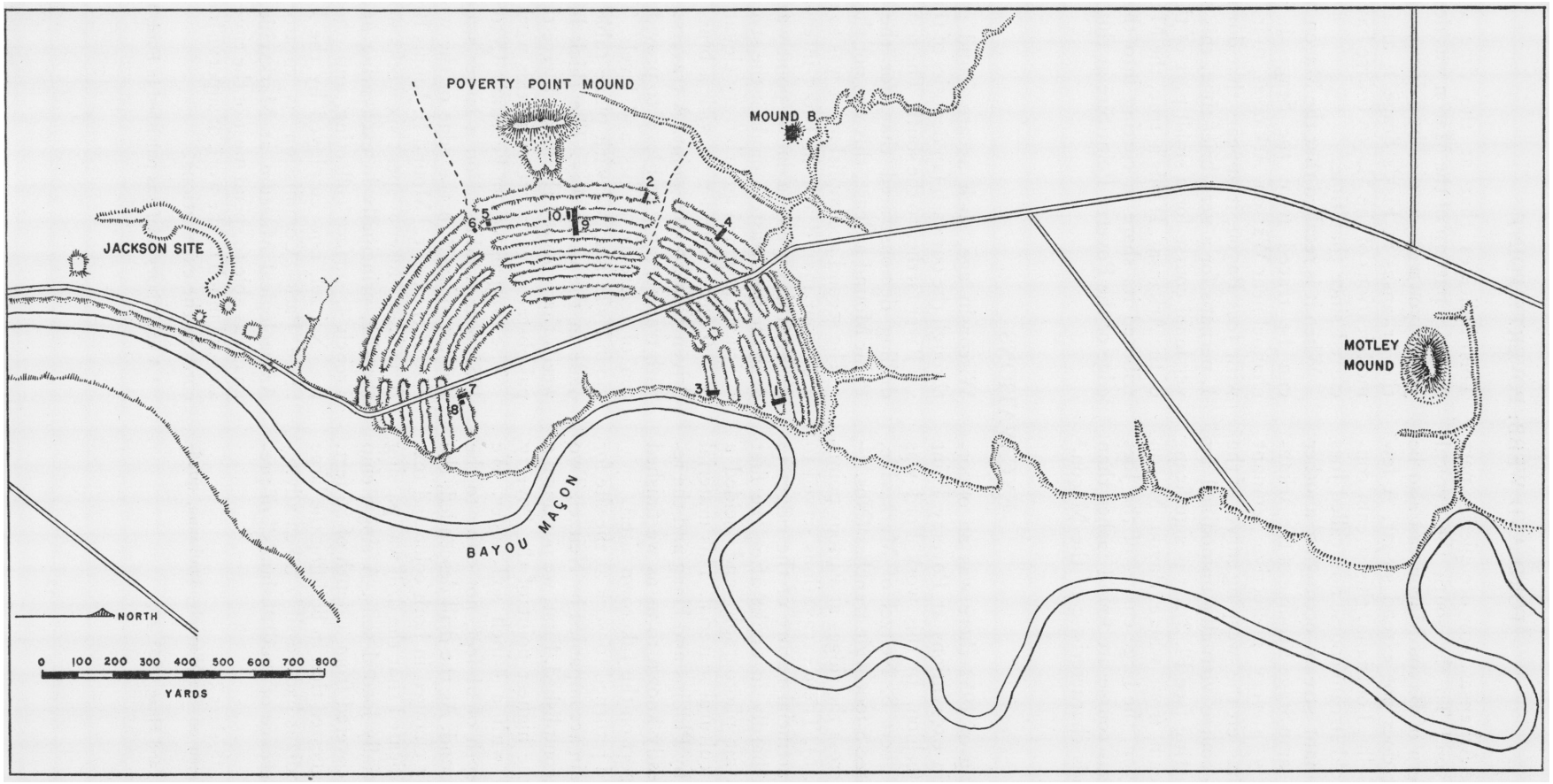

FIG. 6. Map showing the Poverty Point Site and the Troyville-Coles Creek Period Jackson Site that lies to the south of the geometrical earthworks. Areas excavated are indicated by black lines and identified by numbers.

In 1955 Trenches 4 to 9 were excavated, as is described in detail below. A major part of the work was concentrated on the partial excavation of Mound B, the conical mound that lies north of the Poverty Point Mound (Fig. 6). A number of localized surface collections were made from different parts of the octagonal ridges. A contour map of the Motley Mound was also made (Fig. 4).

Cut 1

The first trench was dug through the next to outermost ridge (Ridge 5) on the north side of the earthwork, very close to the 20-foot bluff over Bayou Maçon. This part of the site lies in woodland, and the ridges are smoothly rounded rises with crests 3 to 4 feet higher than the bottoms of the swales that separate them. Here the ridges run east and west, so Trench A was laid out north and south, 5 feet wide, for a length of 90 feet. As are the trenches at Jaketown, the excavations here were separated into 5- by 10-foot sections and were dug in 6-inch arbitrary levels. The soil exposed in this cut was a soft brown loam. It showed no evidence of having been deposited in separate basket loads and contained numerous fragments of the brick-red, fired, clay balls so characteristic of this site. There were occasional concentrations of ash and charcoal stain. Enough charcoal for radiocarbon measurement was saved from a poorly defined fireplace, 18 inches beneath the surface. Other artifacts occasionally encountered, such as flint chips and projectile points, also demonstrated the artificial nature of the deposit. The original ground surface, although poorly defined, seems to have been from 2 to 3 feet beneath the present surface of the ridge. Along part of the trench a faint line of slight concentration of charcoal stain was traceable, but for the most part the brown soil of the ridge fill faded gradually into the brownish gray of the subsoil. Principally it was the absence of fragments of the clay balls that marked the base of the artificial construction. A few holes found in this cut may have been post-molds, but these did not reveal any alignments that could be interpreted as evidence of buildings.

Cut 2

Trench 2, a 5-foot wide cut, was run east and west for a length of 70 feet across the outermost ridge (Ridge 6) at a point about 900 feet north of the large mound (Fig. 6). It is located in the western segment of the octagonal figure. Water, which was then standing in the sloughs on either side of this ridge, gave considerable trouble, preventing completion of three of the squares in the eastern end of the trench. The deposit here was essentially similar to that exposed in Trench 1, but in general the deposited soil was richer in artifacts and charcoal and ash stains (Fig. 7). As in Cut 1, basket-loading was not apparent in this trench. The original ground surface showed quite plainly under the highest part of the ridge as a charcoal-stained humus line about 3 feet beneath the present surface. The subsoil, a gray clay, contained numerous small manganese concretions.

A black humus, particularly rich in clay balls of the Poverty Point type, ashes, and charcoal stain, was encountered in the western end of this trench. The contact line between this deposit and the subsoil sloped steeply downward beneath the water-filled slough that lies to the west of the ridge and could not be followed beyond a depth of 4 feet. This possibly is soil that accumulated on the side of the ridge while the site was occupied and the ridge retained its original height.

Trench 2 was excavated in 5- by 10-foot sections, and material from it was saved separately in 6-inch levels. Analysis of the types of fired clay balls from the levels of this trench is given in Fig. 15.

In 1953 Junius Bird made a boring to obtain soil samples for pollen analysis in the center of the swale due west of Trench 2. Cores were secured to a depth of 96 inches beneath the surface, and black midden soil was not encountered. Possibly the base of that aboriginal excavation is even lower than this depth.

Cut 3

The third trench was laid out in a north-to-south direction to sample the innermost ridge (Ridge 1) at the point where it approaches the edge of the bluff over Bayou Maçon. This excavation was 5 feet wide and 60 feet long (Fig. 6). Unfortunately, only two levels of this cut were finished, when the work had to be terminated owing to illness. So far as they were observed, the characteristics of the soil forming the ridge at this point were identical with that exposed in the two preceding excavations.

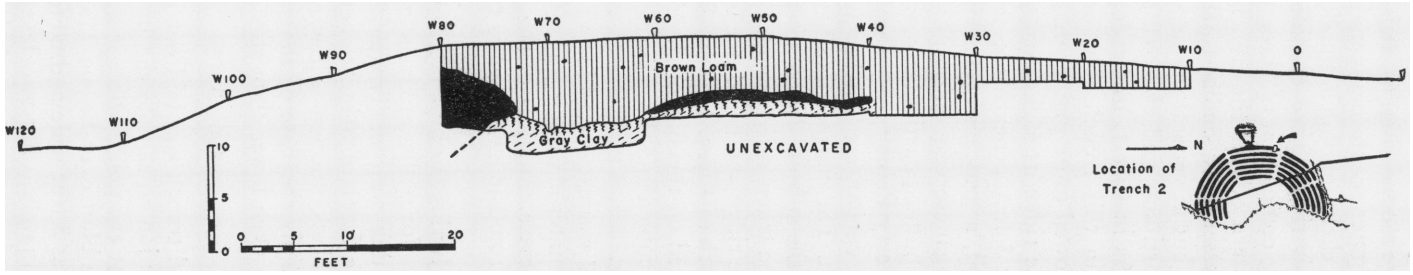

FIG. 7. North profile of Trench 2. Midden soil is indicated in black. High water prevented the completion of the western end of this trench.

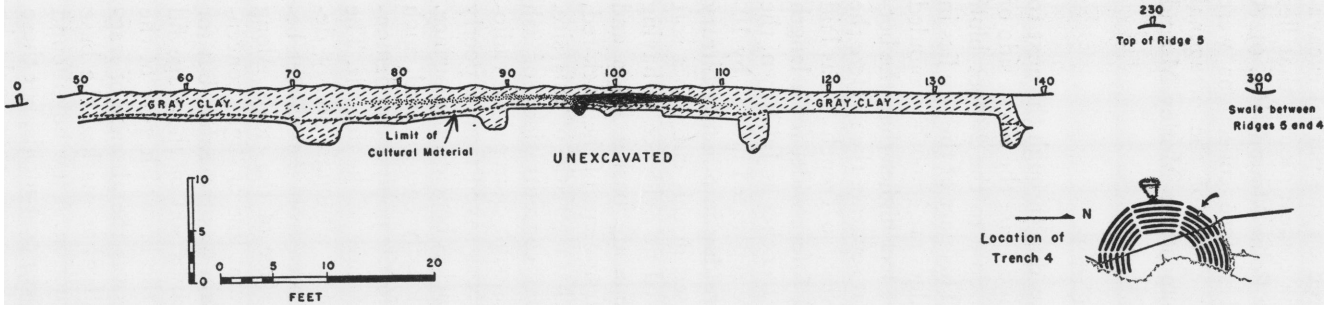

FIG. 8. North profile of Trench 4. Midden soil is shown in black. The original ground surface beneath this trench was not apparent. Lower limit of cultural material is indicated by dashed line.

Cut 4[1]

In the course of the 1952 excavations specimens were collected by the workmen as they were encountered in digging. During the 1955 season we used a sifter driven by a small gasoline engine (Pl. 4). This not only speeded the work but made it possible to collect a much higher proportion of the available artifacts. Trench 4 was excavated under the direction of Junius Bird, using this machine.

Trench 4 was located transversely across the central portion of the outermost ridge (Ridge 6), the northwestern segment of the geometrical earthwork. As closely as such measurements can be made, it was 250 feet from the southern end of this ridge. An area laid out to a 5-foot width by 65-foot length was excavated mainly by arbitrary levels, and the material was sifted. Rain flooding necessitated digging a drainage trench that extended the observable section 21 feet farther and connected with a small pit cut to a depth of 6½ feet at the center of the swale between Ridges 5 and 6. A further check of the structure and artifact distribution was made possible by facing the adjacent edge of an old drain in the bottom of this swale. From all this we have a total sectional record of 86 feet that for full coverage might profitably have been extended 50 feet farther to the northwest.

The surface of most of the excavated area is currently in cotton cultivation, the mounded rows running lengthwise with the ridge. The adjacent hollow between Ridges 6 and 5 is covered with trees and brush. Its surface shows no old furrows. A large drainage ditch had been dug along its center. The hollow presumably trapped water in former times and may never have been cultivated.

In the excavating, material was removed by successive layers, each cut being made approximately parallel to the surface and divided for the greater part into 10-foot sections. Dirt, once loosened, was shoveled directly onto the mechanical sifter. As each layer was removed the new surface was swept and troweled clean in an effort to locate any post-holes or other evidence of structures and to avoid misassociation of artifacts and levels. Before the next layer was removed, nails were driven into the side walls to mark the exact juncture line between layers.

Visible structural details were surprisingly rare and difficult to define precisely. In vertical section (Fig. 8), the plowed soil zone, removed as Level 1, differed so slightly in color from the material directly below that in only one 5-foot space, where the plows had actually scraped a band of dark midden soil, was it possible to determine plow marks and the maximum depth of plowing. Plowing had obviously turned up enough of this darker earth to affect visibly the color of the plowed zone immediately above. As a result, because this occurred on the flank of the ridge roughly midway in elevation between the ridge crest and swale bottom, the ridge appears to have an eroding clay core with residual midden debris on its inner flank. Precisely this same effect can be seen on some other ridges and is particularly noticeable as the top soil dries out after a rain.

Actually this dark layer, between 6 and 10 inches thick, is the only feature on the vertical section that can be traced with any certainty for more than a few feet. Under the crest of the ridge it is barely noticeable, but towards the southeast the color gradually darkens. The surface of this layer was quite level, with no more than a 3-inch rise towards the southeast away from the highest point of the present ridge surface. Beyond, the layer drops again and ends abruptly, without tapering appreciably, 36 feet from where it can be first recognized.

Within the ridge, between the dark zone and the plowed earth, there is the usual brownish clay, indistinguishable in color from the artifact-bearing clay underlying the dark layer. As observed in Cut 1, only the distribution of artifacts marks the surface existing at the start of occupation. The brownish clay becomes gradually mottled with gray and at a maximum depth of 38 inches becomes sterile. Manganese concretions were noted from within a few inches of plowed ground down to the bottom of the cut, with no obvious concentration at any particular point.

The physiographic record can be interpreted as follows: Occupation started on a slightly undulating surface which apparently did not vary more than 8 inches in elevation. Its highest portion formed a slight ridge or rise, between 80 and 110 feet, in the trench plan. To the northwest, judging from the present surface, this old surface was virtually level for at least 50 yards. After 15 inches of clay had accumulated or been deliberately placed on the Ridge 6 area, a period

[1] This section was written by Junius Bird.

of either more intensive occupation or more stable ground surface conditions commenced. The formation of the dark soil during this period was interrupted by an interval of ridge construction which must coincide with the final work on the octagonal earthworks. Judging from the amount that has washed back into the hollows, clay soil, possibly to a depth of 2 to 3 feet, was dumped over the surface. No evidence of basket-loading was observed.

One source of this transported material seems to have been the hollow between Ridges 6 and 5. Unfortunately, no visible soil change marks the bottom limits of digging in this area. If a second dark layer formed during the final stage of ridge occupation, it did not extend down into the hollow, where one might expect, but does not find, some concentration of artifacts. From the distribution of bits of fired clay it is doubtful whether ancient digging lowered the original inter-ridge surface here more than 2 feet. A very few minute particles of the same fired clay were found about 20 inches lower, but all of them seemed to be associated with old root holes.

The check of successively exposed layer surfaces in the trench showed nothing that could conclusively be considered post-molds or floors marking the location of houses or other structures. Slightly above the original surface level, 23 feet from the center of the inter-ridge hollow, a tap-root channel, 14 inches in top diameter, was traced down for over 4 feet. The fill in the channel, darker than the adjacent clay, contained scattered fired clay fragments, a flake, and a hematite fragment. As the center of this root was only 6 feet from where the dark layer broke off and a structurally confused, irregularly colored area commences, it is possible that the tree was living either during, or close to, the time of formation of the dark soil. It cannot be dated much later and is of interest only as it bears on the question of the width and depth of the hollows between the ridges.

Of eight other discernible former holes one, 6 inches in diameter, located at 102 feet, almost directly over the root channel just mentioned, was visible 14 to 20 inches below the surface. Two other holes of about the same diameter were found, one starting at the top of Layer 5, the other at its bottom level, both between the 90 and 100 stakes. One might have marked a stake or post, the other a root. The remaining five holes, apparently fire pits, were all located between the 75- and 100-foot stakes and in the lower half of the ridge formation. Four of these were roughly circular, ranging from about 10 to 15 inches in diameter and from 6 to 11 inches in depth. The fifth, an elongated hollow, must have measured about 36 by 18 inches in diameter and 9 inches in depth. These are listed as fire pits because they contained traces of fire. None showed any marked burning of the adjacent soil. The amount of fired clay ball fragments was very variable, and none had a concentration of perfect examples as did the larger, deeper pit found between Ridges 1 and 2 in the northern quadrant.

The material recovered from Trench 4 has been analyzed in two units. Unit A constitutes the main portion of the ridge between the 50- and 100-foot stakes, Unit B the remaining section, from 100 to 115 feet. This separation was made not only because it offers some check on the lateral distribution of material but also because of uncertain stratigraphy beyond the 100-foot mark. Within each unit the specimens have been grouped by chronologically successive layers as far as these could be determined by a check of the positions of the excavated blocks against the evidence of actual structure. Thus in both units Layer 1 consists of the plowed soil. However, as plowing in Unit B brought up some soil from a distinctly earlier level, Unit B cannot provide so accurate a picture of the artifact assemblage associated with the final occupation of the ridge. In Unit A the soil below plow level and above the level of the dark layer was arbitrarily divided into Layers 2 and 3, although it was uniform in color and character. As it consisted largely of fill for raising the ridge height, artifacts found in it can date either from the period of construction or prior to it. Layer 4 consists of the dark soil and such portions of the normally colored earth as seem contemporary with it. Layers 5, 6, and 7 are progressively older and, even without any visible basis for stratigraphic segregation, probably do represent some time sequence. Thus if any cultural change is to be found in the artifacts recovered from Trench 4, it should be apparent in a comparison of the yield from Levels 1, 4, 5, 6, and 7.

The chronology of the layers in Unit B cannot be expressed so simply. Between 105 and 115 feet a fairly clear soil division was traceable about 12 inches below the surface. This may

mark the inter-ridge surface at the close of occupation. If so, the artifacts between 9 and 12 inches (Layer 2) could be younger than the majority of those in the upper 9 inches, because of chronological inversion as they washed from the higher portion of the ridge. Certainly some such shift did occur as the hollows filled after the close of occupation. It cannot have been complete, for some natural sorting of artifacts is inevitable in such a situation. For instance, the average weight of flake scrap in the top soil on the ridge crest is greater than the average weight on the slopes. Gravity alone will grade artifacts on sloping surfaces, as has been noted at Taltal, Chile, where rain plays no part. Here, although gradients are slight, rain washing, plowing, and cultivation have all been influencing factors in carrying the smaller, lighter artifacts into the hollows more rapidly than the heavier ones.

If the soil change at about 12 inches does mark the surface at the close of occupation, then most of the material grouped as Layer 3 in Unit B should be contemporary with that from Layers 1 and 2 above it. The material from Layer 4 may be, and is in part, contemporary with Layer 4 in Unit A. The evidence of disturbance and change, however, does not justify our equating all Layer 4 material. The chronology of the Unit B Layers 5 and 6 is similarly suspect.

It is evident, therefore, that any analysis of material excavated by arbitrary levels has a tendency to create a picture of cultural uniformity and lack of change. This is particularly true in a situation where the trenches are cut from ridge crest into the hollows. The alternative, excavation of chronological units following structure, is possible within certain limitations. At present there seems little reason to think that this method would yield significant results. The most sensitive medium, the clay cooking "stones," according to the seriation record (pp. 46 ff.) has undergone some change. From this, there is a suggestion that the occupation of the Ridge 6 area may have started slightly later than at other portions of the site.

Unfortunately, none of the artifacts or other features that occur in adequate numbers for seriation testing show any changes. About all we can do is to list the total range of artifacts and their distribution, should such an analysis prove of comparative value in the future.

At present, we may note that the few potsherds found in Cut 4 were all in the lowest four layers, where they occurred in the ratio of one sherd per 12 of the small, pointed scraper-perforators. In the plowed soil 659 of these implements were found, unassociated with a single sherd. This does not prove that pottery was more common prior to the final raising of the octagonal ridges but suggests that possibility. In view of the nature of the formation of the ridges, the effects of erosion and farming, it is inevitable that some sherds will be found in general surface collections, yet such an occurrence would not necessarily contradict the suggestion from Cut 4.

After completion of the excavation of Cut 4, exact measurements were taken of the portions removed, and the cubic content was computed. The ratios of occurrence of the three most common artifacts per 1000 cubic inches of each layer are given in Table 1.

The non-lamellar flake scrap was chosen because little or none of it has been removed from the site and because it is widely distributed and durable. The same applies to the small scraper-perforators, except that some have been collected in recent years, which may have reduced very slightly the number in the top soil of the Cut 4 area.

The quantity of fired clay objects now in the plowed soil must be very much smaller than formerly. Few of these objects are sufficiently hard to withstand for long the weathering and abuse they receive in cultivated ground.

The figures in Table 1 are of scant value beyond demonstrating the obvious concentration that occurs at and near the surface and the lesser concentration in Layer 4. Similar information, if available from a sufficient number of tests, might reveal a good deal about the occupation pattern of the ridge areas. If proportionally similar figures are obtained elsewhere on the site, we might form some idea of the relative lengths of time involved in different stages of occupation. For instance, there are four times as many scraper-perforators per unit of soil in the top soil of the ridge as there are in the dark midden soil of Layer 4. Similarly, the flake-scrap material is 5.2 times as abundant. If the transported dirt and artifacts in Layers 1 and 2 of Unit B are added, the figures are raised to 5.4 and 6.1, respectively. We might assume that the rate of discard and loss of these bits of stone

TABLE 1

ARTIFACT DISTRIBUTION PER 1000 CUBIC INCHES IN EXCAVATED LAYERS IN CUT 4

	Non-lamellar Flakes	Scraper-Perforators	Clay Cooking "Stones" (Grams)
Unit A, ridge proper			
Layer 1	4.69	1.48	55.2
Layer 2	0.11	0.09	42.7
Layer 3	0.18	0.03	47.5
Layer 4	0.91	0.37	128.0
Layer 5	0.13	0.05	41.8
Layer 6	0.017	—	31.0
Unit B, inter-ridge hollow			
Layer 1	9.44	3.47	153.3
Layer 2	4.45	3.03	82.4
Layer 3	2.50	1.02	67.1
Layer 4	2.27	0.87	348.2
Layer 5	2.27	0.73	139.8
Layer 6	1.45	0.49	121.2

per year, per family, remained constant, and that the area used per family was roughly the same. If so, then the period of occupation of the ridge, after its construction, was four to six times longer than the period during which the dark soil formed, whatever may have been its extent.

CUTS 5 AND 6

George I. Quimby of the Chicago Natural History Museum visited the group excavating at Poverty Point from April 6 to 14, 1955, and while there dug two test pits, using the mechanical sifter to recover specimens. Cut 5, a 5-by-5-foot pit located in the southern end of Ridge 5, West Sector, was dug to a depth of 4 feet in 6-inch arbitrary levels. The old leached ground surface was encountered at 36 inches, and no artifacts were discovered below 42 inches beneath the surface.

Cut 6 was located just south of the southern end of Ridge 5 in the flat aisle that lies between the western and southwestern octants of the ridges (Fig. 6). It was about 100 feet from the clearly defined termination of the western segment of Ridge 5. This was a test pit 4 by 8 feet, excavated in 6-inch levels to a depth of 36 inches. Cultural material was not found below 30 inches, the point at which the brown soil, apparently redeposited, gave way to the light gray soil that characterizes the old leached ground surface. Old surfaces were not noted in the redeposited soils, nor was the original ground surface marked by any unusual concentration of refuse. Artifacts were rather evenly scattered through the soil.

Quimby has kindly provided the present writers with a detailed list of materials recovered. They comprise the typical contents of these ridge midden deposits: entire clay balls, fragmentary balls, flint chips, fire-cracked sandstone, cores from which flint blades have been struck, blades, and used blades. The quantities recovered are too small for quantitative analysis.

Quimby's most remarkable discovery was a piece of copper. This was found by a workman as the floor of the 6-to-12-inch level of Cut 6 was being cleaned so that it might be examined for disturbances. This fragment was thin, made of several sheets of copper laminated, and was roughly pear-shaped in outline, 2 cm. wide and 3.5 cm. long. Apparently it is a fragment rather than a complete ornament.

CUT 7

In the plowed field east of the gravel road, in the southern segment of the geometrical figure, there is a rounded knoll 3 to 4 feet high and about 60 feet in diameter. On casual inspection it appeared to be a small burial mound of the type so common on early ceramic-bearing sites in the Lower Mississippi Valley. Spring plowing turned up human bones. Although these were obviously recent burials, deposited

in coffins, we decided to take advantage of the farmer's invitation to trench the elevation before the field was planted. A 10-foot wide trench, laid out north and south, was excavated with the tractor for a length of 90 feet (Fig. 6). At each passage the tractor planed about 1 inch of soil from the bottom of the trench, leaving a clean, fresh surface, ideal for inspection. The dirt picked up in this process was dumped in piles at either end of the excavation. Neitzel or Ford followed the machine after each trip through the trench, to inspect the soil for post-molds or other signs of disturbance and to collect any artifacts uncovered. No post-molds were found.

Soon after the work started a number of recent burials were uncovered, and the nature of this small knoll became clear. From the description of the octagonally arranged ridges it is apparent that the southern segment of the figure has suffered considerably from sheet erosion, undoubtedly caused and accelerated by plowing. The location of this elevation was evidently selected as the site of a cemetery at some time during the past century, so escaped cultivation for a number of years. The present residents of this community have no recollection of a cemetery on this knoll and do not know when it was first placed under cultivation. This preserved fragment gives some indication of the height of the ridges before the recent erosion began.

Profiles of both sides of Trench 7 are shown in Fig. 9. The original ground surface at the base of the structure showed very clearly. The undisturbed subsoil was heavily loaded with manganese concretions redeposited about 12 inches below the old surface. The old surface soil is the leached, light gray clay-loam typical of Maçon Ridge.

The old ground surface shows evidence of occupation; the top 0.5 foot, stained dark gray, yielded more artifacts than did the superimposed loaded soils. Evidently this surface was lived upon before construction of the ridge was started. Two irregular trenches, trending east and west, had been cut through the old surface; one trench between Stakes North 70–80 was about 3 feet wide and 4 feet deep. An impression of basketry found in this trench is described below. Between West 45 and West 61 a larger and more irregular depression, about 5.5 feet deep, cut through the old surface. When the ridge construction was begun, this depression was at least partially open, for the lenses in the fill above sag into the trench. The purpose of these trenches is not apparent.

The old surface had also been removed at the northern end of Trench 7, and a shallow excavation extended to the end of our trench. This is probably the borrow pit made when the ridge was under construction. Greenish mica-schist had been powdered and scattered at several spots on the old ground surface. Perhaps this was the accidental result of people's walking on this rather soft stone.

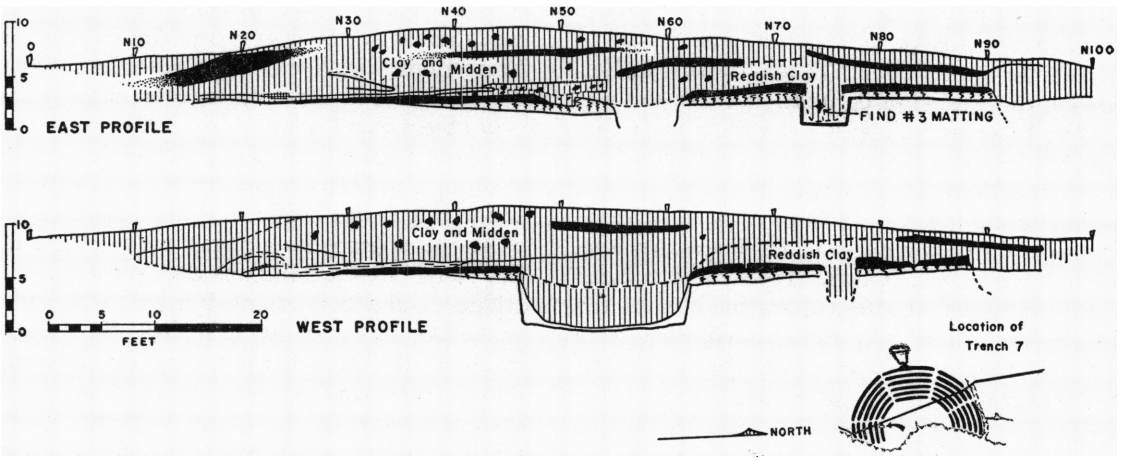

FIG. 9. East and west profiles of Trench 7. The old ground surface beneath the ridge is covered with a layer of black midden soil. Other deposits are higher in the construction. Note particularly the thick slanting deposit that extends to the present ground surface near the N20 stake.

At North 72.4 feet, we found a circular fire pit 1.2 feet in diameter and 1 foot deep, originating on the old ground level. The rounded bottom was lined with charcoal, above which the pit was filled solidly with baked clay balls well bedded in ash. Some of the balls near the bottom of the pit, where the heat must have been most intense, are fire cracked. A charcoal sample was saved for radiocarbon analysis.

The ridge was built up to a height of 5 feet with basket loads of clay and loam containing scattered cultural refuse. A few small beds of ash and burned clay were encountered, remains of fires built in place. At this stage of ridge construction, black midden soil was deposited across the top to a depth of about 0.8 feet. Following this period of occupation, more soil was added to bring this ridge remnant up to its present height of 7 feet. Throughout the upper 2 feet the fragments of clay balls were deposited in horizontal layers that show as narrow bands in the walls of the excavation. These are brief occupation levels. Obviously there has been some loss of height after cultivation was started in the area. The blackest midden, richest in cultural content, lies on the flanks of this last stage of construction, and its base line gives an idea as to the original profile of the ridge. The earth overlying these midden zones shows no evidence of loading and doubtless was washed or dragged from the ridge crest by the plow.

Cut 8

To obtain a complete sample of the material from the strata exposed in Trench 7, a 5-by-10-foot rectangle was staked out between the North 30–40 lines, on its eastern side (Fig. 6). This was excavated by 6-inch levels to a depth of 6 feet, the base of the deposit. As was to be expected, the strata exposed duplicated those in the eastern wall of the adjacent Trench 7. The results of the classification of the fired clay balls collected from the arbitrary 6-inch levels of this cut are shown in Fig. 15.

Cut 9

It was considered desirable to run at least one trench across the tops of two artificial ridges and across the intervening swale. Accordingly, a 10-foot wide trench was laid out, east of the Poverty Point Mound, from the crest of Ridge 5 to the crest of Ridge 4 (Fig. 6). Excavation of this 320-foot long trench was begun with the tractor. After the entire length had been taken down about 2 feet, it was obvious that complete excavation would involve considerable time and was probably not justifiable. Accordingly, the work of the tractor was confined to the sections of the trench adjacent to the ridges, and the base of the swale between them was determined by means of a bore-hole traverse (Fig. 10).

The subsoil in the area cut by Trench 9 was the typical reddish brown clay deposit of the Arkansas River. Underneath the ridges where the old surface had been covered and not removed by the Indians was a light gray leached topsoil. About 18 inches beneath this old surface there was a zone of redeposited manganese concretions, locally called "buckshot." Midden material, charcoal, fragments of baked clay objects, and a few chips of flint were scattered over this old surface, which indicated that the area had been occupied before construction of the ridges was begun.

At the point where it was cut by Trench 9 the swale that the Indians excavated between Ridges 4 and 5 is about 100 feet wide, from Stake 100 to Stake 200 (Fig. 10). For reading levels on this trench we utilized the arbitrary datum that was established near the northeastern corner of the Poverty Point Mound when a contour map was made in 1953. In these terms the old surface beneath Ridge 4 has an elevation of about 97 feet and of about 96 feet beneath Ridge 5. The bottom of the broad excavated trench appears to be almost level and has an elevation of 91 feet. Four to 5 feet of soil were intentionally removed from this trench; undoubtedly this was the clay used to construct the ridges.

Ridge 5 has an artificial height of about $3\frac{1}{2}$ feet. The fill, principally gray clay loam, the typical Maçon Ridge topsoil, is mixed with small amounts of charcoal and other cultural material. On each flank of the ridge, but not across its top, was a 2-foot thick layer of black, greasy, midden soil, rich in cultural material. Strangely enough, while these refuse layers slope down the sides of the ridges, they do not lie near the bottom of the old excavated trench. Instead, they are within 2 feet of the present surface. Evidently the trench had been partially filled, at least adjacent to the ridges, before this midden soil was deposited.

Ridge 4, only 2 feet high, has no corresponding midden layer. Instead, a small amount of

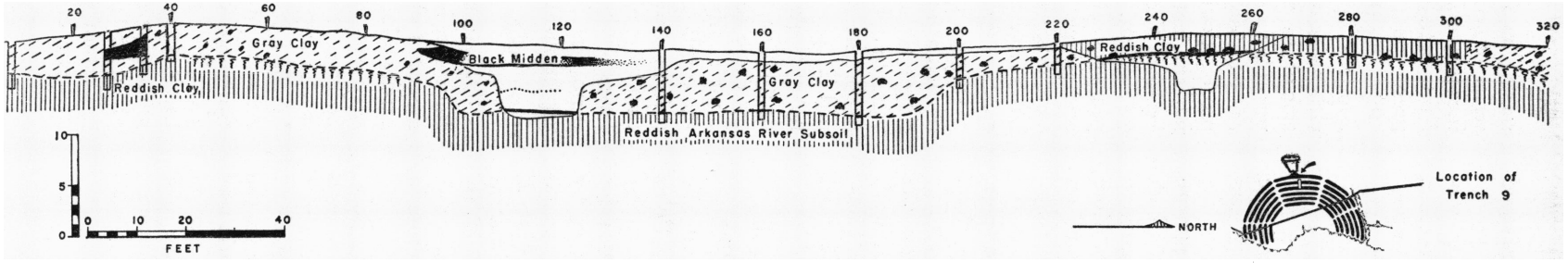

FIG. 10. North profile of Trench 9. This trench was partially dug by tractor across Ridges 4 and 5 and the low swale that lies between them. Bore holes supplement the excavations. The old humus is preserved beneath the ridges, but the Indians had removed it in excavating the depression between the ridges.

refuse is scattered through the mixed gray and reddish-colored soil.

No clear evidence of basket-loading was observed in either ridge. Although we watched carefully as the tractor scraped the soil away, we saw no evidence of post-molds or other indications of dwellings.

Cut 10

While Cut 9 was being dug by tractor, we excavated and sifted three 5-by-10-foot squares located immediately south of Trench 9, on the eastern flank of Ridge 5. Square A, opposite Stakes 80–90 of Trench 9, was lowered in 6-inch levels to a depth of 2½ feet. It cut through gray fill mixed with a slight amount of refuse. More intensive occupational evidence was found on the old ground surface beneath the ridge. Square B, opposite Stakes 100–110, was in the black midden found on this flank of the ridge. Six 6-inch levels lowered it to a depth of 3 feet. Square C immediately east of Square B, in line with Stakes 110–120, also cut through the sloping midden on the eastern flank of Ridge 5. The arbitrary levels again were 6 inches thick. Results of analysis of the fired clay balls from Trench 10 are shown in Fig. 15.

Summary of Evidence Derived from Excavations in the Octagonal Ridges

It is obvious that the ridges that form the octagonal figure were built by Poverty Point people. That at least part of the area covered by this earthwork was occupied for some time prior to the construction of the ridges is shown by the rather thin layer of refuse lying on the old ground surface where it was exposed by Cuts 2, 7, and 9. A somewhat less intensive occupation is suggested by the old surfaces exposed by the other excavations. Previous occupation is also shown by the casual inclusion of refuse in the soil used to construct the ridges.

The stratigraphic analysis of Poverty Point clay balls (Fig. 15) suggests that the several portions of the ridges were constructed about the same time. Earth removed from the surfaces between the ridges was piled onto the ridges. This construction was not a continuous operation, for some of the excavations showed levels at which thin layers of refuse had accumulated and fires had been built. However, it is probable that these local pauses in construction were not of great duration.

The principal evidence that these ridges served as substructures for dwellings is the series of strata of black midden soil, 12 to 18 inches in thickness, distributed along the ridge flanks and lying at a steeper angle than the present slope of these flanks. In two trenches (Figs. 9, 10) the midden accumulation disappears upward into the plowed soil on either side of the ridge crest. If the missing portion of the curve of this deposit is extended, it is possible to estimate that at least 4 or 5 feet of the crest of the ridge has been planed off. This process doubtless provided the fill now overlying the bottom of the aboriginal excavation between Ridges 4 and 5 as revealed by Trench 9 (Fig. 10). On the basis of this evidence it appears that Ridge 5 at the point cut by Trench 9, and Ridge 1 where it was cut by Trench 7, were originally at least 10 or 12 feet high. It is impossible to determine whether all the ridge crests reached this height.

Despite careful examination of the bottom of each arbitrary level when the cuts across the ridges were made, no post-mold alignments were found. As a matter of fact, there were almost no discolorations that could be identified as post-holes; most of them seem to be holes made by vanished tree roots. If our deductions as to the amount of erosion suffered by these earthworks are correct, that would explain why there is no remaining evidence of the dwellings that must have stood along the tops of these structures and were the source of the latest blankets of midden. However, at the bases of the ridges we should have found evidences of dwellings pre-dating the earth constructions. Unfortunately these were not found.

Discussion of the Earthworks

The most impressive fact about the Poverty Point Site is the huge amount of earth that was moved for the construction of the various earthworks. If the concentric octagonal ridges were completed to the east in symmetrical fashion, the total length of ridge constructed would approximate 11.2 miles. Six feet high by 80 feet across the base is a conservative estimate of the average original dimensions of the ridge cross-section. A simple calculation gives the figure of about 530,000 cubic yards of earth. Construction of the two large mounds and the smaller conical mound involved moving about 450,000 cubic yards in addition.

Certain aspects of the Poverty Point geometrical earthworks resemble the well-known

Hopewell Culture constructions found in Ohio and adjoining states.[1] These figures usually consist of adjoining circles and squares outlined by earth embankments constructed on a large scale and covering as much as 2 square miles. Parallel embankments forming "roadways" are also frequently found. Usually the squares have breaks in the embankments at the angles, and sometimes midway of their sides so that they are formed by eight segments. The earthwork at Newark, Ohio, has an eight-sided enclosure formed by straight embankments with gaps at the angles. Although symmetrical in that opposite angles of the figure are similar, they do not form a true octagon.[2] In most of these constructions small conical mounds are placed opposite the breaks in the embankment, a short distance inside the line of the walls.

Nearly all the Hopewell geometrical constructions are formed by a single line of embankment, ranging from a barely perceptible rise to a height of 12 feet. The Portsmouth Works include a unit of earthworks consisting of ridges forming four concentric circles spaced at irregular distances from one another and intersected by broad, ridge-bordered roadways leading out from the center in very nearly the cardinal directions. In the center there is a truncated mound.[3]

Poverty Point and some Hopewell sites share such elements of earthwork pattern as a geometrical plan, gaps at the angles of figures, and alignment with the cardinal directions. These features are not found associated with later Indian cultures in the Eastern United States. However, there are also marked differences that must also be significant. For example, the Hopewell earthworks seem to have been erected for strictly ceremonial purposes and do not have any great amount of dwelling refuse associated with them. The ridges at Poverty Point may have been planned with religious motivation, but they were also certainly utilized as dwelling sites.

It seems probable that the two curiously shaped large mounds, Poverty Point and Motley, were intended to be representations of birds. The bulge, on the west and north sides, respectively, of these structures may possibly represent the head; the stepped, slightly sinuous ridges that extend to either side of the high point, the wings; and the platform on the Poverty Point Mound, the tail. If this is correct, then the Poverty Point figure is headed west and the Motley figure north. This interpretation may be reënforced by other evidence that these people were interested in birds—for example, the bird carved in relief on a fragment of steatite vessel (Fig. 42a) and the carved bird beads.

This interest in bird forms provides another possible link with the Hopewell Culture, for those people were also strikingly interested in birds as is shown not only in the bird effigy pipes but in designs on pottery. An effigy mound, apparently a bird effigy, is also known for the Classical Hopewell Culture of Ohio. This is located in the center of the earth-walled circle in the Newark Group, designated as "E" by Squier and Davis.[4] If their interpretation is correct, the figure, composed of four connected mounds, represents a bird with outstretched wings. The body was 145 feet long and the wing spread 200 feet. The mounds forming the body of the bird were 7 feet high; those representing the wings, 5 feet high.

Earth mounds in the form of birds with outspread wings are a rather common feature of the "Effigy Mound Aspect" of Wisconsin. This cultural phase apparently was partially coeval with Hopewellian manifestations in other parts of the Mississippi Valley.[5]

Two stone cairns near the town of Eatonton, in Putnam County, Georgia, are shaped like birds with outspread wings. As with some of the bird effigies of Wisconsin, the heads on these Georgia figures are turned to one side, and the form of the beak is delineated. One of these structures which has been excavated yielded Mossy Oak Simple Stamped pottery and was probably coeval with early phases of Hopewellian culture.[6]

Excavation of Mound B

The conical mound located 700 yards north of the large Poverty Point Mound seems to stand apart from the formal arrrangement of the site. This is Moore's Mound "F."[7] It was an almost perfect cone, about 180 feet in diameter at the base, with a pointed summit rising slightly over

[1] Squier and Davis, 1848, Pls. 16, 17, 21, 24–26, 29, and 34.
[2] Squier and Davis, 1848, Pl. 25.
[3] Squier and Davis, 1848, 81, 82.
[4] Squire and Davis, 1848, Pl. 25, 68–69.
[5] Squier and Davis, 1848, Pls. 42–44.
[6] Fairbanks, 1952, 287.
[7] Moore, 1913, 69.

20 feet above the flat field that lies to the south. Immediately to the north of Mound B there is a partially filled old channel of the Arkansas River, one of the braided courses occupied by that stream when it was in the process of building Maçon Ridge. To the east, north, and west, the mound slope merges into the slope of the southern bank of this channel, so that it is impossible to mark the boundaries of the artificial construction.

Mound B was staked off in a grid of 10-foot squares orientated with the cardinal directions. The datum point at the southeastern corner of the grid was assigned an arbitrary elevation of 100 feet (Fig. 11).

On the basis of past experience in the Southeast, and guessing as to the cultural affiliations of the Poverty Point culture, we expected that this would be a burial mound. We also expected that the more important burials might be in a pit or tomb near the mound base. This surmise was not substantiated, but will explain why we thought it would be safe to dig the mound with a tractor.

In order to obtain a preliminary view of the mound contents and to develop some experience in excavating with the tractor, we first ran a trench east and west along the southern edge of the mound between lines North 10 and North 20. A little experimenting demonstrated that it was very easy to cut a straight trench with clean vertical walls if the front loader was used for most of the digging and the rear scoop utilized mainly to remove loosened earth. We had a local blacksmith make two skids of angle iron, similar to sled runners. These were fastened to the edges of the front loader so that it could not bite into the soil more than 1½ inches. In operation, the loader bit into the bottom of the trench, the front wheels of the

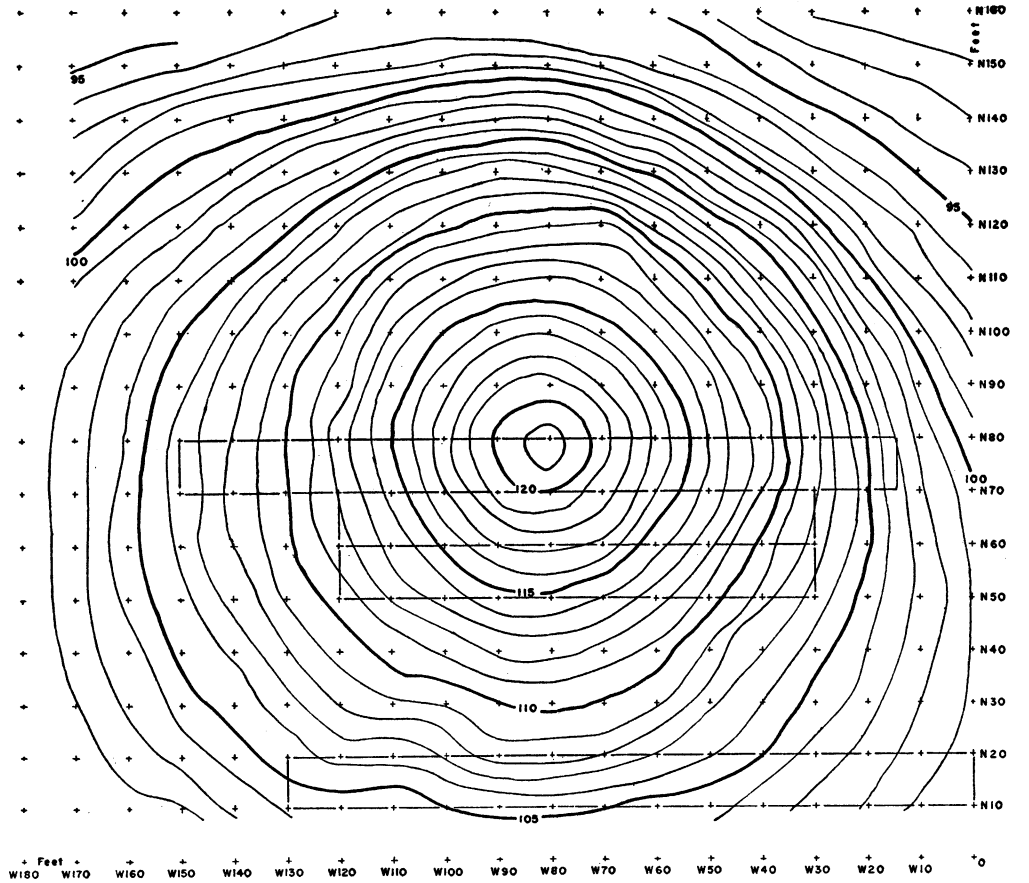

FIG. 11. Contour map of Mound B. The elevation of the reference point was assumed as 100 feet. Areas excavated are outlined.

tractor rose off the ground, and the machine skimmed a thin slice of soil completely across the trench, collecting the loosened earth as it cut. With a little practice the operator had no difficulty in holding the blade of the scoop tight against the walls of the trench. The clean trench floors maintained by this means made the detection of intrusions, pits, fireplaces, postholes, etc., much easier than excavating with hand tools. Each time the tractor passed through the trench either Neitzel or Ford walked behind it, watching for any constructional evidence and collecting uncovered artifacts. Clearly the recovery of artifacts scattered through the mound fill was not so complete as it would have been had a crew of workmen dug these trenches with shovels. However, stray artifacts brought in with mound fill are not of primary importance in the study of an intentionally constructed mound, and we think that our partial recovery was sufficient for a representative sample.

The North 10–20 trench was dug to the base of the mound. Then trenches were started in the North 30–40, 40–50, 50–60, 60–70, and 70–80 segments of the mound, leaving 1-foot thick walls or balks between the trenches to retain a record of the strata and to guide the tractor.

All these trenches were lowered to a level of about 112 feet (12 feet above the arbitrary datum and about 10 feet below the summit of the mound) where a number of basketry impressions were encountered. These were at first mistaken for post-molds. All the trenches, except the North 60–70 which passed through almost the center of the mound, were stopped on this level. With considerable difficulty Trench 60–70 was excavated to below the mound base. The core of the mound was composed of extraordinarily hard, compacted clay; much of it had to be plowed before it could be moved by the tractor. Driving this trench to mound base took so much time and revealed so little information that it was decided that the work necessary to cut the other trenches down to this same level was not justifiable. The trenches were refilled, and the surface of the mound was planted with grass seed.

The information derived from the two trenches that did extend to the mound base (North 10–20 and North 60–70), supplemented by the partially excavated trenches, gives a basis for outlining a history of mound construction. The original ground surface upon which the mound was constructed was level. On the arbitrary vertical scale applied to this excavation it had an elevation of between 98 and 99 feet. This surface showed the soil profile normal for Maçon Ridge. In both trenches, 8 to 10 inches of gray, leached topsoil was underlain by the reddish brown clay characteristic of Arkansas River deposits. About 18 inches beneath the surface was a zone of redeposited manganese concretions.

An ash bed about 0.5 foot thick lay on this old surface. This bed probably extends under the entire mound, for it was found for the full extent of both trenches. The surface of this ash bed was well compacted, and the overlying clay peeled away from it very nicely. In both trenches the surface of the ash layer was exposed by hand tools, and the bed itself was carefully excavated. Scattered through the ashes were a few small fragments of charred bone which were for the most part too small for identification. However, at West 42 in the North 60–70 trench, the proximal end of a charred human femur was discovered. Considerable charcoal was mixed with the ashes, but this was in very small fragments, less than ¼ inch in diameter. Nearly all the charcoal examined appeared to be the result of burning cane, which leaves a charcoal that tends to break into tiny fragile filaments. More than adequate samples of carbon were obtained from this level in both trenches by our placing the ashes in tubs of water until thoroughly softened, then, while agitating the mixture, collecting the charcoal particles with a flour sieve. Transferred to clean water, the charcoal fragments sank, while most small roots and root hairs floated. The balance were removed by hand before the charcoal was acid cleaned at the radiocarbon laboratories.

A fire pit was found in the ground surface beneath the ash bed in the North 10–20 trench. This was near West 89 (Fig. 11). The pit was round, 1.9 feet in diameter and 0.8 foot deep. It was filled with powdery ash, intermingled with which were 32 baked clay balls of recognizable form, as well as numerous fragments. A quantity of charcoal was saved from this pit.

The first construction was a flat-topped mound about 4 feet high. The fill was composed of basket-loads of yellow clay and occasional loads of whitish topsoil. This soil was very

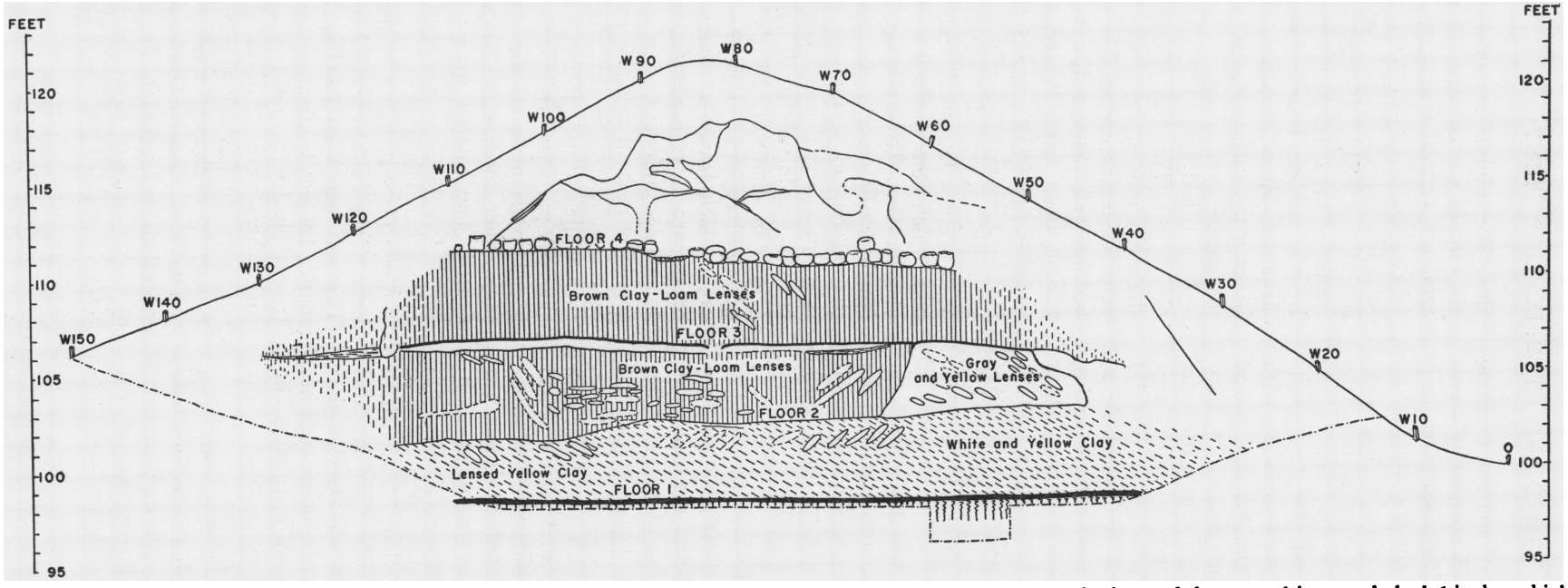

FIG. 12. Profile of the north wall of the North 60–70 trench across Mound B. The black layer on Floor 1 at the base of the mound is an ash bed 6 inches thick containing fragments of charred bone, one of which could be identified as human. Radiocarbon samples for the determinations listed as 38 to 42 came from this bed. Baskets and what were probably skins filled with earth were placed on Floor 4.

compact and hard. The basket-loads lay at angles, which indicated that construction had not been very regular. The top of the mound, at an elevation between 102 and 103 feet, showed plainly in the profiles of both trenches. This old surface cleaned off very nicely in both trenches, but no post-molds or other evidences of construction were found. The side slopes of this constructional stage could not be traced. The demarkation line gradually faded, and the brownish loam that forms the final capping of the completed mound gradually replaced the clay found towards the mound core.

The third floor level was built some 4 feet above the second and lies at an elevation of about 107 feet in the profiles of both trenches. The basket-loaded fill between the floors consisted of brown, gray, and yellow clay and of gray loam. In the North 70 profile the lenses tilted towards the center of the mound, which suggests that in constructing this stage the Indians might have been filling in a depression such as might result from the collapse of a log-covered tomb at a lower level. However, the suggestion of such a possibility seems to have been the result of wishful thinking—no such tomb was found. The compactness of the soil and the levelness of the clearly defined floors also argue against the existence of such a structure a few feet beyond the limits of our trenches.

Again it was impossible to trace the flanks of this stage of construction, and the edges of the clearly defined floor merely faded out into the brown loam that capped the completed structure. Charcoal and ash were scattered over the eastern end of this floor in the North 60–70 trench. Towards the center, between Stakes West 60 and West 100 the floor sagged slightly, and there was a thin band of water-sorted soil. Another stratum of water-laid soil was found at the western end of the floor between West 120 and West 130. As can be seen in the diagram (Fig. 12), between Stakes West 60 and West 120 this floor had two levels, separated by about 0.5 foot of soil. The water-laid soils mentioned above were on top of the lower floor. In the North 70 profile at West 83 feet, it could be seen that a large hole of some sort was dug through both the floors. However, no other post-holes or other signs of constructional activity were found.

In the North 20 profile the third floor showed a short distance only, between West 85 and West 101. Here it was capped by a thin, heavily burned layer of clay, surrounded by scattered ashes.

On approximately the level of Floor 3 a clearly marked slanting line could be seen in the North 70 profile, between Stakes West 30 and West 40. This was the demarcation line between the basket-loaded soils towards the interior of the mound and the rather homogeneous brownish loam on the flanks. The latter material may have slumped from the upper part of the structure. If this is actually the original mound surface, then it follows that the earth was piled to an angle of 55 degrees when the mound was built. If the mound was constructed with a pointed top, as the present form suggests, then this line can be projected to give an idea as to the original height of the mound when newly constructed. It may have been between 35 and 40 feet high.

Four feet of reddish brown subsoil mixed with occasional basket-loads of light gray topsoil were piled over Floor 3. The top of this stage was leveled to form Floor 4. This construction does not show in the North 10–20 trench. In the North 60–70 trench this floor sloped slightly towards the east. The surface which had a small amount of ash and fragments of charcoal scattered over it was fairly easy to clean. A shallow fire pit with heavily fired clay bottom, 1.5 feet in diameter at West 89, was at least a partial source of this ash.

Immediately on Floor Level 4 the Indians had placed 100 or more containers full of earth, setting them so close to one another that nearly all were in contact. Thin brownish circles from 1 foot to 2 feet in diameter were encountered in the floors of the trenches between North 30 and North 70. All the trenches were brought to approximately the same level, for at first we were under the impression that the circles were the remains of large posts. However, as we began to map them, no systematic arrangement was evident. We noticed also that, where the outlines touched, both circles tended to be flattened, or one had an inward bulge from pressure by the other. As soon as we realized the real explanation for these features a number were examined. Some of the containers were baskets, and their weave was clearly apparent. Casts were made and samples of clay with basketry impressions were

saved and are described below. However, the majority of these circles gave no evidence of basketry impressions. A thin brownish stain was the only remaining evidence of the walls of the containers. Possibly these latter were skins used for carrying earth. So far as we were able to determine, the deposit of containers full of earth was limited to the area of Floor 4. We saw no evidence of their having been placed along the slopes that must have flanked this construction stage.

Piled to a height of about 7.5 feet over Floor 4, a conical mass of mottled gray and buff clay showed basket-loading, contained a little cultural material, but had no noteworthy constructional features. A mantle of comparatively soft brownish loam over this was the last addition to the mound. The badly decayed remnants of two infant skeletons were found 2 feet beneath the surface just below the top of Mound B. No evidence of coffins was found, but it is virtually certain that these are recent burials, not over a century old. The bones were in such poor condition that they could not be saved.

Interpretation of Mound B Features

It can hardly be said that our excavation in Mound B has definitely settled the question of its purpose. This work has left us almost as puzzled as we were at the completion of the excavation of Mound G at the Jaketown Site.[1] All that we are prepared to offer are some conjectures that may or may not be verified by future work. The extensive ash bed that seems to extend beneath the entire base of the mound may be the remains of a large crematory fire. The principal fuel appears to have been cane, which makes a very hot fire after it has dried. If the bones had been stripped of flesh and dried preparatory to cremation, it is possible that the only remains would be the small charred fragments of bone that we found.

The surface of each of the building stages was subjected to activities that compacted the level floors and resulted in the scattering of small amounts of cultural refuse. The pauses in mound construction, however, were apparently not long enough for the flanks of the mound to have settled or for water-sorted soils to accumulate.

The containers full of clay found on Building Level 4 clearly were intentionally placed. In this stone-less alluvial valley they are possibly analogous to the layers of gravel or stone that cap primary stages of many of the Hopewell Culture mounds of Ohio.

[1] Ford, Phillips, and Haag, 1955, 36–37.

ARTIFACTS

POVERTY POINT OBJECTS

BAKED CLAY BALLS and fragments were most common in the midden that flanks the occupation ridges at Poverty Point. They probably total hundreds of tons on the site. The discovery of several cooking pits with these clay objects in place dispelled any doubts as to their function, so that we may as well cease being scientifically diffident and refer to them as artificial cooking stones.

Although clay balls were the major devices used for cooking, a considerable quantity of fire-cracked stone was also scattered through the midden deposits. For the most part, these were angular, broken fragments of sandstone varying in diameter between 1 inch and 2 inches. The Poverty Point people were evidently not completely satisfied with their fired-clay substitute and transported considerable quantities of stone from deposits in the hills. Perhaps certain recipes demanded these more conventional Archaic Period cooking aids.

In the Jaketown paper the results of a preliminary classification of the clay objects from the three trenches dug at Poverty Point in 1953 were reported by Phillips.[1] For the present study, we have piled together all the clay objects recovered from the site and reclassified them. It is not to be expected that the two classifications will be identical; it is consoling that they are highly similar. This second classification was based on the system Phillips set up for the Jaketown material.[2] However, as Phillips noted, there are not only differences in proportions between the two sites, but also several forms found at Poverty Point are not found in any quantity at Jaketown.

A comparison of the Jaketown and Poverty Point classifications follows:

JAKETOWN CLASSIFICATION		POVERTY POINT CLASSIFICATION
Biconical, plain	A	Biconical, plain
Biconical, extruded	A1	(Not found)
Biconical, punched	A2	(Not found)
Biconical, grooved	A3	Biconical, grooved
Cylindrical with lateral grooves	B	Cylindrical with lateral grooves
Cross-grooved	C	Cross-grooved
(1 example only)[3]	F	Melon-shaped
(2 examples only)[3]	G	Melon-shaped with end grooves
Spheroidal	D	Spheroidal
(Not noted)	H	Amorphous
(Not noted)	I	Biscuit-shaped (found only in a single fire pit)

Phillips is quite correct in stating that there is a basic similarity between the clay objects from the two sites so that "A handful of specimens taken at random from one collection and tossed into the other could not be picked out again."[4] The ranges of variation overlap, but a direct comparison of collections from the two sites reveals several differences. First, the specimens from Poverty Point on the average tend to be slightly larger and less well made than the comparable types from Jaketown. Second, there is a slight difference in color; specimens from Poverty Point on the average are somewhat redder than those from Jaketown. This latter difference is readily explainable as environmental. The Arkansas River clays, from which the Poverty Point specimens were presumably made, contain considerably more iron salts than do the soils deposited by the Ohio River.

TYPE A, BICONICAL PLAIN

Figure 13a, b

Plain biconical baked clay balls formed about 20 per cent of the collection from the Jaketown

[1] Ford, Phillips, and Haag, 1955, 43–46, Table 3.
[2] Ford, Phillips, and Haag, 1955, 39–43.
[3] Counted under Cross-grooved in Jaketown report; Ford, Phillips, and Haag, 1955, 41, Fig. 12b–d.
[4] Ford, Phillips, and Haag, 1955, 45.

Site.[1] The type, however, is comparatively rare at Poverty Point, forming only about 6 per cent of the collection. The Poverty Point specimens appear to be less well made than those from Jaketown and are slightly larger. They range from 3 cm. in length and 2.5 cm. in diameter to 5.6 cm. in length and 3.5 cm. in diameter. They average about 4.8 by 4.8 cm. In a minor proportion of these objects the points of the cones are extruded more than others, but this has not been carried so far that they should be placed in the Biconical Extruded class set up for the Jaketown collection.[2]

These objects were apparently formed between the cupped palms of the hands making a circular motion.

Type A3, Biconical Grooved

Figure 13c, d

The only variation on the basic biconical form found in any number at Poverty Point is the clay balls that have four grooves impressed around the periphery with small fingers. This type is very rare at Jaketown; in fact, only three examples are recorded.[3] These objects vary between 3.5 cm. in diameter and 3.2 cm. in length to 6.1 cm. diameter and 6.4 cm. in length. The averages of both dimensions fall between 4.8 and 5 cm.

Nearly all these objects have four grooves; a few have between three and seven. Most of them exhibit opposed impressions of small as well as slightly larger impressions, as though the grooves had been made simultaneously by the thumb and forefinger of each hand. In a minority of examples the impressions made by the fingers of one hand appear to have been followed by the impressions made by the fingers of the other. Pressure from the later pair of impressions tended to close slightly the earlier pair of imprints.

Type B, Cylindrical with Lateral Grooves

Figure 13e–g

Clay cylinders with definite peripheral grooves formed by the fingers are essentially similar to the same form at Jaketown[4] but tend to be slightly larger and are not so well molded. This was the dominant type at Jaketown. A few of these objects have two grooves. Typical examples have three grooves—a central groove comparatively deep and well defined, flanked by less deeply impressed grooves. Some of these objects are not perfectly round, but slightly oval in section. If they were made by being rolled between the fingers, as was suggested in the Jaketown paper, this slight flattening probably results from a back-and-forth motion of the palms. After having been formed, most of the cylinders were subjected to end-to-end compression which has slightly distorted the form and tended to close the grooves. Sizes range from 2 cm. in diameter and 2.5 cm. in length to 6.4 cm. in diameter and 8.3 cm. in length. The average is about 4.5 by 5.7 cm. One toy object of this type, with two encircling grooves, is only 1.7 cm. long by 1.3 cm. wide.

Type C, Cross-grooved

Figure 13h, i

The cross-grooved class is identifiable by its deep finger impressions placed at angles to one another in clay balls that were originally globular. The impressions are usually in opposed pairs made by the thumb and forefinger; two pairs are usual, placed roughly at right angles to one another, but five to eight grooves are found on a few objects. The end result is considerably distorted and irregular. The cross-grooved balls from Poverty Point are slightly larger and somewhat cruder than those recovered from Jaketown.[5] Sizes range from 4 to 6.5 cm. and average between 4.5 and 5 cm.

Type F, Melon-shaped

Figure 13l, m

The term "melon-shaped" has been applied to clay balls that are somewhat oval in form and have parallel finger impressions spaced about their peripheries. Impressions are usually four in number, but they vary from three to seven. Apparently a lump of clay was first formed into a sphere, then pressed with the thumb and forefinger of each hand. In addition to making the approximately spaced finger impressions this produced an oval form. About 30 per cent of the objects of this class have been slightly twisted so that the grooves are spiral rather

[1] Ford, Phillips, and Haag, 1955, 45.
[2] Ford, Phillips, and Haag, 1955, 41.
[3] Ford, Phillips, and Haag, 1955, 41.
[4] Ford, Phillips, and Haag, 1955, 41.
[5] Ford, Phillips, and Haag, 1955, 41–43, Fig. 11j, k.

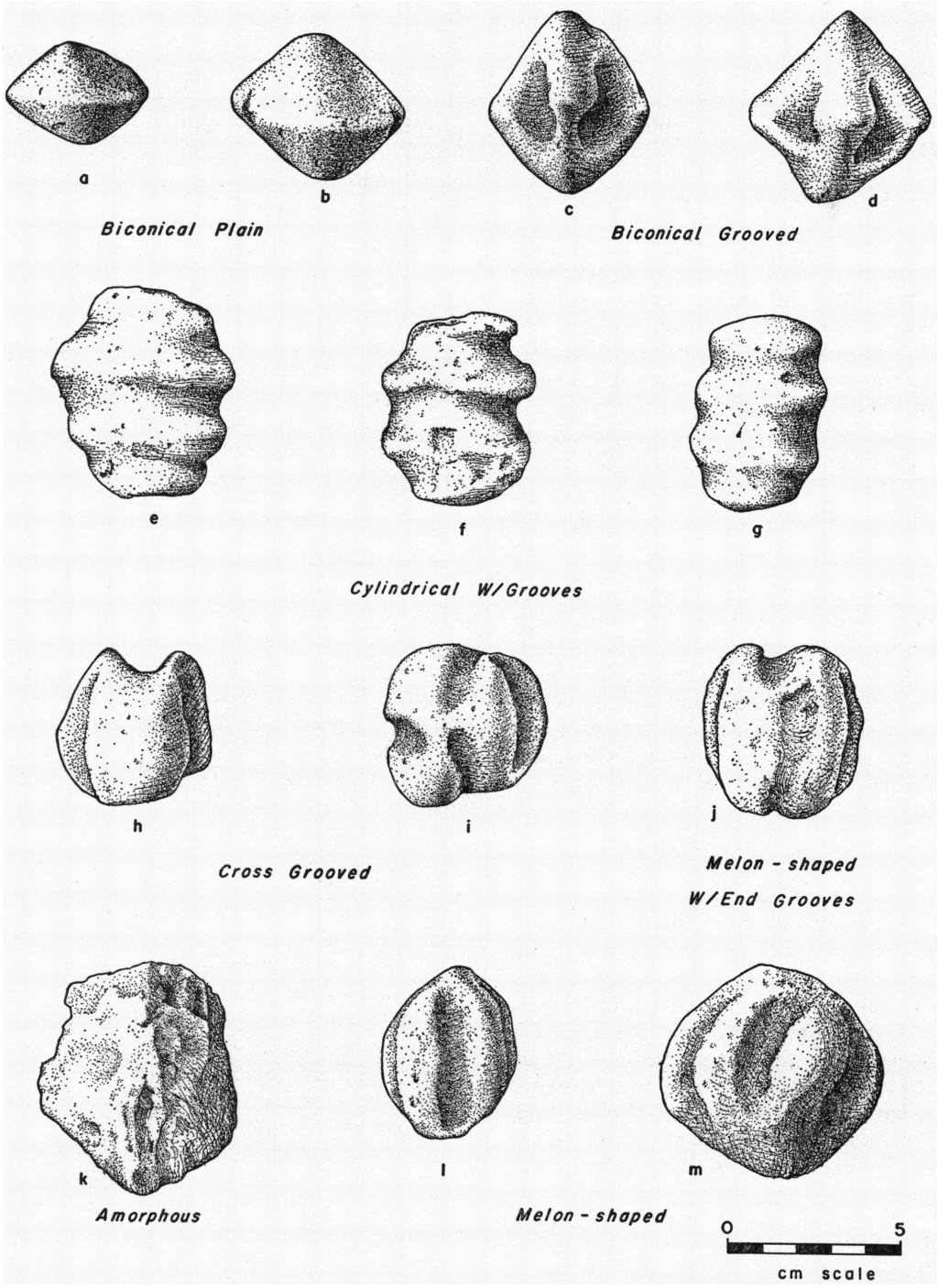

FIG. 13. Common types of baked clay cooking balls from Poverty Point refuse deposits.

than straight. In shape and size they vary from long and narrow (4.2 by 7.3 cm.) to short and thick (5.8 by 6.4 cm.). A few are as small as 3.2 by 5 cm.

While this is a fairly common shape at Poverty Point, only one example is recorded from Jaketown.

Type G, Melon-shaped with End Grooves

Figure 13j

As the name indicates these clay objects were first formed into the melon shape described above and then carried one step farther. The ends were impressed with the fingers, slightly distorting the preceding impressions. Dignifying this slight modification of the melon shape as a type may be justified by the late position the frequencies of this class assume in the strata analysis. They range from 4 to 6.5 cm. in diameter; averages are between 4.5 and 5 cm.

Type D, Spheroidal

A few clay balls classed as spheroidal were apparently made by the clay's having been rolled between the palms of the hands. However, none of them are perfectly spherical. Some have very shallow finger impressions, which further mar the contours, if, as we assume, the true sphere was the ideal form for this class. The spheroidals range from 3.2 to 5 cm. in diameter.

Type H, Amorphous

Figure 13k

Rough lumps of clay bearing no evidence of shaping are grouped in this class. These amorphous lumps are as compact and as well fired as the shaped objects and doubtless performed the same functions. This assumption is strengthened by the finding of a number of them associated with shaped clay objects in a fire pit near the bank of Bayou Maçon. Broken fragments that may have been derived from other classes of clay balls have not been placed in this category.

The surfaces on these amorphous lumps resulted from the breakage of the clay before firing. They may have been compact lumps secured when a fresh fire pit was dug and utilized in precisely the same manner as the unworked clay mentioned in the description of Australian native cooking quoted in the Jaketown report.[1]

[1] Ford, Phillips, and Haag, 1955, 56–57.

Clay objects of this indefinite shape were not recorded from Jaketown. At this date it is impossible to say whether or not this is due to our failure to collect them there. The Jaketown deposits were not sifted, and it is quite possible that both archeologists and workmen failed to note these rather unimpressive fired clay lumps or mistook them for fragments of more definitely shaped balls.

Type I, Biscuit-shaped

The name is sufficiently descriptive. These baked clay objects, 2 to 3 cm. thick and 7 to 8 cm. in diameter, are rather carelessly made. They were evidently formed by flattening balls of clay. Curiously enough, this form was found only in one locality—the fire pit which Junius Bird located and cleared near the bank of Bayou Maçon (p. 44).

Unusual Forms

The margins of two biconical clay objects, otherwise plain, are notched with a tool (Fig. 14b). Three other small biconicals have tool-made incisions that run from one apex to the other (Fig. 14c–d). Three cylindrical objects, smaller than the normal balls of the cylindrical class, have encircling incisions that are also tool-made (Fig. 14h). One small cylinder has been decorated by a band of vertical incisions (Fig. 14g). Four balls of spheroid form have pronounced finger or tool indentations (Fig. 14e).

Twenty-four of the melon-shaped objects, Type F, have been twisted to such a degree that they have been removed from that class. The specimen shown in Fig. 14f is typical. These vary from slender (3.2 by 6 cm.) to fat (5.8 by 9 cm.) to small (2.2 by 3.3 cm.). The grooves vary from three to five in number, but most often are four. In a few instances the grooves seem to have been placed intentionally in a diagonal fashion (Fig. 14i).

Four clay objects of unusual shape are decorated with impressions made by a tubular instrument, probably the end of a cane. One is a flattened rectangle (Fig. 14k); another is cylindrical (Fig. 14l). The other two objects are fragments of uncertain form. A portion of a large object has cross-hatched incised lines (Fig. 14j). Three small masses of clay have been squeezed tightly in the right hand. These show impressions of the palm and of four fingers of small hands (Fig. 14m).

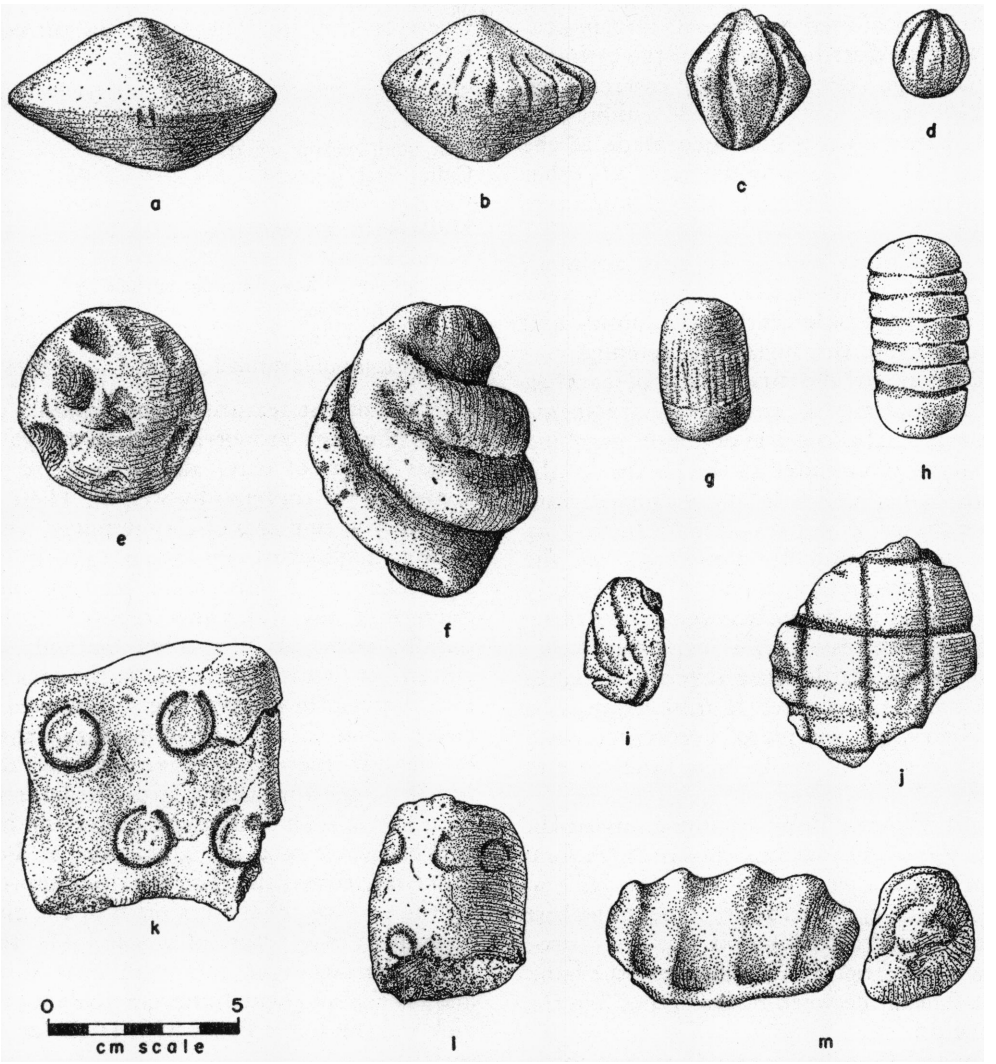

FIG. 14. Unusual varieties of baked clay objects.

DISCUSSION

The really impressive quantities of fragmentary and entire baked clay balls distributed over the cultivated fields that occupy the Poverty Point Site show that these are the most abundant artifacts. The sifting of the soil removed from Trench 4 gives an excellent opportunity to assess the total quantity of these objects that Poverty Point people made. Because this material was damp when first recovered and because the rate of drying was variable, the smallest scrap was measured by volume and then discarded. Later, weight per volume was determined from dried samples. To this has been added the dry weight of the balance, both whole and fragmentary. The total recovered amounted to 104,145 grams (223 pounds), occurring at the rate of 142 grams (5 ounces) per cubic foot in Cut 4. Owing to loss by decomposition in the topsoil and at the surface these are minimum figures. From the percentage of occurrence of the various forms and the average weights of complete examples, the yield of this small area represents approximately the following:

Round	19
Biconical	19
Cylindrical grooved	477
Crossed	332
Melon-shaped	58
Melon-shaped, end grooves	56
Amorphous	328
Total	1289

If this quantity of fired clay objects is an indication of average distribution and if the estimate of original ridge volume is nearly correct, then about 2199 tons, or roughly 24 million, of these fired clay objects had been made at the site. From the more prolific yield of other trenches these would seem to be minimum figures.

Such speculation cannot be substantiated; yet, even when minimized, it does convey some idea of the magnitude of the community and the importance of this method of cooking.

In addition to the fired clay objects an appreciable quantity of burned stone fragments was recovered. This consists of almost any kind of stone scrap represented in the balance of the collection. Some, such as lumps of conglomerate and other materials not used for artifacts, may have been intentionally imported for the purpose. Unfortunately, much of this, mainly lumps of sandstone, was discarded before being weighed. The residue totals just over 5 kilograms and the discards must have amounted to at least twice this figure. If this, again, is a reasonably typical sample of occurrence, then the total for the site would have been close to 400 tons.

Work at Poverty Point removed any doubt as to the use of these baked clay balls. Several examples of the discovery of the clay balls in place in fire pits are cited above. One of the best examples of such a cooking pit was discovered in the wall of a freshly cut gulley near the bank of Bayou Maçon between Ridges 1 and 2 in the North Sector.

Erosion and disturbance had destroyed about half of the pit, which was clearly defined only in its lower portion. It had been dug as a basin-shaped depression which measured 21 inches in the diameter preserved; the other dimension seems to have been slightly more, so that the pit was oval. The bottom was 31 inches below the present surface, but it was impossible to determine the original surface from which the pit was dug. If some scattered bits of burned clay 12 to 14 inches below the modern surface mark that level, then the pit would have been 17 to 19 inches deep. Although the soil within the pit was darker than the surrounding soil, there was no appreciable amount of charcoal. What is of interest is the quantity and nature of the fired clay balls. Some of these objects were unusual forms that were not found elsewhere on the site. The list of the pit contents follows:

Spherical	9
Biconical	1
Biconical, ends pinched	3
Cylindrical, grooved	22
Cross-grooved	2
Melon-shaped, ? end grooved	1
Biscuit-shaped	45
Amorphous (9 have been smoothed by slight handling)	61
Unidentified scrap	503 grams
Total weight of identified objects	9769 grams

A significant feature of the contents of this pit is the high proportion of the rough amorphous lumps of clay, about one-third of the recovered pit contents by weight. These lumps probably were pieces of clay removed when the pit was dug and were put to use precisely as in the example of Australian cooking methods quoted in the Jaketown report.[1] A further parallel with the Australian methods is suggested by two features: one is the lack of ash and charcoal in the pit; the second is that between some of the clay objects and the sides of the pit there were fragments of charred leaves, suggesting that the pit had been lined with leaves as it was prepared for the baking.

Whether or not the aborigines at Poverty Point recognized the fact, the deep impressions on the surfaces of the majority of the clay objects had two practical results: (1) the enlarged surface area increased heat diffusion, and (2) the roughened surfaces made it easier to pick up the hot objects with sticks or simple tongs.

Stratigraphy

Two general surface collections are available for study. The first, consisting of 230 specimens, was gathered at intervals while the Poverty Point excavations were in progress. The second, totaling 951 objects, was made in the course of the numerous visits Webb and Beckman made to the site during the past few years. The latter collection was classified by Webb and Beckman. Both classifications of this surface series are listed according to type in Table 2; percentages of each type are given. The high degree of agreement between these percentages is gratifying. Only the Biconical-grooved category differs as much as 8 per cent; other

[1] Ford, Phillips, and Haag, 1955, 56–57.

TABLE 2

POVERTY POINT OBJECTS

(Frequencies in italics are based on classified specimens.)

	Biconical Plain A	Biconical Grooved A3	Cylindrical with Lateral Grooves B	Cross-grooved C	Spheroidal D	Melon-shaped F	Melon with End Grooves G	Amorphous H	Unclassified[a] UNC	Total
A.M.N.H.[b]	9	5	56	40	2	13	6	13	86	230
	.063	*.035*	*.392*	*.280*	*.014*	*.091*	*.042*	*.091*	—	—
Webb-Beckman[b]	57	119	401	257	6	68	43	—	—	951
	.060	*.125*	*.420*	*.270*	*.006*	*.071*	*.045*	—	—	—
Cut 1										
0–12	5	5	25	181	4	39	22	21	135	437
	.016	*.016*	*.083*	*.598*	*.013*	*.129*	*.073*	*.069*	—	—
12–24	8	6	54	82	3	22	13	39	145	372
	.035	*.026*	*.239*	*.361*	*.013*	*.097*	*.057*	*.174*	—	—
24–42	—	—	23	14	4	3	1	2	13	60
	—	—	*.490*	*.297*	*.085*	*.064*	*.021*	*.042*	—	—
Cut 2										
0–18	—	—	26	39	—	8	2	10	93	178
	—	—	*.305*	*.459*	—	*.094*	*.023*	*.117*	—	—
18–36	—	—	85	34	3	10	1	17	117	267
	—	—	*.565*	*.226*	*.020*	*.067*	*.007*	*.113*	—	—
36–66	1	1	102	15	—	6	—	20	64	209
	.007	*.007*	*.705*	*.103*	—	*.041*	—	*.137*	—	—
Cut 3										
A and B	4	2	15	47	—	12	—	3	36	119
	.048	*.024*	*.181*	*.568*	—	*.145*	—	*.036*	—	—
Cut 4										
1–3	—	1	7	5	—	3	1	10	61	88
	—	*.037*	*.259*	*.185*	—	*.111*	*.037*	*.370*	—	—
4	—	—	40	40	—	—	3	34	234	351
	—	—	*.342*	*.342*	—	—	*.026*	*.291*	—	—
5–7	—	—	10	4	1	—	1	4	56	76
	—	—	*.500*	*.200*	*.050*	—	*.050*	*.200*	—	—
Cut 7	3	—	50	18	—	4	1	13	—	89
	.033	—	*.561*	*.201*	—	*.045*	*.011*	*.146*	—	—
Cut 8										
0–18	1	7	17	20	—	2	2	13	51	113
	.016	*.113*	*.274*	*.322*	—	*.032*	*.032*	*.210*	—	—
18–36	—	—	15	5	—	—	—	5	31	56
	—	—	*.600*	*.200*	—	—	—	*.200*	—	—
36–72	—	—	34	6	—	—	1	3	71	115
	—	—	*.772*	*.136*	—	—	*.023*	*.068*	—	—
Cut 10										
0–18	6	17	43	30	2	2	5	74	232	411
	.033	*.095*	*.240*	*.168*	*.011*	*.011*	*.028*	*.413*	—	—
18–30	—	4	16	10	—	1	—	10	293	334
	—	*.098*	*.390*	*.243*	—	*.024*	—	*.243*	—	—
30–48	—	2	15	9	—	2	—	4	161	193
	—	*.062*	*.470*	*.281*	—	*.062*	—	*.125*	—	—

[a] These are fragments too small for type identification. [b] Surface collection.

classes vary approximately 2 or 3 per cent, or less. This agreement is reassuring, for it suggests that our surface collections adequately reflect the proportions of the several types on the site.

After all the fired clay balls in the American Museum collections were classified, the catalogue numbers were tabulated and the data rearranged according to provenience. This classification and listing, made by Charles Ward, was checked by Ford. Profile drawings of each excavation were compared with the tabulated results of the classification to demonstrate how level the strata lay and the extent to which it would be permissible to combine levels on the same horizontal plane. All the strata were so nearly horizontal that this seemed to be a fair procedure. In any event, a combination of excavation units was necessary, for no single unit yielded a sufficient number of specimens to make it possible to calculate reliable percentages. In fact, in nearly every strata cut, it was necessary to treat the data as though the levels were a foot or more thick, before the accumulated totals promised reliable frequencies of types. After various arrangements of arbitrary levels were tested, the clearest and most consistent graphs were obtained by dividing the deposits into three units. This method of division may also have some historic validity. It will be recalled that most of the cuts across the ridges produced evidence that the area had been occupied prior to the construction of the ridges. This occupation period is represented, although somewhat crudely, by the lower unit of the graphs. The fill of the ridges seems to have been principally earth that was removed from the depressions between ridges and doubtless contains some older clay balls. However, as noted, many Poverty Point objects are associated with small fireplaces scattered through this soil. The majority of the objects from the intermediate levels probably originated while the ridges were under construction.

The upper strata represent mainly the occupation on the tops of the ridges, the most intensive and, of course, the latest occupation on the site.

In artifically constructed dwelling sites, such as these ridges, there is every chance of mixture of older and more recent materials, so that clear-cut stratigraphic results, such as may be expected from rapidly accumulated normal midden deposits, are hardly to be anticipated. Where the data do agree, they may be accepted as rather roughly indicating chronological trends; where they disagree, we are neither very surprised nor disappointed.

The results of the study of the clay objects from the different strata cuts at the Poverty Point Site are shown in the upper part of Fig. 15. Type percentages and frequency trends in Trenches 1, 2, and 8 are very similar; to facilitate direct comparison the three units of each of these cuts have been superimposed. The single level, the top stratum of uncompleted Cut 3, fits rather well in the upper part of this assemblage and has been included as a single unit. It fits near the top of the diagram. The collection from the tractor-excavated Trench 7 has been fitted near the middle of the chronological graph.

The plain biconical form of Poverty Point objects (A) and the variant that usually has four peripheral depressions (A3) both occur in small percentages. While no smooth trend appears in their frequencies, the occurrences of both tend towards the later end of the graphs (Fig. 15). The bottom level of Trench 1 contained none of these biconical forms; they are also absent from the lower two levels of Trench 8. Very minor occurrences are found in the middle level of Trench 2.

The cross-grooved type (C), one of the major types from the site, shows very marked frequency trends in the three strata cuts from Trenches 1, 2, and 8. As may be seen in Fig. 15, it rises from a frequency of 13 per cent at the base of the seriation to 59 per cent at the top. The cross-grooved clay objects seem to be replacing the cylindrical with lateral-groove form (B) as the most popular type of artifact.

Except in the lower level of Trench 1, the roughly spherical-shaped clay balls (D) occur in very small percentages. However, only 47 objects came from this level, and no importance attaches to this variation from the pattern. No trend in the popularity of this class is observable.

The two very similar groups of clay balls, melon-shaped (F) and melon-shaped with end grooves (G), have the same frequency trend. Both increase in popularity from the lower to upper levels in the three strata cuts graphed in the upper part of Fig. 15. The latter type (G)

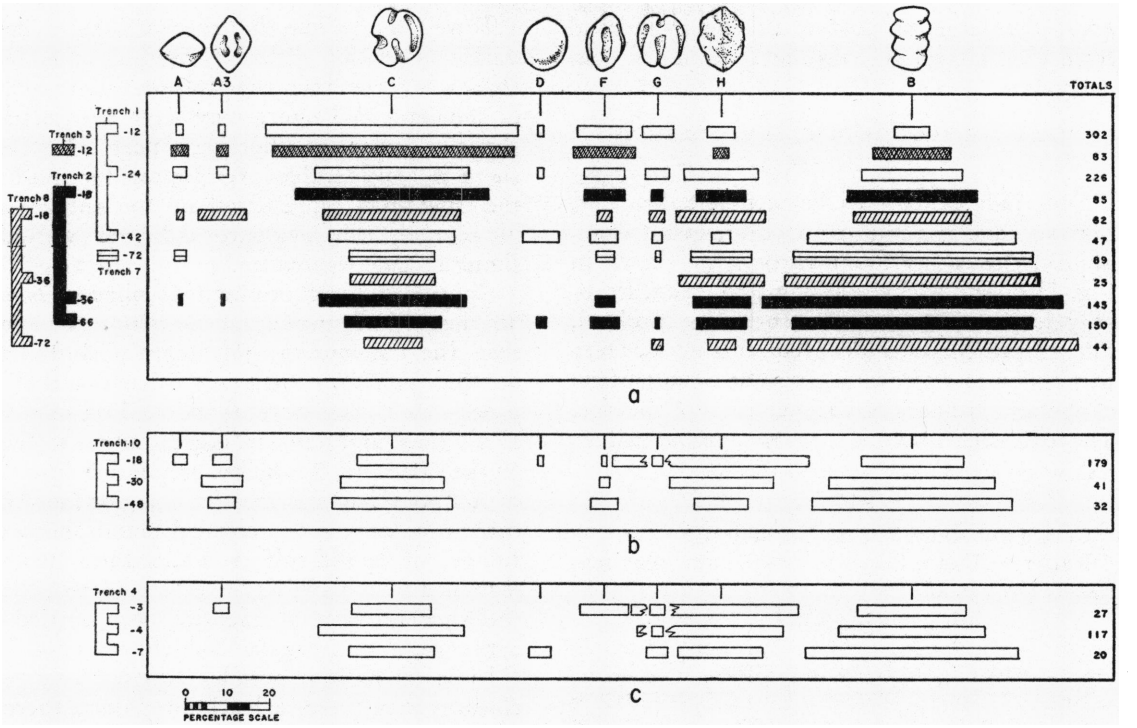

FIG. 15. Frequencies of the different types of baked clay balls from several stratigraphic excavations in the Poverty Point village.

consistently shows a slightly lower frequency than the melon-shaped form and is perhaps slightly later in time.

The amorphous (H) or irregularly shaped fired clay lumps are the only ones that apparently pass through the increasing and declining phases of the frequency cycle. The results from Trenches 1 and 2 show a very similar form. The increase of this type from the lower to upper levels in Trench 8 appears to be entirely consistent with the relatively early position of this entire excavation as shown by the other Types C, B, F, and G.

The frequency of cylindrically shaped fired clay balls with lateral grooves (B) shows a marked decrease in Trenches 1 and 8. The percentage of this type in the bottom level of Trench 2 counters this trend, but in the face of the other evidence we are inclined to regard this variation as not important.

The graphed results from Trench 10 and Trench 4 are shown in the lower part of Fig. 15 for direct comparison with Trenches 1, 2, 3, and 8. While the gross percentages for the different types are in general agreement with the excavation shown in the upper part of this figure, the frequency trends are not. Nor do the trends shown from these two trenches agree with one another. We are inclined to regard this variation as non-significant. The dubious nature of the deposits has already been cited. An additional qualifying factor is that we are dealing with only three levels and only three dominant types. Variation in the frequency of one type has a decided effect on the apparent frequencies of the other types from the same level. A third and perhaps more serious objection is the small size of some of the collections. Frequencies derived from only 20, 27, or 32 specimens are not worth serious consideration.

A circular fire pit found in the old ground surface below Trench 7 is described above (p. 30). The fired clay balls from there fall into the following categories:

Cylindrical with lateral grooves	29
Cross-grooved	1
Melon-shaped	1
Amorphous	3
Unclassified fragments	18

A total of only 34 classifiable objects does not justify the calculation of percentages. How-

ever, the large proportion of the cylindrical form with lateral grooves seems to indicate an early date.

RELATIVE AGES OF DIFFERENT PORTIONS OF THE SITE

Such judgments must be entirely subjective, but we have the impression that, in all probability, the rather fuzzy chronology shown in Fig. 15 does not cover a long time span. Probably decades rather than centuries are involved. For the present, this must remain a guess. Data just reviewed, however, do permit a comparison of the relative ages of various parts of the site. The evidence may be briefly summarized as follows:

CUT 1

Cuts across Ridge 5 in the North Sector.

RELATIVE DATE: Latter half of the time span represented in Fig. 15.

CUT 3

Cuts across Ridge 1, North Sector.

RELATIVE DATE: Near end of the time span represented in Fig. 15. (This is to be expected, as only the upper 12 inches of this cut were excavated.)

CUT 4

Cuts across Ridge 6, Northwest Sector.

RELATIVE DATE: Gross quantities of types, rather than indicated trends, suggest that it fits somewhere in the time span indicated in Fig. 15.

CUT 2

Strata cut across Ridge 6, West Sector.

RELATIVE DATE: Early half of the span of time covered by Fig. 15.

CUT 10

Small strata cut in crest and eastern flank of Ridge 5, West Sector.

RELATIVE DATE: Gross quantities of types, rather than indicated trends, suggest that this excavation fits somewhere in the span of time indicated in Fig. 15.

CUT 7

Tractor-excavated trench across Ridge 1, South Sector.

RELATIVE DATE: Fits into early half of the time span indicated in Fig. 15.

CUT 8

Small strata cut, beside Trench 7 in Ridge 1, South Sector.

RELATIVE DATE: Early half of the time indicated in Fig. 15.

If we may assume that there was no stylistic variation in the different parts of this site, there are some hints that the southern portion of the octagonal figure may have been settled slightly before the northern part. However, there is considerable overlapping for most of the time span represented by the entire site; in general, this evidence indicates virtually simultaneous occupation.

On the sites of unplanned villages in the Southeast it is not at all uncommon to find that the community had slightly shifted its occupation area. Apparently this was a normal process as houses were abandoned on one side of a village and new structures built elsewhere on the same site. At the Poverty Point Site, this casual Southeastern practice was not followed; the entire area was occupied simultaneously. Indeed, it is difficult to understand how so regular a plan could have been maintained had the various parts of the site been settled in sequence, in an irregular fashion.

In so far as it is possible to draw any conclusions from these rather limited data, there is no apparent sequence in the occupation of the ridges. Trench 1 in Ridge 5 and Trench 3 in Ridge 1 tend towards the late half of the occupation of the site, while Trench 2 in Ridge 6 and Trenches 7 and 8 in Ridge 1 seem to be earlier. This seems to deny the possibility that the town expanded either outwardly from Ridges 1 to 6, or in the opposite direction.

COMPARISON OF THE CHRONOLOGIES OF BAKED CLAY BALLS FROM JAKETOWN AND POVERTY POINT

The chronological graph of baked clay objects from Poverty Point excavations seems fairly convincing. However, our faith in the accuracy of the results is somewhat shaken because they do not agree with the scant chronological information secured in the excavations at the Jaketown Site.[1] In an attempt to reach a better agreement we have re-graphed all of the Jaketown information, but the results have not been altered. Trench 5 at that site seems to give the best evidence of frequency trends. There the Biconical Plain form decreases from 8.5 to 0.8 per cent; Cylindrical with Lateral Grooves increases from 49.8 to 86.5 per cent, and Cross-grooved decreases

[1] Ford, Phillips, and Haag, 1955, 110–112.

from 41.5 to 12.6 per cent. This is not compatible with the Poverty Point trends as shown in Fig. 15. Whether the difference is attributable to areal variation, or whether one or both sets of data are faulty, are questions that we shall have to leave for the future investigator.

CLAY FIGURINES

Figure 16

The available collections contain 13 small clay figurines, or figurine fragments, modeled in the round. Five of these are complete; the remainder consists of torsos with heads missing, broken torsos, and one head. Two complete specimens and one torso with missing head were obtained in excavations; the others are surface finds.

All the specimens that are complete enough to make determination possible depict seated

FIG. 16. Figurines of baked clay from Poverty Point refuse deposits.

figures. There is no attempt to show the legs, which are barely indicated by rounded knobs. Buttocks are generally well modeled. Judging by the proportions of the torsos, all the figurines represent females. Most of them have rounded abdomens, but only one is distended enough to suggest that it was intended to represent pregnancy (Fig. 16d). Breasts are not indicated except on the possibly pregnant specimen and the one shown in Fig 16f. In several figurines, the arms are apparently folded across the chest (Fig. 16a, c, and perhaps g). Others have a belt, indicated by three incised lines (Fig. 16h) and by raised ridges around the waist (Fig. 16g and m). In the specimen shown in Fig. 16m, something carried on the back, supported by this belt, may possibly be intended to represent a cradleboard. The heads of these figurines are rather crudely represented, with punctations for eyes and nose and, occasionally, a short line for the mouth. The detached head shown in Fig. 16k is better modeled than average. Most of the seated figures range from 4 to 6 cm. in height. The unusually small specimen shown in Fig. 16j is 2.2 cm. high.

The collection of Harry J. Lemley of Hope, Arkansas, contains eight more human figurines from this site. They are very similar to those illustrated here. Another similar specimen is illustrated by Moore.[1]

The small specimen shown in Fig. 16b apparently represents a terrapin or turtle. A few scattered incisions at right angles to one another may indicate the rectangular markings found on the carapaces of these reptiles.

These poorly modeled figurines from Poverty Point conform to a definite style and resemble the legless figurines modeled by the Basket Maker people of the Southwest. However, it is improbable that there is a direct connection, because Basket Maker figurines appear to be rather poor imitations of the better figures produced by the Hohokam people to the south. Poverty Point figurines may have been similarly inspired by the much more sophisticated figurines made by the Hopewell peoples of Illinois and Ohio. Among the better-known of these are the Knight figurines from Illinois[2] and those from the Turner Mound in Ohio.[3]

PROJECTILE POINTS

The fields covering the surface of the octagonal earthwork at Poverty Point are remarkable for the number of projectile points that they have yielded. There are thousands in various collections, and the harvest continues every year.

The collections of Beckman, Webb, Makin, Hammons, Louisiana State University, and the American Museum were available for study. These total 2365 projectile points, 86 per cent of which are in the collections made by Webb and Beckman. Their collections necessarily provided most of the information used in setting up the classificatory groups. The work on these two collections was done in Shreveport by Webb and Beckman; then samples were sent to New York. Ford followed their categories as closely as possible in classifying the other projectile points. These classifications conformed to the typology set up by Suhm and Krieger in 1955 in so far as it was applicable. However, this necessitated some deviation from the typological groupings used for the projectile points from the Jaketown Site, but seemed advisable in the interest of wider comparability. We also follow Suhm and Krieger's suggestion for the simplification of nomenclature in the firm belief that the important point is not what the baby is named but rather its appearance, personality, and other characteristics.

Typing projectile points is much more difficult than typing other cultural material—pottery, for example. Because of the limitations imposed by the material, there is not much room for variation in the different practical ways to chip flint. Limitation is also imposed by function, as every projectile point must have a tip; a stem, though optional, is very useful, and the utility of barbs probably was very apparent to the makers. Despite this it is obvious that the projectile points of the Eastern United States changed form in response to cultural influences and in a broad way are extremely useful cultural markers.

[1] Moore, 1913, Fig. 31.
[2] McKern, Titterington, and Griffin, 1945.
[3] Willoughby, 1922, Pls. 20, 21.

In typing our material we have considered stem shape (contracting, straight or parallel-sided, expanding, bulbous, or stemless); blade shape and relative width and length; presence and shape of shoulders and barbs; shape of base; relative sizes of blade and stem; type of notching; types of chipping and of retouch along blade edge; thickness and shape of cross-section; and over-all size of the points. Materials from which points were made were noted but not given weight in typing.

In the past numerous attempts have been made by different investigators to set up systems of projectile point typology; some were intended to provide niches for every conceivable variation, and others were more limited in scope. The basic defect of all these systems derives from the fact that a given group of 1000 projectile points is divisible in numerous different ways and, so far as an uninformed observer can tell, one system for grouping them appears about as good as another. As with pottery and other cultural items, an efficient classification must be based upon knowledge of, or at least guesses about, the chronological and cultural significance of each group. Suhm and Krieger have made a beginning at setting up such a system in Texas, and we are interested in testing and possibly expanding this excellent beginning.

In classifying the projectile points from Poverty Point we are in the fortunate position of dealing with an adequate sample from a fairly short time span. Probably the slow evolution of form that undoubtedly occurred in the East can be disregarded and each type be considered to represent a style of a distinct function or of a different origin.

Some of the projectile points in this collection are made of brown chert and red jasper pebbles that are available in the basal gravels of the old elevated terraces of Mississippi River origin that lie in the hills flanking the valley. The nearest of these deposits is about 30 miles to the west of Poverty Point. A substantial number, however, are made from nodular chert, with excellent flaking characteristics, which apparently was brought from outcrops where the nodules had weathered free from limestone formations. The abundant scrap of these materials does not show pebble cortices such as would have been formed in the course of stream-bed transportation.

A substantial amount of this transported chert is almost white or a very light cream in color. Fortunately, this material contains a few fossils which Donald F. Squires, Assistant Curator of Fossil Invertebrates in the American Museum, was able to identify as upper Mississippian in age. Outcrops of limestone of this age occur around the edges of the Mississippian embayment; the nearest is in northwestern Arkansas.

An easily recognizable material, novaculite, was imported for the manufacture of projectile points by the Poverty Point people. This stone, composed of cemented quartz crystals, is available in northern Arkansas. At present novaculite is quarried to make whetstones. However, the Indians used it for the manufacture of chipped projectile points.

Another imported chert is gray in color and has a rather waxy, glass-like fracture surface. This material was utilized especially in the manufacture of the stemmed projectile points of the types listed as Motley, Delhi, and Maçon. Specimens representing the color range of this chert were sent to Raymond Baby of the Ohio State Museum. As a result of microscopic comparison he has identified one variety as Harrison County, Indiana, nodular flint. Another variety appears to be Zaleski flint from Vinton County, Ohio.[1] Irvin Peithmann of the University of Southern Illinois also very kindly consented to examine a sample of the varieties of flint from Poverty Point. He also identified some samples as from the deposits in Harrison County, Indiana. Others he identified as several types of ball flint from Union County, Illinois.

Glenn Black of the Indiana Historical Society also consented to examine a sample of the chert from Poverty Point. Although he hesitated to make a definite commitment without the benefit of thin-section studies, he also expressed the opinion that some of the material was very similar to Harrison County, Indiana, chert.[2]

These independent expert opinions of archeologists who are well acquainted with the varieties of chert used by prehistoric Indians probably do not have the authority of exhaustive studies made by a professional mineralogist. However, in the absence of such studies, we consider these identifications as at least strongly

[1] Baby, letter of February 21, 1956.
[2] Black, letter of May 8, 1956.

suggestive that the Poverty Point people imported chert materials from midwestern deposits.

Gary Points

Figure 17

The formal description of this type is given by Suhm and Krieger.[1] The most recent definition appears to define the type more specifically than did the illustrations given in Newell and Krieger.[2] The latter publication was followed when the points reported from Jaketown[3] were classified.

With minor variations, which are described below, the 466 projectiles assigned to this class from Poverty Point conform reasonably well to the latest type definition. Crude flaking is characteristic. Rarely is there any attempt to straighten or sharpen the edges by retouching. Tapering stems, very slight shoulders, moderately wide and comparatively long blades, three to four times the length of the stems, are diagnostic features of the type. For convenience in description we have divided Gary into subgroups as Large, Typical, Small, and Long.

Gary Large (Fig. 17f, g): These points range between 8 and 14 cm. in length, 3 to 4.2 cm. in width. The points are rather thick (about 1.3 cm.), often with distinct median ridges. The stems taper and usually terminate in a rounded point (Fig. 17f). Shoulders are very weakly developed, and blades have gently curved edges.

Gary Typical (Fig. 17a–e): Most of the Gary points range from 4.6 to 8 cm. in length, 2 to 4.5 cm. in width, and in thickness average 9 to 10 mm. Two-thirds of the 330 typical points have tapering stems, and over one-third (123) almost might be considered lozenge-shaped Desmuke points, except for their slight but definite shoulders (Fig. 17b). About 35 per cent of the typical points have tapering stems that terminate in squared ends. In 60 of the latter, small projections from the shoulder of the blade, frequently on only one side, might be considered as small barbs (Fig. 17c). While most of this group are crudely flaked, 21 have the well-executed ripple flaking more characteristic of Pontchartrain points.

Gary Small (Fig. 17n–p): About 16 per cent of the Gary points fall into the Small subgrouping. These range from 3.3 to 4.5 cm. in length, 1.9 to 3.2 cm. in width, and are 5 to 10 mm. thick. About half of the stems of this group are triangular, and half taper to a narrow flattened base. These points, in effect, are smaller versions of Typical Gary.

A tan chert is most frequently used for the manufacture of Gary points, except for the Large Gary group and the Typical group which approach a lozenge shape, where it is rare. Light gray flints seem to have been the major choice for larger points. Novaculite is preferred for the Typical group, which approaches the lozenge shape, as it is for the similar Desmuke points at this site. Strangely enough, only 12 points made of novaculite were found in the other Gary classes. Other materials include gray to mottled brownish, black, and red cherts, and rarest of all, rose quartz. The slate gray chert with excellent working characteristics, the most common choice for Motley and points of related types, was used to make only six of the Gary points.

Gary Long (Fig. 17h–k): Fifty-eight points have most of the characteristics of Pontchartrain, but lack the ripple flaking. The blades are long and narrow, thick with median ridges; the shoulders are slight, and most of the stems tend to be slightly tapering, approaching the square form. Twelve have strongly tapering stems with rounded bases. The chipping, which is more similar to Gary, seems a sufficient basis for removing these points from the Pontchartrain category. Possibly in some instances the character of the workmanship was due to intractable material: 15 are tan chert; three, white chert; one, rose quartz; three, novaculite; three, slate-gray chert; one, petrified wood; and the remainder, of variously colored chert.

Cultural Significance: According to present definitions, not all the points illustrated in the Jaketown report[4] can be assigned to Gary. Specimens a–e, l–p in Fig. 51 would now be classed as Gary Typical; f–h, as Gary Small; and i–k, as Pontchartrain. As Krieger has remarked, Gary has a wide geographical distribution in the East and seems to cover a long span of time. For these reasons this type probably will prove to be of scant utility for the working out of detailed cultural connections. In general, it seems to mark the latter portion of the Ar-

[1] Suhm and Krieger, 1954, 430, Pl. 94.
[2] Newell and Krieger, 1949, Fig. 57A–P.
[3] Ford, Phillips, and Haag, 1955, 128–129, Fig. 51.
[4] Ford, Phillips, and Haag, 1955, Fig. 51.

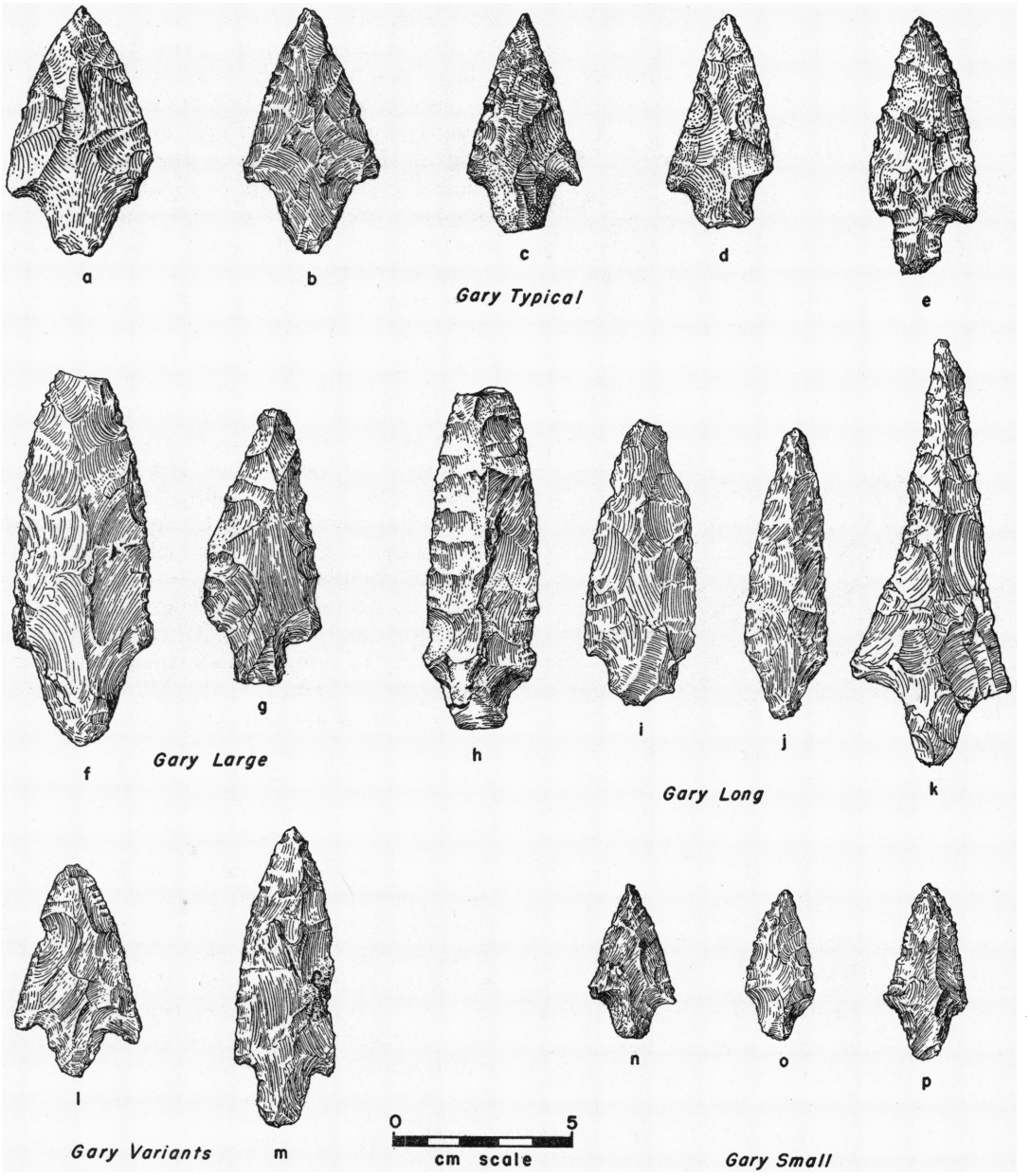

FIG. 17. Projectile points of Gary type.

chaic stage and the early half of the ceramic sequences.

Primarily on the basis of several collections from Poverty Point and other sites in northern Louisiana, Webb has made a special study of the lengths of projectile points of the Gary type. The results of this study are graphed in Fig. 18. The collections used are given in the tabulation at the top of the next page.

The graph (Fig. 18) suggests that with the passage of time there may have been a tendency for Gary points to decrease in size from the Poverty Point and Albany Landing maximum frequencies between 4 and 6 cm. in length to the Swanson's Landing and Pease Place maxima of between 3 and 5 cm. Contrary to this suggested tendency is the length of the points from the early Mooringsport Site, with a maximum of 3

Site	Number	Probable Age
Poverty Point	415	At end of Archaic, fiber-tempered pottery
Mooringsport	64	Probably near end of Archaic
Albany Landing	126	Probably long time span in Archaic
Swanson's Landing	144	Bossier Focus, Fulton Aspect, Caddoan
Pease Place	62	Bossier Focus, Fulton Aspect, Caddoan
Sanson Site	41[1]	Late Plaquemine; Fulton Aspect, Caddoan

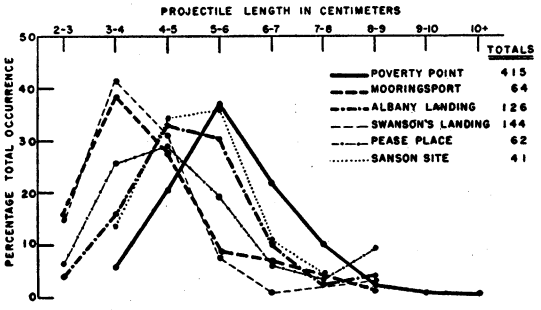

Fig. 18. Comparison of the range in length of points classified as Gary.

to 4 cm., and from the Sanson Site, with a maximum of 5 to 6 cm.

A similar tendency for Gary points to decrease in over-all size was discovered by Baerreis and Hornseth in a study of the preceramic cultures of eastern Oklahoma.[2]

Maçon Points
(New Type)

Figure 19a–d

With considerable reluctance and sorrow we introduce another new projectile point type. The points classed Maçon are very similar to Gary, except that they have straight-sided rather than contracting stems. If these points were shorter they might be classed as Carrollton. If the blades were barbed, they might be Delhi. If the blades were narrower and the flaking better, we might call them Pontchartrain. However, a brief survey of the literature suggests that these points are almost as widespread in the East as is the Gary Type. There were 102 Maçon points from the Poverty Point Site.

The blades of Maçon points are triangles that usually are about one and one-half times as long as they are wide at the shoulders. The blade edges are straight or slightly convex. The shoulders are square or very slightly sloping; none are barbed. Stems are straight-sided and range between one fourth and one fifth of the total length of the points. Stem bases are usually roughly squared, though some are slightly convex.

Large irregular flakes removed in the primary step of shaping the points produced low median ridges on the blade faces. However, two points have such a ridge on only one face; the other face is formed by the slightly modified surface of the flake from which the point was made. Blade edges are usually finished by the removal of small irregular flakes.

Maçon points range in length from 5.5 to 7 cm.; in width, from 2.8 to 3.7 cm.; in thickness, from 8 to 12 mm. Stems average 1.43 cm. in length and 1.57 cm. in width. Materials are tan-brown, slate-gray, and dark brown chert.

Pontchartrain Points
(New Type)

Figure 19e–h

This category of points, described here as a new type, was included under the Long Gary Stemmed class in the report on the Jaketown Site.[3] At Poverty Point Site, this is one of the major projectile types, with 231 specimens (12.4 per cent) represented. For purposes of description these points are discussed under two different headings, but we do not propose that these groupings should have the status of types or subtypes.

Pontchartrain, Typical: These are narrow points, two to three and one half times longer than the width; about three times seems most characteristic (64%). Typically, the blades have nearly parallel edges for most of their length, but occasionally the edges are slightly convex. These points, relatively thick in section, usually have median ridges that give them a diamond-shaped cross-section (52%). On 33 per cent the

[1] Specimens from the Sanson Site were collected by the owners of the land, and we cannot be certain that all the projectiles in the collection date in the Plaquemine-Caddoan Period. This may explain the high proportion of points between 5 and 6 cm. long in this collection.

[2] Baerreis, 1951, 109–117.

[3] Ford, Phillips, and Haag, 1955, 129. Examples of the type here classified as Pontchartrain are shown in Fig. 51i–k.

ridge occurs only on one face, with the opposite face rounded or flat, giving a triangular section. Thirteen per cent are lenticular in section. Very well-executed ripple flaking, with flake scars often extending from blade edge nearly to the median ridge, is a feature of typical Pontchartrain. This may occur on only one face, but usually is found on both. The shoulders are slight but definite, barbless, and are either square or slightly sloping. Stems are relatively wide and tend to be squared; a few are mildly tapering. Straight or very slightly convex or concave stem bases are usual.

The lengths range from 4.8 to 9.5 cm.; 6 to 8 cm. is usual. Most of these points are made of tan chert. Thirteen are made from the slate-gray chert used more commonly to make Motley points. Others are of black, red, white, or mottled chert.

PONTCHARTRAIN, CORNER-NOTCHED: Twenty-one points show typical Pontchartrain features, except that they have been slightly corner-notched so that the stems expand mildly and there are very short barbs on the base of the blades (Fig. 19e). These points range between 4.6 and 7.5 cm. in length. Half are ridged on either side; half, only on one face; all have the regular ripple flaking that is a feature of the type. Materials used are in about the same proportions as in typical Pontchartrain; tan chert predominates.

CULTURAL SIGNIFICANCE: This appears to be a rather distinctive projectile point that marks a fairly narrow range of time immediately preceding and following the introduction of ceramics into the East. The type is found in Tchefuncte sites, but does not last into the Marksville Period in the Lower Mississippi Valley. In the Pickwick Basin of the Tennessee River in northern Alabama, Projectile Type 22 apparently belongs to this class.[1] A similar point is found in the Faulkner Focus of southern Illinois,[2] a late Archaic manifestation, but apparently it is rare there. They were represented at more than half of 57 sites in central and northwestern Louisiana, from which large (dart) projectiles were gathered, totaling 6 per cent of approximately 6000 points from these sites.[3] An inspection of available reports suggests that this type does not have a wide geographical distribution.

[1] Webb and DeJarnette, 1942, Pl. 293.
[2] Griffin, 1952, Fig. 95–3 (second from left).
[3] Webb, C. H., private collection.

ELLIS POINTS

Figure 19i–k

Only three projectile points from the Jaketown Site[4] were assigned to this type, originally described and named by Krieger.[5] They are more abundant at Poverty Point, where 231 were assigned to the class.

The blades of Ellis points are short triangles, usually with straight, but some with slightly curved, edges. The blades are from one and one half to two and one half times as long as the stems. Shallow, crude, corner notches separate the slightly barbed shoulders from stems that generally expand slightly. The chipping is crude, similar to that of the type Gary. As a result the points tend to be somewhat thick and blunt. A few, however, are well made. Nineteen are flattened on one face, possibly because of the form of the original flake, but the majority are symmetrical. Twenty-four have beveled edges on the left side of both faces of the blade; 13 of these have stems which are beveled on the right side, producing the "cork-screw twist" described by Suhm and Krieger for Pandale points.[6] Ten points that otherwise conform to Ellis specifications have fine ripple retouch along the edges.

These points range in length from 3 to 6 cm.; most of them fall between 4 and 5 cm.

About 34 per cent of Ellis points from Poverty Point are made of tan chert. One per cent are of novaculite, and 7 per cent are of the slate-gray chert commonly used for Motley points. The balance are of various shades of light gray, brown, red, and black chert.

CARROLLTON POINTS

Figure 19l–o

In the Jaketown Site report the points of this class, recently defined by Suhm and Krieger,[7] were included in the very similar Ellis category. Typical Carrollton points from Poverty Point are characterized by their small size, relatively wide triangular blades that approach equilat-

[4] Ford, Phillips, and Haag, 1955, 129, Fig. 52d–f.
[5] Newell and Krieger, 1949, 166–167, Figs. 57q, u, 58a-i. Formal type description in Suhm and Krieger, 1954, 420–422, Pl. 89.
[6] Suhm and Krieger, 1954, 464, Pl. 111.
[7] Suhm and Krieger, 1954, 406, Pl. 82A–L.

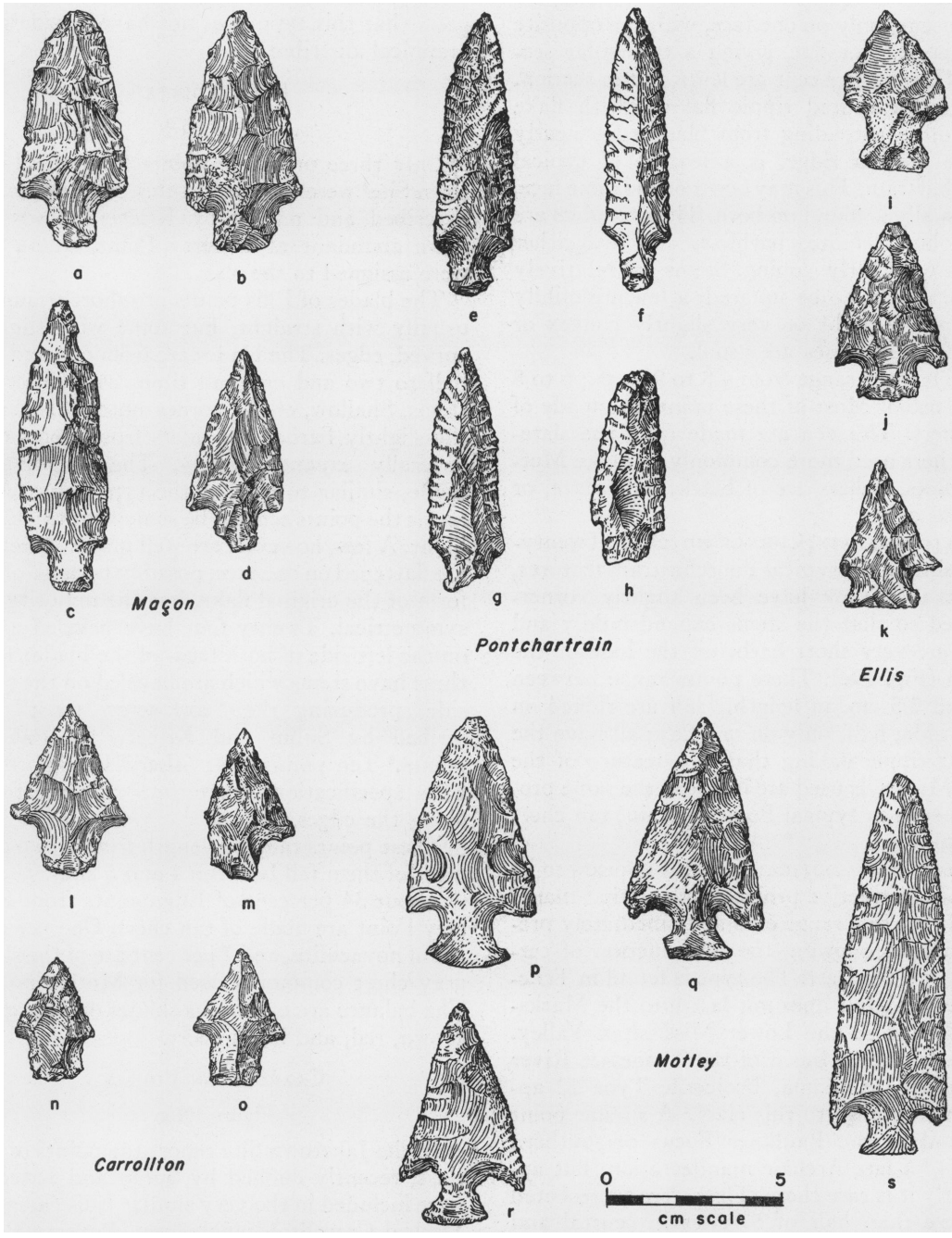

FIG. 19. Projectile points of Maçon, Pontchartrain, Ellis, Carrollton, and Motley types.

eral triangles in form, and well-squared barbless shoulders. The chipping is crude. While quite definite the shoulders are narrow, and the stems are rather wide in proportion to the blades. The stems tend to be square, although some bases are slightly rounded. They are about one third of the total projectile length; only one stem is the same length as the blade. Suhm and Krieger state, "Stem edges, and sometimes base, commonly smoothed." This does not seem to be true of the Poverty Point specimens on which edges have been blunted by battering; none are

ground smooth. Three points have beveled flaking on the left edges of the blades, and one has it on the right edge. One has fine ripple flaking on the edge.

In length, Carrollton points range from 3.6 to 5.5 cm.; average, 4.5 cm. Widths range from 2.6 to 3.9 cm.; average, 3.0 cm. Thickness is from 5 to 10 mm.; average, about 7 mm.

Thirty per cent of these points are made of tan chert; 7 per cent are of slate-gray chert; the others are of novaculite and white, red, dark gray, and brown chert.

Motley Points

Figure 19p–s

In the description of the finds at the Jaketown Site, a characteristic type of point was named Motley. In general, the 224 projectile points of this class from Poverty Point conform very well to Haag's original description.[1] The triangular blades with straight or slightly curving edges are moderately wide at the shoulders; they are rather deeply corner-notched so that the blades are definitely barbed and the stems expand. The stem bases are about equally divided between straight and moderately convex. These points vary in length from 4.2 to 12 cm.; average, 6.8 cm. The width at the shoulder varies from 2.5 to 4.6 cm.; average, 3.4 cm.

Although rather large flakes were detached in the formation of these points, the workmanship was good; flake scars often extend halfway across the faces of the blades. The blades are relatively thin in relation to their width, usually between 5 and 8 mm. Along the blade edges most of the points have delicate, but irregularly spaced, retouching which has straightened the blade edges to form unusually even lines and made them rather sharp. All but two are bifacially symmetrical; these are flattened on one side.

Slightly over half of the points of this class are made of a slate-gray, rather waxy chert with excellent chipping qualities. This is the chert that Raymond Baby, Glenn Black, and Irvin Peithmann agreed probably came from quarries in Harrison County, Indiana (see p. 51). Only nine were of tan chert, the usual material for Gary points; 11, of a dark brown flint; eight, of light shades of gray; the remainder, of white, black, and red chert. One was made of petrified wood.

Cultural Significance: Motley points are similar to the Texas type, Marcos, named and described by Suhm and Krieger.[2] The principal differences seem to lie in the manner of cutting the corner notch, which is broad and deep for Motley, narrow and shallow for Marcos. Consequently, the stems of Motley points are relatively narrow across the neck compared with those of Marcos.

In the original type description of Motley, it has been pointed out that similar projectile points are found in Archaic sites of Kentucky and Alabama and at the Faulkner Site in Illinois. In addition, attention should be called to the fact that this Motley Stemmed type is very similar to the stemmed corner-notched projectile points associated with various phases of the Hopewellian and Hopewellian-related cultures scattered over the eastern United States. This resemblance is most readily checked by reviewing the illustrations in "Archaeology of eastern United States,"[3] edited by Griffin. As a matter of fact, some of the points included in the Motley category are so similar to the widespread, thus far unnamed, Hopewellian point that they probably should be placed in such a type when it is defined. Other examples vary from the ideal Hopewellian type in that the blades have straighter edges and the deep notches tend to produce narrower stems.

Marshall Points

Figure 20a, b

Marshall points were described by Suhm and Krieger.[4] Their accompanying illustration shows that the type is intended to include blade shapes varying from rather slender triangles to squat broad blades with strongly convex edges. The 17 specimens of this class from Poverty Point all fall into the broader end of the range allowed by Suhm and Krieger.

The blades of Marshall points from Poverty Point range from virtually equilateral triangles

[1] Ford, Phillips, and Haag, 1955, 129–130, Fig. 52a–c.

[2] Suhm and Krieger, 1954, 442, Pl. 100.

[3] Griffin, 1952, Fig. 16a, Point Peninsula, New York; Fig. 22m, Middle Atlantic States; Fig. 32c, Ohio-Hopewell; Fig. 37s, Upper Great Lakes; Fig. 44h, Northern Mississippi Valley; Fig. 61f, Missouri; Fig. 63e, Highland Aspect, Missouri; Fig. 95–3, Faulkner, Illinois; Fig. 97, Crab Orchard, Illinois; Fig. 104d, Hamilton, Tennessee; Fig. 170 l, Deptford, Georgia.

[4] Suhm and Krieger, 1954, 444, Pl. 101.

with slightly curving edges to blades with extremely convex edges that often curve inward along the outer edge of the barb (Fig. 20b). In at least six examples the sides of the blade recurve distally to produce a thin, sharp, extended point. Characteristic are fairly narrow basal notches forming barbs that extend downward almost even with the bases. Three points are asymmetrical, with a long barb on one edge but absent from the other. Perhaps one barb was broken off in the formation of the notches. Most of the stems are rectangular; three are slightly expanding.

Large flakes were removed when these points were made; the scars often extend more than halfway across the faces of the blade. Blade edges, as well as bases, are shaped and thinned by irregular pressure retouching. All the specimens are bifacially symmetrical except one, which has a flat face formed by the original flake surface with slight retouching at the edges.

Materials are slate-gray, dark brown, white, tan, red, and cream-colored chert.

CULTURAL SIGNIFICANCE: Suhm and Krieger state that Marshall points are common only in central Texas and are a feature of the Edwards Plateau Aspect.[1] It should be pointed out, in addition, that the projectiles of this type that are markedly curved in outline are considered to be a marker type for the Hopewell culture of Illinois.[2]

EPPS POINTS
(NEW TYPE)

Figure 20c–g

This is another type to which we have assigned a new name because it does not conform with published type descriptions. At one end of the range of variation Epps points tend to merge with Trinity, described by Suhm and Krieger.[3] Epps are relatively narrow, triangular-bladed points with straight or, more commonly, slightly curved blade edges. Most of the 53 blades have lenticular profiles, but five have median ridges on both faces, while one has them on only one face. Wide, deep notches into the corners and sides of these points produce roughly squared shoulders without barbs. These notches also leave flaring stems with rather narrow necks, but the stem bases are not so wide as the shoulders. The unusually narrow neck is a characteristic feature of the type.

The flaking, usually precise, produces fairly thin points, except on those that have median ridges. Some points are delicately retouched along the blade edges. On two points, fine edge serration is produced by ripple flaking; three others are beveled on the right-hand edge of each face.

There is some variation in size. The lengths range from 3.7 to 8.2 cm.; average, 5.1 cm. Widths range from 1.8 to 3.1 cm.; average, 2.6 cm. Thickness is between 5 and 11 mm. The stems average about 15 mm. in length; necks average 13 mm. in width. From the neck the average point expands to a base that is about 18 mm. wide. The stem is approximately one third of the total length in short points and one quarter of their total length in longer ones. Epps and Motley points have almost identical stems in both shape and size.

Eight points are made of the slate-gray flint so common for Motley, four are of tan chert; four, white chert; six, light-gray flint; one, mottled quartzite; one, dark brown chert; and the balance, various shades of chert.

CULTURAL SIGNIFICANCE: These points are essentially side-notched and appear to belong in the same general class as Trinity, Ensor, and Yarbrough.[4] Type 47, a rather late form, is the comparable type from the Pickwick Basin Site, Ct° 27. In Guntersville Basin the comparable projectile is Type P.[5] The temporal position of the type is not clear in that area.

Similar side-notched projectile points constituted almost 50 per cent of the points found at the Archaic Chiggerville midden in Kentucky.[6] At the Sugar Hill midden in southern Illinois, this form, listed as Type 3D, decreases in frequency from the bottom to top levels of the midden (11%, 6%, and 3.5%).[7] This point also is an element of the Adena Culture.[8]

DELHI POINTS
(NEW TYPE)

Figure 20h–m

This is a new type set up for some of the points that were included in the Motley cate-

[1] Suhm and Krieger, 1954, 444.
[2] Maxwell, 1951, Types 3B and 3E, Fig. 10; McGregor, 1952, Pls. 19A, 93.
[3] Suhm and Krieger, 1954, 484–486, Pl. 121V-HH.
[4] Suhm and Krieger, 1954.
[5] Webb and Wilder, 1951, Pl. 78.
[6] Webb and Haag, 1939, 20, Fig. 12.
[7] Maxwell, 1951, Pl. 8. Projectile point frequencies calculated from Table 9.
[8] Griffin, 1952, Fig. 31J.

gory in the study of the Jaketown Site. The larger collections from Poverty Point made it apparent that the variation of a straight rather than an expanding stem is consistent enough to warrant a separate type designation. One hundred and fifty projectiles fall into this category.

The blades of Delhi points are long triangles —one third with straight sides and the majority with gently curving edges. Exceptions were noted in two specimens that recurve at the basal end of the edge to flare outward at the shoulder, four that recurve at the tip to form long keen points, and six that curve inward at the shoulder, producing ovate formed blades.

Rather wide corner notches are characteristic. These notches form barbs on the corners of the blade similar to, but slightly shorter than, the barbs of the Motley type. They never extend

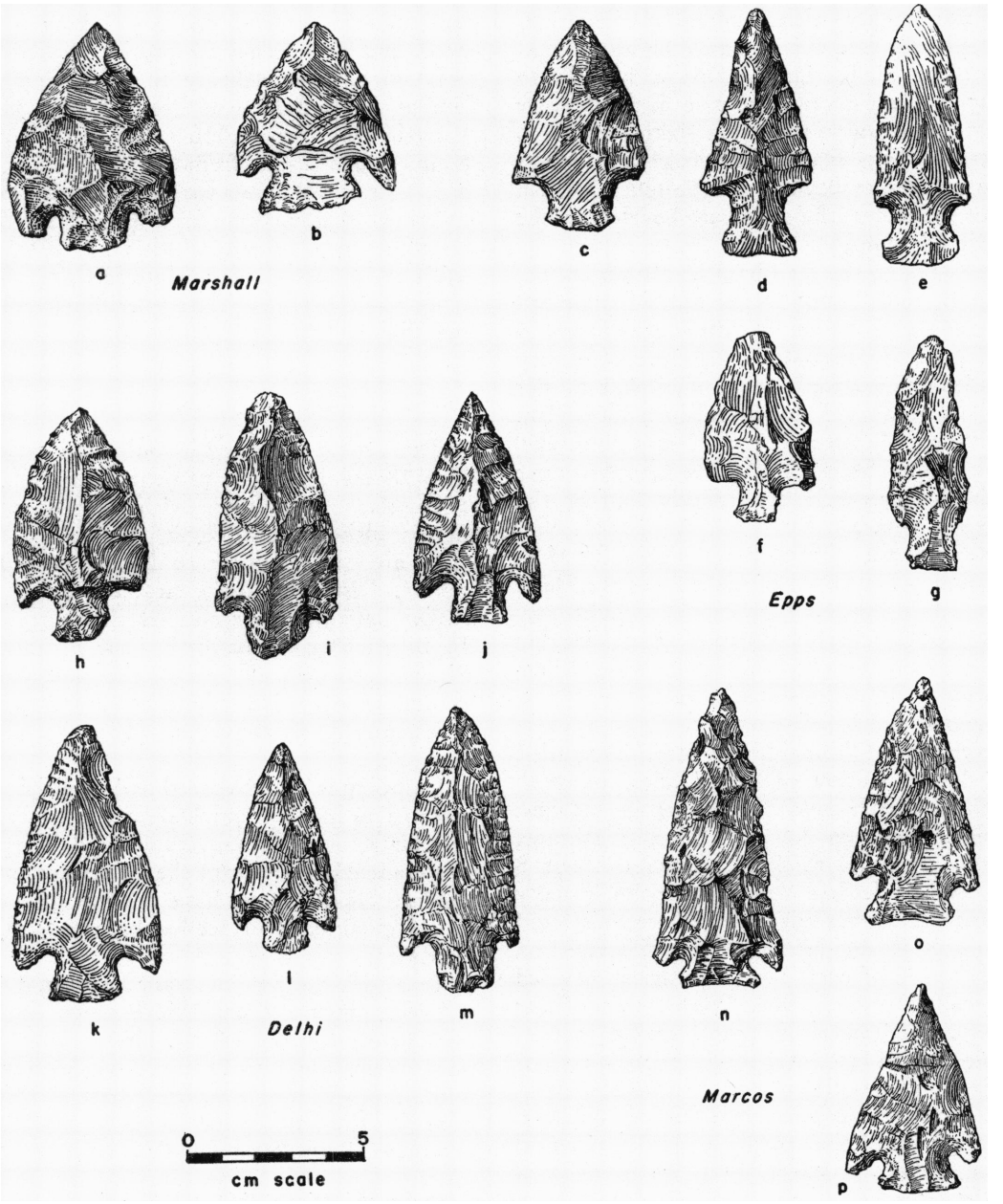

FIG. 20. Projectile points of Marshall, Epps, Delhi, and Marcos types.

down even with the base of the stem. As a characteristic feature, stems are parallel-sided and nearly square. Most often stem bases are straight with squared corners (68%), less often slightly convex (28%), rarely concave (4%).

Delhi points are formed by the skillful detachment of large flakes so that the usual result is a thin, bifacially symmetrical blade with curving surfaces; only a few have perceptible central ridges. In nine blades one face is flat, the original flake surface with minimal modification, and the other face is finished in the usual manner. Usually blade edges are finished by delicate retouching, but in only two cases is this regular enough to resemble the ripple flaking of Pontchartrain. Two blades have serrated edges; seven others are beveled on the left edge. On two of the latter, the stems are beveled on the right-hand edge.

On 80 points the measured length ranges between 4.3 and 9 cm.; 78 per cent of these fall between 5 and 7.5 cm. Width ranges from 2.8 to 4.2 cm.; average, about 3.4 cm. Uniformity of width is indicated by the fact that 80 per cent fall between 3 and 4 cm. in blade width. Thickness is between 5 and 12 mm.; average, about 8 mm. Stem length averages 1.26 cm.; width averages 1.53 cm.; nearly half of the stems are square.

The slate-gray flint commonly used for Motley points was utilized to make 20 of the Delhi points. Twenty-two were made of light-gray flint, 18 of tan chert, and two of novaculite. Six were of a very dark brown, smooth flint. Others were made of various shades of white, black, red, green, and brown chert.

Seventeen additional points may be regarded as a slender variant of Delhi. These range in length between 5 and 7.2 cm.; average, 6.1 cm.; in width, between 2.6 and 3.7 cm.; average, about 3 cm.; and thickness, average about 8 mm. The blades are slender triangles, usually with gently convex edges; barbs are short, and stems are rectangular. One blade is beveled on the left side of each face; another is beveled bilaterally on each face. While most of the blades are lenticular in section, six have ridges on one or both faces that produce cross-sections similar to those of Pontchartrain points. However, the characteristic ripple flaking is absent. Materials are similar to those listed for typical points of this class except that two are made of petrified wood.

Nine long projectile points, apparently another variant of Delhi, have moderately broad blades with convex edges that in six instances are widest about the center of the length of the point. The shoulders are definite and have small barbs. Stems are slightly contracting, with rounded bases, or in two instances, square. Another stem expands slightly. In six points one face is slightly flatter than the other, but, aside from this small distortion, the blades are lenticular in section. Primary flaking is very good, and blade edges are pressure flaked. Several points have delicate ripple flaking quite similar to the flaking on Pontchartrain points. Lengths range from 6.6 to 9 cm.; average, about 8 cm. Widths range from 3.3 to 3.7 cm.; average, 3.5 cm. Thickness varies from 8 to 12 mm.; average, 10 mm. Stem lengths are: 1.1 to 1.5 cm.; average, 1.3 cm.; widths: 1.2 to 1.7 cm.; average, about 1.5 cm. Materials are: principally tan chert; one, slate-gray flint; and one, red flint.

Marcos Points

Figure 20n–p

This type was defined by Suhm and Krieger.[1] The 18 points in the present collection have triangular blades, some with slightly convex, others with straight, edges. In size and shape they are quite similar to Motley and Delhi points. Distinguishing characteristics are the rather narrow corner notches that form sharp barbs reaching almost to the base of the stems. Short stems expand towards the base which is comparatively wide. Eight bases are straight, seven are slightly convex, and three are slightly concave.

Chipping is well executed and, again, is comparable to Motley and Delhi. Delicate but irregular retouching has shaped and sharpened the blade edges. Most of the blades are lenticular in section, but six have one flat face where the original flake surface has been only slightly modified.

In length these points vary between 4.4 and 8.2 cm.; average, 6 cm. Width ranges from 2.5 to 3.7 cm.; average, 3.2 cm. Thickness is 6 to 10 mm. Stems are 7 to 12 mm. long; average, 10 mm. The width at narrowest part is 13 to 20 mm.; at the base of the stems, 18 to 25 mm.; average, 21 mm. Six are made of white or cream-

[1] Suhm and Krieger, 1954, 442, Pl. 100.

colored chert; six, of black or very dark brown chert; three, of tan chert; one is of light gray chert; one, of quartzite, and one, conglomerate.

The Kent, Yarbrough, and Trinity Problem

A group of 84 projectile points in the collections from Poverty Point Site apparently belongs in one of these three types described by Suhm and Krieger. The points tend to be small to medium in size and have rather narrow elongated blades and wide, crude, basal or side notches. Many are somewhat asymmetrical—apparently made from twisted flakes or from material with inferior chipping qualities. Without much confidence, we have divided this group, following the Texas handbook as closely as possible.

Kent Points

Figure 21a–c

The type was defined by Suhm and Krieger.[1] Kent points from Poverty Point have narrow triangular blades with slightly convex or straight edges. Some blades are roughly ridged on one or both faces. Others have crudely rounded or flat faces. Four blades have beveled edges, and one of these has opposite beveling on the stem. Broad corner notches form shoulders that are roughly straight, but usually are at different angles or different points on the blade. None have barbs. The stems probably were intended to be straight-sided, but the inferior workmanship has produced considerable variation. Many of these points are twisted; the stems are askew or are otherwise asymmetrical. Perhaps in some instances the makers intended to produce points of one of the other types and failed through inferior materials or workmanship. In several a few ripple flakes have been taken from the edges of the blades, but these points show none of the other features of the Pontchartrain type.

Length varies between 3.8 and 6.8 cm.; average, 5.3. Width is 2 to 3.4 cm.; average, about 2.7 cm.; thickness, 5 to 12 mm.; average, 8.5 mm. Stems are generally from one quarter to one third of the total length.

Materials are: tan chert, 31; white or light gray chert, nine; slate-gray flint, seven; novaculite, three; red chert, five; petrified wood, three; rose quartz, one; the others are of various shades of gray, brown, or mottled chert.

Yarbrough Points

Figure 21d, e

These are long slender points somewhat better made than Kent but still rather crude and thick. They conform to the definition of this type by Suhm and Krieger[2] in all features except that on the specimens from Poverty Point the edges of the stem are not ground smooth. The blades are long narrow triangles, with straight or slightly convex edges. The shoulders tend to be squared but are slight; barbs are absent. Stems are relatively broad and expand slightly towards the base.

Primary chipping involved the removal of fairly large, irregular flakes, and the blades, while they have a lenticular section, are relatively thick as compared to those of the Motley points. Some have fairly steep irregular retouching along the blade edges.

Yarbrough points vary from 4.4 to 6.7 cm. in length; average, 5.7 cm. Width ranges from 1.9 to 3 cm; average, 2.5 cm. Thickness ranges from 7 to 13 mm.; average, 9 mm. Stems range from one quarter to one third of the length of the points.

Materials are: tan chert, three; white or light gray chert, two; slate-gray flint, two; novaculite, one; petrified wood, one; dark brown chert, one.

Trinity Points

Figure 21f–h

This type was defined by Suhm and Krieger.[3] The few specimens from Poverty Point that we can hesitantly place in this class are crudely chipped and have straight or slightly convex blade edges and large shallow side notches which permit the stem base to have about the same width as the blade. Bases tend to be straight, but none of our specimens has a smoothed base such as sometimes occurs in Texas, nor are any of the bases concave. Some of the smaller specimens (Fig. 21h) appear to have been extensively resharpened. These points range from 3 to 6 cm. in length, and 1.5 to 3 cm. in width. They are fairly slender. The

[1] Suhm and Krieger, 1954, 432, Pl. 95.

[2] Suhm and Krieger, 1954, 492, Pl. 125.

[3] Suhm and Krieger, 1954, 484–485, Pl. 121V–HH.

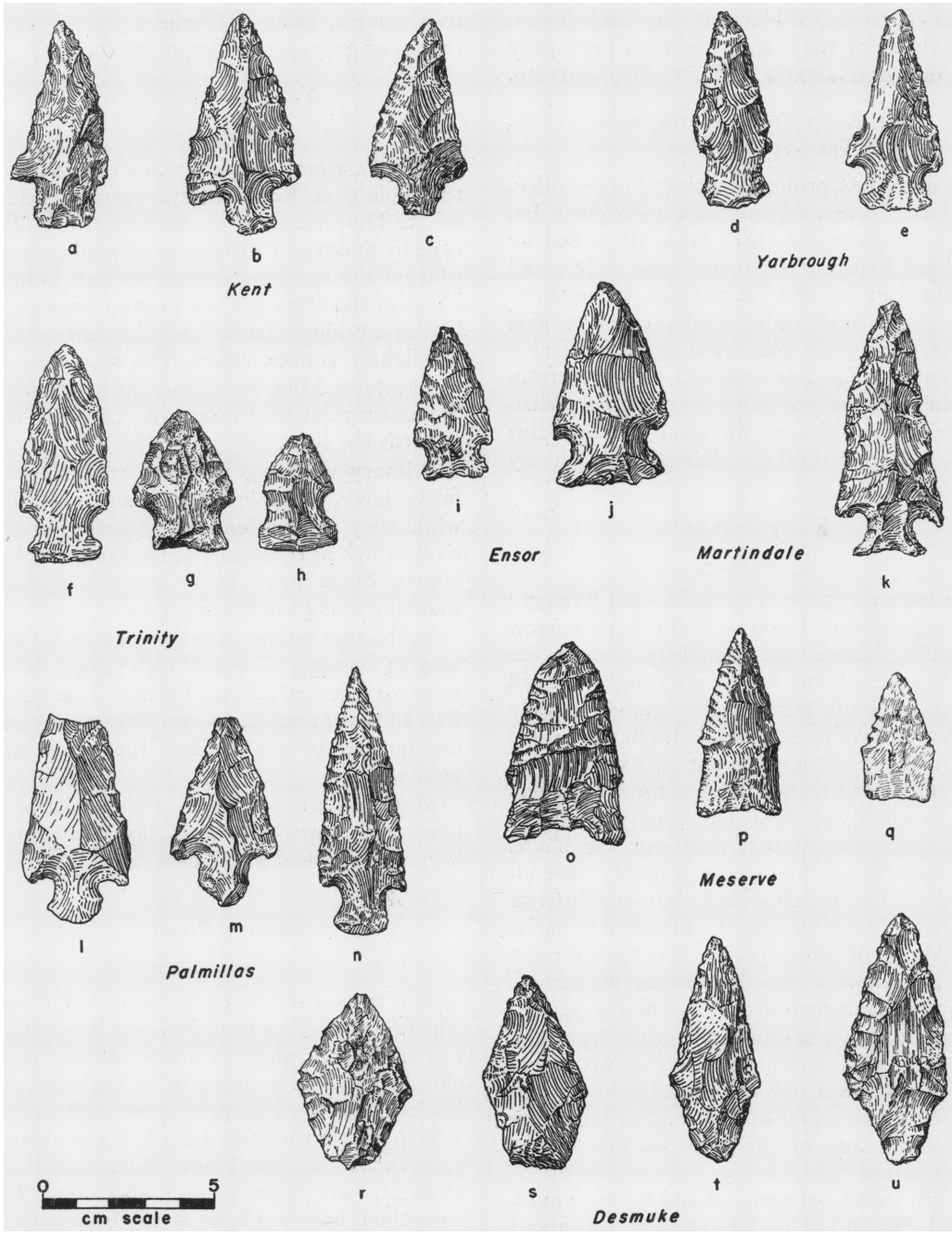

FIG. 21. Projectile points of Kent, Yarbrough, Trinity, Ensor, Martindale, Palmillas, Meserve, and Desmuke types.

blades average about 7 mm. in thickness, and there is no clearly defined median ridge.

ENSOR POINTS

Figure 21i, j

The Ensor type was defined by Suhm and Krieger.[1] The Poverty Point specimens that conform to this description are triangular, with straight or slightly curved blade edges. Fairly narrow but shallow side notches are cut upward at an angle into the lower edge of the blade. These notches have produced straight or very

[1] Suhm and Krieger, 1954, 422, Pl. 90.

slightly barbed shoulders and wide stems expanding at the base to about the full width of the blades.

On most of the points the primary chipping is well done, producing blades that are lenticular in section; only one point has ridges on both blade faces. A few points are more crudely chipped, apparently owing to difficult material. Delicate irregular retouching occurs on the blade edge of the better-made points; one has a serrated edge.

Most of the Ensor points are small, ranging from 3.1 to 6.1 cm. in length, average, 4.4 cm.; width, 1.7 to 3.3 cm., average, 2.3 cm.; thickness, 5 to 11 mm., average, 7 mm. Stem length is 7 to 15 mm., average, 11.5 mm.; width at narrow part of neck, 8 to 21 mm., average, 14 mm.; width at base, 11 to 27 mm., average, 20.4 mm.

Eight points are made of white or light gray chert, two of translucent novaculite, two of dark brown chert, and the others of shades of gray and brown chert. None are made of the tan chert so commonly used for Gary points.

Martindale Points

Figure 21k

One point in the collection from Poverty Point appears to conform to the Martindale type described by Suhm and Krieger.[1] It is 7 cm. long, at the upper end of the range cited in the type description, and is well chipped with irregular edge retouching. It has a lenticular cross-section and is 8 mm. thick. The base of the stem is indented by the removal of several delicate flakes, so it is unlikely that this feature is accidental. This point is made of light tan chert.

Palmillas Points

Figure 21l–n

The type description for Palmillas points is by Suhm and Krieger.[2] The 31 specimens from Poverty Point that have been included in this class show somewhat less variation in blade form than do those illustrated in the type description. The blades tend to be long triangles: 10 have straight blade edges, and 15 have slightly convex edges. One has an ovate blade. All of the points have broad notches at the corners; the shoulders are straight or slightly barbed. The rounded bulbous stem is the distinguishing feature of the type.

Most of the points are very well chipped; the blades have a lenticular cross-section. Delicate but irregular edge retouching is usual on the better-made specimens.

Seven points that appear to fall into the somewhat varied Palmillas class have the thick, diamond-shaped cross-section of blade and the delicate ripple flaking characteristic of the Pontchartrain type. However, they do have typical Palmillas shoulders and stems.

In size, Palmillas points are somewhat varied. Lengths range from 4.2 to 7 cm.; widths from 2.1 to 3.5 cm. Thickness averages about 8 mm. Stem lengths range from one fifth to one third of the lengths of the points.

Seven points are made of tan chert; three, of slate-gray chert; one is of milky quartz; one, of black chert; and the others are of various shades of gray flint.

Meserve Points

Figure 21o–q

The type description is by Suhm and Krieger.[3] In outline, as well as in several other features, these points resemble the San Patrice points described by Webb[4] and Suhm and Krieger,[5] but they lack the fluting that is a striking feature of that type. The Poverty Point specimens have triangular blades with slightly convex sides. The shoulders between blades and stems are very slight, so that the stems are almost as wide as the bases of the blades. The sides of the stems tend to be more nearly parallel than the sides of the blades; the bases of the stems are concave. The primary chipping is good; the flake scars extend almost across the points; delicate secondary chipping occurs on the edges. At least one point has slight grinding along the sides of the stem. The stem bases have been thinned, but the scars do not extend far enough for this thinning to be classed as true fluting. The length is between 3.6 and 5.5 cm., and the width from 2.1 to 3.2 cm. Blades are thin, about 4 to 5 mm.

Two of the points are made of light gray, almost white, chert, and two are of the slate-gray material commonly used for Motley points. The fifth point is made of light gray chert.

[1] Suhm and Krieger, 1954, 446, Pl. 102.
[2] Suhm and Krieger, 1954, 462, Pl. 110.
[3] Suhm and Krieger, 1954, 450, Pl. 104.
[4] Webb, C. H., 1948, 13–17, Pl. 1.
[5] Suhm and Krieger, 1954, 477, Pl. 109M–EE.

Desmuke Points

Figure 21r–u

The type description is by Suhm and Krieger.[1] This type was described in the report on the Jaketown Site as lozenge-shaped.[2] The blades on the Desmuke points collected from Poverty Point have nearly straight edges and straight-sided, tapering stems. About half of the points have a flattened stem base, producing a pentagonal form (Fig. 21r, s); the remainder of the stems are pointed. Chipping is fairly well done, but there is very little delicate retouching along the blade edges. None have beveled edges such as occur occasionally in Texas.

In length Desmuke points vary from 4 to 7.5 cm., average, 5.7 cm.; width ranges from 1.9 to 3.3 cm., average, 2.6 cm.; and thickness from 7 to 14 mm., average, between 9 and 10 mm.

Thirteen points are made of novaculite, eight of light gray chert, six of white chert, and four of black chert. Others are of various shades of brown and gray chert. None is made of the slate-gray flint that was often used for Motley points.

Wells Points

Figure 22a–c

The type description is by Suhm and Krieger.[3] Similar projectile points from other sites of the Poverty Point culture do not all exactly conform to the type description and possibly should not be so classified. Two specimens from the Jaketown Site have been illustrated.[4] These projectile points from Poverty Point are narrow, with straight-sided blades, slight shoulders, and long tapering stems. Stems are not ground on the edges as is usual in Texas, nor do any of the points have serrated blade edges. Chipping is rather crude, and the points are rather thick in cross-section. In length, the points range from 3.8 to 7 cm., in width, from 1.4 to 3 cm. Thickness ranges from 7 to 11 mm., average, about 8 mm.

Tan chert is the most common material. Milky quartzite and red chert were used to make two points. Others are of various shades of gray and brown chert.

[1] Suhm and Krieger, 1954, 416, Pl. 87.
[2] Ford, Phillips, and Haag, 1955, 133, Fig. 53g–h.
[3] Suhm and Krieger, 1954, 488, Pl. 123.
[4] Ford, Phillips, and Haag, 1955, Fig. 53a–b.

Evans Points
(New Type)

Figure 22d, e

There are too few examples of this new type from the Poverty Point site to warrant a complete description. It will be formally defined in a forthcoming publication by Webb and Gregory, describing the material from the Sanson Site near Catahoula Lake, in Rapides Parish, Louisiana. The specimens from Poverty Point have triangular blades with convex edges and well-defined square shoulders. Three stems expand slightly towards the base; the fourth contracts slightly. The distinguishing feature of this type is the second set of notches worked into the blade edges a short distance above the shoulders. These notches are smaller than the corner notches, and the edges have not been blunted but remain rather sharp.

The primary chipping on these points is fairly good, resulting in rather thin blades, lenticular in cross-section. Blade edges have been straightened and sharpened by irregular delicate retouching.

Too few specimens are available to give complete size range. The smallest specimen is 5 cm. long, 3.1 cm. wide, and 6 mm. thick. Two other specimens have about the same size and proportions. The largest measures 9.8 cm. long, 3.7 cm. wide, and 7 mm. thick.

Three of the points are made of tan chert, the fourth is of black chert.

Hale Points
(New Type)

Figure 22f–j

Hale points are large, perhaps large enough to be classed as spear points rather than dart points. The blades are long triangles, with convex sides. The shoulders are square or slightly sloping; some points have very small barbs. Stems tend to be square or rectangular with parallel sides. Stem bases are straight (10), slightly concave (5), or slightly convex (5).

The primary chipping is generally quite competent. Irregularly shaped flake scars frequently run more than halfway across the faces of the blades. Blades are relatively thin and lenticular in cross-section. The edges have been straightened and sharpened by irregular retouching. Most of the points are bifacially symmetrical, but two are curved longitudinally,

flattened on the convex face, and somewhat rounded on the concave face. This is doubtless due to the shape of the flake from which the points were made.

Normally, Hale points range from 9.5 to 12 cm. in length, from 3.5 to 5 cm. in width, and from 15 to 22 mm. in thickness. The stems are 13 to 20 mm. long and 15 to 22 mm. wide. Stems normally form from one fifth to one sixth of the point length. The large specimen shown in Fig. 22h is 17.4 cm. long and is somewhat atypical in shape. Perhaps it can be considered as one extreme in the range of these forms.

One Hale point is made of slate-gray flint;

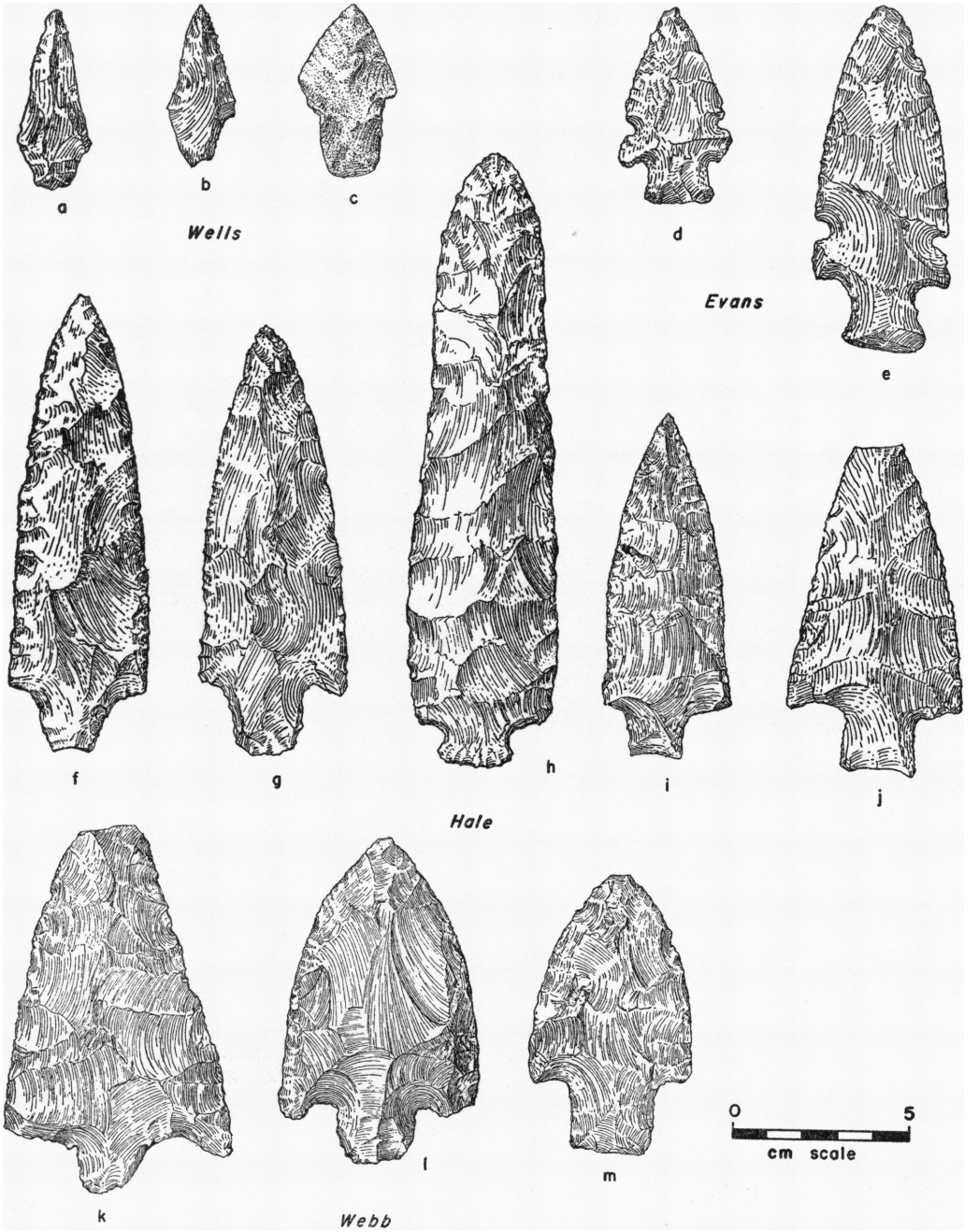

FIG. 22. Projectile points of Wells, Evans, Hale, and Webb types.

two are made of translucent gray quartzite; three, of a cream-colored flint that has acquired a light tan patina; the balance are of light gray or mottled chert.

In the Poverty Point collections the standards set up for Hale points differed a little from those used for the Heavy Blade group of the Jaketown collection. The greater number of large points here seems to demonstrate that the rather neatly chipped large points with definite shoulders, such as are illustrated in the Jaketown report,[1] should be placed in the separate category to which we have given the name Hale. The smaller points illustrated in Fig. 52l–n resemble the Gary Type in every respect, except size, and are included in that category in the Poverty Point collection.

Webb Points
(New Type)

Figure 22k–m

Seventeen large stemmed points are so similar that they warrant a separate type description. This form has already been illustrated by Suhm and Krieger as a variant of the Pogo type.[2] In the same publication it is also shown as a variant of Bulverde points.[3] The Texas type, Pogo, is apparently a catch-all for a variety of large points that seem to be related merely in size. For this reason we hope that the authors will not object too strenuously to our pirating this variation.

With two exceptions the blades of Webb points are broad and "spade-shaped," with markedly convex sides. The exceptions (Fig. 22k) are more elongated, so that the edges of the blades are gently convex. Shoulders tend to be squared, slightly sloping, or barely inclined at the opposite angle so that small barbs are formed on the blade corners. Stems tend to be parallel-sided, but several have slightly contracting stems. Stem bases are straight or mildly rounded; only one is concave.

Large irregular flakes that occasionally extend almost entirely across the blade faces were removed in the course of the primary flaking. Blade edges are irregularly retouched. Blades are lenticular shaped in cross-section; median ridges are lacking.

Lengths range from 6.5 to 11.5 cm., average, about 8 cm.; width, from 4 to 7 cm., average, about 5 cm.; and thickness, from 8 to 13 mm., average, 10 mm. Stem length varies from 11 to 20 mm., width from 15 to 25 mm.

Materials include black, tan, brown, mottled-tan, and gray chert. Three are made of a striking mottled red and cream quartzite.

Plainview Points

Figure 23a, b

Two projectile points from Hammons' collection must be assigned to the Plainview Type.[4] The point shown in Fig. 23a is 7.5 cm. long, flaked from gray flint, and undoubtedly conforms to this type. Neat parallel flake scars extend halfway across the width of the blade, which is only 5 mm. thick. The base has been thinned by flaking, but the large single flake characteristic of Clovis points has not been detached. The surface seems to be slightly patinated. Identification of the second point is less positive (Fig. 23b). It is made from a black flint with slightly poorer chipping characteristics which may explain the somewhat inferior quality of the workmanship. The base of this point also has been thinned by the detachment of several small flakes.

These two points, collected from the surface, do not demonstrate conclusively that Plainview points were a part of the Poverty Point complex. However, projectile points of this type have also been found at the Mooringsport and Albany Landing sites, also in association with other types with concave bases, Meserve and San Patrice. The projectile point assemblage from these two localities generally parallels that of the Poverty Point Site graph (Fig. 24). Suhm and Krieger state that Plainview points last well into the Archaic Stage in eastern Texas; perhaps they lasted long enough to become a minor item of the Poverty Point culture.

Almagre Points

Figure 23c

This type was described by Suhm and Krieger.[5] The four points of this type collected from the surface of the Poverty Point Site are broad, thick, and crudely chipped. The shoulders are sloping, and stems are poorly formed, with contracting sides. The size ranges from 6 to 8 cm. long, 3.7 to 5 cm. wide, and 8 to 18 mm. thick. The material is gray chert.

[1] Ford, Phillips, and Haag, 1955, Fig. 52o–p.
[2] Suhm and Krieger, 1954, 398, Pl. 78E.
[3] Suhm and Krieger, 1954, 404, Pl. 81T.
[4] Suhm and Krieger, 1954, 472, Pl. 116.
[5] Suhm and Krieger, 1954, 396, Pl. 77.

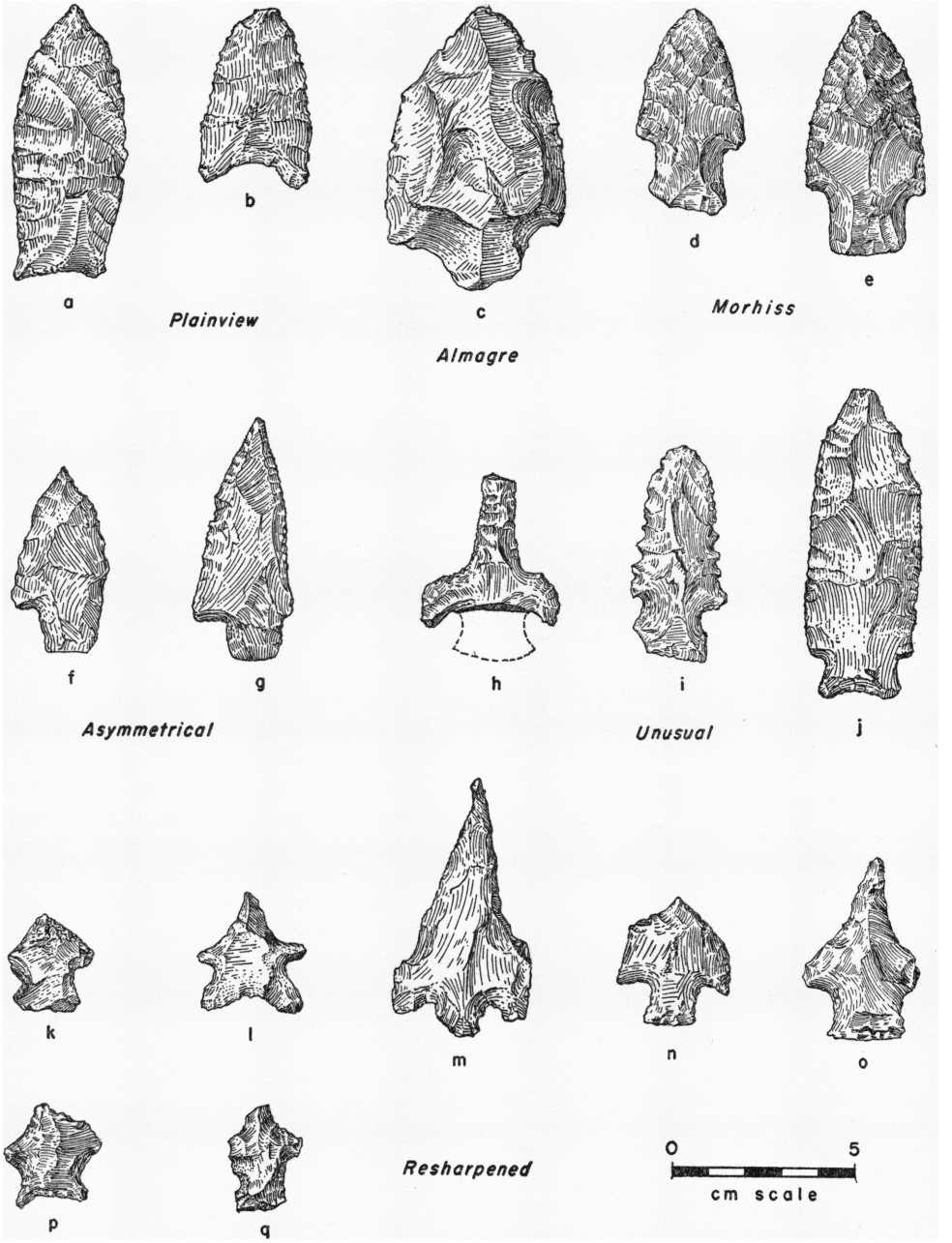

FIG. 23. Projectile points of Plainview, Almagre, and Morhiss types; also asymmetrical, unusual, and resharpened points.

MORHISS POINTS

Figure 23d, e

Five projectile points appear to belong to the type named Morhiss by Suhm and Krieger.[1] These points have triangular blades; one has straight blade edges; the other four, strongly convex. They have very slight shoulders and wide, straight-sided stems that are rather long in proportion to the lengths of the points. Stem bases are straight or very slightly convex. The primary chipping on these points is well done, and the edges have been sharpened by irregular, delicate pressure flaking. The stems also have been thinned by the detachment of

[1] Suhm and Krieger, 1954, 454, Pl. 106.

pressure flakes from the bases. A notable characteristic of these points is their thickness. Although the cross-sections of the blades are lenticular and the surfaces are neatly worked, the points are almost twice as thick as Motley points of comparable size.

Morhiss points from Poverty Point range in length between 5.5 and 8.5 cm., in width between 3.1 and 4 cm., and in thickness from 1 to 1.3 cm. One is made of slate-gray flint, one of tan chert, and two are of gray chert.

Reworked Points

Figure 23k–q

Included in almost all the foregoing types of projectile points is one or more examples that have been resharpened. Evidently the Poverty Point people were careful with the flint that they brought from the hills. In the present category are 41 points that have been so thoroughly resharpened as to obscure their original form. It is assumed that the points were resharpened while the head was attached to the projectile shaft. There are several forms. On one, the edges of the blade have been chipped away until it has been reduced to a spike (Fig. 23m). Generally the flaking was bilateral, but several points were so chipped that the resharpened portion was beveled. In others, only the point of the blade has been rechipped to a needle-like tip (Fig. 23o).

In many instances there is no evidence that resharpened points have been broken. If hunting equipment consisted of darts, with chipped points fixed to short foreshafts, the detached foreshaft might readily serve as a knife. There would have been no need for hunters to carry a special tool. Some of the resharpening may have been necessitated by such usage.

Points in another group appear to have been broken a short distance above the stem and then resharpened. Some students are of the opinion that some of these points, like those shown in Fig. 23l, were bird effigies. However, a more pragmatic explanation appears probable. Two stemmed points apparently have been broken and a blunt, scraper-like edge has been worked on them.

Asymmetrical Points

Figure 23f, g

Seventeen stemmed points with triangular blades have asymmetrically placed stems. On one side there is a very slight shoulder, or none at all, while on the other the shoulder is well developed and the blade is sometimes slightly barbed. The stems vary in shape; they are square, tapering, or rounded.

Most of these points are fairly well chipped, are thin and lenticular in blade section, and have retouch chipping along the blade edges. Nevertheless, we rather doubt that they constitute a valid type; they are certainly not Sandia points. They were intended possibly to be examples of some of the more common stemmed points, but something went amiss during manufacture. One of translucent quartzite, if symmetrical, could be classed as Carrollton; two others would be Pontchartrain; the remainder would be either Gary or Kent.

In length these points range from 4.6 to 7.5 cm., in width from 2 to 3.4 cm., and in thickness between 6 and 14 mm. The materials include: tan chert, seven; petrified wood, one; mottled light gray chert, one; the remainder are of various shades of gray and brown chert.

Arrowpoints

Small points classifiable as arrowpoints are rare. Twenty-eight complete examples and two fragments were found, all from the surface.

Three delicately chipped arrowpoints conform to the Alba type[1] (Fig. 27b). This type was not found at the Jaketown Site, and we doubt that it was made by the inhabitants of Poverty Point. Other evidence shows that this type does not appear in the Lower Mississippi before Troyville times.

Four of the arrowpoints are triangular (Fig. 27e). Similar points were found at Jaketown, where they were classified as Madison points.[2] These are thicker and more crudely chipped than the typical Mississippian points. Again, it is doubtful that these were a part of the Poverty Point cultural complex. The Mississippian Period occupation of the Jaketown Site may explain their occurrence there, but at Poverty Point we shall have to appeal to coincidence.

Nineteen small points conform to the type that Suhm and Krieger have named Scallorn.[3] Ten of these points have triangular blades with straight edges, square, slightly barbed shoulders, and expanding stems similar to the ma-

[1] Type description, Suhm and Krieger, 1954, 494, Pl. 126A–B.

[2] Ford, Phillips, and Haag, 1955, 131, Fig. 53q–r.

[3] Suhm and Krieger, 1954, 506, Pl. 132.

jority of the points that illustrate the type description. However, nine of the specimens from Poverty Point conform to a shape that seems to be rare in Texas[1] but is fairly common in Louisiana in the Troyville and Coles Creek periods. This is the arrowpoint with recurved edges, shaped somewhat like a fir tree (Fig. 27a). We list these temporarily as Scallorn, but we would like to record the opinion that this variant is distinctive enough in distribution to warrant status as a separate type.

One thin projectile point with a triangular blade, long wide barbs, basal notches, and rounded stem (Fig. 27f) would probably be included in the Scallorn group by Suhm and Krieger. The variation seems to be rare in Texas, but in Louisiana it is more common. It appears to belong in time to the Plaquemine and Coles Creek periods. Webb and Gregory will describe this type in a forthcoming publication under the name "Catahoula."

The very small point shown in Fig. 27d appears to belong to the type described by Suhm and Krieger[2] as Cliffton. As are many Cliffton points, it is made from a flake and has been shaped only on one face. This point is made of brown chert and is 1.8 cm. long, slightly below the usual Cliffton length range of 2 to 4 cm.

We very much doubt that any of these arrowpoints should be considered a part of the Poverty Point cultural complex. Although they were all collected from the surface, that fact cannot carry very much weight because the majority of the larger points we have described were also gathered in the same fashion. More convincing is the fact that we do not need to appeal to any great coincidence to explain their presence. The same types are found in substantial numbers on the Troyville-Coles Creek Period Jackson Site that lies immediately to the south of the Poverty Point earthworks (Fig. 6). Most of the arrowpoints were found on the southern part of the Poverty Point Site, where there is also a very thin scattering of the clay-tempered pottery so abundant on the Jackson Site. Perhaps the more pertinent question is not why these arrowheads are included in our collections, but rather why, in a collection of 2365 points, there should be only 30 strays from the later village.

[1] Suhm and Krieger, 1954, Pl. 132B (second from right end of row).

[2] Suhm and Krieger, 1954, 496, Pl. 127D–E.

Unusual Projectile Points

The majority of projectile points from this site are readily classifiable into the groupings described above. One of the unusual forms (Fig. 23h), found on the surface, is neatly chipped from gray flint. Both point and stem are broken off.

TABLE 3

Summary of Projectile Points from Poverty Point

	Total	Proportion
Gary		
Large	26	.014
Small	58	.031
Typical	330	.177
Long	52	.028
Total	466	.250
Maçon	102	.055
Pontchartrain	231	.124
Ellis	231	.124
Carrollton	49	.026
Motley	224	.120
Marshall	17	.009
Epps	53	.028
Delhi	150	.080
Marcos	18	.010
Kent	68	.036
Yarbrough	10	.005
Trinity	6	.003
Ensor	23	.012
Martindale	1	.0005
Palmillas	31	.017
Meserve	5	.003
Desmuke	59	.032
Wells	20	.011
Evans	5	.003
Hale	38	.020
Webb	17	.009
Plainview	2	.001
Almagre	4	.002
Morhiss	5	.003
Arrowpoints		
Alba	3	.002
Triangular	4	.002
Scallorn	19	.010
Cliffton	1	.0005
Catahoula	1	.0005
Total classified	1863	—
Broken arrowpoints, unclassified	2	—
Reworked points	41	—
Broken fragments	421	—
Unclassified	38	—
Total	2365	—

Five stemmed projectile points were made of a chalky, cream-colored flint (Fig. 23i–j). The blades of all these points are long triangles, with slightly convex edges. Three points are side-notched so that the wide stem expands sharply towards the base. One is corner-notched, with small shoulder barbs, and one has square shoulders and a square stem. Primary flaking, though irregular, is well done, producing moderately thin blades that are lenticular in section. Secondary flaking along the edges has produced fairly large serrations, the distinguishing feature of the group. Lengths range between 6 and 10.5 cm., widths between 2.5 and 4 cm. Figure 23j illustrates a large projectile with concave base which does not fit into any type very well; the base vaguely resembles Frio or Uvalde types of Suhm and Krieger.[1]

Thirty-three additional points were unclassifiable, a total of 38. In addition, 421 fragments of projectiles were not complete enough for their characteristics to be determined. Most of them were the distal ends of points.

Comparison of Types of Projectile Points

The large number of projectile points from the Poverty Point Site, principally from the surface collections made by Beckman, Webb, Hammons, and Makin, offers an opportunity for quantitative and typological comparisons with the projectile point stratigraphy discovered by William S. Webb and his assistants in the deep middens of the Tennessee River Valley. The closest of these is about 250 miles northeast of the Poverty Point Site in the Basin of the Pickwick Dam, near the junction of the boundaries of Alabama, Tennessee, and Mississippi.[2]

The chipped stone tools from the sites excavated in Pickwick Basin by the field parties were classified by J. R. Foster. Each type was given a number from 1 to 59. Unfortunately, for reasons of economy, the type descriptions, as well as tabulations of the stratigraphic results obtained from several important sites, were deleted from the voluminous report. William S. Webb regrets these deletions, which were made after the manuscript left his hands. He has very kindly assisted us by supplying such information as is now available. It is possible to identify all but three minor types by illustrations in the Pickwick report.

The frequency data of flint types are given for Sites Lu° 67[3] and Ct° 27.[4] Both of these are deep shell middens that span a rather long range of time during the Eastern Archaic Period, as is well demonstrated in the report. Each site has a superficial deposit of pottery-bearing cultural refuse. The rather extensive stratigraphic excavations in each of these middens yielded a substantial number of chipped flint artifacts, sufficient for statistical treatment. The authors of the report present graphs of occurrences of selected types at each level in both sites.[5] However, these graphs are not suitable for our purposes, for they do not show the relative frequencies of the types at the different levels. The data for Site Lu° 67, contained in Tables 22 and 24, were added, the number of artifacts in each 1-foot level were totaled, and the frequency of each type in each level was calculated. The percentages of each type were then graphed. The same procedure was followed for Site Ct° 27, combining the data in Webb and DeJarnette's Tables 32 and 33.

Comparison of the completed graphs shows that they are substantially in agreement. Most of the types show similar quantitative trends. However, as the data from Ct° 27 appear to give a somewhat clearer separation of earlier and later forms than those from Lu° 27, it was decided to use only the information from the former site, without the injection of the complication of the less clear-cut stratigraphy.

Frequencies of the more numerous types in the Ct° 27 excavations are shown in Fig. 24. Types that occur in very minor percentages, or are found in only a few levels, have been eliminated. However, the percentages were calculated on the total number of specimens in each level, so the specimens eliminated still affect the graph. In the arrangement of the selected information from the Ct° 27 excavation given in the graph (Fig. 24), apparently related forms have been placed together, with what appear to be the earlier types at the left, the later to the right.

We have also included percentage occurrences of the types from the Poverty Point collections

[1] Suhm and Krieger, 1954, 428, 486, Pls. 93, 122.
[2] Webb and DeJarnette, 1942.
[3] Webb and DeJarnette, 1942, Tables 22 and 24, 191, 193.
[4] Webb and DeJarnette, 1942, Tables 32 and 33, 250, 251.
[5] Webb and DeJarnette, 1942, Figs. 61–66, 83–89.

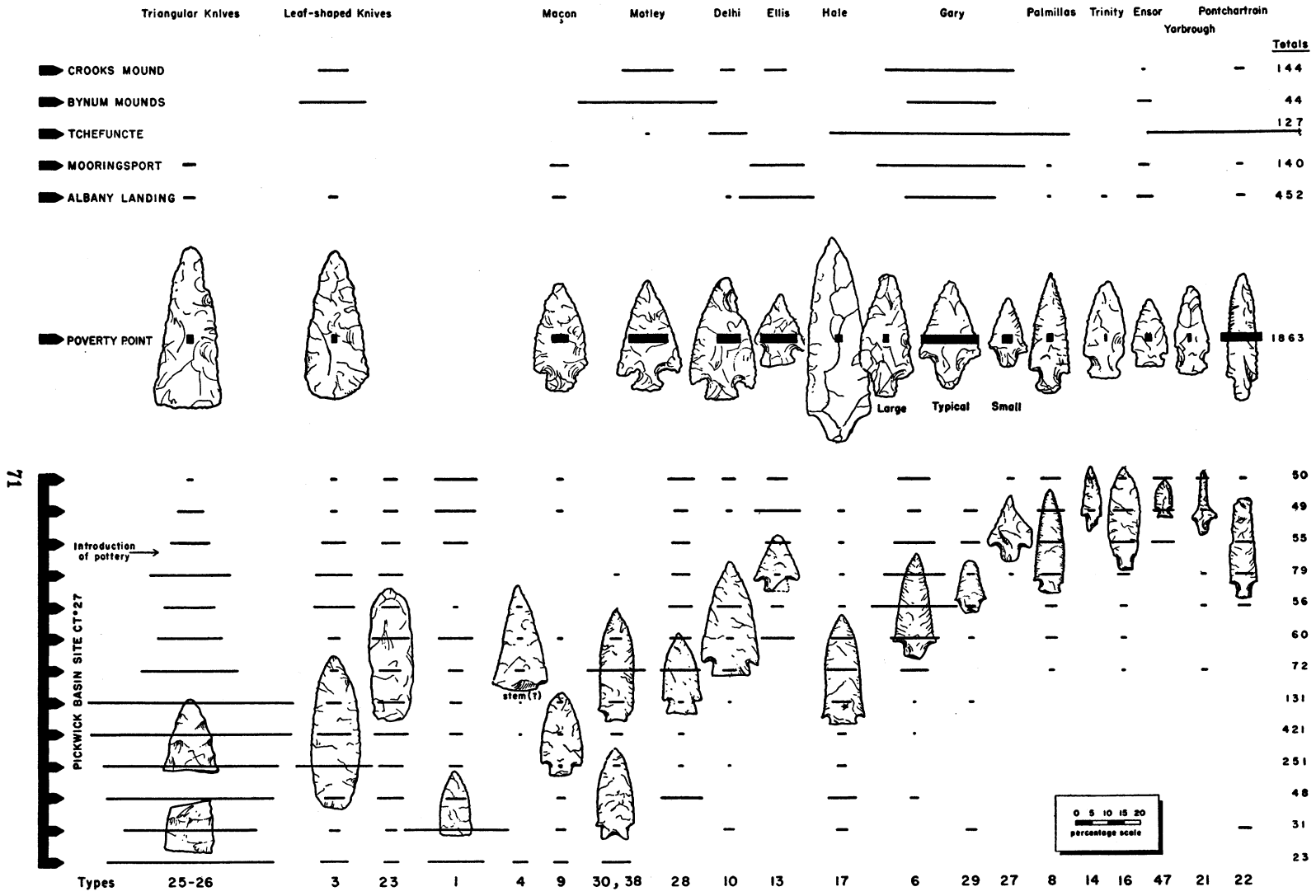

FIG. 24. Graph comparing types and frequencies of projectile points from Poverty Point with stratigraphy in Site Ct° 27 in Pickwick Basin, Tennessee River Valley, and with several later collections.

that appear to be comparable to those from Pickwick. It is not to be expected that the groupings can be directly comparable, for the classifications were set up without reference to one another. If the Pickwick material were reclassified with the Poverty Point categories as a basis, it is certain that a portion of Pickwick Type 8, for example, would fall into our class Palmillas, and another portion into Pontchartrain. If Foster's system were applied to the Poverty Point collections, a similar rearrangement would result. The question of which system is correct is not well founded; at this stage of our knowledge of the prehistory of projectile points, one system is as good as the other. The object of this discussion is to make it clear that an exact direct comparison based on the two systems is not possible.

The graphed data from Site Ct° 27 confirm the conclusions of the authors of the Pickwick report.[1] The oldest forms are the unstemmed points or knives designated as Pickwick Types 25 and 26 (broken halves of the same class of specimen), Type 3, and possibly Types 23 and 1. Presumably, Type 4 is the latest of the large triangular blades to be introduced into the sequence. However, we are in some doubt as to the shape of this type. The single specimen illustrated[2] apparently had a stem that has been broken off. For this reason we have placed a question mark next to the drawing of the type (Fig. 24).

Comparable artifacts from Poverty Point have been classed as triangular and leaf-shaped knives (Fig. 28c–i). The frequencies of these are small, paralleling the later deposits of Site Ct° 27 rather than the lower levels of this midden.

The earliest stemmed projectile point found consistently from level to level is Pickwick Type 9, a corner-notched, barbless point, with squared shoulders, expanding stem, and moderately wide blade that has parallel sides rounded to the point. This is similar to, but by no means identical with, our Maçon type. It differs principally in that Maçon has a straight stem.

Judging from the illustrations, Pickwick Types 30 and 38 are highly similar, and for this reason they have been graphed together (Fig. 24). Both are corner-notched, barbless, have straight-sided stems with concave bases, and moderately wide blades. Type 38 has longer stems than Type 30. These types appear in the lower levels of the Ct° 27 midden and disappear about the middle of the deposit. There is a generalized resemblance to Darl and Edgewood points[3] from Texas, but comparable projectile types are lacking at Poverty Point.

Pickwick Type 28 is a medium-sized, corner-notched point with squared shoulders and wide, slightly expanding stem. The type occurs in the upper three quarters of the midden. In the top levels it has a consistent frequency of between 4 and 8 per cent.

Pickwick Type 10 apparently has the general configurations of Type 28, but is larger and slightly more deeply corner-notched. These deeper notches have produced more pronounced barbs and relatively narrower stems. Type 10 was found in minor frequencies that, with one exception, are confined to the upper half of the deposit. These tendencies, it will be noted, are developments in the direction of the Poverty Point Motley and Delhi types. Type 7 is directly comparable with Delhi. Two points of this type were found at Site Ct° 27, one in Level 2, and the other in Level 16. These are not graphed.

The small, corner-notched point, Pickwick Basin Type 13, occurs in substantial frequencies in the upper half of the Ct° 27 deposit. This is comparable to the Ellis Type at Poverty Point, and the frequencies are similar.

Pickwick Type 17, a corner-notched form with very short stem, resembles the Poverty Point Hale type in shape and probably falls within the range of this named type. It seems to have less variation in stem shape than we have allowed for Hale. The occurrences of Type 17 seem to center about the middle of the time span represented by the Ct° 27 midden, with frequencies diminishing towards the later and earlier strata. Frequencies of Hale have been placed above Pickwick Type 17 in Fig 24.

Types 6 and 29 of the Pickwick classification can be identified as variants of the Gary class. The former is more abundant than the latter, and both are confined to the upper seven levels of the Ct° 27 midden. Variations of Gary in the Poverty Point collection occur in roughly similar proportions.

The projectile points designated as Type 8 in the Pickwick Basin appear to conform rather well to the class called "Palmillas" by Suhm

[1] Webb and DeJarnette, 1942, 264–266, Fig. 91.
[2] Webb and DeJarnette, 1942, Pl. 226–2.
[3] Suhm and Krieger, 1954, 414, 418.

and Krieger. In features of blade shape and flaking they also resemble Pontchartrain. As Fig. 24 shows, Type 8 first appeared near the middle of the Ct° 27 deposit and increased to about 7 per cent in the upper levels. This is a somewhat larger proportion than the frequency of approximately 2 per cent of Palmillas in the Poverty Point collection.

Type 16 has about the same late time range as Type 8. The outstanding feature of this straight-stemmed, square-shouldered point is that the widest part of the blade tends to be nearer the tip than it is to the stem. Nine comparable projectiles from Poverty Point have been placed in the Delhi type. This class has a generalized resemblance to such long, fairly narrow types as Palmillas and Pontchartrain.

In Pickwick Basin, Types 47 and 21 are numerically prominent side-notched points. A few other side-notched points (Types 31 and 35) are not numerous enough to warrant being included in our graph; however, as are also Types 47 and 21, they are confined to the upper levels of the deposit. As a group, the side-notched points seem to be the latest types at Ct° 27.

Trinity, Ensor, and Yarbrough (Fig. 24) are comparable side-notched points from the Poverty Point collection. Percentages of these types are lower than for the Pickwick Basin side-notched forms.

Pickwick Type 22 is a long, narrow projectile point with square shoulders and a straight stem. Judging from the photographs it is thick in section and nicely chipped. The consistent occurrences of the type are found in the upper five levels of the Tennessee Valley midden. Pontchartrain, which is the comparable type from Poverty Point, differs in having a relatively wider stem. Frequencies of Pontchartrain are a little higher than those for Type 22.

The net result of this comparison seems to be that both typologically and proportionally the Poverty Point collection roughly resembles the latter part of the Ct° 27 chronological pattern. They agree in having very minor percentages of stemless knives, a majority of corner-notched forms, and a smaller proportion of side-notched points.

Sherds representing the entire pottery chronology of the Tennessee Valley Area (the classical sequence of fiber, sand, clay-grit, limestone, and shell-tempered ware) were found in the upper three levels of Ct° 27. These sherds were thoroughly mixed, and there was no evidence of sequence.[1] The total number of sherds recovered was not great: 1551 from the first level, 843 from the second, and 76 from the third. Evidently the occupation of this midden during pottery-making times was not very intensive. Some of the minor types of projectile points, not sufficiently numerous to be listed in our Fig. 24, were undoubtedly deposited during the time of the pottery sequence. An obvious example, a single point of Type 50, the well-known thin triangular point of the Mississippian cultures, was found in the second level. However, most of the types illustrated in Fig. 24 make their appearance considerably below the pottery-bearing levels and show a general continuity of percentage trends through the three upper levels. It appears likely that the projectile-point populations in these upper levels more nearly reflect the chronological situation at the end of the Archaic Period than they do those characteristic of later pottery-making cultural phases.

For comparative purposes several collections of projectile points from other early sites in Louisiana have been included in Fig. 24. Webb and Beckman have collected extensively from the Albany Landing Site in Caddo Parish, northwestern Louisiana. This village area of 5 to 10 acres, occupying a bluff overlooking the Red River Valley, has no earthworks or other surface features. Despite the fact that the collections include 452 projectile points, only five sherds were found: three clay-tempered plain, one sand-tempered plain, and one incised, and only six small arrowpoints: two Alba, one Cliffton, three uncertain. Occupation during Early Archaic times is suggested by one Scottsbluff, two Plainview, and one Meserve projectile. The balance of the collection seems to be typically Archaic. The site may have been occupied until fairly late in this preceramic period.

In order of frequency, the projectile points are Gary, Ellis, Carrollton, Kent, Evans, Maçon, Desmuke, Ensor, Pontchartrain, San Patrice, and Asymmetrical. There are frequencies of less than 1 per cent of Wells, Travis, Trinity, Yarbrough, ?Frio, Palmillas, Morrill, Bulverde, Delhi, Plainview, Meserve, Scottsbluff, Elam. Other artifacts are: tri-

[1] Webb and DeJarnette, 1942, 260–264.

angular, ovoid, and oval scrapers or knives, Albany spoke shaves, reworked projectile end-scrapers, flake scrapers, expanded base and rectangular base drills, manos, rough choppers, pitted hammerstones, rectangular celts, quartz crystals, and one graver.

The Mooringsport Site, located on a tributary stream to Caddo Lake, Caddo Parish, Louisiana, is a village covering 2 to 3 acres. There are no mounds or other special features. Its time range seems to be in the Late Archaic, for early projectile types were not found. In contrast to the collection of 140 projectile points, only 14 thick, plain, clay-tempered sherds have been found. Four small arrow-points, all apparently Cliffton, were broken. In order of frequency the projectiles include Gary, Ellis, Desmuke, Kent, Maçon, Ensor, Pontchartrain, Carrollton, and Wells. One each was found of Frio, Palmillas, Evans, Asymmetrical, Meserve, and San Patrice. Other artifacts include a fragment of a slate gorget with notched edges, thin triangular knives, thick rough ovate and irregularly shaped scrapers or small choppers, and an Albany type spoke shave.

The projectile points from these two sites were classified according to the typology used here by Webb and Beckman, so the data fit readily into the graph given in Fig. 24.

For purposes of comparison the projectile points from all the sites classified as belonging to the Tchefuncte phase of culture in southern Louisiana have been summarized.[1] These are graphed in Fig. 24.

Projectile points from both the Tchefuncte sites and the Crooks Mound, described below, were classified according to the same system. As is inevitable, some of the divisions do not have the same boundaries as those we are applying in the present paper. However, a general agreement exists, so that it is possible to transpose the data into the present form for purposes of general comparison. The two classifications are correlated as follows:

SH1A[2]	Pontchartrain	SH3A	Gary, small
SH1B	Gary, typical	BH1A	Delhi
SH1C	Gary, typical	BH1B	Motley
SH1D	Gary, broad	BH2A	Delhi
SH1E	Gary, long	BH2B	Motley
SH2A	Desmuke	BH2C	Ensor
SH2B	Desmuke	BH3B	Ellis
SH2C	Gary, broad		

There is some uncertainty as to the relative ages of the Bynum Site[3] and Crooks Mound. Although one may slightly precede the other, it appears certain that they are very close together in time. Bynum is orientated more closely towards the Hopewellian cultural phases of the Tennessee Valley and southern Illinois, while Crooks seems to represent an early phase of the Marksville variant of Hopewell, a distinctive Lower Mississippi Valley development. It has proved fairly simple to correlate Cotter and Corbett's projectile types with the present system. In making this correlation we have, however, taken some slight liberties. For example, Cotter and Corbett's Class A[4] does not conform exactly to our Motley class. Blade edges curve, stems are slightly wider, and the points are more symmetrical. Actually this is the classical "Hopewell point" of the Ohio River Valley. The Bynum Site classification can be correlated as follows:

Bynum Type A	Motley
Bynum Type B	Gary
Bynum Type C	Ensor
Bynum Type D	Mississippian (an obviously later type found only on the village site and not graphed)
Bynum Type C	Copena (not graphed, for there are no comparable specimens from Poverty Point)
Ovate knives	Smaller than Pickwick Types 25 and 26; resemble more Type 1

The collection from the Bynum Site includes the major types found at Poverty Point. However, this collection contains only 44 points, and the graphed proportion of these types cannot be considered as particularly significant.

Crooks Mound, a Marksville Period burial

[1] Type occurrences are given in the type descriptions, Ford and Quimby, 1945, 32–36, Fig. 8. Formerly the Tchefuncte cultural remains were thought to represent the earliest pottery-making peoples of the Lower Mississippi. Obviously, Tchefuncte is later than Poverty Point, as was demonstrated in the excavation of the Jaketown Site.

[2] SH, "simple haft"; BH, "barbed haft." See Ford and Willey, 1940, 93–97.

[3] Cotter and Corbett, 1951.

[4] Cotter and Corbett, 1951, Pl. 5, 1–4.

mound, is located about 80 miles southwest of the Poverty Point Site.[1] All the material was collected from the mound fill and either accompanied burials or was scattered through the soil. The 144 projectile points were classified according to the system used for the Tchefuncte sites (p. 74), so the same correlations apply. In general, the type proportions at Crooks Site are similar to those of Poverty Point.

Three of the sites graphed in the upper part of Fig. 24, the Crooks, Bynum, and Tchefuncte sites, are certainly later than Poverty Point. Mooringsport and Albany Landing may be coeval or older than Poverty Point; at least a portion of the Albany Landing collection is almost certainly older.

The comparison made in the upper part of the graph cannot be considered as a satisfactory seriation, because the evidence for type frequencies is inadequate to rank the sites. However, when the sites are placed in their approximate order on the basis of other evidence, there is a bare suggestion of continuation of some of the trends that apparently can be noted in the Pickwick Basin Site Ct° 27. The increasing percentages of stemmed and side-notched points are particularly interesting.

A further comparison with projectile types from sites in northwestern and central Louisiana is given in Table 4, computed from Webb's surface collections. Poverty Point percentages are from our combined collections totaling 1863 typed projectiles; other percentages are of 5595 points from 49 pooled sites in six northwestern Louisiana parishes (Caddo, Bossier, DeSoto, Claiborne, Bienville, Natchitoches) and 471 projectiles from eight sites in four central Louisiana parishes (Avoyelles, Catahoula, LaSalle, Rapides). The five sites from which the graphs of Gary size in Fig. 18 are taken are included, and the time or culture period coverage is much the same. Some evidence of fairly early Archaic is indicated in that Scottsbluff, Plainview, or Meserve projectiles were included from 10 of these 57 sites. However, pottery sherds and/or small arrowpoints were found in varying numbers on all except four or five small sites, indicating either a prolonged site usage or the persistence of Archaic dart point types into pottery-making times (possibly both).

[1] Ford and Willey, 1940.

The range of pottery types represented on the various sites is Marksville to Plaquemine in central Louisiana, Bellevue (Marksville-Troyville horizon) to Bossier in northwestern Louisiana. The higher percentage of arrowpoints in these areal collections, 37 and 16.8 per cent, respectively, with pottery generally well represented, indicates a post-Poverty Point average for both pools; the presence of only one Plainview point, of the older projectile types, from the central Louisiana sites and the higher arrowpoint percentage suggest that this pool averages latest of the three.

Under these circumstances it is interesting to see that major projectile types show generally good correlation; this is especially close between Poverty Point and northwestern Louisiana

TABLE 4

FREQUENCY OF PROJECTILE TYPES FROM POVERTY POINT, FROM NORTHWESTERN LOUISIANA, AND FROM CENTRAL LOUISIANA[a]

Projectile Types	Poverty Point	Northwestern Louisiana	Central Louisiana
Gary	.250	.242	.210
Ellis	.124	.135	.034
Pontchartrain	.124	.060	.083
Motley	.120	.002	.010
Delhi	.080	.010	.015
Maçon	.055	.069	.029
Kent	.036	.019	—
Desmuke	.032	.020	.006
Epps	.028	.0007	.013
Carrollton	.026	.047	.010
Hale	.020	.006	.002
Palmillas	.017	.007	.006
Ensor	.012	.036	.050
Wells	.011	.007	.006
Arrow projectiles	.015	.168	.370
Marshall	.009	.006	.015
Marcos	.009	.008	.032
Evans	.003	.035	.066
Trinity	.003	.010	—
Edgewood	—	.010	—
San Patrice	—	.021	.015

[a] Types present at Poverty Point which total less than 0.01 in all three collections: Yarbrough, Martindale, Morhiss, Plainview, Meserve, Webb, Almagre. Other types which total less than 0.01 in all collections: Elam, Bulverde, Lange, Travis, Morrill, Williams, Castroville, Frio, Fairland, Uvalde, Scottsbluff, Eden, Folsom, Angostura, Paisano, Darl, Pedernales, Montell.

for the Archaic types Gary, Ellis, Maçon, Kent, Desmuke, and Carrollton. Pontchartrain type drops off in popularity, especially in northwestern Louisiana; it has been indicated previously that this type continues into Tchefuncte and Marksville in the southern and central parts of the state. Surface collections show that it continued to be made into Plaquemine times, appearing at 9.5 and 11 per cent frequency at two major Plaquemine sites in this pool.

The drop in percentage of Ellis Type in central Louisiana may represent a local phenomenon rather than a lessening frequency in later pottery-making times, as it is a major dart point type at Caddoan sites in East Texas and northwest Louisiana (Alto, Titus, and Bossier Foci).

The trend of increasing frequency of side-notched points noted in Fig. 24 is borne out by the rising percentage of Ensor type in northwestern and central Louisiana and of Trinity in the former area.

Motley and Delhi seem to be localized styles, the former especially dropping in frequency in central Louisiana and almost disappearing in the northwestern part of the state, except for one site in Natchitoches Parish, where Motley totals 4 per cent of the 142 projectiles found. Significant also is the fact that the slate-gray material of which they were often made at Poverty Point is extremely rare in collections from northwestern Louisiana sites. Other corner-notched points, Marshall and Marcos types, are more popular in central Louisiana, but are about as infrequent in the northwestern area as at Povery Point.

Large projectiles, as represented by Hale, Webb, and Morhiss types, are less numerous in the other collections than at Poverty Point; projectile sizes generally average smaller, with comparatively few specimens exceeding 8 cm. in length, even in the long, slender types such as Pontchartrain, Maçon, and Palmillas. Almagre type is rare everywhere.

Evans type seems to be localized in popularity, although represented from most sites in the central and northwestern parts of the state. This type reached a frequency of 23.6 per cent of 224 projectiles from the Sinner Site in Bossier Parish, 7, 10, and 25 per cent, respectively, at the Sanson, Jonesville, and Chevalier sites in central Louisiana. San Patrice type also seems to be localized in distribution, although present in small numbers at about half of the sites in each area. The maximum frequency of 6.5 per cent was reached at the type site, San Patrice, in DeSoto Parish; the Sanson Site in central Louisiana had 3 per cent.

Although these comparisons of surface collection are less significant than the results of controlled excavations, they offer further confirmation of the trends indicated in Fig. 24. Moreover, they strengthen the conviction that the Poverty Point projectile assemblage basically reflects Archaic types which were in general use in this part of the Southeast during its time span. The unicultural situation at Poverty Point, cutting across projectile type developments at the point of transition from Archaic to pottery making times, should offer a valuable reference check for students of trends in projectile types.

THE MICROFLINT INDUSTRY AT POVERTY POINT

In the report on the excavations at the Jaketown Site,[1] particular attention was given to the microflint industry, and an attempt was made to describe it with care. The specimens were classified and described under categories of Cores, Unmodified Blades, Endscrapers, Sidescrapers, Jaketown Perforators, Blunt Perforators, Needles, and Notched Blades. The writers were particularly impressed by the relative abundance of perforators and, despite considerable speculation, were unable to arrive at a satisfactory explanation as to how they were used.

As stated in the Jaketown paper and in a comparative study by Haag and Webb,[2] the microflint complex is abundantly represented at the Poverty Point Site. The specimens from the two sites are identical in form. While Ford, Bird, and Ward were studying the Poverty Point specimens, a few logical speculations led

[1] Ford, Phillips, and Haag, 1955, 137–150.

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

to some practical experiments. First, the lack of any consistent preparation of the points of the perforators for cutting or incising and the nearly complete absence of any signs of smoothing of the stone by use aroused our interest. Had these tools been used, as were Old World burins, for cutting grooves, some of the perforators should show the characteristic wear of such use. Second, it appeared strange that almost all the perforators had been chipped by pressure applied from the flat side of the flakes. Had these implements been used as drills, not only should there be some evidence of rotary wear, but some flakes should have been removed from both edges of the flake to make a sharper drill.

Most challenging was the relative numbers of perforators; at both Jaketown and Poverty Point there were more than twice as many perforators as blades. This proportion is increased by the fact that many of the blades are imperfect and probably were intentional rejects. As Haag once remarked, it seemed as though the end purpose of the entire microflint industry was to produce perforators.

The over-all number of these items, which were collected with relatively little effort at both the Jaketown and Poverty Point sites, is impressive. After the Indians had transported flint pebbles from the gravel deposits in the hills, at least 30 miles distant, it seemed very odd that they would so carelessly abandon newly fashioned or partially used tools. Perhaps the perforators were not specialized tools but were merely worn-out knives or scrapers that were no longer useful and had been intentionally cast aside.

This deduction suggested some practical experimentation. With a flint blade showing no sign of previous use, we started work on a piece of fresh antler. It was soon discovered that the blade would not cut the antler; at best, only fine shavings were removed. We learned also that the most natural and effective method was to hold one end of the blade between the thumb and forefinger at an angle of almost 90 degrees to the antler and press down hard with a scraping motion. The blades cut best and were least damaged when they were moved towards the flat face. The small shavings of antler were mixed with tiny flakes of flint that were pressed off the edge of the blade. Fifteen minutes' work so dulled one edge of a blade that it was no longer very effective; it was then reversed and the other edge utilized in a similar fashion. The portion of the blade held in the fingers was not dulled; the result of half an hour of work with this scraper is what appears to be a typical perforator.

The resemblance is very close. Under the microscope it was seen that there were numerous minute hinge fractures along the dulled edges near the flattened face of the blade (Fig. 25). The tiny flakes pressed off while the antler was being worked frequently did not extend entirely across the dulled face of the edge. Comparison with the perforators from Poverty Point and Jaketown shows that these small hinge breaks are a feature of all the dulled edges on these tools, As a check, with a nail as a tool, several unused blades were pressure flaked into the shape of the "perforators." Pressure was applied from the flat side of the blade. The small fracture scars resulting from this operation showed very few hinge breaks; usually they were very neat conchoidal scars that demonstrated that the detached flakes had feathered out to the surface of the flint (Fig. 25).

This modest experiment placed the puzzling Poverty Point microlith industry in an entirely new light and provided the impetus to a review of the entire problem. For convenience in comparison, the artifacts are classified in the same categories as in the Jaketown study, but, as the discussion will reveal, we are not convinced that each of these is a true functional group.

Cores

Figure 26a–e

In the various collections available for study there were only 58 cores. This is only 0.7 per cent of the total number of microliths that comprise the Poverty Point collection, a marked contrast to the 7 per cent frequency of cores found at Jaketown.

The cores from Poverty Point are identical with those described from Jaketown.[1] Almost every example shows more or less cortex, which indicates that they were made from water-worn pebbles rather than from a quarried flint. The average length along the face from which the blades were detached is 4 cm.; the range is 3 to 5 cm. Striking platforms were prepared by the knocking off of one end of a pebble at an angle

[1] Ford, Phillips, and Haag, 1955, 137–138.

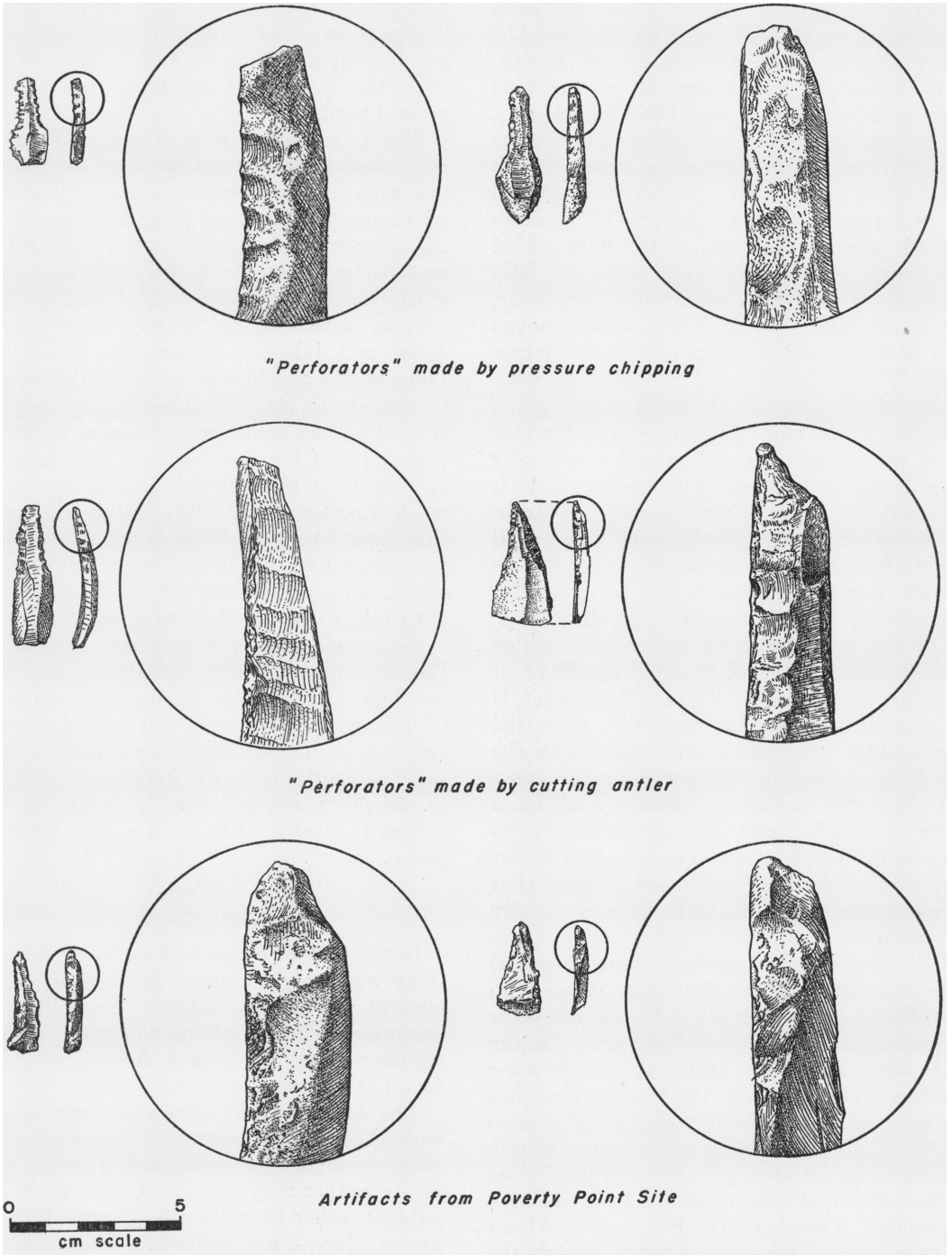

FIG. 25. Comparison of recently manufactured "perforators" with specimens from the Poverty Point Site.

of about 50 degrees to the face from which the artisan intended to draw the blades. Usually, one blow sufficed to form the platform, but it can be seen that occasionally several flakes were detached before satisfactory results were achieved. Blades were drawn from only one face at a time, a face that tends to form an angle of about 50 degrees with the platform. In contrast to the simple cores found at Jaketown, the Poverty Point collection contains a large proportion of cores that have blades detached from two striking platforms, that is, the platforms were used in sequence. In the course of drawing blades from one platform the core apparently assumed a shape that offered a better opportunity for working from another angle. There is no evidence that any of these cores were utilized as tools.

Unmodified Blades

Figure 26f–j

Blades showing few or no signs of use total 1158. All the specimens that are complete enough show a tiny fragment of the striking platform at one end, and a corresponding bulb of percussion on the flat face along which the blade was detached from the core. This flattened face tends to be straight or slightly curved from the bulb of percussion, about half of the length of the blade; below that, towards the distal end, the cleavage curves towards the core, sometimes very markedly. In length the blades range from 3 to 5 cm., averaging about 4 cm.; the width varies between 1 and 2 cm.; the thickness averages perhaps 4 mm.

Although there is no doubt that all of the artifacts in this category were struck from prepared cores, at least 80 per cent of them do not have the appearance of neatly formed blades ready for use. All sorts of imperfections are apparent. There are misshapen blades, on which the fractures did not run true, broken blades, blades with hinge fracture scars on their backs, and blades taken off in the preliminary stages of the shaping of a core that show considerable cortex of the pebble. In other words, it appears probable that the majority of these blades were intentionally rejected by the flint knappers and only occasionally show signs of use. This interpretation also has a more logical appeal than the assumption that the specimens were lost before they could be put to use. Again, it does not appear likely that the Indians would have been so careless with this imported material.

Endscrapers

Only two specimens from Poverty Point could be classified as possible endscrapers.[1] This contrasts with the 106 specimens listed from Jaketown. Both blades showed considerable cortex of the original pebble. From merely casual inspection, a number of additional blades might have been included in this group. However, a more careful examination showed that the delicate chipping on the edge of the flat faces of the blades, adjacent to the bulb of percussion, was in reality battering produced in the act of striking off the blade.

Sidescrapers

Figure 26k–o

Under this category we have classified 277 imperfectly shaped blades that show minute chipping along the edges. Examination with the microscope shows that in most instances this chipping is characterized by the numerous minute hinge fractures that seem to result from use. Some specimens may have been pressure-flaked to resharpen them, but these are too few and the evidence is not clear enough to warrant setting up a separate category. The probability that these are merely examples of the first stages of the use that eventually would result in the forms called "perforators" is further strengthened by the fact that on about half of the specimens the chipping on each edge does not extend all the way to one end of the blade. This was probably the end held in the fingers—the end that with additional use would be the bulbar portion of a perforator.

"Jaketown Perforators"

Figure 26p–t, y–b′

The collection from Poverty Point contained 6343 of the specimens we have called perforators. They are similar in every way to those described from the Jaketown Site,[2] so that it is not necessary to repeat the detailed description. All the specimens of this class, as well as a representative sample of "perforators" from the Jaketown Site, were examined under the microscope. All chipping was done from the flat side of the blades and was quite "steep," but most

[1] Ford, Phillips, and Haag, 1955, 140.
[2] Ford, Phillips, and Haag, 1955, 140–141.

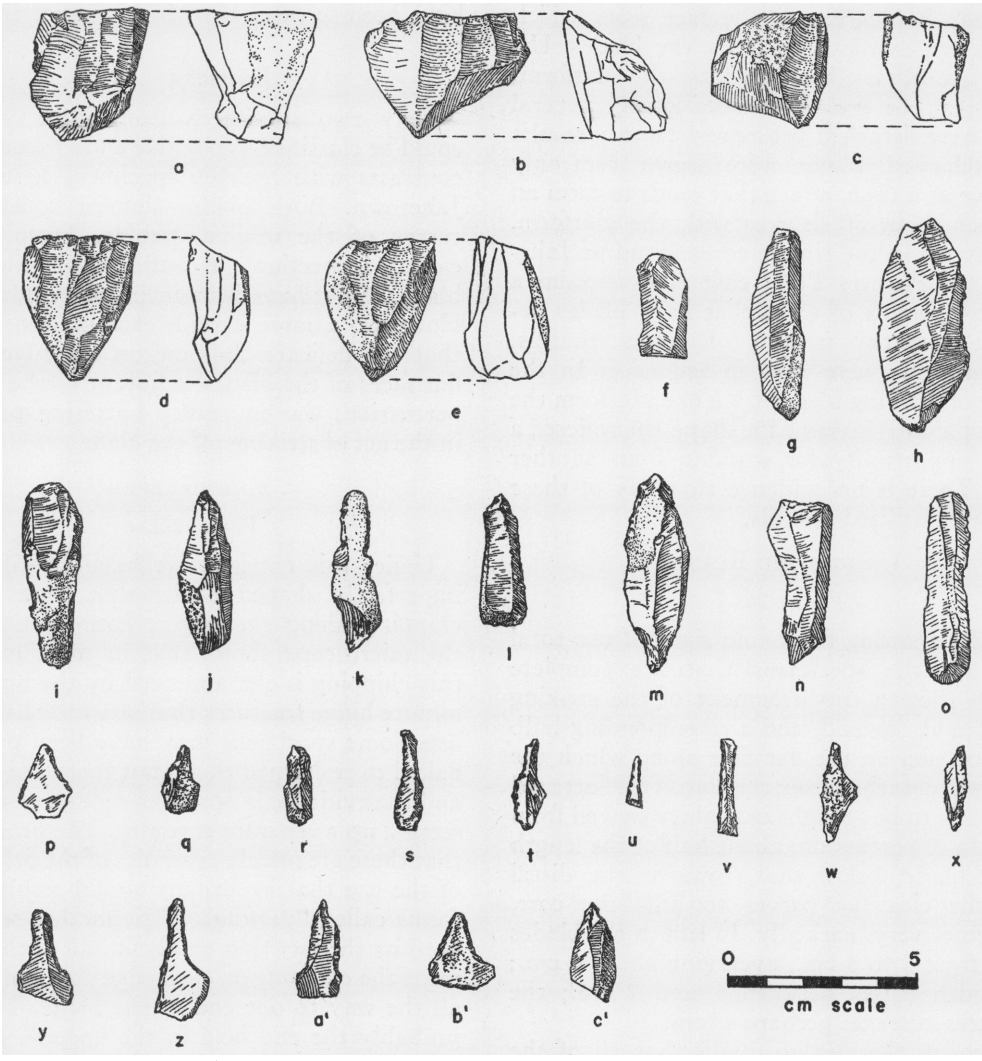

FIG. 26. Examples of the microflint industry from Poverty Point. a–e. Cores. f–h. Unused blades. i–o. Slightly used blades. p–c'. Several varieties of exhausted blades or "perforators."

notable was the fact that the chipping is characterized by numerous tiny hinge breaks, located adjacent to the edge along which pressure was applied. As explained above, this appears to be evidence that the chipping occurred as a result of use rather than intentional pressure flaking.

Under this listing we have also included the category described in the Jaketown paper as "blunt perforators."[1] Examination reveals no essential distinction between the two groups. Apparently the shorter beaks of the "blunts" are the result of further stages of use of these scrapers, with the consequent wearing away or breakage of the beaks.

In analyzing the material from Trench 4, Bird found a few perforators on which the working edges were reversed. This implies a deviation from the normal handling of the tool. In the more common type one edge developed on the cutting stroke away from the worker, the other edge on strokes towards the worker. Reversed edges developed only when the stroke direction remains constant for both edges of the flake.

A very few, with precisely the same outlines

[1] Ford, Phillips, and Haag, 1955, 141.

as the preceding, have three cutting edges on the tip, the result of chance breakage that has formed a squared edge that will cut in either direction. Where the outline of the original flakes permitted, use sometimes resulted in roughly triangular forms with concave sides, three points, and as many as six working edges. These, too, can be classed as aberrant.

Perforators Used as Drills

Only one perforator in the Jaketown collection showed positive evidence of use as a drill. The fact that the Poverty Point collections include 62 perforators that are polished at the tip of the beak does not help to support the present theory as to the function of these artifacts. On some, the evidence of rotary motion such as would be expected from their use as drills is unmistakable. According to Ford's count, 2.7 per cent of the perforators from Poverty Point have been used as drills. Bird, in checking 893 perforators from Cut 4, found 6.7 per cent with such wear. Of these, 29.9 per cent bear a red or reddish brown stain on the abraded areas, which seems to have some connection with the use that produced the wear. However, the chipping that formed these implements has the same characteristics as are found on the balance of the perforators, indicating their use as scrapers. Perhaps the form of these worn scrapers suggested their use as drills to the Indians just as they have to puzzled archeologists.

Needles

Figure 26u, v

One hundred and thirty-eight specimens from Poverty Point can be classed as "Needles."[1] These are essentially similar to the perforators but differ principally in the absence of the swelled area at one end. As stated in the Jaketown paper, needles may be divided into two groups. One group, as one end shows a clean fracture, obviously consists of beaks broken from perforators. We have doubtless classified the other portion of the tool as a blunt perforator. Other examples are steeply chipped about the entire periphery, obviously by use, as explained above. Apparently these are remnants of blades that have not consistently been held by one end but instead have been completely worn down—handle and working end.

Double-ended Perforators

Figure 26w, x

Double-ended perforators were not described from the Jaketown Site, but nine were found in the Poverty Point collection. Both ends of these blade remnants show the same steep chipping resulting from use that is found on the perforators described above. Possibly both edges of these blades were worn down on one end, then the flake was reversed, and the edges of the opposite end were exhausted, leaving a slight bulge in the middle.

Notched Blades

In the Poverty Point collection there are 35 notched blades similar to those listed under this category from the Jaketown Site.[2] These blades have a semi-lunar notch, from 6 mm. to 1 cm. in diameter, in one or both blade edges.

TABLE 5

Summary of Microflint Industry at Poverty Point

	Totals	Proportion
Cores	58	.007
Unused blades	1158	.144
Jaketown perforators	6343	.790
Polished drills	64	.008
Double-ended perforators	9	.001
Needles	138	.017
Sidescrapers	277	.034
Endscrapers	1	.0001
Notched blades	35	.004
Total	8083	—

Examination under the microscope shows the same kind of irregular chipping, with numerous small hinge fractures, as was observed on the edges of the perforators. This suggests that the notches resulted from use rather than were intentionally formed. These also are scrapers; they may be specialized tools used to round a small bone fragment, but this is not necessarily true. The notches may represent merely an

[1] Ford, Phillips, and Haag, 1955, 141–142.

[2] Ford, Phillips, and Haag, 1955, 142–143, Fig. 57a–e.

early stage of wear as the tool was used in ordinary scraping operations, and it is possible that no specialization may have been intended.

Comparisons of Microflint Industry

In the paper on the Jaketown Site the microflint industry of the several Lower Mississippi Valley sites of the Poverty Point complex was compared with the core and blade industries found in Hopewellian culture sites in Illinois, Missouri, Wisconsin, Michigan, Ohio, and New York.[1] It was concluded that, although the blades from the northern sites tended to be somewhat longer and thinner than those from the Lower Mississippi, the shapes of the cores and the technique of detaching blades were essentially similar. The principal difference lay in the almost complete absence of perforators from the Upper Mississippi Valley sites. Only one specimen from near Chillicothe, Ohio, has been reported.

If the interpretation advanced in the foregoing pages can be accepted, the comparison of these industries is placed in a different light. Perforators are merely exhausted blades resulting from specialized use and are not intentionally shaped tools. Thus there is little or no basic difference in the two industries. This raises a question as to why some of the blades found so abundantly in Upper Mississippi Valley Hopewell sites were not used to a comparable degree. We have no certain answer. Perhaps there was a difference in the way in which blades were used in the two regions. The Upper Valley people may have utilized them principally for working soft materials such as meat, skins, or soft wood, while the southerners may have employed them in shaping tools from harder materials such as bone and antler. Unfortunately a bone industry of the Poverty Point culture sites can only be presumed, for all traces of bone and antler have disappeared.

Another possibility is that the degree to which the blades were used at Poverty Point was in direct proportion to the difficulties of transporting the raw materials from the gravel beds along the edges of the alluvial valley. Suitable sources of supply were probably more accessible to the Hopewell people, in the Upper Mississippi Valley, and they could afford to discard blades when the fresh cutting edges were only slightly blunted.

Some occurrences of perforators in the Mesolithic cultures of the Old World were also cited in the Jaketown paper.[2] Both perforators and "steeply chipped rods" similar to the specimens we have called "needles" have been described as particularly characteristic of the European Mesolithic.[3]

The published descriptions of Old World perforators and related artifacts are not sufficiently detailed for us to determine the degree of similarity, in details of chipping, between these artifacts and perforators from the Lower Mississippi. However, about a dozen of these artifacts from various stations in central Europe are in the American Museum collections. These have been examined under magnification. Along their steeply chipped edges, adjacent to the flat face of the original blade, there are numerous small hinge fractures identical with those on the Poverty Point perforators and those on the specimens produced by the scraping of a piece of antler.

A number of artifacts of Mesolithic type collected from sites in the Gobi in Mongolia by Nelson,[4] also available here, closely parallel the collections from Mongolia described by Maringer.[5] Included with these are a number of tools classed as perforators—blades that have been worked to a point at one end. When examined under the microscope these, too, showed the same type of fracture along the trimmed edges as that described above.

Obviously the examination of Old World specimens has been very limited in scope. Yet the resemblance is sufficiently striking to suggest that perhaps the artifacts classified as "perforators" or "steeply chipped rods" are also no more than used scrapers.

[1] Ford, Phillips, and Haag, 1955, 145–148.

[2] Ford, Phillips, and Haag, 1955, 148–150.

[3] One of the most detailed descriptions of these artifacts was not cited in the Jaketown report. This is Evans, 1897, 322, Figs. 227–228.

[4] Nelson, 1926.

[5] Maringer, 1950.

LARGE, CHIPPED STONE TOOLS

Circular or Ovoid Blanks

Figure 27g–i

We have no clear idea as to the purpose of these crudely chipped, rather thick, generally circular discs of flint. Usually they are from 3.5 to 7 cm. in diameter and from 1.5 to 2.5 cm. in thickness at the center. A few of these discs may be cores, but most of them seem to have been made from a large thick flake or fragment. They were shaped by the removal of flakes from both faces, and the scars originate around the edges of the discs and converge towards the thickened center. Percussion flaking is usual. Secondary flaking around the edges is the exception rather than the rule. There is a tendency for these objects to be slightly flatter on one side than on the other. In his original report on the Poverty Point complex,[1] Webb refers to this class of specimens as "turtle-back scrapers."

The edges of some specimens show slight battering, but no consistent pattern of use is discernible. They may be "blanks" shaped to lighten them for transportation from the source of the material, or they may be another variety of core, a source for irregular flakes to be used as tools. The total number of circular or ovoid blanks collected was 112. Cream-colored, brown, gray, and tan chert are the usual materials.

A convenient and rapid fashion to assess the geographical and temporal distribution of similar forms is to review the illustrations in "Archaeology of Eastern United States," edited by James B. Griffin.[2] This, with a few additions from other sources, has produced the following comparisons:

New York Area

Brewerton Focus (Griffin, 1952, Fig. 14s, "oval chopper")

Upper Great Lakes Area

Early Woodland and Old Copper Culture (Griffin, 1952, Fig. 37 W, "scraper," tends towards an elongated oval shape)

Montana Area

Early Middle Period, Pictograph Cave (Griffin, 1952, Fig. 52H′, "bifacially chipped knife," slightly oval)

Missouri

Highland Aspect (Griffin, 1952, Fig. 63J, "scraper")

Illinois

Baumer Focus (Griffin, 1952, Fig. 96-12, "disc-shaped knife or scraper")

Havana Site, Hopewell Culture (Deuel, 1952, Pl. 17A)

Hubele Site, Hopewell Culture (Deuel, 1952, Pl. 90)

North Carolina

Guilford Focus (Griffin, 1952, Fig. 162B, "scraping tool")

Badin Focus (Griffin, 1952, Fig. 163P, "scraping tool")

Pee Dee Focus (Griffin, 1952, Fig. 165E, "scraping tool")

These circular flint discs may be analogous to the so-called "cache blades" that are a well-known characteristic of the Illinois and Ohio Hopewell culture. However, the blanks found buried in caches containing a thousand or more are usually larger than the chipped flint discs and generally are oval and bluntly pointed at one end.

This rather superficial sampling of eastern cultures suggests that the small chipped flint discs are most characteristic of cultural complexes that date just before, during, and after the time of the Hopewellian cultures.

Chipped Flint Abraders

Figure 27j

Fifty-eight artifacts from the Jaketown Site[3] were listed under this category. There are 12 from Poverty Point. It is doubtful whether these were intentionally shaped. Probably any convenient block of flint was used for these crudely chipped flint nodules, about 5 cm. in diameter. Considerable battering about the edges indicates their use as hammers.

Irregularly Shaped "Choppers"

Figure 27k, l

Large, crude, roughly chipped tools that range from 5 to 10.5 cm. in greatest length and from 1.5 to 3 cm. in thickness are classed as "choppers." These tools are similar to, but larger than, the Large Flake Scrapers described

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

[2] Griffin, 1952.

[3] Ford, Phillips, and Haag, 1955, 119.

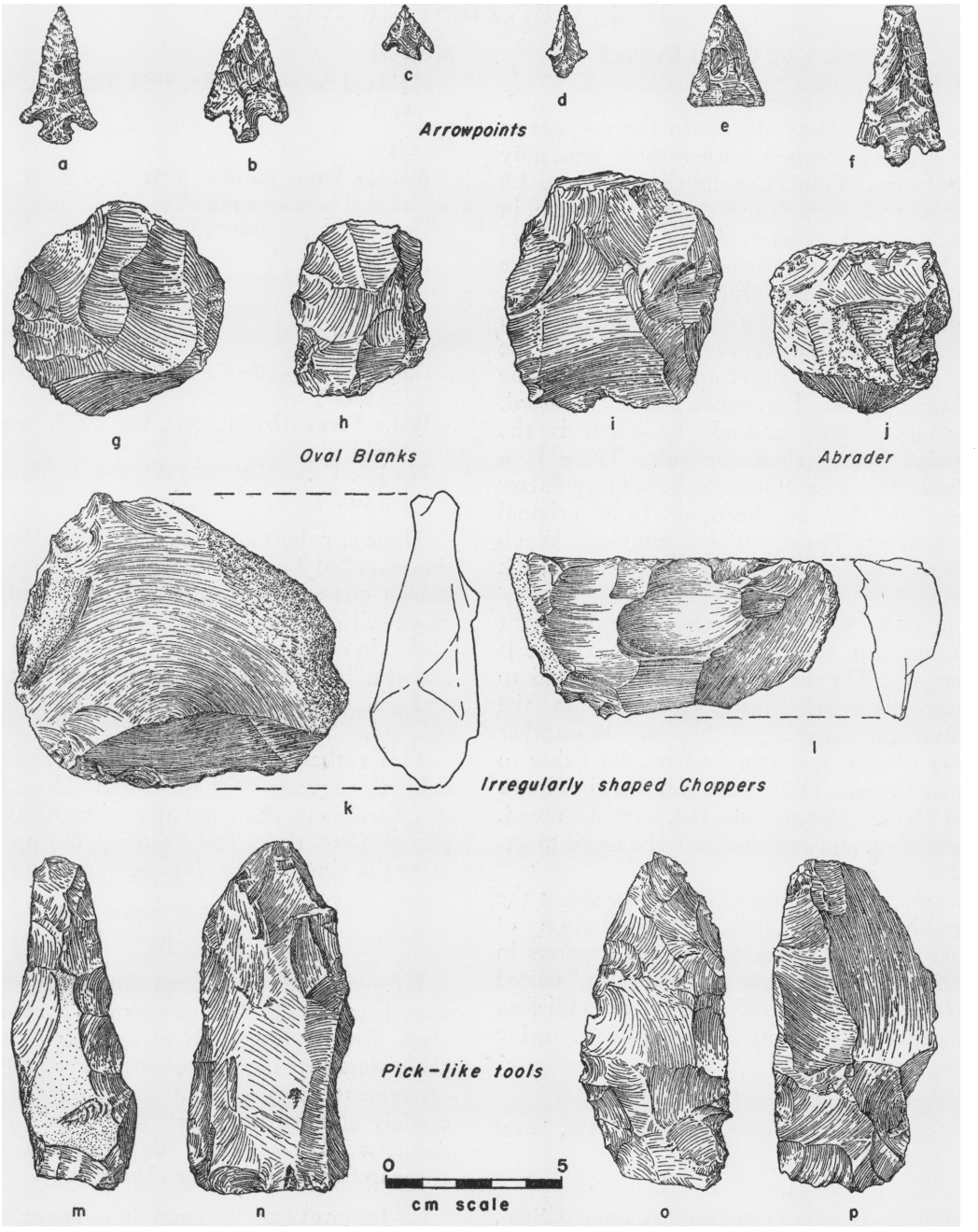

FIG. 27. Arrowpoints, ovoid blanks, abrader, irregularly shaped choppers, and pick-like tools.

below (p. 85). Many of the choppers are large flakes that, except for chips removed along the cutting edge by use, have been modified only slightly after detachment from the core. Others have been roughly flaked on both faces into a variety of shapes: elongated, oval, and three crescentic (Fig. 27l). Only two of the oval forms have a cutting edge entirely around the tool; on the others, it is confined to only one or two sides. The used edges show considerable battering. Materials include cream, tan, dark gray, and tan chert. The lighter shades are most

common. These irregularly shaped choppers total 27.

Rough Picks or Pointed Tools

Figure 27m–p

A third class of large, crudely chipped flint tools may be picks for loosening soil. A few of those recovered are very slightly polished at one end, suggesting such a use. These pointed tools are somewhat variable in shape but tend to be elongated and flattened. They range from 6.2 to 10 cm. in length, 3.7 to 4 cm. in width, and 1.5 to 2 cm. in thickness. Eight of the total of 43 of these picks are slightly wider and a little thinner than the balance. They measure from 5.5 to 8 cm. long, 2.7 to 5 cm. wide, and 1 to 1.3 cm. thick. They are chipped bifacially. A few that show retouching along one edge may have been used as sidescrapers (Fig. 27o).

Large Irregular Cores

Figure 30i, k, l

A number of masses of chert about the size of a man's fist have had flakes detached on several sides. These are cores that have served as a source for large, irregularly shaped flakes. As was true for the cores that produced the microflints, the workmen had a decided preference for removing flakes from a face that formed about a 50-degree angle with the striking platform. Apparently these cores were turned over and over in the search for such angles. As a result, some are roughly spherical (Fig. 30k); a very few resemble larger versions of the microflint cores (Fig. 30i, l). In some, the surfaces are battered, which indicates that they had been put to secondary use as hammers.

The majority of these specimens are of cream-colored chert, with excellent flaking characteristics. None show patinated or water-worn surfaces, so apparently they are a quarried material. Other large cores are made of tan and brown chert that originally was in the form of fist-sized pebbles.

Large Flake Scrapers

Figures 30j, 28a, b

The flakes detached from the large irregular cores just described are generally irregular ovals from 4 to 7 cm. long and 1.5 to 2.5 cm. thick. The majority have not been reworked on the core face; on the opposite face the scars left by the removal of previous flakes are visible. Adjacent to the bulb of percussion on most of them is a small, slightly battered fragment of the striking platform. In nearly every instance this shows that the flake was detached from a face that formed an angle of about 50 degrees with the striking platform.

Some of the large blades show little sign of use; perhaps they were used principally to cut meat and other soft materials. Other flakes have scars along the cutting edge, indicating harder use. In no instances are the flakes dulled to the same extent as the micro-blades. The large flake scrapers total 33.

Small Flake Scrapers[1]

A careful examination, made with a binocular microscope, of 3130 small flakes from Trench 4 revealed that the edges of 334 showed varying degrees of unilateral chipping from use as scrapers. Nineteen others had been utilized for the cutting or grooving of materials hard enough to produce a smoothing or polishing on some portion of their edges. The 188 listed as "questionable" have nicked or slightly chipped edges, which is not necessarily proof of use as such edge breakage can be produced accidentally.

The majority of the utilized flakes when checked for type fall into the "irregular" or non-lamellar category. Statistically, we find that in this class one out of every nine, or just over 12 per cent of the total, shows some visible alteration of the edges through use. Forty-three others were from prepared cores. Approximately half of these are widely variable in outline; the rest are of the flake blade form, in several instances resembling the Jaketown perforators.

The scrapers have been listed (Table 8) under eight headings based on edge utilization. It is very doubtful that the differences observed have any importance or can even be considered intentional. They indicate merely that the flakes were so formed as to permit, or be suitable for, use in the ways indicated. We might note that these same differences have been observed in many other series of stone flake scrapers regardless of period or region. For example, in southern Patagonia, where much larger flakes were utilized as wood-working tools, the intentionally sharpened edges show

[1] This description was written by Junius Bird.

the same variations. If two or more portions of the margins were suitable, they were employed. Thus two working edges may be opposite each other or may join at varying angles. Flaking, too, is either all in one direction or reversed, depending on the position in which the tool can be efficiently held and the stroke direction. In virtually all the Poverty Point specimens, the variations that individually may seem significant are related to little more than the flake forms which are dependent on the nature of the cleavage of the material and the method of fracture.

One significant deduction to be drawn from the scraper edge forms is based on the absence of flensing tools. The few items listed in Table 8

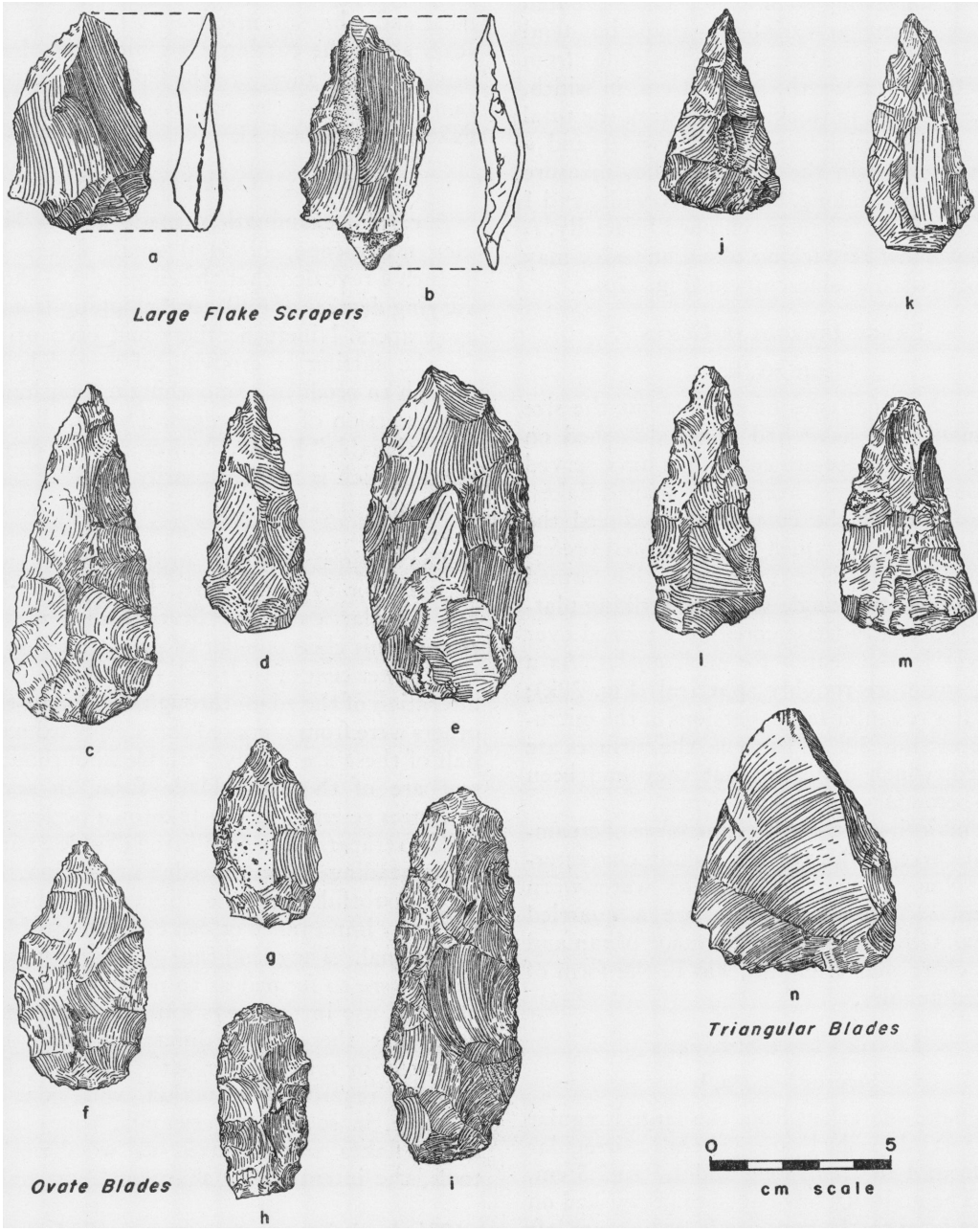

FIG. 28. Large flake scrapers, ovate blades, and triangular blades.

as endscrapers are not, as remarked elsewhere, what would normally be classified as endscrapers. They are so listed simply because the chipped edge is across one end in the narrow dimension of the flake. There is no uniformity in edge outline. None has the curved edges of flensing tools, hence should not be confused with them. This absence of stone implements for the preparation of skins constitutes another parallel between Poverty Point and Hopewell. While bone flensers may have been used instead of stone, it is also possible that the preparation of skins was a minor feature of life at Poverty Point, and, as may have been true of Hopewell, skin clothing was less important or common than garments of twined or woven fabrics.

Triangular Blades

Figure 28j–n

These chipped stone implements were probably used as knives or scrapers. A few may have been projectile points, but some of them are too thick at the base to have been conveniently hafted. Further, in half of the specimens the basal edges show that they were used for cutting.

The triangular blades were symmetrically shaped by the detachment of large flakes from both faces. A few are crudely retouched along the edges. They range in length from 4.8 to 10 cm. and are between 2.9 and 4.4 cm. wide at the base. Most are rather thin, between 6 and 10 mm. Apparently owing to the intractability of the flint from which they are made, five are quite thick, as much as 2.5 cm. These blades are made of the usual range of tan, red, white, and light gray chert and the slate-gray chert so characteristic of Motley points.

In shape and size these triangular blades resemble Suhm and Krieger's Matamoros points,[1] but they lack all the other distinguishing features of that type. They are somewhat similar to the Pickwick Basin Types 25 and 26,[2] but more nearly resemble Type 1.

The Poverty Point collections contain 69 of these blades.

Ovate and Leaf-shaped Knives

Figure 28c–i

Except for form, these blades are similar to the triangular blades described above. These tools were made from large flakes but have been well shaped by having been chipped on both faces. The flaking ranges from fair to good; some of the specimens are thin and nicely made. These knives can be divided into two related forms: leaf-shaped (Fig. 28c, d) and ovate (Fig. 28e–i). The leaf-shaped knives are from 6.5 to 8 cm. long, 3 to 4 cm. wide, and from 7 to 13 mm. thick. Most of the oval knives range from 6 to 7 cm. long, 3.5 to 4 cm. wide, and 7 to 10 mm. thick. Three exceptionally large examples, similar to the smaller forms, are between 10.5 and 14.3 cm. long (Fig. 28i).

These knives are made of novaculite, and black, tan, gray, and cream-colored chert. In the collections there are seven leaf-shaped blades and 46 oval-shaped.

Asymmetrical Knives

Figure 29a–e

A few thin blades, probably knives, are asymmetrical in form. Four lanceolate, bifacially chipped blades (Fig. 29e) between 10 and 12 cm. long are straight along one edge, curved along the other. One blade, sharp on both edges (Fig. 29c), is almost diamond shaped. However, one edge tends to be straighter than the other.

Drills

Figure 29i–l

Artifacts that conform to the current concept of drills are rather rare in the Poverty Point collections and are limited to 10 examples. All have rather steep, bifacially chipped, long, narrow points. The bases, more or less carefully worked, range from slight protuberances to flattened handles that provide an excellent grip. None shows any extensive wear or smoothing on the points.

Similar drill-like points have been chipped on a number of projectile points. However, it is thought that this is a method of resharpening and that these points were not intended to serve as drills. These specimens are described under the heading Projectile Points (p. 68).

In view of the number of perforated artifacts present in the collection, the few objects here grouped as drills seem out of proportion. Offsetting this is the great number of small-flaked, two-edged scrapers ("perforators"), virtually all of which are suitable for secondary use in the perforating of soft materials up to ½ inch

[1] Suhm and Krieger, 1954, 448, Pl. 103.
[2] Webb and DeJarnette, 1942, Pl. 293.

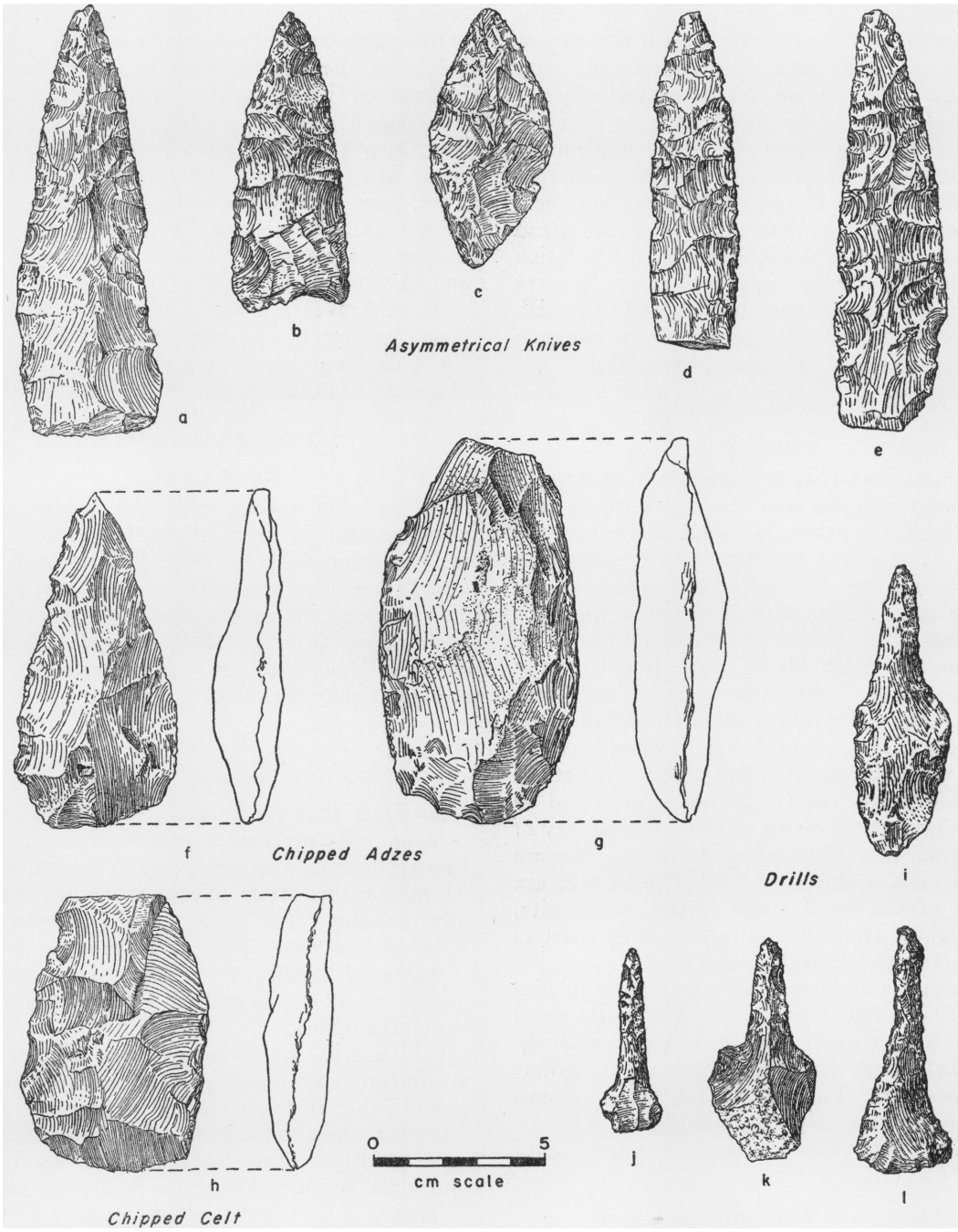

FIG. 29. Asymmetrical knives, chipped adzes, chipped celt, and drills.

in thickness. In view of the wear on the points, at least some of them were unquestionably so used.

Gravers

Figure 30e, f

Twelve small flakes of nondescript shape have small points formed on one edge and may have served as engraving tools. At the Jaketown Site four similar tools were found.[1] This seems to be a fairly rare though consistent feature of the complex.

Chipped Adzes

Figures 29f, g, 31a–c

Small, flattened adze blades shaped by rough chipping are classified in this category. The cutting edges are formed by fine pressure flaking, with the flakes all taken from one side of the blade, so that the fairly sharp cutting edge is asymmetrically located. The flaking is fairly steep, and in the profile the cutting edge has an angle of about 40 degrees. Most of the adzes are flattened on the face adjacent to the cutting edge, to which a wooden handle was presumably attached. The opposite side tends to be more rounded.

Chipped adzes vary somewhat in outline: two are rectangular (Fig. 31c), five are oval (Fig. 29g), and the remainder (11) are triangular (Fig. 29f). One of the rectangular specimens had been ground enough to smooth off the ridges left between flake scars on the side that presumably faced the handle. No grinding is found on the other adzes. The blades range from only slightly curved to rather markedly curved. Half of the complete adzes are rather small: 6.6 to 7.5 cm. long, 4.5 to 5.5 cm. wide; the larger group ranges between 9 and 13 cm. long and 5.3 to 5.5 cm. wide. The thickness varies from 1.5 to 3 cm. and is usually about 2 cm. While most of these tools are rather sharp, several have battered edges, evidently caused by extensive use.

Superficially, these blades are similar to chipped flint tools that have sometimes been called "hoes" in Archaic and Early Woodland cultures of the East. However, none of the specimens seems to bear evidence of polishing from use along the blade edge. The partially polished, chipped specimen described above has been intentionally smoothed all over to the same degree.

Chipped adzes are made of tan, gray, and black chert. The partially smoothed specimen is of red jasper.

Chipped adzes may be classified as to form as follows:

Rectangular	2
Oval	5
Triangular	11
Broken blades	7
Total	25

Chipped Celts

Figure 29h

Chipped celts, very similar to the adzes described above, differ only in that the blades are symmetrically placed. They tend to be slightly thinner than the adzes, are formed by the removal of large flakes, and are sharpened by pressure flaking. The blades are rounded rather than straight and tend to be roughly rectangular in outline. Only two specimens are complete. They are, respectively, 10 and 8 cm. long, 6.5 and 5 cm. wide, and 1.8 and 1.6 cm. thick. The two fragments have blade edges and similar proportions. One of these is slightly polished, apparently from use.

Although these tools are listed as celts, there is no certainty that they were hafted like axes. They may be symmetrical versions of the adze. A total of four chipped celts is included in the collections.

GROUND STONE WEAPONS AND TOOLS

Ground Stone Adzes

Figure 32

A characteristic feature of the Poverty Point complex is the roughly finished ground adze, usually made of metamorphic hornblende. A few fragments are of feldspar porphyry and chlorite schist, the latter a rather soft stone ill adapted to this purpose. Possibly some of these tools were used as hoes rather than to cut wood or bone. These tools are usually long ovals and have an oval cross-section. They range from 10.5 to 16 cm. in length, 4 to 7 cm. in width, and 2 to 3.5 cm. in thickness. The dull blades, frequently slightly curved (Fig. 32a, b, d, e), are

[1] Ford, Phillips, and Haag, 1955, 136, Fig. 57i–k.

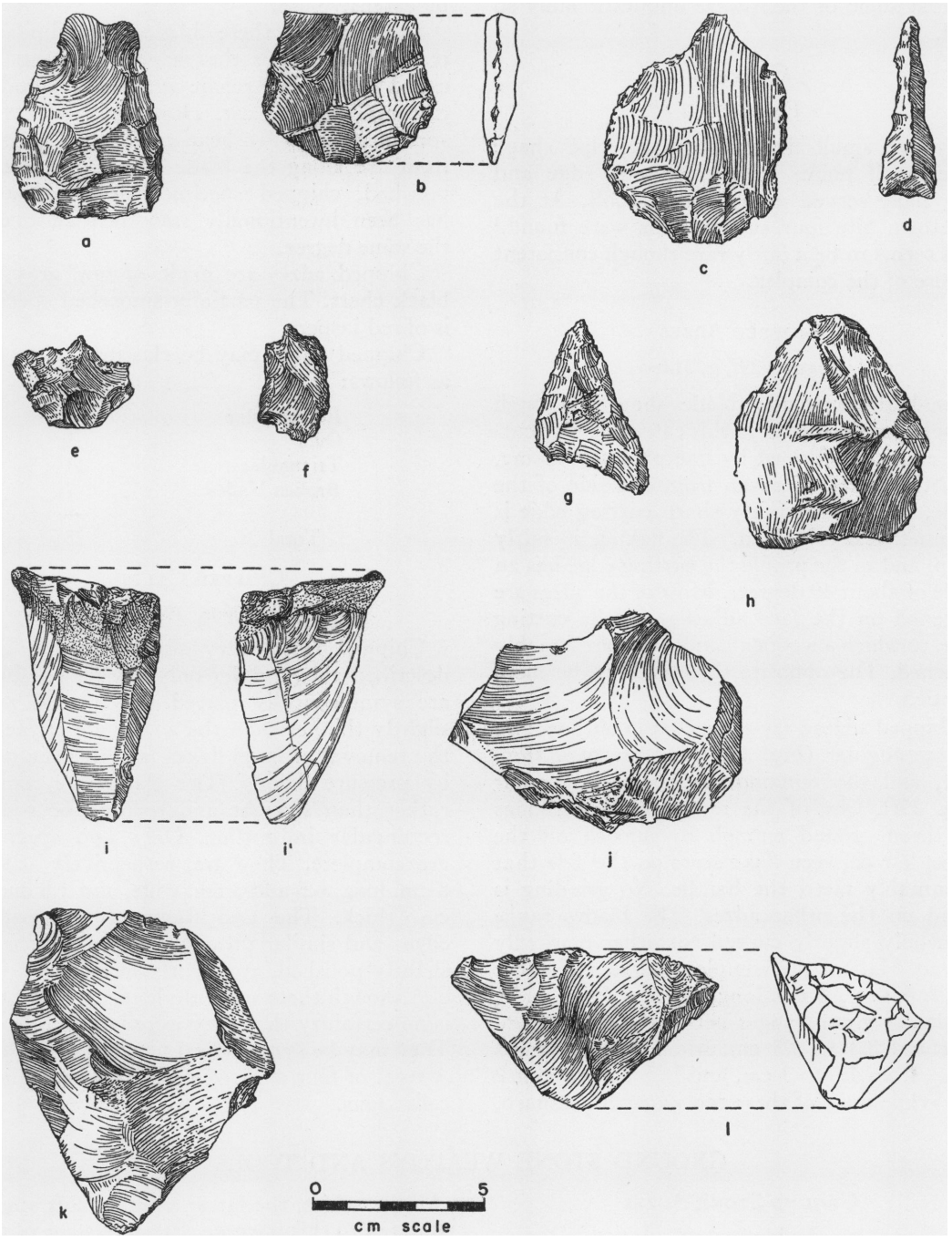

FIG. 30. Chipped stone tools. a, b. Hafted blades. c. Used flake. d. Possibly a reamer or drill. e, f. Gravers. g, h. Asymmetrical blades. j. Large flake scaper. i, k, l. Large rough cores.

closer to one face of the tool than to the other. Surface finish varies from a slight smoothing that barely begins to modify the initial flaking (Fig. 32e) to fairly well-smoothed objects. The polls are usually battered, which suggests that this end of the tool, as well as the blade, was used.

Forty-one of the 69 specimens collected were fragments, which indicates that the tools had been put to rather hard use.

Provenience of Adzes	Number
Trench 10	
6 to 12 inches	1
42 to 48 inches	1
Mound B fill	1
Hammons' surface collection	4
Beckman and Webb collections, surface	18
Louisiana State University, surface collection	6
American Museum, surface collection	38
Total	69

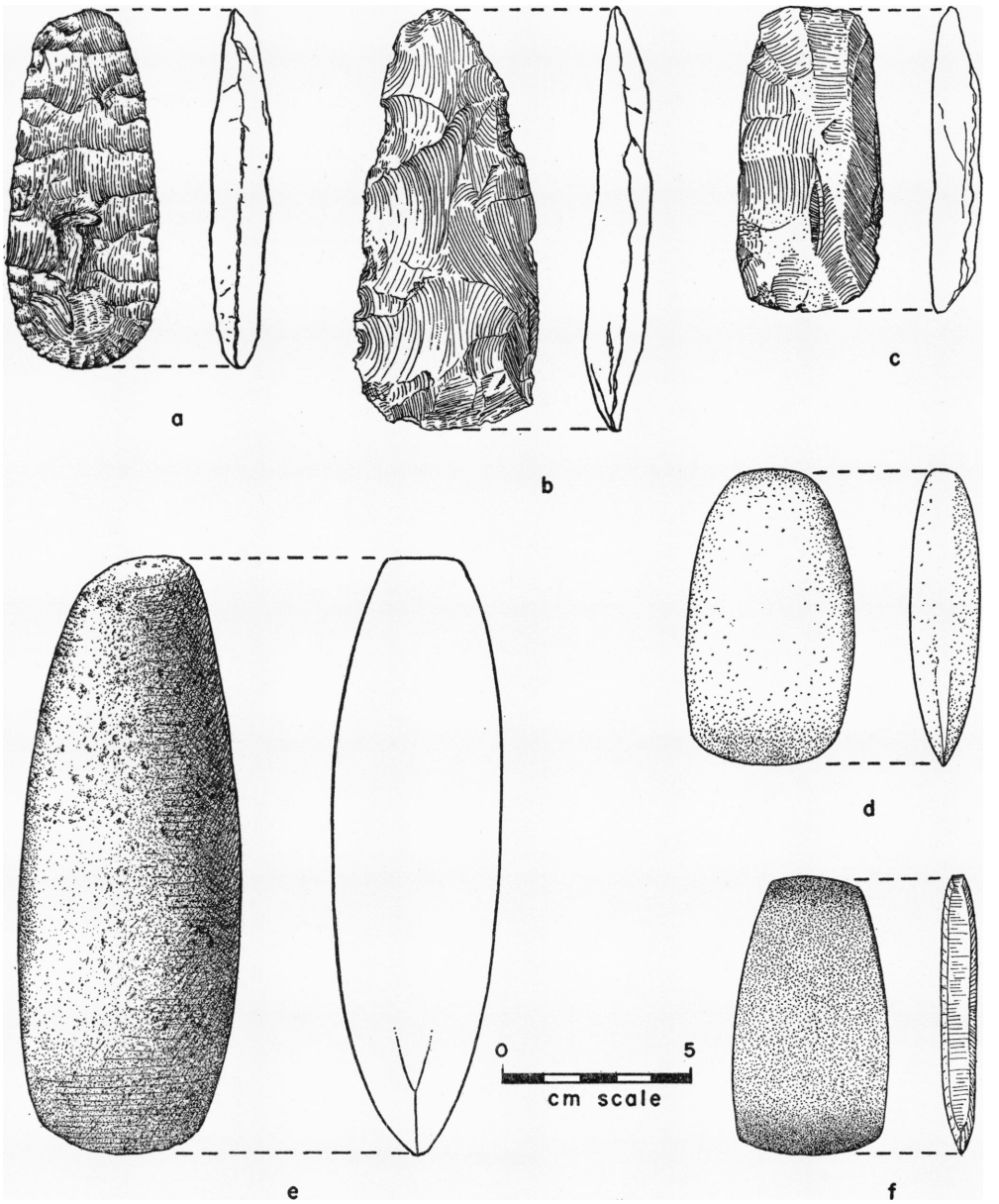

Fig. 31. Chipped adzes and ground celts. a–c. Chipped adzes. e. Large ground celt. d–f. Small ground celts.

The provenience of the 38 adze and adze fragments in the American Museum collection was recorded. They were rather consistently scattered over the site, so that it does not appear necessary to publish the exact locations.

Small, Ground Stone Celts

Figure 31d, f

Some doubt was expressed as to whether the small celts found at the Jaketown Site were properly part of the Poverty Point cultural

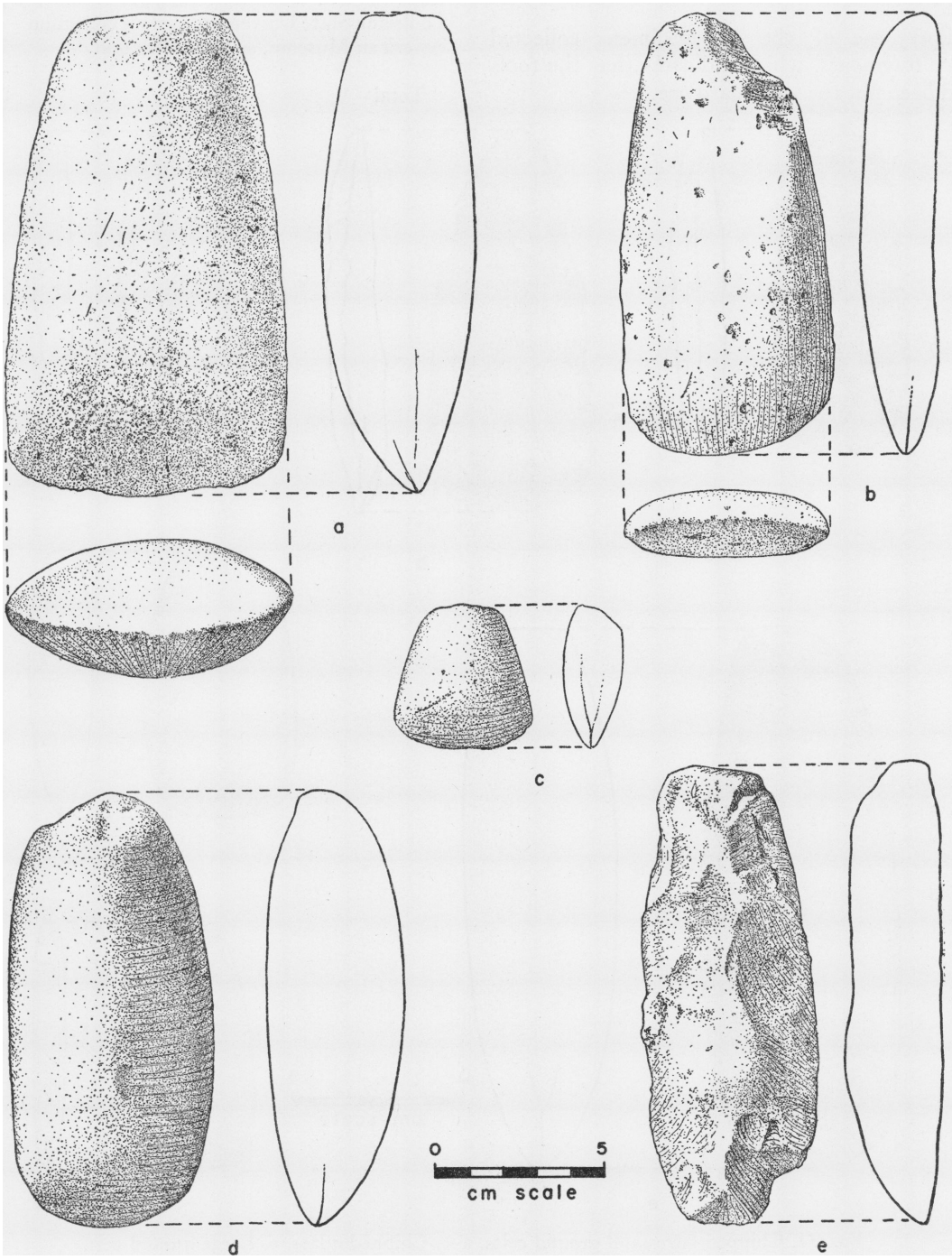

Fig. 32. Rough ground adzes or possibly hoes.

complex.[1] However, finds of similar artifacts at Poverty Point have removed this doubt. The granite celt (Fig. 31d) is 80 mm. long, 45 mm. wide, 15 mm. thick, has flattened faces, and is rounded at the edges. The blade is symmetrical and fairly sharp. It was found in Trench 1 at a depth of 2.5 feet, in undoubted association with typical Poverty Point materials.

Two other celts are very similar in shape. Both are well smoothed, even polished. One is of magnetite. The second (Fig. 31f) is made of black slate. It is 72 mm. long, 40 mm. wide, and 8 mm. thick. The edges are neatly squared, and the blade is sharp. The magnetite celt is slightly smaller. The broken cutting edge of another celt, also of magnetite, is a flattened oval in section.

Webb and Beckman's collections contain seven celts that fall within this category. These are made of a hard sandstone and quartzite, are well polished, and have well-formed rounded blades. They are 5 to 6 cm. long, 3 to 3.4 cm. wide, and 1.5 to 1.6 cm. thick.

Two other triangular celts are slightly longer, 8 and 8.7 cm. Their outlines expand from a poll 2.5 cm. wide to a width of about 4.5 cm. at the bitt. The blades are straighter than the smaller celts described above. Both are made of granite.

A total of 13 small celts are in the collections.

Large, Ground Stone Celts

Figure 31e

Four large, ground stone celts from the Beckman surface collection add this item to the Poverty Point complex. They are long and thick, with narrow poll which is almost circular in section. These are of the proportions shown in Fig. 31e and are made of a dark igneous stone.

Grooved Axe

In an article published in American Antiquity, C. H. Webb described a grooved ax form from the Poverty Point Site.[2] He wishes to make a correction, because according to the notes made at the time, this grooved axe was collected on the near-by Jackson Site, immediately to the south of the Poverty Point earthworks. As no other examples of this artifact type have been found, it may not be a part of this complex. However, it is equally foreign to the cultural assemblage suggested by the Troyville and Coles Creek sherds found on the Jackson Site.

Plummets

Figure 33

The several collections available for study include 406 recognizable plummets in complete or fragmentary form. Most of these are made of heavy iron ore, the larger proportion of which is hematite. About one-third of the ore specimens have been identified as the highly similar magnetite. Hematite tends to oxidize with a slightly reddish tint, but this oxidization does not seem to be a certain means of identification. In the paper on the Jaketown Site we identified all this material as hematite,[3] but testing demonstrates that a number of the plummets found there are also magnetite. The nearest source for these two materials is at Magnet Cove in northeastern Arkansas, and probably these specimens were brought from there. When the large number of plummets that have been gathered from this locality and sold to collectors during the past 50 years is considered, it is apparent that the aborigines must have brought this mineral in by boat loads.

Unshaped lumps of magnetite and hematite are common surface finds on the Poverty Point Site. These may be wastage from the manufacture of plummets. Many of these fragments may have been encased in skin bags and functioned in the same way as shaped plummets without the tedious grinding necessary to give definite form to the material. The recognizable plummets are classified in Table 6.

Although this collection is larger and more varied, in essential respects these plummets are identical with those obtained from the Jaketown Site in Mississippi.[4] There is little reason to doubt that plummets were used as bolas weights in the Poverty Point Culture. The importation of magnetite shows that weight and relatively small size were desirable features, as they certainly are for the bolas. The large number of fragmentary specimens argues against the use of these stones as ornaments. We must, therefore, assume that some utilitarian function exposed these plummets to the risk of frequent breakage. Stones used as bolas

[1] Ford, Phillips, and Haag, 1955, 122.
[2] Webb, C. H., 1948, Fig. 44–13.
[3] Ford, Phillips, and Haag, 1955, 125.
[4] Ford, Phillips, and Haag, 1955, 125.

weights might break from striking against one another and would certainly run some risk of breakage in use. An even more convincing argument for their use as bolas is the stories which the farmers cultivating the Poverty Point Site tell of plowing up "nests" of six or eight "plumb bobs." All these were promptly sold to collectors, and so far as is known none of the caches has been kept together. At the time they were lost, these were probably bolas complete with the cords attached. This assumption suggests that the weapon was similar to the Eskimo bird bolas with about a half-dozen weights, a type most effective for catching ducks and small land animals.

It is perhaps significant that the majority of

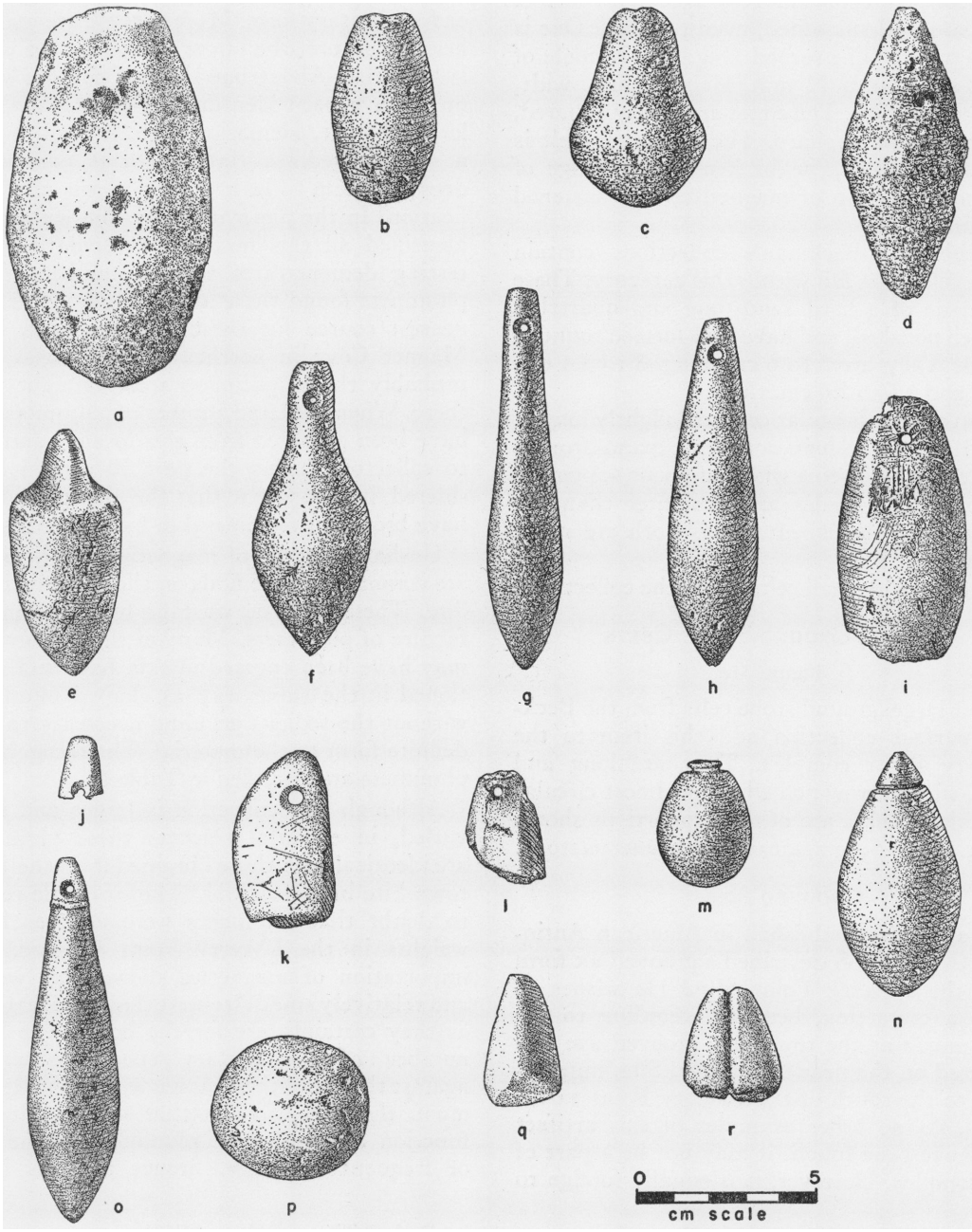

FIG. 33. Plummets or bolas weights made of hematite and magnetite.

TABLE 6

PLUMMETS FROM POVERTY POINT

	Whole	Broken	Total
Roughly finished and unperforated (Fig. 33a–d) Lengths, 2–11.5 cm.; roughly oval or egg-shaped; 132 magnetite or hematite, 3 limonite, 2 clay-ironstone	78	59	137
Perforated (Fig. 33f–l, o) Lengths, 3.2–12.7 cm.; shapes range from crudely finished oval forms to beautifully polished long teardrops, a few pear-shaped; 162 magnetite or hematite, 1 fluorite, 8 chert, 1 igneous rock, 3 steatite, 1 baked clay; in 16, holes drilled from one side only, remainder drilled from both sides; 5 of magnetite or hematite and 1 of chert have uncompleted perforations (Fig. 33e)	140	36	176
Grooved (Fig. 33m–n) Lengths, 3.5 to 9 cm.; usual form torpedo-shaped, pointed at both ends; shallow groove encircles plummet near one end; finish ranges from excellent to rough; all are of magnetite and hematite	41	1	42
Grooved and perforated	5	—	5
Round balls (Fig. 33p) About 4 cm. in diameter; range from crudely shaped to well rounded, with polished surface; magnetite and hematite	3	—	3
Tetrahedron-shaped (Fig. 33q) All small, about 3 cm. long; made of magnetite and hematite	5	—	5
Grooved vertically (Fig. 33r) Length 3 cm.; made of reddish stone	1	—	1
Notched ends (both of hard sandstone)	2	—	2
Fragments		35	35
Totals	275	131	406

the broken perforated plummets recovered have been broken through the perforation or just below it. It is the smaller end, rather than the body of the plummet, that was usually discarded on the village site. Fragments like Fig. 33j are common. If plummets were used as bolas and were subject to breakage on the hunt, it is logical that their perforated ends would have remained attached to the cords and would have been discarded in the village when repairs were made.

The probable method of attaching cords to the perforated plummets is obvious. However, the grooves in the grooved type are consistently too narrow and shallow to have served as a means of attachment. Probably these, like the completely ungrooved plummets, were encased in rawhide. In Argentina, some of the bolas are made by placing specially shaped stones in a close-fitting sack of green rawhide. The opening of the sack is pulled tight with a drawstring over a knot on the end of the bolas cord. The rawhide shrinks as it dries and the attachment is very secure and neat. Small dimples in the smaller end form a seat for the knot, a feature seen in some types of plummets of the same shape in the Mississippi Valley.

A first-hand description of the use of bolas observed while the senior author was excavating at the Birnirk Site near Point Barrow, Alaska, may be of interest. While working, the Eskimo always kept two or three bolas lying beside the cuts, for this was an excellent place for ducks. The first person to sight a flight would drop his trowel and reach for a bolas. He held the end where the cords were fastened together in his right hand and the six or eight weights in his left hand. A slight jerk on the two ends was sufficient to release the chain looping that is put in the strings to keep them from tangling and to stretch the cords to their full length of about 2 feet. As the flight of ducks approached, the bolas weights were released by the left hand, given one sharp swing around the head, and thrown so that they would fly down the line of the duck formation. The weights were closely bunched as the bolas left the hand, but after it had traveled 30 feet they were

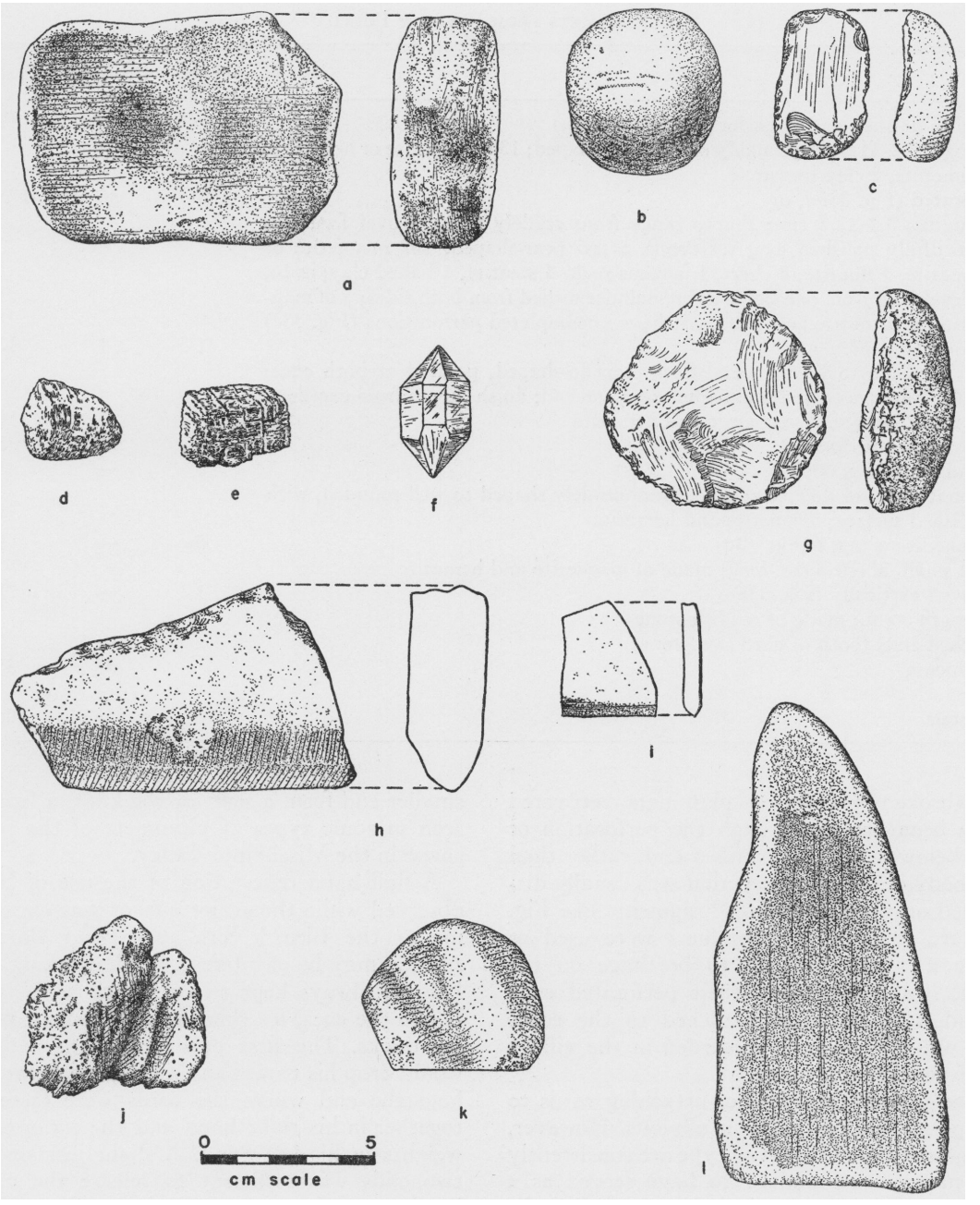

FIG. 34. Rough stone tools. a. Pitted hammer stone. b. Spherical battered pebble. c, g. Split pebbles with battered edges. d, e. Fragments of galena. f. Unworked quartz crystal. h, i. Sandstone saws. j. Pumice-like clinker whetstone. k. Fragment of sandstone with a curved grinding surface, possibly used for smoothing shafts. l. Fragment of Catahoula sandstone with flat grinding face.

fully spread at the ends of their cords, rotating slowly in a circle, carrying the net of cords between them. It was this net that trapped the duck. When a duck came into contact with a cord, the attached weight immediately wrapped the cord about the duck. The other weights followed suit and the well-bundled duck hit the ground hard enough to stun it. Occasionally a lucky duck would fly off with a bolas, but not often.

Whetstones

Figure 34k, l

Small slabs of sandstone were used as grindstones. About half of the specimens described below are of Catahoula sandstone, a white, large-grained, poorly consolidated rock that outcrops in Catahoula Parish about 100 miles to the southwest of Poverty Point. Fifteen additional unworked fragments of this material are in the collections. The balance of the whetstones are made of a reddish ferruginous sandstone that may have come from Arkansas or northern Mississippi.

Most of the grinding slabs have flattened or slightly concave grinding surfaces, which indicates that they were used in the shaping of rather large implements, possibly adzes. Three, however, have rounded grooves such as might have been made by the smoothing of a shaft about an inch in diameter (Fig. 34k). That atlatl shafts might have had this diameter is a tempting conclusion. In the collections there are 18 sandstone slabs showing evidence of use.

Clinker Whetstones

Figure 34j

Three fragments were found of what was at first thought to be volcanic pumice. Two were excavated and one came from the surface. The two excavated specimens have narrow grooves suggesting that they may have been used to shape small tools, or perhaps to smooth rawhide cords.

The material is mottled red and gray and has a cellular structure. All the cells are small and of about the same size. Apparently this is not a volcanic product but rather a fused siliceous clinker that is the result of the burning of grass. Similar clinkers are found where haystacks have been accidentally fired. These fragments are possibly a clue to the roofing material used by the Poverty Point people and could have been produced by the burning of grass-thatched houses.

Pitted Stones

Figure 34a

Six parallel-faced pieces of hard ferruginous sandstone have rounded pits or shallow depressions worn on their faces; five have pits on both faces; one has pits on one face only. Five of these fragments are roughly rectangular in shape, about 7 to 10 cm. in greatest length, 6 to 8 cm. in width, and 3 cm. in thickness. One specimen is rounded in outline. Their use is uncertain. This form is sometimes called a "pitted hammerstone," but there is hardly enough evidence of battering on these stones to support such an identification.

Hammerstones

Figure 34b

Pebbles of hard materials, chert, quartzite, and one of granite, were used as hammers. Thirty-nine of these, generally oval in shape and ranging from 4 to 7 cm. in greatest diameter, show extensive pecking marks on the ends. The proportion of hammerstones seems to be small in relation to the large quantity of cultural refuse exposed on this site. Hammerstones were obviously not lightly cast aside, probably owing to the distance suitable materials had to be transported.

Sandstone Saws

Figure 34h, i

Thirteen slabs of coarse-grained sandstone bear evidence of use as saws. Most of these are fragments of a ferruginous sandstone that breaks naturally into laminae that are only about 5 mm. thick. The faces of these slabs have not been modified, but one edge of each has been beveled on either side from use for sawing. Two fragments, of finer-grained gray sandstone, are larger versions of the same implement. They are about 2 cm. thick, but both have the characteristic straightened edge of the sandstone saw, beveled on either side.

ORNAMENTS, PIPES, AND PROBLEMATICAL OBJECTS

Gorgets

Figure 35

Flat, oval-shaped stone gorgets are fairly abundant on the Poverty Point Site. Like plummets, they have been an article of trade for the local farmers for a number of years. It is therefore impossible to estimate the number scattered in private collections in various parts of the East, but the total must be substantial. Twenty complete specimens and 56 recognizable fragments have been used for this study. The gorgets vary in length between 8 and 12 cm. and between 4 and 6 cm. in width. Usually the width is about half of the length. Thickness ranges between 3 and 10 mm.

Most of the gorgets are oval, with rounded ends; in a few, ends are cut off square. Nearly all have one flat face that is less well finished than the slightly rounded surface formed on the opposite face. When decoration is present, it has been placed on the rounded side. Four of the complete specimens have two notches on each edge; four are decorated very simply with incised zigzags and straight lines (Fig. 35j, k).

Conical-shaped, counter-drilled holes placed near each end are characteristic. One quartz crystal fragment has a shallow groove near the end (Fig. 35b), and another, of limonite (Fig. 35h), has neither holes nor grooves. In addition, in 12 of the larger fragments holes are drilled near the fractured edge, which suggests that the broken gorgets had been tied together (Fig. 35e).

Limonite was used to make most of the gorgets. A rather soft, greenish micaceous schist is second in popularity. A few specimens are of dark gray slate; one is of cannel coal. The most unusual specimen, in Hammons' collection, is made of the green-banded slate that was used so commonly for gorgets, boatstones, and birdstones in the vicinity of the Great Lakes (Fig. 35a).

In addition, there are three polished stone tablets of the general proportions of gorgets, but smaller, more slender, and not perforated. They range from 5.7 to 8.7 cm. in length and 2.2 to 2.8 cm. in width. Two are undecorated except for one to three notches on each edge, and one has shallow notches on one edge (Fig. 36f).

The lack of finish on the flattened faces of the gorgets and the presence of the holes suggest that these stones were fastened with the flat face against some object. It has been supposed that they were atlatl weights attached to the back of the spear-thrower. The number of broken specimens encountered has been attributed to the flexing of the weapon. This is a possibility. However, if true, this would indicate that two different forms of atlatls were in use in the East at about the same time. With considerable consistency the bannerstones, spacers, and sockets of the bone hooks indicate that the atlatls used at the end of the Archaic Period and beginning of the Burial Mound Building stages were round in section. The shape and width of gorgets suggest a rather wide, flattened spearthrower. It seems rather improbable that the two competing types would have approximately the same distribution at the same time. However, we have no happier explanation for the use of "gorgets." It does appear unlikely that the objects were simply ornaments as the name implies.

Rectangular Tablets with Narrow Ends

Figure 36h–j

These objects seem to be unique to the Poverty Point Site. Beckman's collection contains eight complete specimens and one fragment; Webb's includes two fragments. These range from 6.3 to 8 cm. in length, 3.2 to 4.3 cm. in width, and are about 1 cm. in thickness. The rectangular ends of the objects are from 7 to 15 mm. narrower than the mid portion. Ten were flaked from red jasper; one fragment is of black shale.

After they were chipped into form, five of these tablets were ground quite smooth (Fig. 36j); three are partially ground on surfaces and edges (Fig. 36h), and three show no grinding at all (Fig. 36i). Both faces of finished objects are slightly curved so that in cross-section the form is a symmetrical, lens shape.

Three more of these objects, collected from Poverty Point, are in the collection of Harry J. Lemley of Hope, Arkansas. All are of red jasper, ground smooth. Two are quite similar to the objects just described, but the third is 15 cm. long, considerably longer than the usual object of this form.

Beckman has also collected two complete

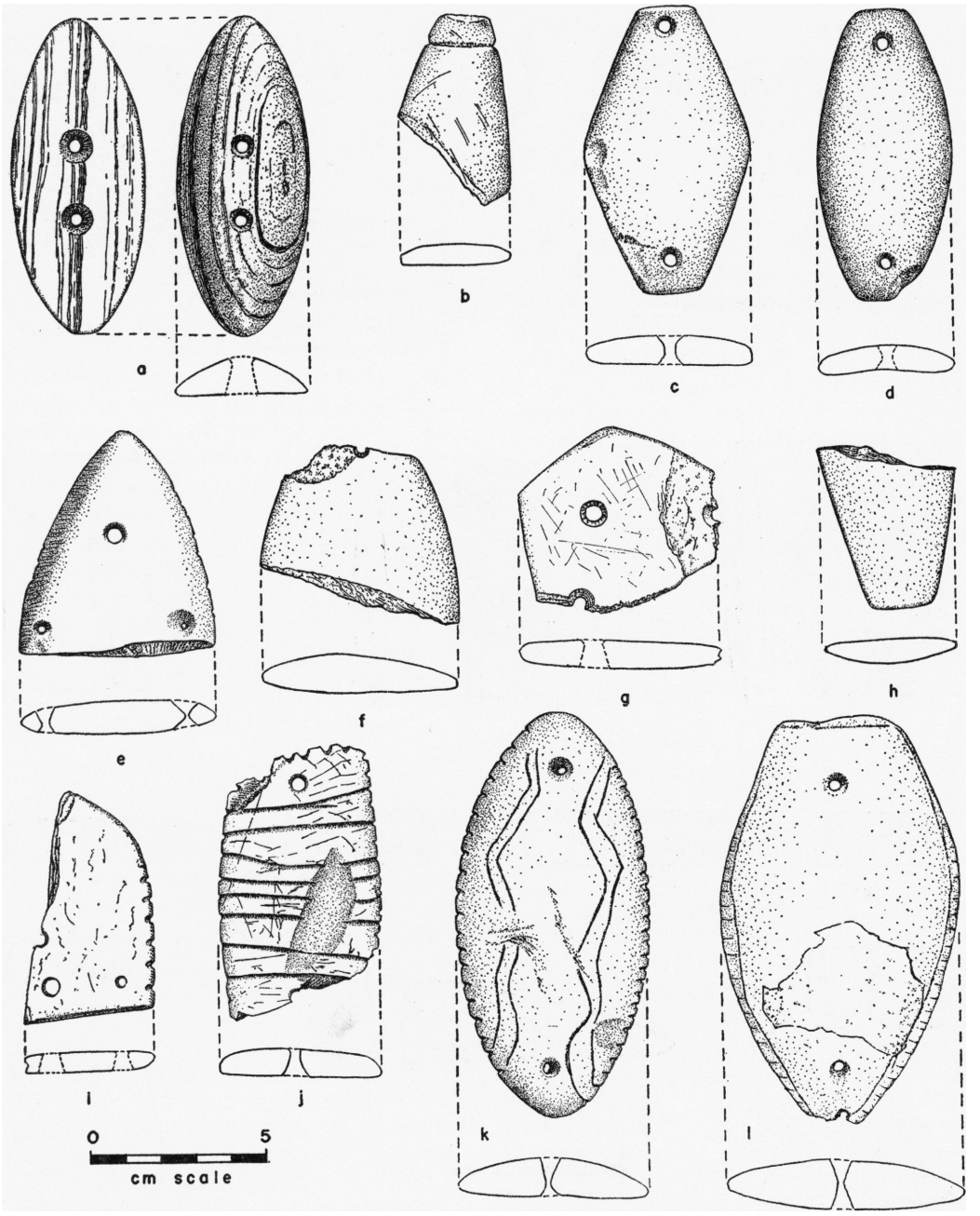

FIG. 35. Gorgets and gorget fragments showing holes drilled for repair.

and three fragmentary chipped rectangles of red jasper that are similar to the foregoing objects but do not have the narrowed ends. The complete objects have smoothed surfaces, but the fragmentary specimens are only chipped. The two rectangles measure 8 by 3.8 cm., 1.2 cm. thick, and 8 by 4.2 cm., 1.7 cm. thick.

We have no happy suggestions as to the probable use of these objects. Obviously the smoothed specimens were not cutting tools, for the flaked edges, which might have been used

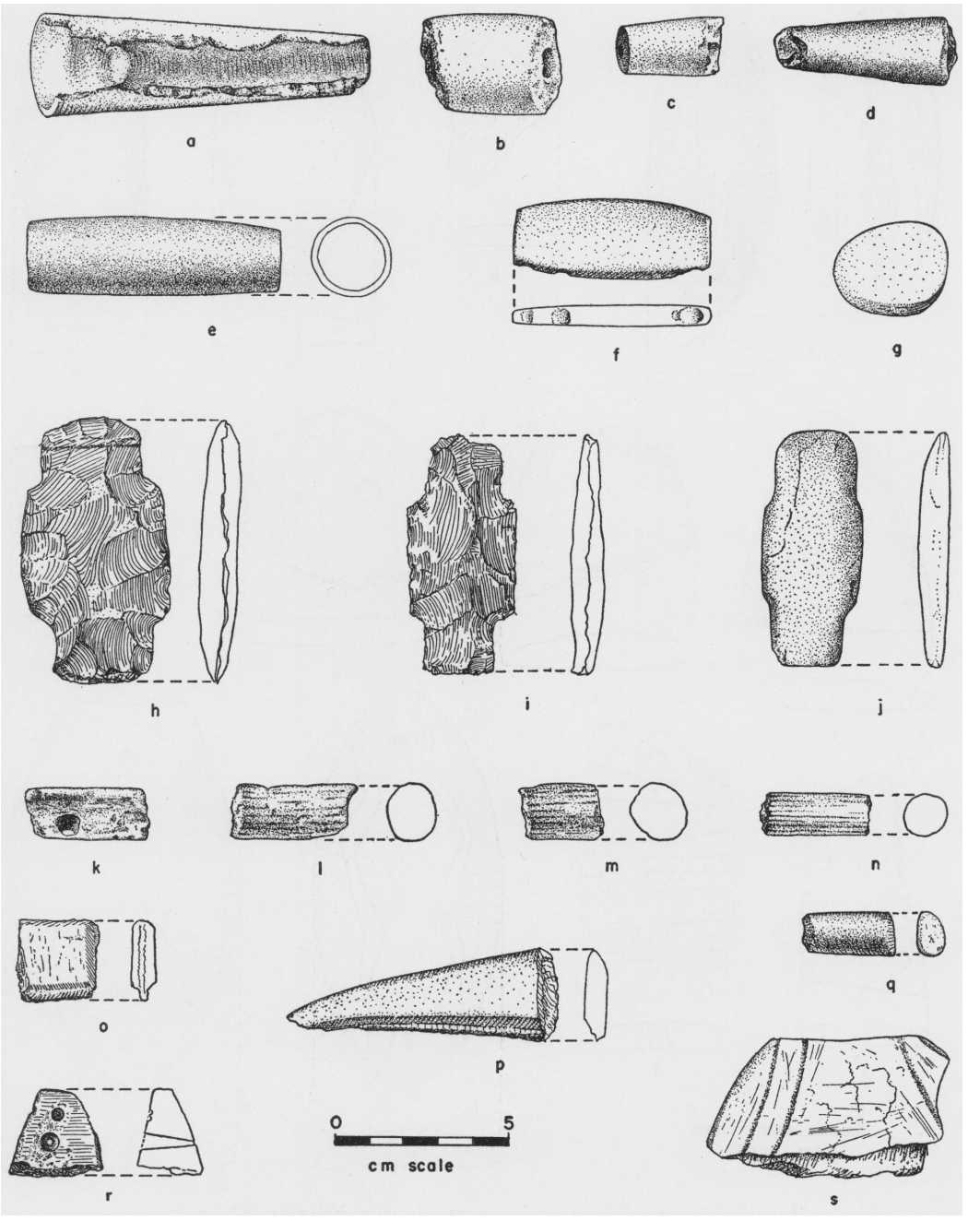

FIG. 36. Pipes and problematical objects. a. Fragment of steatite pipe. b–e. Fragments of pottery pipes. f. Tablet of red, fine-grained stone, possibly catlinite. g. Shaped disc, jasper, with squared edges. h–j. Chipped and smoothed rectangles of jasper. k–n. Fired clay casts. o, p. Slate fragments showing cutting technique. q. Shaped cylinder of red stone. r. Fragment of slate showing drilling technique. s. Fragment of cannel coal with incised design.

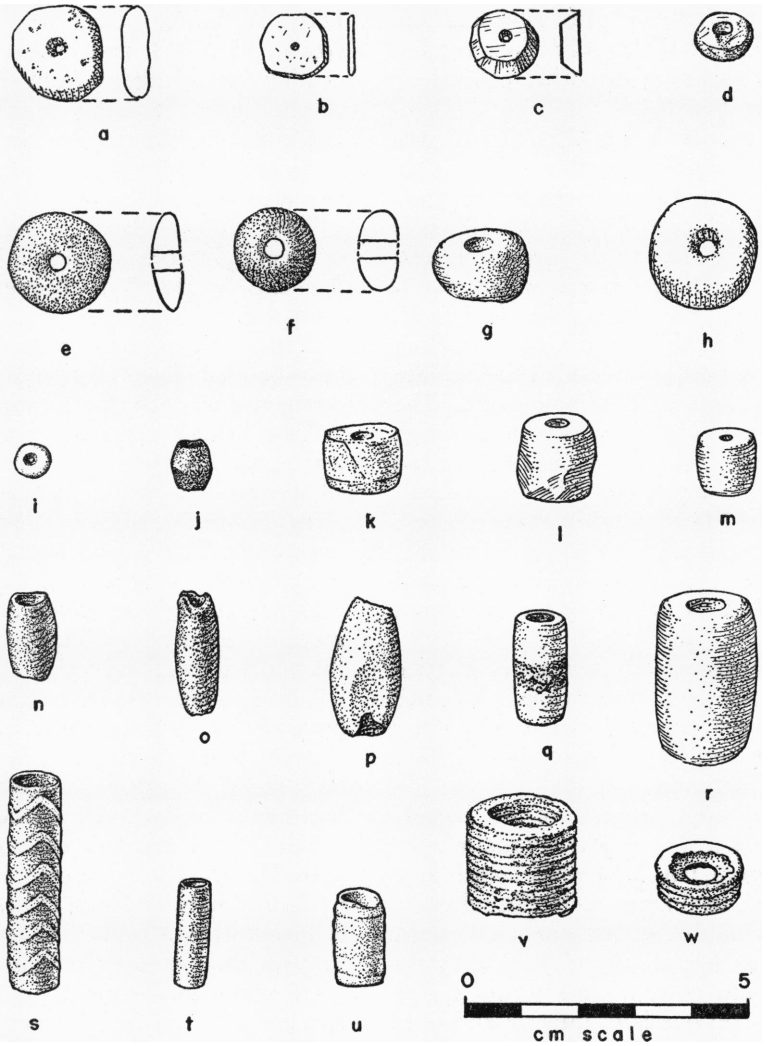

FIG. 37. Stone beads. a–d. Crudely shaped beads of soft green micaceous schist. e–h. Disc beads (g and h are of translucent fluorite). i. Small, flattened bead of red jasper. j–u. Tubular beads of red jasper. v, w. Drilled fossil crinoid stems.

for cutting, are carefully blunted in the first stages of smoothing. The completely polished specimens have rounded edges. Perhaps these objects were other variants of atlatl weights.

In shape at least these objects are similar to a rare, fragmentary tool found at the Indian Knoll Site in Kentucky,[1] and one complete tool from Site Lu° 63 in the Pickwick Basin of northern Alabama.[2] These latter specimens do seem to have been cutting tools, for they have been resharpened by well-executed pressure flaking.

[1] Webb, W. S., 1946, 262–264, Fig. 36.
[2] Webb and DeJarnette, 1942, Pl. 183–1.

STONE BEADS, BUTTONS, SMALL PENDANTS, AND TUBES

Poverty Point is also famous among collectors for the number and variety of stone beads and similar items that have been gathered there within the last 50 years. Part of the collection of the late Edward F. Neild of Shreveport, Louisiana, now in the Louisiana State Exhibit Museum, was available for study; the results

are included in the following descriptions. The Neild, Beckman, and Webb collections totaled 226 beads from this site; the other collections increased the total to 244.

A total of 99 tubular beads (Fig. 37n–u) was examined. These range from 1 to 3.8 cm. in length and from 4 to 9 mm. in diameter. They are drilled from each end with a solid drill, as is demonstrated by the taper and rounded termination of the holes in a number of unfinished specimens. Two beads are decorated. One (Fig. 37u) had lightly ground encircling grooves that were perhaps intended to simulate the natural divisions of a crinoid stem. The other, of red jasper (Fig. 37s), also has a design lightly ground into its surface. Alternate rounded ridges and slight depressions form a zigzag pattern around the bead. Eighty-three of these tubular beads are made of red jasper, some of it marbled with gray (Fig. 37q); five are of a hard black stone, and 11 are of gray or cream-colored stone.

Of four circular disc beads, two are of steatite and two of light-colored chert, from 2.4 to 4.3 cm. in diameter and about 6 mm. thick. They are fairly well smoothed and have small drilled perforations in the center.

The diameters and lengths of 40 barrel-shaped beads (Fig. 37j–m) are approximately equal, ranging from 1 to 2.5 cm. in length and from 6 to 12 mm. in diameter. The usual completed form is cylindrical, but one small bead tapers towards each end (Fig. 37j). Thirty-six of these beads are of red jasper; two are of translucent fluorite; one is of quartz; and one, of gray chert.

In 30 small flat beads (Fig. 37a–i), the diameters exceed the lengths. In most the diameters range from 6 to 12 mm. and the lengths from 4 to 8 mm. Twenty-four are of red jasper, and two are of fluorite. Six beads are made of thin laminae of green, rather soft, micaceous schist (Fig. 37a–c); the edges are roughly cut.

Thirty-four fragments of the stems of fossilized crinoids were drilled to make beads (Fig. 37v, w). These vary according to size of the stem, and the length varies according to the number of segments used.

Of 19 bird effigy beads (Fig. 38f–i), the greater number represent seated owls, modeled in full round, with the various features well represented. Most of the beads have a small transverse hole through the head for stringing; others are perforated through the neck or upper body. A few are bird heads modeled in the round (Fig. 38f), and others are heads cut in outline form. Judging from the shapes of some of the beaks, it seems that at least some of these outline forms do not represent owls. Seventeen of these beads are made of red jasper; two are made of dark chert.

Two unusual bead forms are large thick ovals of light-colored chert, 2 by 2 cm. and 4 by 3.5 cm., perforated through their greatest diameter.

A flat, thin, rectangular bead made of a gray-banded stone, 1.5 by 1.1 cm., has scalloped edges and a central perforation.

Two beads represent miniatures of larger artifacts. One (Fig. 38e) of dark gray slate, a small copy of a "butterfly" bannerstone, 1.8 by 2 cm. in size, is drilled in the proper place from both ends. The second is a 3-cm. long replica of the peculiar chipped and ground rectangles with narrow ends described above (p. 98). It is made of red jasper and has been drilled through the wider part of the body.

Three round, disc-shaped, red jasper buttons have two small holes drilled in the back side, so that the perforations meet. One button is flat on both faces; the other two are flat on the reverse but have a ridge on the obverse (Fig. 38d).

Ten of the beads are in various stages of manufacture: some are completely shaped, but with drilling unfinished; in others, the grinding is incompleted. Eight are tubular or barrel-shaped, and two are flat and circular.

Of nine small pendants, one is fragmentary; two are of red jasper, teardrop shaped, and are drilled for suspension near the small end (Fig. 38b). These are 1.8 and 2 cm. long and are, perhaps, representations of plummets. Six pendants are rectangular, with rounded corners, flat, and thin. Five have one perforation near one end; one has two perforations (Fig. 38a). The latter objects are made of jasper and chert. One slate pendant, 5.3 cm. long and 2.7 cm. wide, is perforated and notched near one end and has a crudely incised design on one face (Fig. 38c). One edge is unfinished; it seems probable that this pendant was made from a broken gorget. A large flat fragment of crystal quartz, indeterminate in shape, is probably a portion of a pendant.

There are three tubes made of stone in the collections. One, broken longitudinally, is 7.7 cm. long and 3 cm. in diameter. The perforation is about 2 cm. in diameter. The surface of

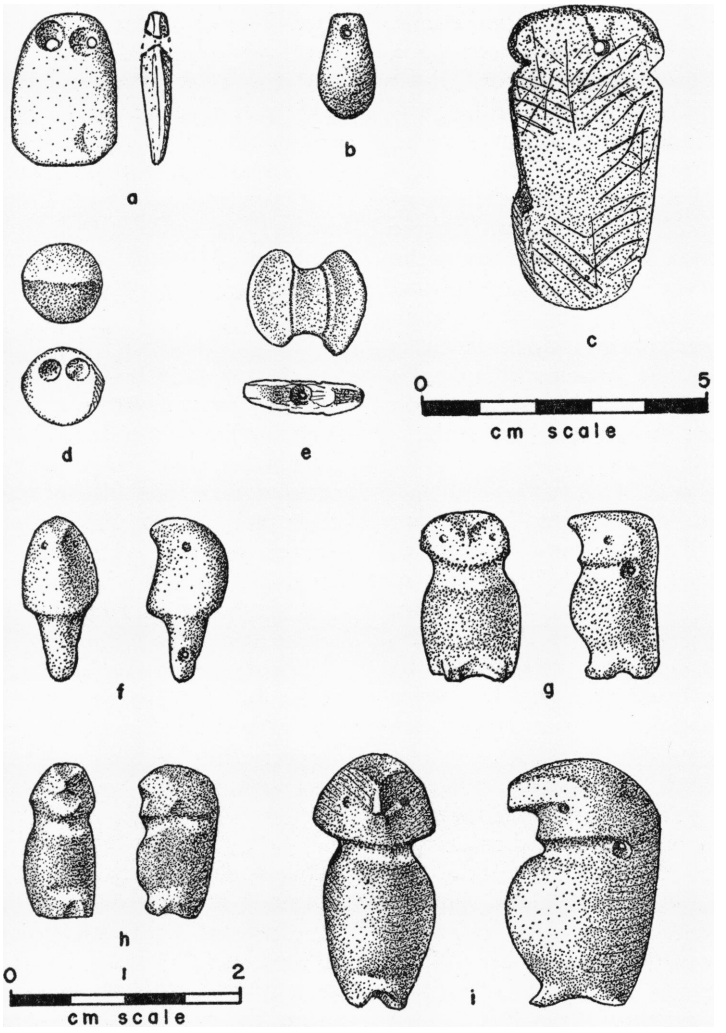

FIG. 38. Small ornaments. a. Red jasper pendant with two perforations. b. Small jasper pendant shaped like a plummet. c. Thin slate pendant with crude incising. d. Button-like object of jasper. e. Bead in the form of a banner stone. f–i. Bird head and bird effigy beads of jasper.

the brownish stone of which it is made is highly polished. The second tube, represented by a small fragment, evidently was also highly polished. A third tube, made of rough sandstone containing considerable iron, is 5.5 cm. long, 3 cm. in diameter, with a perforation 7 mm. in diameter. The holes through all these tubes are of uniform diameter, and the walls show scars left by the rotary drill. Probably a hollow cane used with sand as an abrasive was the tool employed in this work.

The use of these tubes is uncertain. Possibly they are tubular pipes similar to those described below. However, there is no enlarged tobacco chamber and no evidence of carbonized material in the bores. These may be shaman's sucking tubes.

TUBULAR PIPES

Figure 36a–e

When the size of the collections available for study is considered, the number of pipe fragments is surprisingly small. No complete examples are included. One steatite pipe, broken longitudinally (Fig. 36a), is 10 cm. long, and tapers from an outside diameter at the mouth

of 1.7 cm. to about 3 cm. at the opposite end. The tobacco chamber has a large bore, while a smaller hole, 1 cm. in diameter, was drilled for the passage of the smoke. The latter drilling was off center and explains the peculiar way in which the pipe has been broken.

Nine additional fragments are portions of fired clay pipes (Fig. 36b–d). Apparently these also tapered from the tobacco chamber to the end held between the lips. The cylindrical tube of clay shown in Fig. 36e is 2.4 cm. in diameter, with walls only 4 mm. thick. If this is a portion of a pipe, the tobacco chamber is unusually long; it may be a shaman's suction tube, as mentioned of the stone tubes above.

Miscellaneous Fragments of Stone

Several fragments of imported stone are interesting, for they illustrate the techniques of working the material. A thin fragment of bituminous shale (Fig. 36s) has shallow lines that form part of a design cut in the flat face. Unfortunately, the fragment is too small for the complete pattern to be determined. The edges of three small rectangular tubular pebbles are neatly squared by grinding (Fig. 36g).

There are two cylindrical fragments of stone. One, a reddish, fine-grained sandstone, slightly oval in section, 12 mm. in largest diameter, is broken at both ends (Fig. 36q). The other, of slate, is only 4 mm. in diameter and resembles a fragment of the slate pencils used by school children in the last century; as a matter of fact, that may be what it is.

Two fragments of greenish slate (Fig. 36o, p) illustrate cutting techniques. The specimen shown as Fig. 36o is only 3 mm. thick. Wide shallow grooves were cut from both faces until the material was so thin that it fractured. Apparently a grinding tool, similar to a sandstone saw, was used to accomplish this. The second fragment may be a portion of a gorget. It is 6 mm. thick. A sharply pointed tool, possibly a piece of flint, was used to incise a groove on each face until the material was thin enough to fracture.

Fragments of Galena

Figure 34d, e

The collections include 14 fragments of galena: 11 were collected on the surface, and one came from the fill of Mound B. Most of them are small and have the right-angled fracture planes that are normal for lead ore. However, two from the surface have been rounded and may be fragments of plummets. One large nodule from the surface weighed 7 pounds. Only one specimen of galena was recovered at the Jaketown Site, but there can be no doubt that this mineral was imported there during the time of the Poverty Point Culture. The lead mines of southern Missouri are generally assumed to be the nearest source.

Quartz Crystals

Figure 34f

Four quartz crystals, all from the surface, are included in the collections. Three are rather battered fragments of large crystals, but in each at least one face of the original crystal-clear face is unmarred by battering by stream action. The single complete crystal is 35 mm. long.

A fragment of a crystal gorget is described in the discussion of gorgets (Fig. 35b).

The nearest source of quartz crystals appears to be in Arkansas near Hot Springs. Trade in this material was apparently maintained in the Poverty Point as well as later periods of Indian occupation in the Southeast.

Fragments of Red Ocher

Six small fragments of soft red iron oxide were obtained in the general surface collections. All of these can be powdered very easily. While rubbed surfaces are not preserved, it is almost certain that this mineral was imported to serve as paint. The nearest source for red ocher is probably in the sandstone hills of northwestern Louisiana.

Cane Cores

Figure 36k–n

The collection includes 13 very odd little cylinders of fired clay. These range from 7 to 15 mm. in diameter and from 2 to 4 cm. in length. Their ends have broken surfaces. On the surfaces of these cylinders there are impressions of delicate, longitudinal ridging. We are uncertain as to what these objects are. Perhaps the best guess is that these are impressions of the interiors of sections of the local bamboo or cane. How they came to be fired is also a mystery. The firing may be the result of burning cane after it had been cut and the ends accidentally filled with mud. As a conjecture, it

might be that light shelters were constructed by pushing the ends of cut canes into the gound and bending the limber ends over to form wigwams. The single house of the Poverty Point Period found at the Jaketown Site appears to have been constructed of light poles in this manner.[1] Burning of a cane building made in this fashion might produce such fired casts.

CONTAINERS

Pottery

Figure 39

The principal surprise of the 1955 field season was the discovery that pottery is undoubtedly an element of the Poverty Point cultural complex. No pottery was found in the deposits of this culture at the Jaketown Site in Mississippi, and the few sherds found on the surface at Poverty Point have been interpreted as strays from the near-by Jackson Site. This explanation may still apply to some of the sherds we have gathered.

Our attention was first called to this trait when Junius Bird began to find fiber-tempered sherds in Trench 4, the excavation that he was carefully sifting on Ridge 6. In all, eight sherds were recovered here at depths between 16 and 36 inches. Later, other fiber-tempered sherds were recovered from the fill of Mound B, from the fire bed at the base of this mound, and from Cut 8. A sherd that had been collected from Cut 1 also assumed a new importance. Surface collecting also accumulated sherds, principally from the southern side of the site, where extensive sheet erosion by water that has drained into the large gulley has lowered the surface considerably.

The 53 sherds collected are tabulated as to provenience in Table 7. Without reference to provenience this material was readily classifiable into two groups. One group of 21 sherds has the clay-tempered paste, color range, thinness, and rather good firing that is characteristic of Coles Creek Period ware. Seventeen are Coles Creek Plain, one decorated sherd is Beldeau Incised, one is Mazique Incised, one Larto Red Filmed, and one Chevalier Stamped.[2]

The Troyville-Coles Creek Period Jackson Site[3] adjoins the Poverty Point earthworks at the south (Fig. 6), and the well-known small boy could have picked up fragments from the rather rich sherd-bearing midden there and sailed them onto the Poverty Point earthworks. The few sherds we have gathered from Poverty Point are the result of intensive collecting. The real puzzle is why the inhabitants of the later typical temple mound center did not scatter more refuse over the Poverty Point earthworks.

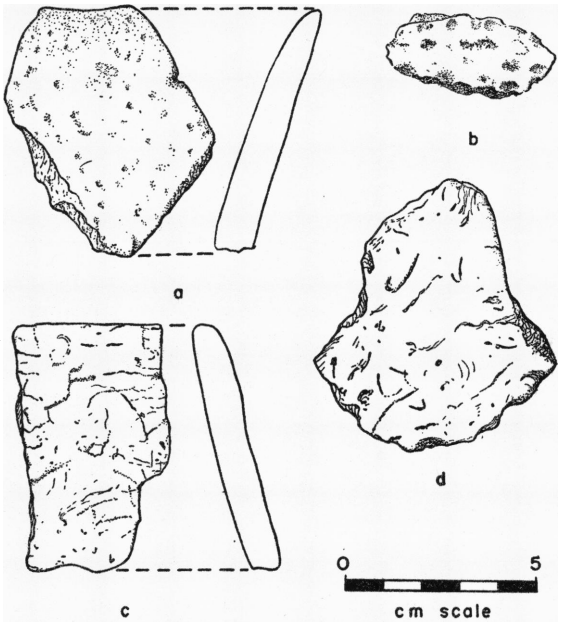

Fig. 39. Fiber-tempered potsherds.

However, it is a little more difficult to explain away the four clay-tempered plain sherds recovered in our excavations. Their classification as Coles Creek Plain remains after very careful examination under the microscope. The sherd from the 0–6-inch level of Trench 3 is easily explained, for plowing extended this deep. But the sherds from 42 to 48 inches in

[1] Ford, Phillips, and Haag, 1955, 34–35, Fig. 10, Pl. 4b.

[2] For type descriptions, see Ford, 1951.

[3] Ford's survey paper lists this as the "Neal Site," the name of the present owner (see Ford, 1936, Fig. 1, Site 93, 213–216). The Troyville Period had not been interposed in the chronology, and the dating was given as Marksville to Coles Creek. As the chronology now stands, it dates Troyville-Coles Creek. Also it seems better to retain Moore's name of "Jackson Place" for the site.

TABLE 7

PROVENIENCE OF POTSHERDS

Fiber-tempered sherds	
Trench 7, fill	3
Trench 1, 6–12 inches	1
Trench 4, 16–22 inches	2
Trench 4, 18–24 inches	3
Trench 4, 24–30 inches	2
Trench 4, 30–36 inches	1
Cut 8, 6–12 inches	2
Cut 8, 18–24 inches	1
Cut 8, 54–60 inches	1
Cut 10, 12–18 inches	2
Mound B, fill	1
Mound B, fire bed at base	1
Surface collections	12
Plain clay-grit tempered sherds	
Cut 8, 48–54 inches	2
Mound B, fire bed at base	1
Surface collections	14
Identifiable Coles Creek decorated types	
Trench 3, 0–6 inches	1
Surface collections	3

Trench 2, 48 to 54 inches in Trench 8, and from the fire bed at the base of Mound B can perhaps best be explained as a result of our own carelessness. It is possible, but we are reluctant to believe, that Coles Creek-like pottery was made in Poverty Point times.

Twenty of the 32 fiber-tempered sherds were uncovered in excavations; the remainder were surface finds. Judging from the casts, the fibers were round, flexible, and almost as fine as hair. Tempering varies in quantity from abundant to scant. The ware is soft; some fragments have not been sufficiently fired to drive off the carbon. Others are cream and light orange in color, and these colors extend completely through the sherds. The texture is quite "chalky." The thickness of side walls ranges from 5 to 12 mm. One fragment of a rounded base, apparently slightly pointed, is 20 mm. thick and thins to 15 mm. as it approaches the side walls.

Only two rims were found. Both of these are illustrated in Fig 39a, c. Two sherds are decorated. These have randomly spaced, rounded punctations made with a blunt tool, similar to those of Wheeler Punctated, formerly Bluff Creek Punctated[1] (Fig. 39b).

One of these sherds, found in Level 48 to 54 inches in Trench 8, the bottom level shown in the chronological graph in Fig. 15, suggests that fiber-tempered pottery is not a late addition to the cultural equipment of the people who lived at the Poverty Point Site. It was probably made during the entire time of occupation. However, the amount of pottery made was obviously very small. Our total collection of 32 fiber-tempered potsherds may be compared with the almost 3000 steatite vessel fragments recovered, or the thousands of fired-clay balls that were apparently used for cooking.

This fiber-tempered pottery is very similar in appearance to that from the Tennessee River Valley. This rare item was possibly imported from that region, together with the more abundant steatite vessels. Neither the clay figurines nor the tubular pipes of fired clay were tempered with vegetable fiber, and it is possible that the use of this material was known to the inhabitants of Poverty Point only in the form of finished vessels.

STEATITE VESSELS

Fragments of steatite vessels are fairly common on the surface of the Poverty Point Site. In the course of excavation, the American Museum group recovered 104 pieces. These were all plain, with cutting marks on the outside and usually with fairly well-smoothed interiors. This small sample, insignificant when compared to the contents of the remarkable cache excavated by Clarence Webb in 1935, presents no features that are not better represented in his find which was reported in American Antiquity.[2] In order to assemble all available information on the Poverty Point locality, it appears advisable to quote the essential parts of this article and to reproduce several of the illustrations (Figs. 40–42 of the present paper).

Fowke[3] quotes a resident of the Poverty Point plantation as describing a huge steatite vessel which was struck by the plow in 1925. The fragments of this vessel were stated to weigh sixteen pounds. In 1935 this individual took a friend and me to the field where this vessel was encountered. It is about one-fourth mile southwest of Moore's[4] Mound A, which Fowke[5] considered to be a natural hill. Artifacts are

[1] Griffin, 1950, Type 3-1 (6/50).

[2] Webb, C. H., 1944.

[3] Fowke, 1928, 434–436.

[4] Moore, 1913, 64–76.

[5] Fowke, *op. cit.*

to be found in the fields surrounding this eminence and between it and Bayou Maçon, a distance of one-half mile.

In the field pointed out to us, fragments of stone vessels were found scattered over an area about thirty meters square, with occasional pieces over the entire field of several acres. Subsequent trenching where the fragments were most numerous disclosed a pit, irregularly oval and approximately 2.5 by 2 meters in diameter and 60 cm. deep, with almost vertical walls, cut into the yellow clay of the field. A small portion of the pit was disturbed, where it had been dug into when first discovered in 1925, and very few fragments were found in the refill. The remaining, undisturbed portion of the pit was filled with masses of stone vessel fragments varying from 2 cm. in diameter to one-third of a vessel's circumference. These fragments were removed in groups and kept separate for distributional studies. After the specimens were cleaned, it was found that in several instances portions of a vessel had been taken from widely separated parts of the pit, indicating that the vessels had been broken and their parts mixed before placement in the pit. The fragments extended into the cultivated soil, and the distribution of the pieces found on the surface indicated that they had been scattered from the upper levels of the cache during the ten years of cultivation.

The level floor of the cache pit was fire-blackened in four areas, 30–60 cm. in diameter, one of which had a bed of ashes and charcoal, 10 cm. thick, suggesting some ceremony preceding deposition of the vessel fragments. Examination of the pit walls showed no evidence of any floor level of a house, and excavation well below the floor of the pit showed undisturbed clay. Careful troweling of the soil during the removal of the fragments produced only two other artifacts, a chert flake and a rough scraper, which may have been accidental inclusions.

A total of 2205 fragments was removed from the pit and 519 were gathered from the surface or troweled from the cultivated soil within a radius of 10–15 meters. Undoubtedly other hundreds have been taken away or scattered through the fields since the discovery of the cache.

Through the kindness of Dr. Fred B. Kniffen, of the Louisiana State University School of Geology, gross identifications of sample specimens were made by Dr. Russell and Dr. Fisk of the Geology staff. They state that thorough identification of the complex mineral composition could be made only by microscopic study of thin sections, which the press of university work prevented. "They all appear to be members of a series of schists, sufficiently alike that they might all have come out of the same outcrop." The dominant minerals in the various specimens submitted are identified as follows: talc schist, hornblende-mica schist, biotite schist, actinolite-chlorite schist, and tremolite schist, all of which Dr. Russell believes are derived from igneous rocks; and mica gneiss, muscovite-biotite mica schist, fine-grained muscovite quartz schist, garnet-mica schist and garnet-muscovite schist, which are regarded as derived from sediments. Dr. Fisk suggests, because of the presence of the garnet, that these materials came from the southern Appalachians, or, less probably, from the Lake Superior region.

Comparison of the identified specimens with the entire group of fragments shows that the majority of the vessels were made from the first group of materials, especially the combinations of actinolite, chlorite, biotite and tremolite, with smaller numbers from the talc and hornblende-mica schists and only occasional specimens from the second group of schists derived from sediments.

The larger fragments indicate that nearly all of the vessels were open bowls, irregularly circular or oval in shape, with outside walls convex from top to bottom. Some have almost straight side walls (Fig. [40a–f]). One or two show incurving rims, producing the "olla type" interior or closed bowl (Fig. [40g]), while Fig. [40h, i] suggests a shallow platter.

The evidence indicates that the dimensions of the vessels range as follows: height, 7.5–18 cm.; width at the rim, 20–28 cm.; thickness of side walls, 8–25 mm.; average thickness, 14–15 mm.

Gouge marks are present on most fragments. On the outer surfaces, these are usually vertical, but occasionally diagonal; they are more frequently diagonal on the inner surfaces. The inner surfaces are often partially or completely smoothed, the grinding marks being horizontal. One hundred and eighty-eight fragments are quite smooth on both surfaces, and in some instances the surfaces are well polished.

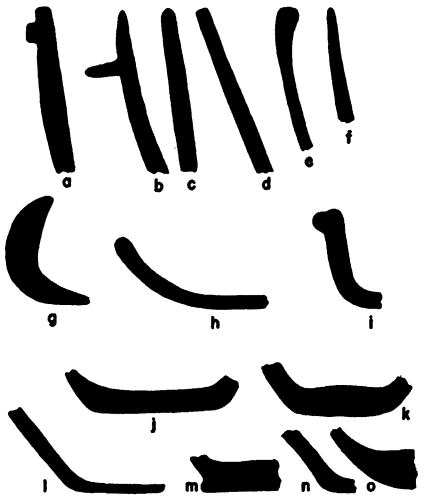

FIG. 40. Profiles of fragments of soapstone vessels. Redrawn from Webb, 1944, Fig. 30.

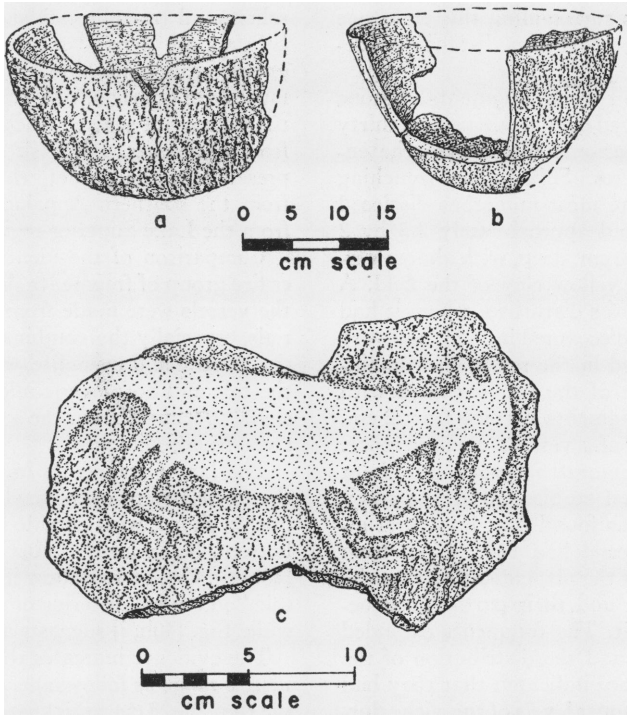

FIG. 41. Steatite vessels and a large fragment with an animal figure carved in relief. After Webb, 1944, Pl. 35 and Fig. 30.

One almost complete vessel (Fig. [41a]) is an open bowl with sides of unequal height. The greatest diameter of its oval mouth is 28 cm. Its exterior is roughened by gouge marks; its interior, partially smoothed, and the rim is rounded. Two perforations on one side are spaced 2.5 cm. from the rim and 1 cm. on either side of a major fracture line.

A second vessel (Fig. [41b]) is represented by sufficient portions to give its dimensions and shape. Also an open bowl, it has sides of unequal height, averaging 18 cm. The base is circular and flat. The walls are uncurved vertically except at the rim, which curves inward to produce a thinned lip. The circular opening is 28 cm. in diameter. All surfaces of the vessel are ground quite smooth.

Four hundred and ninety-two fragments show segments of rim and, although many duplications are evident, at least two to three hundred separate vessels are represented.

Most of the rims have rounded lips (Fig. [40b, c, f–i]) and are sometimes thinned by beveling of the outer wall. In other instances the lip is flattened (Fig. [40a, e]). Several portions of one vessel (Fig. [40e]) have a rim which is thicker than the subjacent wall, with flat, outward-sloping lip. The rim and a space of several centimeters below it on the outer wall of some vessels with rough surfaces is smoothly ground.

Decorations are present on fifty-two of the rim segments. The simplest decoration consists of a single groove outside (Fig. [42j]) or inside (Fig. [42k]) the rim. In other instances the thinned lip is notched (Fig. [42 l]), or grooves and notches are combined (Fig. [42n]). More frequently the decoration appears on a flattened lip, as channeling by one or two grooves (Fig. [42c, f]), as transverse lines (Fig. [42e]), as a combination of these (Fig. [42i]) or as various combinations of single- or multiple-line zigzags or chevrons (Fig. [42b, d, h]). Two fragments from the same vessel have a combination of double-line chevrons with circular depressions (Fig. [42g]). Another large piece has chevrons and cross hatching on the lip, with chevrons and notching on the lug (Fig. [42m]). . . .

Two fragments from the pit and two from the surface collection combine to form the figure of an eagle with spread wings and talons (Fig. [42a]). The figure in relief is raised about 2 mm. above the surrounding surface, is 12 cm. wide and 10 cm. high and is quite symmetrical. The vessel is made from a glistening actinolite-chlorite schist.

Another effigy is described here through the courtesy of Judge H. J. Lemley of Hope, Arkansas, who secured it from Mr. Autenberry, the local resident who plowed into the cache in 1925. This figure [Fig. 41c] is similarly embossed on the same type of

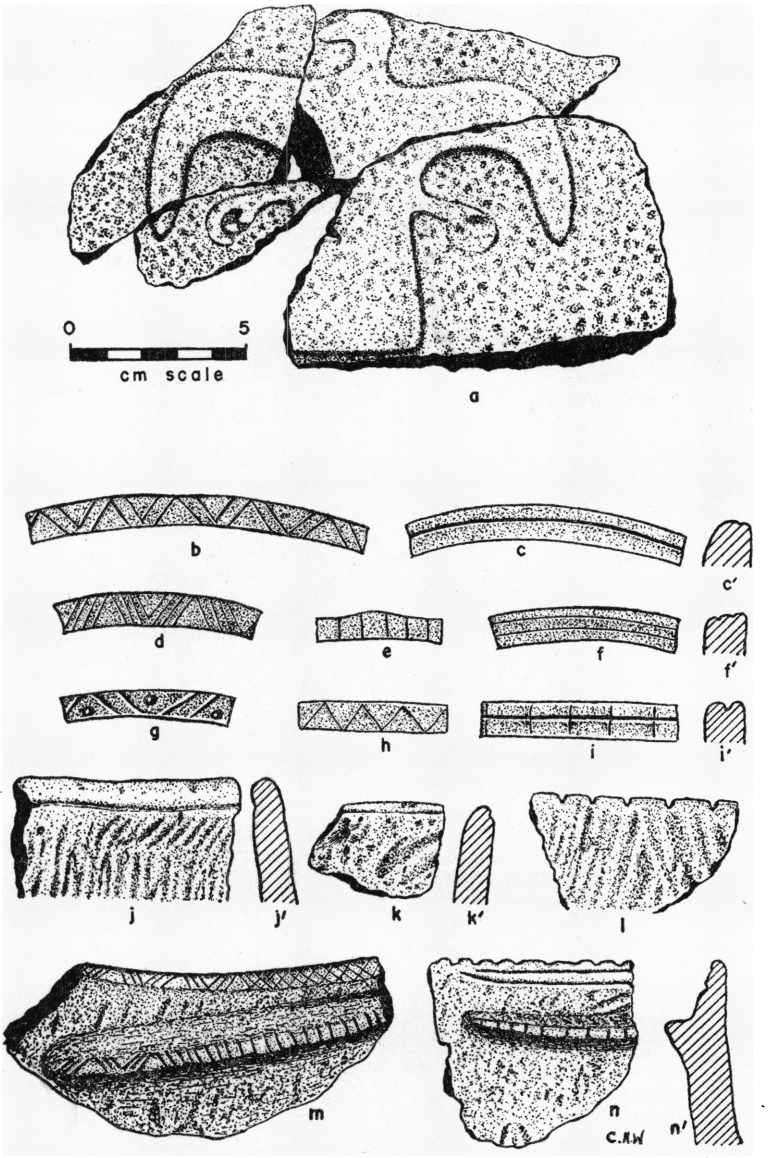

FIG. 42. Stone vessels. a. Eagle design carved in relief. b–l. Lip and rim decorations. m, n. Lip and lug decorations. After Webb, 1944, Fig. 31.

stone, and represents a queer animal which in some respects resembles a panther, and in other features suggests a mountain goat. . . . Judge Lemley gives the length of this figure as 9 inches (23 cm.), its height as 3½ inches (9.9 cm.).

One hundred and five fragments have lugs or portions thereof, which vary considerably in size and position. . . . Some were created by a local thickening of the rim, but more often they were placed 1–6 cm. from the lip. They vary from 1–20 cm. in length, from 1–4 cm. in thickness and project from the vessel wall an average of 1–3 cm., although extremes of 5 mm.–6 cm. are present. The upper surface of the lug is usually horizontal, while the lower surface frequently slopes downward to join the wall at an obtuse angle.

Vessels with smoothed outer surfaces usually have smooth lugs and vice versa. A few of the lugs are decorated with notches (Fig. [42n]), nodes . . . or lines placed diagonally or transversely (Fig. [42m]). Several have deep longitudinal grooves . . . and one had combined longitudinal and vertical grooving. . . .

Twenty-nine fragments are perforated and some of them are broken through the holes. Seven rim segments have perforations near the rim, while one wall fragment has four holes placed around two margins . . . and another is perforated near the base. The holes are sometimes counter-drilled, sometimes drilled altogether from the outside. Their placement suggests that they were made for purposes of repair, rather than for suspension. In no instance are opposed perforations found; none occurs near the rim away from a fracture.

Portions of bases are found on 105 fragments, and two complete bases are present. They are circular or irregularly oval, 10–20 cm. in diameter, and nearly always flat or partially flattened on the bottom surface. Several types are shown in Fig. [40g–o]. The average thickness is 1.5–2 cm., with variations from 5 mm. to 4 cm. Some of the bases seem to have been ground or worn practically through before breaking. The inside surface is usually concave, but occasionally is convex (Fig. [40k]) and often is flat, paralleling the bottom surface (Fig. [40j, l, m]).

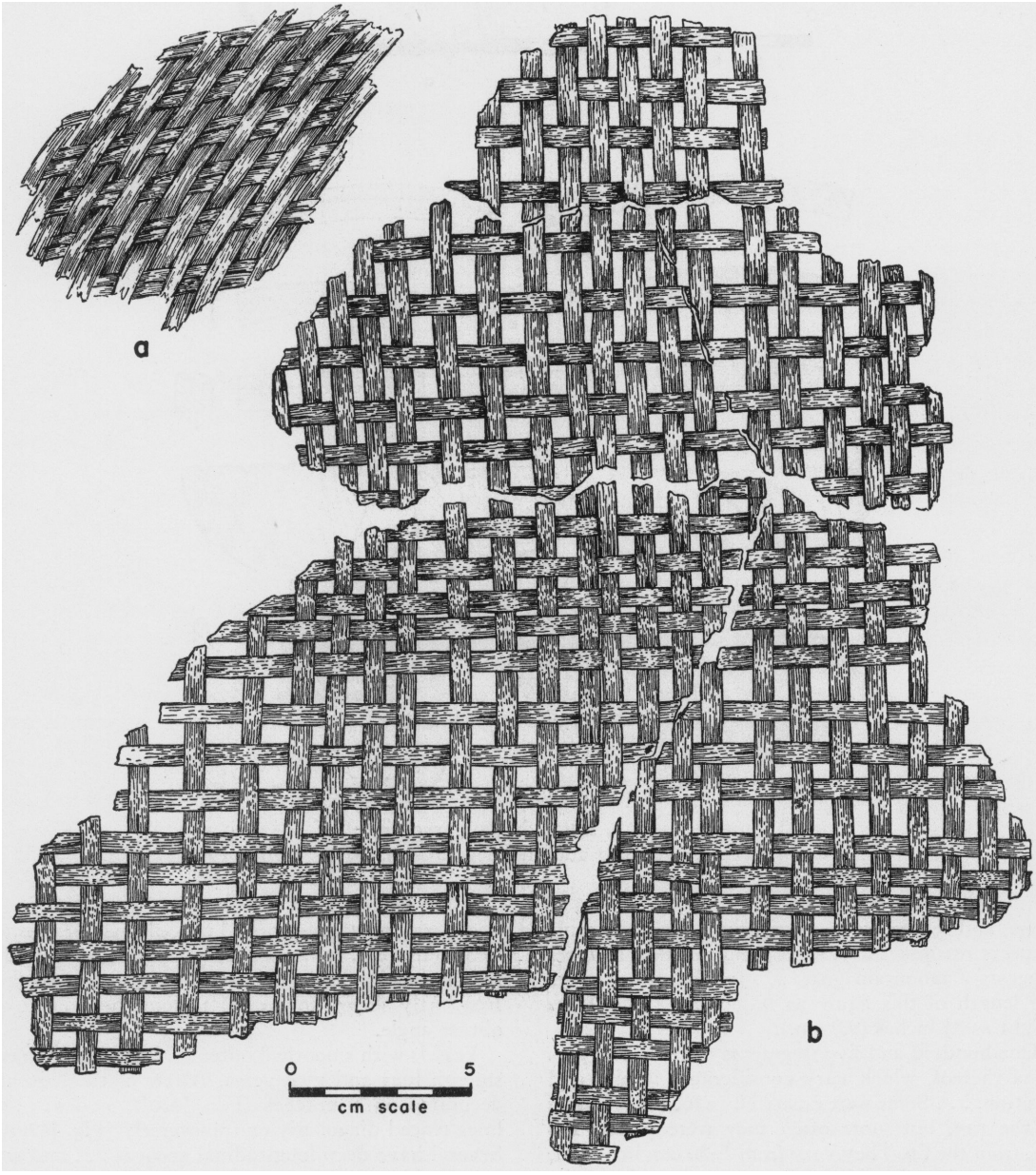

FIG. 43. Basketry impressions. a. Basketry impression from Motley Mound. b. Basketry drawn from clay impressions found on Floor 4, conical Mound B.

Sandstone Vessel Fragments

In addition to fragments of soapstone vessels in the collections made by the American Museum party, there were 43 fragments of similar vessels made of ferruginous sandstone. This might have been obtained from the hills in northeastern Mississippi. All these sherds are small, but so far as can be determined the vessels were very similar to those made of steatite. The interiors of the fragments were usually fairly well smoothed, while the exteriors show gouge marks left by cutting tools.

Carrying Baskets

Basket-loading of soils was clearly apparent in the excavations made in Mound B and in the ravines and borrow pits cut into the sides of the Motley Mound. These lenticular-shaped masses of differently colored earth indubitably represented basket-loads, for basketry impressions were found at several places. The first discovery was made in the borrow pit in the western side of the Motley Mound by Haag, Webb, and Ford in 1953. Fragments of clay showing basketry impression were saved at that time, but it was impossible to determine the shape of the basket.

The second group of basketry impressions was found on the fourth floor level in the conical Mound B (see Fig. 12). On examination about 60 of the curious circles that were found just above this level proved to be the remains of containers full of earth that had been deposited on this level. These depots were marked by thin, dark-brown stains of humus that provided cleavage planes between the tough clay inside and outside the containers. A careful examination revealed only three basketry impressions; perhaps most of the other containers were made of skins. All the containers were rather formless, flattened where they had been placed on the surface of Level 4, and above that rounded and bulging from the weight of the earth. It was impossible to discover any specialized rims. The diameters vary from 11 to 22 inches, and the average diameter of 37 impressions measured was 17.1 inches.

The third set of basketry impressions was found in a shallow pit cut into the old ground surface beneath Ridge 1 at the point where it was explored by Trench 7. This was a small cast; while it probably was a basket, it may have been a fragment of matting.

Four of these five impressions of weaving were virtually identical (Fig. 43b). The weaving elements, thin strips of vegetable material about 5 mm. wide, left dark brown casts in the yellowish and reddish clay. In the casts there appear to be impressions of fibers running lengthwise of the strips. Apparently these strips were not made of cane, for there were no bulges that would correspond to the nodes that are found between the sections of this plant. The strips may have been wood splints, although baskets made from this material are usually stiff, not flexible as these seem to have been. The splints were spaced about 5 mm. apart, but many have moved slightly, and the spacing is now irregular, as may be expected in such loosely woven material. The weave is simple plaiting.

The basketry impression found in the Motley Mound showed that the earth container had been made of splints similar to those just described. However, the weaving was different. It, too, was a simple plaiting weave, but the elements running in one direction were in pairs, while in the opposite direction only single splints were used (Fig. 43a). The opposed splints cross one another at about 45 degrees. Perhaps this is a portion of a basket bottom.

ANALYSIS AND DISTRIBUTION OF ARTIFACTS IN CUT 4[1]

As a record of the typical yield of excavation in one of the occupation ridges, Table 8 has been prepared. Cut 4 is the only one of the larger excavations from which the total dirt removed was sifted. The artifact categories and subdivisions assembled in Table 8 naturally do not include all the artifact types reported for Poverty Point. No single small excavation will yield the same wide range of objects available as a result of years of selective surface collecting. Conversely, surface collectors have not bothered to assemble the total range of material. Much of it is truly trash and is of interest only to the extent that it provides some information on former activities at the site.

Thus there are a few entries in the table, such as "unworked pebbles," which are not mentioned elsewhere in the text. Some explanation is also needed for other items which have been lumped together because of their frag-

[1] This section is by Junius Bird.

TABLE 8

ANALYSIS AND DISTRIBUTION OF ARTIFACTS FROM CUT 4, RIDGE 6, NORTHWEST SECTOR

	Layers in Unit A, Ridge Area						Layers in Unit B, Ridge Flank, in Hollow						Position Uncertain	Totals
	1	2	3	4	5	6	1	2	3	4	5	6		
Layers, average thickness, in inches	7.1	3.8	3.8	6.5	7.7	5.5	6.3	2.8	3	3.3	4.3	4.7	—	
Layers, volume (1000-cubic-inch units)	242.1	81.9	78	224	236.2	124.5	60.5	29.4	26.4	33.4	46.1	51	33.9	1267.4
Unworked pebbles	17	—	—	5	—	—	10	2	2	2	2	4	—	44
Hammerstones	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Cores, semi-polyhedral	1	—	—	—	1	—	1?	—	—	—	1	2	—	6
Unmodified blades and related flakes														
Initial platform flakes	—	—	—	—	—	—	—	2	—	—	—	—	—	2
Exterior	12	—	1	2	—	—	8	—	—	—	—	—	—	23
Partial exterior	10	—	1	9	4	—	14	5	2	4	3	3	—	55
Interior	7	1	1	5	2	—	8	1	—	4	—	—	—	29
Irregular flakes	1136	9	14	226	31	2	571	131	66	76	105	74	41	2482
Angular spalls and scrap	30	—	—	14	1	1	18	5	3	5	6	5	1	89
Flake tools														
Jaketown perforators														
Chips from 1 face, 2 edges	245	7	2	74	11	—	160	67	22	21	26	20	7	662
Chips from 1 face, worn tip	30	—	—	1	—	—	10	6	—	3	1	—	2	53
Chips from 1 face, worn and stained tip	11	—	—	1	—	—	1	3	2	1	—	1	—	20
Chips from 1 face, base fragments	22	—	—	5	—	—	12	4	1	1	3	3	—	51
Chips from 1 face, tip fragments	—	—	—	1	—	—	1	—	—	—	—	—	—	2
Chips from 1 face, entire margin	4	—	—	2	—	—	3	2	—	—	—	—	—	11
Reversed edges, unworn	28	—	—	5	—	—	17	2	—	—	2	—	—	54
Reversed edges, worn and stained tip	—	—	—	—	—	—	1	—	—	—	1	—	—	2
Reversed edges, broken	4	—	—	1	—	—	—	—	—	—	—	—	—	5
3 working edges on point	5	—	—	—	—	—	2	1	1	2	—	—	—	11
3 working sides (3 points)	1	—	—	1	—	—	1	1	—	1	—	—	1	6
Double ended, unworn	8	—	—	1	—	—	2	3	—	—	1	1	—	16
Double ended, worn one end	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Double ended, worn both ends	1	—	—	—	—	—	—	—	1	—	—	—	—	2
Scrapers														
Questionable, nicked, chipped edges	43	4	3	27	2	1	28	26	14	16	10	13	1	188
Sidescrapers, single edge	58	2	—	25	9	—	54	36	11	14	13	14	8	244
Sidescrapers, 2 adjacent edges	6	1	—	1	—	—	4	1	—	1	—	1	—	15
Sidescrapers, 2 adjacent reversed	4	—	—	—	1	—	—	—	—	1	1	1	1	9
Sidescrapers, 2 separated edges	14	—	—	7	—	—	10	3	2	1	2	—	—	39
Sidescrapers, 2 separated reversed	3	—	1	2	—	—	3	3	1	2	—	—	—	15
Sidescrapers, 3 edges	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Sidescrapers, entire circumference	—	—	—	—	—	—	1	—	—	—	—	—	—	1
Endscrapers	2	—	—	—	—	1	4	—	—	—	2	1	—	10
Flakes with polished edge or corner	4	2	—	4	1	—	—	—	—	7	1	—	—	19
Blanks, rough, irregular flaking	2	—	—	4	1	1	4	—	—	1	1	—	—	14
Projectile and knife points														
Classifiable specimens	3	—	—	5	—	—	—	—	—	1	—	1	—	10
Unclassified fragments	6	—	3	4	—	—	4	3	3	2	2	—	—	27

TABLE 8—(*continued*)

	Layers in Unit A, Ridge Area						Layers in Unit B, Ridge Flank, in Hollow						Position Uncertain	Totals
	1	2	3	4	5	6	1	2	3	4	5	6		
Axe or adze blades, fragments	2?	—	—	—	—	—	1?	2?	—	—	—	—	—	5
Scraps, types of stone used for axes	21	2	1	13	—	—	—	7	2	6	2	9	3	66
Rubbing-stone fragments	3?	1	1?	1	2?	—	—	—	—	3?	1	1	—	13
Miscellaneous material														
Pumice-like clinker	—	—	—	—	—	—	—	—	—	2	—	—	—	2
Mica schist	1	—	—	6	1	—	—	—	—	—	—	—	—	8
Slate	—	—	—	—	—	—	—	1	—	—	—	1	—	2
Fossil crinoid	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Rock crystal	1	1	—	—	—	—	1	1	—	—	—	—	—	4
Galena	—	1	—	2	—	—	—	—	—	—	—	—	—	3
Plummets, perforated	—	1	—	1	—	—	—	—	—	—	—	—	—	2
Plummets, fragments, finished	6	—	1	—	—	1	—	—	—	—	1?	1	—	10
Plummets, fragments, unfinished	2	—	—	1	—	—	1	1	—	—	—	—	—	5
Hematite and magnetite scrap	4	—	—	2	—	—	6	1	1	2	2	—	—	18
Gorget fragments	2?	—	—	1	—	—	1	—	—	—	1	—	—	5
Boatstone fragments	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Soapstone objects	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Beads, unfinished, discoidal	—	—	—	—	—	—	1	1	—	—	—	—	—	2
Pigments, white chalky material	1	—	1	—	—	1	—	—	—	—	—	—	—	3
?Red ocher	2	—	1	1	—	—	—	—	—	2	1	1	—	8
Greenish gray soft stone	2	1	—	1	—	—	2	1	—	1	1	—	—	9
Stone bowl fragments														
Steatite	8	—	—	2	—	—	5	1	—	—	1	1	2	20
Other stone	—	—	—	4	—	—	—	—	—	—	—	—	—	4
Steatite scraps	4	—	—	1	3	—	2	—	—	—	—	—	—	10
Potsherds, fiber temper	—	—	—	3	—	1	—	—	—	—	3	2	—	9
Cylindrical clay rods	1	—	—	—	—	—	—	—	—	—	—	1	—	2
Clay pipe fragments	—	—	—	2	—	—	—	—	—	—	—	—	—	2
Clay figurines	—	—	—	—	—	—	—	—	—	2	—	—	—	2
Poverty Point objects, clay cooking "stones"														
Round ball	—	—	—	—	1	—	—	—	1	—	—	—	—	2
Biconical	—	—	—	—	—	—	—	—	1	—	1	—	—	2
Biconical, grooved	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Cylindrical, grooved	5	5	5	47	6	2	—	—	1	2	2	1	3	79
Crossed	4	1	—	35	3	—	1	1	1	9	6	6	4	71
Melon	3	—	1	2?	1	1?	—	—	2	1	1	—	1	13
Melon, grooved	—	—	—	5?	—	—	—	—	—	2	—	2	—	9
Lumps	4?	3	1	32	5	1	—	—	1	4	2	2	1	56
Total weight, including scraps, in kilograms	13.35	3.49	3.71	31.67	9.88	.37	9.27	2.42	1.77	11.64	6.44	6.17	.39	100.57[a]
Burned, fire-cracked stone scrap	324	12	9	104	16	3	169	50	16	41	78	34	13	869

[a] 221.5 pounds.

mentary state. A similar grouping of the projectile points is explained below.

Unworked Pebbles

As all stone, barring some concretionary material, was presumably imported, the pebbles are of interest. Variable in size, form, and material, the average weight is only 2.17 grams. Granted that only 44 unworked pebbles were found, if this indicated rate of occurrence is applied to all the site ridges, the total quantity would be considerable. No reasonable explanation for the transport of such small, seemingly useless pebbles comes to mind.

Unmodified Blades and Related Flakes

In the preparation of each core for the production of a flake blade, the first fracture of the pebble or cobblestone results in a recognizable fragment, tabulated as "initial platform flakes." Occasionally two or more such flakes are removed where the form of the stone permits the use of more than one striking platform. In any case, the total number of such flakes can be predicted from the number and nature of the cores.

The balance of the flakes from these cores can be sorted into three groups: those with one face showing only the original waterworn exterior surface of the stone, those retaining some of this exterior surface, and those from inside the original limits of the pebble surface. By no means all of those tabulated have the neat, somewhat parallel-sided blade form which might be considered the desired product. Because of the small size and the irregular shapes of the available pebbles, considerable variation in flake forms resulted.

It is difficult to judge if or how these variations relate to the utilization of the flakes. Within the Jaketown perforator group, exterior, partial exterior, and interior flakes are all well represented. As far as one can judge, most of the range in size and variation in forms is also present in that group.

Irregular Flakes

The figures tabulated under this heading refer to the type of flakes that normally result from the manufacture of projectile points, knives, and artifacts chipped or flaked during some stage of production. They show no wear, nicking, or visible evidence of use. Not included are fragments of materials used for ground stone axes and adzes. The average weight of the 1703 flakes in Layer 1 is 0.995 grams. The balance are closely comparable. Flakes of this type that have been utilized as scrapers are slightly heavier, averaging 1.64 grams.

Angular Spalls and Scrap

Although the waste material formed in the production of chipped stone artifacts consists mainly of chips or flakes, the initial stages of breakage of the raw material and the subsequent roughing out and shaping yield occasional coarse chunks or spalls. These tend to be very variable in size, thickness, and appearance. If form and size permit, some may be shaped into blades or projectile points, but one might say that most of them can be characterized only by their uselessness. At Poverty Point the majority are of the quarried whitish chert.

Projectile and Knife Points

Eight types are represented among the 10 classifiable specimens, distributed as follows:

Layer 1, Unit A: 2 Motley, 1 unclassified which resembles but does not match the Maçon Type

Layer 4, Unit A: 1 Gary Small, 1 Epps, 1 Delhi, 1 Wells, 1 Kent. The last is more asymmetrical than any illustrated, enough so, as to suggest that it may have served as a knife rather than a projectile

Layer 4, Unit B: 1 Epps, broken, showing the type of tip fracture which results from use as a projectile rather than a knife

Layer 6, Unit B: 1 Gary Small

Blanks and Rejects, Rough Irregular

As this material is largely fragmentary, it may include some items that, if complete, might be listed under other headings. Small fragments of any of the bilaterally percussion flaked objects, such as the "irregularly-shaped choppers," "rough picks or pointed tools," or "chipped adzes and celts," are difficult to distinguish from pieces of rejects and blanks and cannot always be separated from them.

Pigments

This heading in Table 8 is offered with reservations. Included in it are several matetrials that, if ground, might have served as pigments. We lack evidence, however, that they were so employed.

COPPER

The small irregular fragment of laminated copper found by George Quimby in Trench 6 is mentioned above (p. 28).

In a recent issue of American Antiquity, Robert E. Bell announced the discovery of a copper plummet from Poverty Point.[1] This is in the collection of James Durham of Oklahoma City, Oklahoma, and was collected by F. M. Durham from the surface of the southern part of the site. Bell thinks the plummet was probably hammered from a nugget of native copper. The illustrations accompanying the article shows it to be similar in shape to Fig. 33n. This plummet is 48 mm. long and 20 mm. in diameter. It is perforated at the more elongated end.

SAMPLES FOR POLLEN ANALYSIS

We hoped in the course of the work to find evidence bearing on the subsistence pattern of the population of this site. Specifically, we were interested in learning whether or not it was based on corn agriculture. Much of the year the water stands in the artificial swale that parallels Ridge 6, about 200 yards north of Mound A. Here we believed the conditions might be proper for the preservation of fossil pollens. If corn pollen were found near the bottom of excavations made by the Poverty Point people, it would be definite proof that the plant had been cultivated in the vicinity.

Edward S. Deevy, Jr., of the Osborn Zoological Laboratory, Yale University, very kindly lent us a core-sampling tool and gave instructions in the proper manner of obtaining and preserving cores. Two borings were made in the swale very close to the western end of Trench 2. Three other check borings were made in the fragment of the old Arkansas River braided channel that lies about 200 yards due west of Mound A.

Paul Sears, of Yale University, examined the samples after the field-work was completed. Unfortunately, it seems that pollens had not been preserved in the artificial swale. Corn pollen was found in the surface level and the 36-to-42-inch level of one of the borings into the mucky bottom of the old Arkansas River course. However, this much deposit may have accumulated in this natural channel within the past 50 years; unfortunately, this finding does not answer our question.

[1] Bell, 1956, 80.

DATING OF THE POVERTY POINT COMPLEX AND LATER CULTURAL PERIODS IN THE LOWER MISSISSIPPI

RELATIVE CULTURAL DATING

THE ACCUMULATED INFORMATION enables us to date the Poverty Point complex in several different ways. Whether this is fortunate or not is debatable, for the results are not in perfect agreement. The first line of evidence is cultural. Internal cultural evidence suggests that the Poverty Point complex existed at the end of the Eastern Archaic stage when fiber-tempered pottery was beginning to be made in small quantities. This was also a time when certain traits which became elements of the Hopewellian cultures of the Upper Mississippi drainage had already made their appearance.

The stratigraphic excavations at the Jaketown Site have demonstrated that Poverty Point precedes the Tchefuncte-Tchula complex, formerly thought to be the earliest pottery-making period in the Lower Mississippi.[1] From the evidence uncovered at Jaketown we could not be certain whether or not there was a hiatus in the occupation of the site. In any event, this evidence places the Poverty Point complex at the bottom of the known continuum of prehistoric cultures in the Lower Mississippi Valley.

GEOLOGICAL DATING

Geological evidence suggests that the Poverty Point cultural complex existed at a time that corresponds to Stage C_1 of Fisk's river channel chronology. The Jaketown Site was almost certainly located on an island in the active Stage C_1 Ohio River.[2] The possibility that Poverty Point was established near the braided Mississippi channel of this same stage is discussed above where we show that this site cannot be later than Fisk's Stage H (p. 20). If this conclusion is correct, a geological date is provided for the complex. Fisk does not pretend to give an accurate date for the C_1 stage, but when his chronological tables are interpolated, a dating of about 1500 B.C. is implied.[3] On a similar basis, an estimate for Stage H would be about 500 B.C.

One result of an archeological survey of the alluvial valley region of western Mississippi and eastern Arkansas has been the suggestion of a correlation between the succeeding Tchefuncte Period and the old Mississippi River channels of Fisk's Stage 7.[4] River channel positions of unequal length listed as Stages C_2 and D to J, as well as channel positions in the present meander belt, supposedly located at 100-year intervals, listed as Stages 1 to 6, intervene between the channel associations of Poverty Point and those indicated for Tchefuncte sites. According to Fisk's temporal estimates, this totals more than 1500 years. This line of evidence suggests a considerable gap between the two principal known Poverty Point sites and the start of the continuum that begins with Tchefuncte.

The radiocarbon dates that are considered in the following section are, however, not entirely in agreement with Fisk's age estimates. By this means the Poverty Point culture levels at Jaketown and Poverty Point are dated somewhere between 1300 B.C. and 200 B.C., probably about 800 to 600 B.C. If these latter figures are the actual age of the river channels of Stage C_1, then the major channel changes that occurred after that time and before the beginning of the Christian era must be crowded into a shorter span of time than Fisk has estimated.

[1] Ford, Phillips, and Haag, 1955.

[2] Ford, Phillips, and Haag, 1955, 15–24.

[3] Fisk, 1944, Pl. 15. This figure is copied in Ford, Phillips, and Haag, 1955, Table 1.

[4] Phillips, Ford, and Griffin, 1951, 297–305.

RADIOCARBON DATING

A third approach to the problem of the date of the Poverty Point complex has been by means of the measurement of residual radioactive carbon. Six such measurements have been made of samples from the Poverty Point Site, and four on material from the lower strata that yielded this cultural complex at the Jaketown Site.

In addition, a total of 32 measurements have been run on specimens from archeological sites that have cultural dates in the succeeding archeological periods in the Lower Mississippi Valley. Many of these samples were obtained in the course of an archeological survey of the coastal region of Louisiana by William G. McIntire.[1] The dates determined for McIntire by the Humble Oil Company laboratory will soon be published in Science. They are published here with the kind permission of McIntire and H. Dayton Wilde, Manager of Research and Development of the Humble Oil and Refining Company of Houston, Texas.

The material for other dates in Table 9 was obtained by Robert Greengo of Harvard University who, under the general direction of Philip Phillips, has excavated the Manny, Thornton, and Mabin sites in Issaquena and Yazoo counties, Mississippi. On the basis of this work, Greengo has tentatively formulated an "Issaquena" cultural complex which seems to correlate directly with the Troyville Period that has been defined in Louisiana. A thorough discussion of the significance of these determinations will appear in Greengo's forthcoming report. This information is incorporated here through the courtesy of Greengo and Phillips. Comments on these samples were provided by Greengo.

The radiocarbon dates discussed here have been determined by the five different laboratories listed below:

Institute for Nuclear Studies, University of Chicago, directed by Willard F. Libby. The dates were obtained by a dry carbon counter. They were last published in 1955[2] and are identified by laboratory number in Table 9.

Lamont Geological Observatory, Columbia University. The radiocarbon laboratory is directed by J. Lawrence Kulp. The dates were obtained by a dry carbon counter. They were published in 1951.[3] The determinations are identified by Lamont Laboratory number in Table 9.

Two of the dates were obtained in the laboratory of Fred Schatzman, a young man from Highland Park, New Jersey, who has constructed and is operating the apparatus for obtaining radiocarbon assays as a hobby. When these two measurements were made, Schatzman was not aware of the probable age of the specimens or of the results that had been obtained by other laboratories.

Humble Oil and Refining Company Laboratory. The samples listed as Humble were assayed by the Radiocarbon Laboratory of the Exploration Department of this company in Houston, Texas. This laboratory is operated by Milton Williams. The method used is the proportional counting of carbon dioxide at high pressure. The half-life of C^{14} used for these determinations was derived from measurements of wood samples of known age in order to eliminate the contamination of present-day atmosphere due to the burning of fossil fuels.

University of Michigan Memorial-Phoenix Project Radiocarbon Laboratory, directed by H. R. Crane. The samples were processed through the interest of James B. Griffin. Samples were counted with a CO^2-CS^2 Geiger counter. Determinations are identified by laboratory number in Table 9. These dates will be published in Science as Michigan Radiocarbon Dates I.[4]

Table 9 lists the provenience, collector, and elapsed time of the 42 radiocarbon assays made by the five laboratories. In Fig. 44 this information is presented in graphic form. The length of each bar represents one sigma range in years. This expresses the length of the probability curve derived from the number of hours the radioactivity of each sample was measured. For example, a range of ± 100 means that there are two chances out of three that the actual date falls within the 200-year span of time indicated on either side of the date given.

[1] A study of the results of this survey as it affects the problem of dating old deltas of the Mississippi River has been published (McIntire, 1954). Detailed descriptions of the sites and cultural contents are in preparation.

[2] Libby, 1955.

[3] Kulp *et al.*, 1951.

[4] The University of Michigan radiocarbon dates were published after the present paper was in press (Crane, 1956). Three additional dates should be added to the diagram given as Fig. 44: Michigan sample no. 27, Emerald Mound, 470 ± 250 years; no. 30, Gordon Site, 350 ± 250 years; and no. 47, Anna Mound Group, 640 ± 250 years. These sites belong to the Plaquemine Period in the cultural sequence.

TABLE 9

RADIOCARBON ASSAYS

No.[a]	Description	Laboratory No.	Date
	PLAQUEMINE PERIOD		
1	Mississippi Delta. Archeological sample. Plaquemine Culture. *Rangia* shells from 1 foot above sea level at Bayou Grande Caillou Site, Terrebonne Parish, Louisiana, 29° 22′ 38″ N., 90° 43′ 05″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 39 Humble 44	200±100 300±100 Average 250±100
2	Mississippi Delta. Archeological sample. Plaquemine Culture. Charcoal from 3.5 feet above sea level, Bayou Grand Caillou Site, Terrebonne Parish, Louisiana, 29° 22′ 38″ N., 90° 43′ 05″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 113	260±110
3	Mississippi Delta. Archeological sample. Plaquemine Culture. Bones from surface of shell midden, Bayou Petre Site, Lake Eloi Quadrangle, St. Bernard Parish, Louisiana, 29° 49′ 48″ N., 89° 25′ 54″ W. Only organic portion used in radiocarbon assay. Submitted by W. G. McIntire, Louisiana State University	Humble 78	360±100
	COLES CREEK PERIOD		
4	Manny Site (22-M-6), Issaquena County, Mississippi. Charcoal from west wall of Cut V, Level 40–60 cm. Definitely later than Issaquena complex and is probably Coles Creek in time. (Comment: This sample is from same stratum as, and less than 1 meter distant horizontally from, Humble Oil Sample 147, which gave a reading of 700±100 years.) Collected by J. B. Griffin from excavations by Robert Greengo, Peabody Museum, Harvard University	Michigan 382	640±250
5	Chenier Plain of southwestern Louisiana. Archeological sample. Coles Creek Culture. Bone from 6 feet below surface of earthen mound at contact with Chenier matrix, Little Chenier Site, Grand Chenier Quadrangle, Cameron Parish, Louisiana, 29° 49′ 30″ N., 92° 54′ 50″ W. Only organic portion used in radiocarbon assay. Submitted by W. G. McIntire, Louisiana State University	Humble 125	700±100
6	Manny Site (22-M-6), Issaquena County, Mississippi. Carbonized material, mostly wood, from Cut Y at minus 40 cm., within much disturbed upper occupation strata. Field observation indicates a qualified assignment to Coles Creek. Collected February 24, 1955, by Robert E. Greengo	Humble 147	700±100
7	Manny Site (22-M-6), Issaquena County, Mississippi. Part of charred log (southern yellow cedar) from Cut Y, Levels 6–9, from 60 to 100 cm. deep. This should date the Coles Creek level. (Comment: Humble Oil Sample 150, carbonized materials, from the same general stratum gave 800±100; thus the Coles Creek dates of Humble and Michigan are very close.) Collected by Robert Greengo, Peabody Museum, Harvard University	Michigan 384	770±250
8	Manny Site (22-M-6), Issaquena County, Mississippi. From Cut Z, deposit of carbonized cane and other materials at minus 32 cm. Little disturbance indicated; therefore this stratum should date Coles Creek. Collected February 23, 1955, by Robert E. Greengo	Humble 150	800±100

TABLE 9—(*continued*)

No.	Description	Laboratory No.	Date
9	Manny Site (22-M-6), Issaquena County, Mississippi. Deposit consisting largely of carbonized fragments of cane (*Arundinaria macrosperma*, identified by Professor E. S. Barghoorn, Curator of Paleobotany, Harvard University), from Cut C, minus 23 to minus 43 cm., uppermost stratum, should date Coles Creek Phase. Collected April 20, 1954, by Robert E. Greengo	Humble 12 Humble 23 Humble 27	1130±100 980±100 1080±100 Average 1050±75
10	Mississippi Delta. Archeological sample. Coles Creek Culture. *Rangia* shells from 3 feet above sea level, from earth and shell mound near Larose, Cut Off Quadrangle, Lafourche Parish, Louisiana, 29° 36′ 20″ N., 90° 22′ 25″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 110	1550±100
	TROYVILLE PERIOD		
11	Mississippi Delta. Archeological sample. Troyville Culture. Bones from surface of shell midden, River Aux Chenes Site, Point a la Hache Quadrangle, Plaquemine Parish, Louisiana, 29° 37′ 18″ N., 89° 47′ 13″ W. Only organic portion used in radiocarbon assay. Submitted by W. G. McIntire, Louisiana State University	Humble 77	860±100
12	Mississippi Delta. Archeological sample. Troyville horizon. Charcoal from 1 foot above sea level, Miller (Belle River) Site, Pierre Pass Area, St. Mary Parish, Louisiana, 29° 54′ 32″ N., 91° 13′ 00″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 104	990±100
13	Manny Site (22-M-6), Issaquena County, Mississippi. From Cut U, carbonized cane, deposit 45 cm. in diameter, extending from minus 140 to minus 146 cm. deep (sample taken from bottom 6 cm. At bottom of lower midden stratum, should date Issaquena). Collected April 29, 1955, by Robert E. Greengo	Humble 145	1100±100
14	Manny Site (22-M-6), Issaquena County, Mississippi. From Cut AA (in top center of Mound A, a rectangular earthwork extending some 4 meters higher than surrounding field), carbonized cane deposit similar to those mentioned above. Sample taken from minus 172 cm. in a matrix of olive-brown, silty clay (mound loading). This cane deposit is most likely related to an occupation level or incipient soil profile marked by a band of charcoal flecks and ash some 5 to 10 cm. thick at minus 150 cm. deep. The few sherds recovered in this cut appear to be Issaquena, but they may have been scraped up from an earlier midden. Collected March 24, 1955, by Robert E. Greengo	Humble 146	1170±100
15	Thornton Site (22-M-1), Issaquena County, Mississippi. Deposit of carbonized materials, 19 by 26 cm. in Cut E, from minus 130 to minus 140 cm. deep; apparently from a large pit intrusive to this depth from uppermost strata. Would expect to date either Coles Creek or mixture of Coles Creek and Issaquena. Collected March 16, 1954, by Robert E. Greengo	Humble 26	1180±100
16	Manny Site (22-M-6), Issaquena County, Mississippi. From Cut W, carbonized cane, deposit 28 cm. in diameter, extending from minus 140 to minus 160 cm. deep. In dark-stained, brown, clayey silt (sterile natural levee), some 15 cm. beneath lower midden stratum, from which this deposit appears to be intrusive. Should date earliest occupation (Issaquena) in this excavation area. Collected April 15, 1955, by Robert E. Greengo	Humble 143	1260±100

TABLE 9—(*continued*)

No.	Description	Laboratory No.	Date
17	Mabin Site (21-N-4), Yazoo County, Mississippi. From Cut EC, carbonized cane, deposit 24 cm. in diameter, located from minus 50 to minus 56 cm. in midden 67 cm. deep. Sherds tentatively suggest Issaquena date. Collected April 20, 1955, by Robert E. Greengo	Humble 148	1300±100
18	Thornton Site (22-M-1), Issaquena County, Mississippi. From Cut C, carbonized cane and wood, deposit 22 cm. in diameter and from minus 140 to minus 158 cm. deep. Should date Issaquena. Collected March 2, 1954, by Robert E. Greengo	Humble 24	1410±100
19	Thornton Site (22-M-1), Issaquena County, Mississippi. From Cut D, carbonized materials, including a greater proportion of wood than Sample 24, otherwise similar; deposit 22 cm. in diameter and from minus 128 to minus 141 cm. deep. Physical stratification good, as with above sample; should date Issaquena. Collected March 3, 1954, by Robert E. Greengo	Humble 25	1420±100
20	Mississippi Delta. Archeological sample. Troyville Culture. *Rangia* shells from 2.5 feet below sea level, River Aux Chene Site, Point a la Hache Quadrangle, Plaquemine Parish, Louisiana, 29° 37′ 58″ N., 89° 47′ 13″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 71	1930±110
21	Manny Site (22-M-6). Mussel shells from the lower levels of the midden debris of Cut V. They should date the Issaquena (Marksville-Troyville) complex. (Comment: Carbonized cane from this lower stratum in this excavation area gave readings of 1260±100 from Humble Oil Company Sample 143 and 1100±100 for Sample 145. The University of Michigan shell date appears patently inconsistent therefore.) Submitted by Robert E. Greengo	Michigan 383	2420±300
	MARKSVILLE PERIOD		
22	Mississippi Delta. Archeological sample. Marksville Culture, but possibly contaminated. Bones from 1 foot below sea level, Magnolia Mound Site, Shell Beach Quadrangle, St. Bernard Parish, Louisiana, 29° 53′ 18″ N., 89° 32′ 00″ W. Only organic portion used in radiocarbon assay. Submitted by W. G. McIntire, Louisiana State University	Humble 80	900±100
23	Mississippi Delta. Archeological sample. Marksville Culture, but possibly contaminated with younger material. Bone from sea level, Magnolia Mound Site, Shell Beach Quadrangle, St. Bernard Parish, Louisiana, 29° 53′ 18″ N., 89° 32′ 00″ W. Only organic portion used in radiocarbon assay. Submitted by W. G. McIntire, Louisiana State University	Humble 123	1050±100
24	Crooks Site, La Salle Parish, Louisiana. Charcoal from secondary mantle near junction with primary mantle on east slope. Submitted by George I. Quimby (see Ford and Willey, 1940)	Chicago 143	1158±250
25	Bynum Site, Chickasaw County, Mississippi. Vegetal material from base of Mound B, from pit in mound. Collected by John L. Cotter (see Cotter and Corbett, 1951)	Chicago 154	1276±150
26	Mississippi Delta. Archeological sample. Marksville Culture. Charcoal from sea level in shell mound, Metairie Ridge area, Spanish Fort Quadrangle, Jefferson Parish, Louisiana, 30° 01′ 00″ N., 90° 08′ 45″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 102	1440±100

TABLE 9—(*continued*)

No.	Description	Laboratory No.	Date
27	Mississippi Delta. Archeological sample. Marksville Culture. *Rangia* shells from 24 to 36 inches below sea level, Magnolia Mound Site, Shell Beach Quadrangle, St. Bernard Parish, Louisiana, 29° 53′ 18″ N., 89° 32′ 00″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 49	1830±100
	TCHEFUNCTE PERIOD		
28	Tchefuncte Site, St. Tammany Parish, Louisiana (Quimby II). Charcoal from top 6 inches, Tchefuncte Site ST 2, Midden A, in Louisiana. Submitted by George I. Quimby (see Ford and Quimby, 1945)	Chicago 150	633±150
29	Tchefuncte Site, St. Tammany Parish, Louisiana. Shell from top 6 inches of Midden A. Submitted by George I. Quimby (see Ford and Quimby, 1945)	Chicago 151	1233±250
30	Mississippi Delta. Archeological sample. Tchefuncte Period. *Rangia* shells from 2 to 3 feet below surface of midden at Site ST-12, Slidell Quadrangle, St. Tammany Parish, Louisiana, 30° 18′ 40″ N., 89° 51′ 40″ W. Submitted by W. G. McIntire, Louisiana State University	Humble 76	1430±100
31	Mississippi Delta. Archeological sample. Tchefuncte Culture. *Rangia* shells from 24 to 30 inches below top of midden, Liberty Bayou Site, Slidell Quadrangle, SW ¼ NE ¼, sect. 14, T. 9 S., R. 13 E., St. Tammany Parish, Louisiana. Sample submitted by W. G. McIntire, Louisiana State University	Humble 28	1900±110
32a–b	Mississippi Delta. Archeological sample. Tchefuncte Culture. Deer antlers from 30 to 60 inches below surface at Site S.T. 1 (original Tchefuncte Site), Covington Quadrangle, St. Tammany Parish, Louisiana, 30° 19′ 40″ N., 90° 01′ 30″ W. Organic and inorganic carbon submitted separately to radiocarbon assay. Age from organic portion considered to be more valid, because inorganic carbonate apparently contained intrusive material of younger age. Submitted by W. G. McIntire, Louisiana State University	Humble 30,42	Organic portion, 2200±110 Inorganic carbonate, 800±100
	POVERTY POINT PERIOD		
33	Jaketown Site, Humphries County, Mississippi. Bone from Poverty Point cultural deposits. Collected by William G. Haag	Humble 46	2150±110
34	Jaketown Site, Humphries County, Mississippi. Charcoal from Poverty Point cultural deposits immediately above Ohio River sand bar of Stage C_1 (discussed in Ford, Phillips, and Haag, 1955, 154). Collected by James A. Ford and Philip Phillips	Lamont 114	2350±80
35	Jaketown Site, Humphries County, Mississippi. Shell from Poverty Point cultural deposits. Collected by William G. Haag, Louisiana State University	Humble 41	2560±110
36	Jaketown Site, Humphries County, Mississippi. Charcoal from Poverty Period deposits. (Refer to Ford, Phillips, and Haag, 1955, Fig. 39b. Specimen comes from Square 0–2 meters, Level U.) Collected by James A. Ford and Philip Phillips; submitted by William G. Haag, Louisiana State University	Michigan 216	2830±300
37	Poverty Point Site, West Carroll Parish, Louisiana. Charcoal from fireplace 18 inches beneath surface, Trench 1. (Refer to present paper)	Lamont 195	2860±100

TABLE 9—(*continued*)

No.	Description	Laboratory No.	Date
	Poverty Point Site, West Carroll Parish, Louisiana. The five following samples were all obtained by floating the minute fragments of charcoal from the large fire bed that extended beneath the base of Mound B. (Refer to present paper)		
38		Lamont 272	2700±100
39		Humble 66	3150±120
40		Schatzman	2685±210
41		Schatzman	2339±200
42		Michigan 403	2850±250
	OHIO AND ILLINOIS HOPEWELL CULTURE		
43	Hopewell, Ohio (Hopewell III). Charcoal from Altar 1, Section 3, Mound 25, Hopewell Mound Group, Ross County, Ohio, excavated in 1891; Specimen 56424, Chicago Natural History Museum. Submitted by George I. Quimby, Chicago Natural History Museum (Libby, 1955, 94)	Chicago 136	1951±200
44	Hopewell, Ohio (Hopewell I). Bark, associated with Skeleton 248, Section 2, Mound 25, Hopewell Mound Group, Ross County, Ohio; Specimen 56094, Chicago Natural History Museum. Submitted by George I. Quimby, Chicago Natural History Museum (Libby, 1955, 95)	Chicago 139	2044±250
45	Hopewell, Ohio (Hopewell shell). Conch shells, associated with Skeletons 260 and 261, Section 3; almost certainly from Mound 25, Hopewell Mound Group, Ross County, Ohio. Specimens 56358 and 56606, Chicago Natural History Museum. Submitted by George I. Quimby, Chicago Natural History Museum (Libby, 1955, 94–95)	Chicago 137	2285±210
46	Hopewell, Illinois (Hopewell II). Wood from wood and bark capping, lower edge of primary mound, Mound 9, Havana Group, Havana, Illinois. Submitted by Thorne Deuel, Illinois State Museum (Libby, 1955, 95)	Chicago 152	2336±250
	KENTUCKY AND OHIO ADENA CULTURE		
47	Kentucky Adena II. Charcoal, associated with Burial 55 in the Adena Mound at Dover, Mason County, Kentucky, Site Ms 27. Burial 55 was a redeposited cremation near the mound base outside the skirt of the mound core and was entirely covered by a heavy earth mantle. This sample bears the collector's Sample Number 148 (V 38). Collected and submitted by W. S. Webb (Libby, 1955, 99)	Chicago 760	2260±220 2078±290 Average 2169±175
48	Toepfner Mound (Toepfner Mound I). Charred logs from a tomb in a large Adena mound in Columbus, Ohio, known as the Toepfner Mound. These logs occurred 7.5 feet above the floor of the mound. The sample was labeled "Feature II." Submitted by R. S. Baby, Ohio State Museum (Libby, 1955, 104)	Chicago 923	2377±150
49	Toepfner Mound (Toepfner Mound II). Charcoal samples from the Toepfner Mound, described in Number C-923. This material came from 4.4 feet above the floor of the mound. It was labeled "Feature VII." Submitted by R. S. Baby, Ohio State Museum (Libby, 1955, 104)	Chicago 942	2780±410
50	Kentucky Adena I. Charcoal from an Adena mound at Dover, Mason County, Kentucky, Site Ms 27. The charcoal came from a large, heavily burned area near the top of the mound core; it bears the donor's Sample Number 117 (V 42). Collected and submitted by W. S. Webb (Libby, 1955, 99)	Chicago 759	2650±170

[a] Sequence numbers have been given these samples solely to facilitate reference to Fig. 44. The formal designation is the laboratory name and number.

These 42 dates are, up to the time of writing, the largest number of determinations that have been made on an archeological sequence and for this reason alone should be of considerable interest. In general, they fall into a consistent pattern that parallels the already known archeological sequence. However, there is some scattering, and in certain determinations there seem to be errors that may have arisen from several different sources. First, the material tested may not have preserved carbon representative of the period when the organism was alive. The reliability of shell samples has been under suspicion for some time.[1] In this series several shell samples do not align with carbon samples from similar cultural deposits. In Fig. 44, the dates for shell samples 10, 20, 21 and 27 are obviously too early and should be disregarded. However, shell sample 1, and possibly shell samples 29 to 31 and 35, seem to be consistent with the dates derived from carbon samples.

Some scattering within the cultural periods is to be expected, for much of the material tested was not obtained from fully analyzed excavations to determine, for example, whether a piece of charcoal associated with Coles Creek Period pottery really dates early or late within that period. However, the Tchefuncte date, Number 28, is obviously too late to represent that period. This date has been questioned before, and we tend to agree with Griffin that there may have been an error in attributing this specimen to the Tchefuncte Period.[2] We are not so certain that the specimen listed here as Number 29 is also questionable. True, the specimen was shell, but its 1-sigma range is rather long, and the true age of the specimen may lie in the early part of this range or just beyond.

The radiocarbon dates derived from charcoal and bone specimens for the last three periods, Plaquemine, Coles Creek, and Troyville, form a very good series—the sequence could hardly be better. However, the carbon and bone material from Marksville Period deposits appear to parallel the early portion of Troyville (or Issaquena in Greengo's terminology). This is contrary to rather well-established stratigraphic evidence. Troyville evolved out of the Marksville stage, and, while there is continuity between the two periods and probably not much time involved, the Marksville Period dates should be slightly earlier. Perhaps a question of archeological interpretation is involved here. The two oldest Troyville dates, Numbers 18 and 19, are from lower levels of the Thornton Site, excavated and interpreted by Greengo. Possibly the necessarily arbitrary dividing line in this cultural sequence has been crossed and, according to the original standards, these deposits should be placed in Late Marksville.

The dates for the Tchefuncte Period, three of which are based on shell samples, are even more unsatisfactory. Perhaps too much confidence should not be placed in them. The carbon sample, our Number 28, has been discussed—an obvious error of some sort. The organic portion of the deer antler sample, Number 32a, may give the correct dating for this cultural period. The inorganic portion, Number 32b, obviously is too late.

The nine dates for the Poverty Point Culture, from both the Jaketown and Poverty Point sites, show unexpected scattering. They range from about 1300 B.C. to 200 B.C. Most disturbing are the five dates Numbers 38, 39, 40, 41, and 42, which were all derived from essentially the same sample, minute fragments of charcoal secured by flotation from the large ash bed that lay at the base of the conical Mound B at Poverty Point. Determinations 40 and 41 were made by Schatzman, and it might be claimed that they should not be given the same weight as the results of the work of the professional laboratories. However, both of Schatzman's dates are within the range of determinations made by other laboratories. Schatzman's Number 40 is almost identical with the Lamont Laboratory run on this same material, Number 38. The date provided by the Humble Laboratory is about 600 years earlier.

The determinations listed as Numbers 33 to 36 were made on specimens from the excavations at Jaketown. Numbers 37 to 42 came from Poverty Point. Both sets of dates are scattered, but the scattering is over approximately the same range of years. In other words, the radiocarbon dates support our conclusions that these two sites were occupied at approximately the same time. However, we are not willing to believe that the occupation of both these sites

[1] Libby, 1955, 15–17.
[2] Griffin, 1952, 369.

extended over so long a span of time as these dates would seem to indicate, that is, from approximately 1200 B.C. to 400 B.C. The amount of refuse accumulation and the apparent association of both sites with Stage C_1 river channels suggest that neither was occupied for a very long time, probably not over 200 years. The incorporation of the Poverty Point cultural deposits at Jaketown within the natural levee of a course of the Ohio River that dates late within Stage C_1[1] is particularly significant, for natural levees at any one locality are built in the course of very few years. Inevitably, the river either cuts these deposits away as meanders progress or abandons the channel. If we must choose probable dates for the culture out of this embarrassing wealth of dates, we will select the time between 800 B.C. and 600 B.C. as most probable.

[1] Ford, Phillips, and Haag, 1955, 13–24.

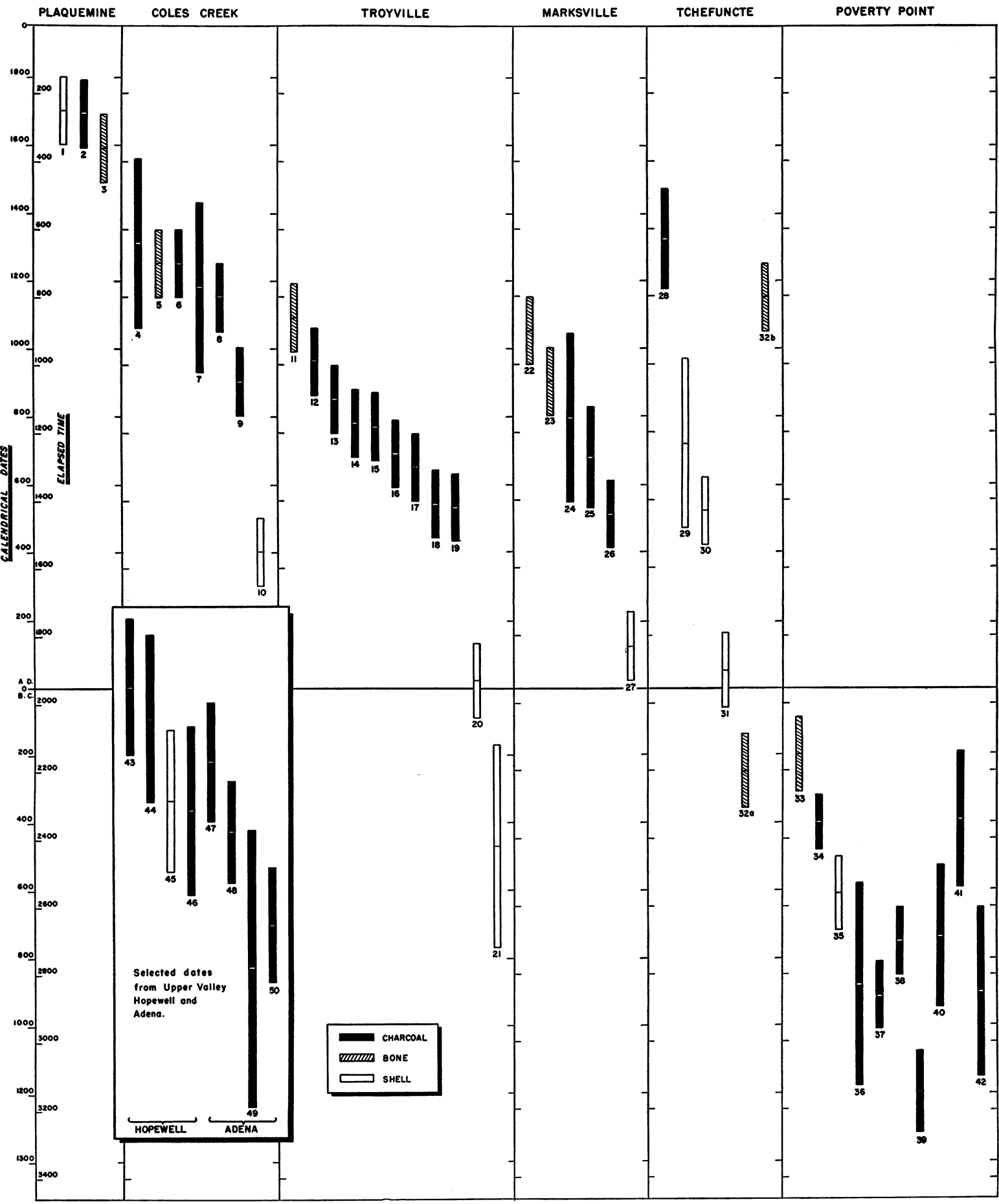

FIG. 44. Radiocarbon assays on archeological samples related to the cultural chronology of the lower portion of the Mississippi River alluvial valley. One-sigma range of probability is indicated by the lengths of the bars. The numbers below each bar will serve to relate the graphed data with the description given in Table 9. Selected dates from Hopewell and Adena culture sites (Nos. 43–50) are included for comparison. (See footnote 4 on p. 117.)

CONCLUSIONS AND SPECULATIONS

TRADE AND TRAVEL

CONCLUSIONS ABOUT TRAVEL and trade activities of the Poverty Point people must be inferential, based on evidences of trait-sharing and of materials foreign to the immediate area. No actual trade objects were identified; everything found at the site could have been made there.

Trait-sharing has identified Jaketown in Mississippi and the Calion Site in Arkansas as participants in Poverty Point culture. The three sites form a triangle, with Jaketown and Calion on almost the same latitude, 125 miles apart, the former northeast and the latter northwest of Poverty Point and each a little less than 100 airline miles distant (Fig. 45). Travel between the three can be assumed, either overland, as they were on different river systems which probably joined some distance south of Poverty Point, or by connecting waterways. Trait-sharing has also suggested relationships and possible contacts with the Adena-Hopewell area and Southeastern Archaic peoples, especially in the Tennessee Valley area. In each instance, we shall see that materials found at Poverty Point also indicate contact with these areas.

There is internal evidence at the site that acquisition of materials for manufacture of artifacts was continuous throughout the life of the village. Excavations and surface collections show cultural uniformity, with no hint of sudden or gradual change in the kinds of materials used. Moreover, lithic materials were hoarded, carefully used, and reused. After years of surface collecting, a high percentage of objects still found on the site show signs of use; flakes of all sizes show usage scars; larger flakes and cores were not discarded, but used for choppers, abraders, and hammerstones; cores were turned so that added flaking platforms or surfaces could be found; broken gorgets and cracked steatite vessels were drilled and patched, and, if too badly broken for repair, fragments were used to make pendants, beads, or plummets; hematite plummets that broke through suspension holes were smoothed off and presumably reused; arrows were resharpened repeatedly or were converted into endscapers or drills. This reflects an appreciation of the labor and difficulties involved in securing these materials.

The enormous amounts of foreign stone materials indicated by the excavations and collections preclude the possibility that the original settlers could have brought any major part of the materials used, even if we assume that they came to the Lower Valley from the Ohio or Tennessee regions. Replenishment was essential, and we can assume that the Poverty Point rulers had to send parties to the sources or to communities near these sources. It is unlikely that middlemen played a major role in trade during this early period, comparable to the trading of the Jumanos across Texas or to the role of the Hurons, Mandans, and other historic groups in the fur trade of the seventeenth and eighteenth centuries.

Examination of the probable sources of materials mentioned with previous artifact descriptions shows that they were most readily reached from Poverty Point (Fig. 45) by way of six or seven rivers, which we must consider as they probably existed at that time. Reference to the section on physiography (p. 19) places three major rivers within ready reach of the inhabitants during these times. The C_1 Mississippi bordered the site to the east; the Arkansas was only 12 to 15 miles to the west, if it was in or near its Bayou Boeuf channel; and the Ohio, flowing by the Jaketown Site in its C_1 course, probably passed near the Vicksburg hills 40 miles southeast of Poverty Point.

Catahoula sandstone, outcropping in central Louisiana, and red ocher from northwestern Louisiana hills could be reached overland or by downstream travel on the Mississippi or Arkansas to the vicinity of present Jonesville, then probably by connecting waterways to Red River. Quartz, quartzite, and various flints from the Hot Springs area, 200 miles airline from Poverty Point, were available by travel up the Ouachita River or overland from the Arkansas River near Little Rock; in either instance, connecting waterways or portages were necessary. Access to magnetite, hematite, galena, gray-white chert, novaculite, possibly slate and shale, and other minerals from the Ozarks of southern Missouri and northern Arkansas would have been by way of the Arkansas and White rivers (or Mississippi and White). If some of the very black stone at

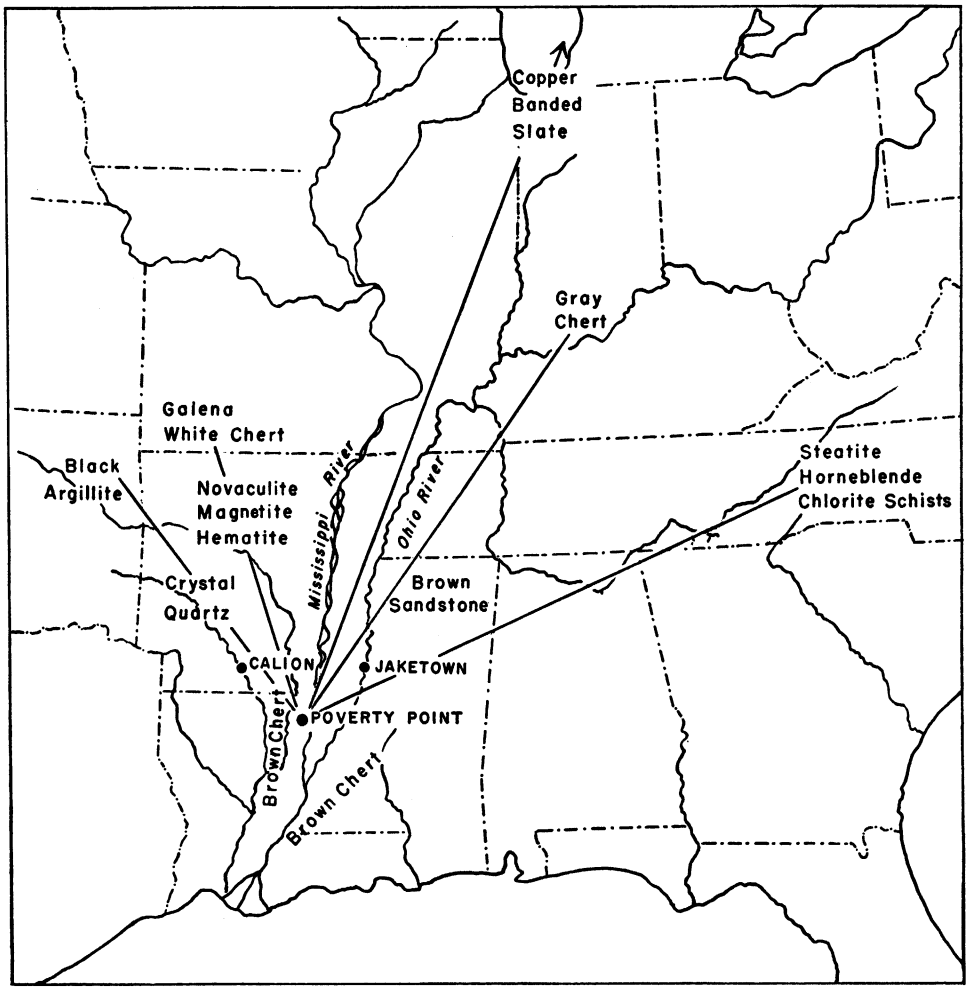

FIG. 45. Sources of raw materials brought to the Poverty Point Site.

Poverty Point is black argillite from the Webber's Falls region of eastern Oklahoma, this also lies on the Arkansas River.

Lake Superior copper, of which one fragment and one artifact have been found at the site, was 1100 airline miles distant and was probably traded down the Mississippi River; it may have reached Poverty Point through intermediaries. Union County, Illinois, flint could have been reached by the Mississippi or Ohio rivers.

Ohio River travel is indicated for the transportation of flints from Harrison County, Indiana, and Vinton County, Ohio, as well as the green-banded slate from which one gorget was made. These sources are 500 to 700 airline miles distant and more than double this distance by river travel. Red ferruginous sandstone from the hills of northern Mississippi was also available via the Ohio River or overland travel.

Much more distant by river travel were the materials from the southern Appalachians of North Carolina, Tennessee, and northern Alabama. Although only 400 to 500 miles in airline distance from Poverty Point, these regions were at least three times this distance by Ohio-Tennessee river travel. Yet enormous weights of steatite were almost certainly secured here, in addition to the probabilities of horneblende and micaceous or chlorite schists for adzes and possibly fluorites, slate, shale, and other materials which could have been secured either here or in Arkansas.

It seems logical to suggest that parties may have traveled overland across the Mississippi

hills to the Tennessee River (rather than pulling the long upstream loop of the Ohio-Tennessee system), and then constructed rafts or dugouts to freight these heavy materials downstream. The situation of the Jaketown and Calion sites with respect to Poverty Point may assume new significance in this light. A straight line (Fig. 45) from Poverty Point through Jaketown hits the Tennessee River in its southernmost loop near the Pickwick Dam-Mussel Shoals area. Is it possible that Jaketown was established or served as a way station for trading parties from the Poverty Point center traveling overland or by connecting waterways? From the Jaketown Site they could go overland to the southern Appalachian region or by water up the Ohio to the Indiana-Ohio region for desired materials. On the return trip downstream they could have portaged at this point across to the Mississippi, or have had connecting waterways available.

Calion similarly could have been established as a way station to the Hot Springs and upper Ouachita region. A straight line from Poverty Point to Calion passes through the gap north of the Bastrop uplift, which the present Bayou Bartholomew (another old Arkansas channel) traverses to join the Ouachita. In addition to the cherished minerals from central Arkansas, it is possible that perishable products, salt for example, may have come from southwestern Arkansas through Calion. This would be important to the Poverty Point people for local consumption and possibly for trade, just as it was to historic tribes (Caddos, for example).

We have no indication what these people of Poverty Point traded for desired materials and can only speculate that commodities such as salt, sea shells, hides, fabrics (if they had developed weaving as had the Hopewellians), or special woods from the Lower Valley were possibilities. We know only that imperishable materials that they left give ample evidence of trade and travel to an extent beyond other Southeastern Archaic communities, exceeded at a presumably later date only by the extensive trade evidences of Hopewell people. This extensive trade and the organization behind it are another similarity between Poverty Point and Adena-Hopewell.

INTERPRETATIONS BASED ON CULTURAL DATA

The relationships of the old cultural levels of the Jaketown Site in west-central Mississippi to the culture at Poverty Point have been demonstrated by means of a trait list.[1] Although it is possible now to add a few items to this published list, it seems unnecessary to repeat this demonstration. The principal change would be in the rearrangement of the projectile point typology, a direct result of the publication of the handbook by Suhm and Krieger.[2] This would necessitate a change in classification and terminology rather than in content.

Our conclusions as to the close relationship between the cultures of these two sites have not been altered by the Poverty Point excavations. Contrary to hopes and expectations, we are not able to establish a basis for determining the relative ages, or possible contemporaneity, of the two sites on cultural evidence. The chronologies provided by changes in frequencies of the baked clay balls do not agree and, apparently, cannot be reconciled. Geographical variation may be the explanation, but we cannot be certain.

The later excavation has suggested explanations for several of the Jaketown results that were unsolved puzzles when the report on that site was written. We have reinterpreted the significance of the "perforators" and other items of the microflint complex (p. 76).

Another suggestion deals with the small, dome-shaped mounds scattered along the crest of the Ohio River channel of Early C_1 Stage south and west of the central portion of the Jaketown Site.[3] One of these mounds, designated "G," was partially excavated. We were disappointed in our expectations of finding evidences of burial. Instead, irregular occupation levels and scattered fireplaces were accompanied by fragments of baked clay balls used for cooking. Mound G is rather similar in structure to the artificial ridges that form a portion of an octagonal figure at Poverty Point.

[1] Ford, Phillips, and Haag, 1955, 153.

[2] Suhm and Krieger, 1954.

[3] Ford, Phillips, and Haag, 1955, 25, Pl. 1.

We have deduced that these ridges were built as substructures for the dwellings of the inhabitants of the town. The low isolated mounds at Jaketown possibly served a similar purpose.

We can add little to the conclusions, presented in the report on the Jaketown Site, concerning the wider cultural relationships of the Poverty Point Complex as revealed at the two excavated sites. Culturally, the Poverty Point Complex seems to belong at the end of the Eastern Archaic phase. The diagnostic traits that define its cultural position are: cooking with heated stones (artificial stones of baked clay), crude adzes or hoes, celts, tubular pipes of clay and stone, steatite vessels, two-holed flat gorgets, bar atlatl weights, bannerstones (rare), plummets of hematite and magnetite, copper (two pieces), stone beads, and a substantial proportion of corner-notched projectile points.

In addition, some traits appear to derive from the cultural development that culminated in the Hopewell and Adena cultures of the Upper Mississippi Valley. These are: the geometric earthworks; a crematory (?) fire covered by a conical mound; construction of the conical mound by stages (though different from the Hopewell or Adena pattern); the representation of birds in effigy mounds (?), on small stone beads, and on a soapstone vessel fragment; the core and blade industry; sandstone saws; and clay figurines. Although these figurines are much simpler than those from Hopewell sites, there is no comparable modeling at this time in other parts of the East.

In Fig. 44 we have assembled a series of radiocarbon dates from certain Adena and Hopewell culture sites in Ohio, Kentucky, and Illinois. Admittedly, this is a selected sample, for we have chosen to ignore other determinations for these cultures that date as late as 800 A.D. As in the local chronology, a choice must be made in the rather scattered dates that result from these assays, and the majority of the dates, as well as the cultural probabilities, favor the earlier group. The dates for the Adena and Hopewell cultural phases (Numbers 43 to 50) appear to place these phases in the sequence archeologists have long thought to be correct. They also suggest that at least the early phases of this comparatively high cultural development were contemporaneous with the Poverty Point Culture. At this stage of occasional uncertainty as to the accuracy of specific radiocarbon dates, we hesitate to use such an alignment as a basis for interpretation without substantiating cultural evidence. In this case, the cultural and radiocarbon evidences seem to be in agreement and to warrant an elaboration of a thesis that was suggested in a previous paper.[1]

We think that the excavations in the concentric ridges that form the portion of an octagonal figure three quarters of a mile in diameter have demonstrated that the dwellings of the inhabitants were arranged along the crests of these ridges, although no direct evidence of dwellings was found. The few examples of chronological information that have been secured from excavations in various parts of the earthwork suggest that probably all of it was built and inhabited at about the same time. The same conclusion might be drawn from a casual view of the air photograph, for it is obvious that the figure was constructed according to an integrated plan that probably would not have prevailed if the town had grown by accretion over a long span of time.

In the absence of evidence as to the size and arrangement of houses at this site, an estimate of the size of the population is difficult. If the octagonal figure were symmetrical and complete in the eastern portion, which is now erased, about 11.2 miles of artificial ridge was built and occupied. If houses were arranged along these ridges at 100-foot intervals, there would have been about 600 houses in the town. There were probably several times this number. In any event, a population of several thousand people is indicated.

Another method for arriving at a rough estimate of the population is to consider the amount of non-essential work that was accomplished in constructing the Poverty Point earthworks. In the foregoing pages it has been estimated that these constructions contain over half a million cubic yards of soil. If a basket load weighed about 50 pounds, more than 20 million basket loads were laboriously dug, loaded into baskets, and carried to their proper place in the earthworks. Almost as much more went into the contruction of the mounds.

Several deductions seem justified. First, the

[1] Ford, Phillips, and Haag, 1955, 155.

economy of the inhabitants of the Poverty Point Site must have been based on agriculture. At present there is in the vicinity no source of easily gathered food such as was provided for the Archaic peoples of northern Alabama by the shoals in the Tennessee River. It is possible that shellfish were available in the braided Mississippi channel that apparently lay directly east of Poverty Point when it was inhabited. However, if this was the staple food, shells should have accumulated on the site in substantial quantities, sufficient to have neutralized the soil acidity that has destroyed all evidence of shell and bone. Without a stable basic food so large a population could not have been concentrated in one locality, and certainly the surplus labor necessary to undertake constructions on the scale accomplished by these people would not have been available.

The second, rather obvious conclusion to be drawn from the arrangement and scale of these earthworks is that this community must have been rather strictly organized. While a religious motivation may ultimately explain the large amount of earth construction, this effort was obviously well controlled. The geometrical arrangement of the town and the nearly accurate orientation of the two large mounds constructed on the same plan are plainly the results of central planning and direction. It is difficult to visualize how in a loosely organized society this quantity of essentially non-productive labor could have been expended.

The basic culture of the Poverty Point people conforms to the characteristics of the latter part of the Eastern Archaic stage. Yet in other regions of the south, the sites dated on this time level have no suggestion of earthworks or of mound building in any form. There are a few population concentrations, but these are in localities where there are concentrations of natural foods and are readily explained by this circumstance. The identity of the postulated organizing element in the population at Poverty Point is suggested by the cultural resemblances to Hopewell and related cultures in the upper drainage of the Mississippi Valley. Much of the imported stone material and the minerals found on the site also seem to have been brought from the north.

Diffusion of ideas might have produced the cultural situation that made possible construction of this complex site. It is possible, but rather difficult to visualize in the light of what usually happens when elements of a more advanced culture diffuse to people with a simpler way of life. Generally, items of obvious practical utility are accepted and adapted. However, complex traits that have no obvious utility and that are very expensive in terms of community effort are generally resisted until they are imposed by conquerors backed with military force, or by missionaries supported by the prestige and the appurtenances of their superior culture.

This pyramid of speculation supports the hypothesis that the Poverty Point Site was constructed and occupied about 800 B.C. to 600 B.C. by a people living in a class-structured society. The culture of the lower class seems to have belonged to a late phase of the Eastern Archaic. The ruling class was probably invaders from the upper drainage of the Mississippi Basin where the Hopewellian cultures were beginning to evolve.

This hypothesis may explain the rather selective nature of the Hopewellian-like traits found in the Poverty Point complex. If radiocarbon dates from certain Hopewell sites in Illinois and Ohio can be accepted, pottery was already known and commonly used there. It is curious, to say the least, that Hopewell-like geometrical earthworks should have been constructed by a people who still depended mainly upon heated stone substitutes for cooking. The few sherds of the fiber-tempered pottery recovered in the Poverty Point excavations are of a variety normally found at the end of the Southeastern Archaic and may represent an example of stimulus diffusion from pottery-making centers to the north, as Griffin has postulated.

When a people of less advanced societies have been forcibly organized and set to labor on projects that suit the goals of their masters, the situation is liable to become somewhat unstable. Subject people rapidly learn military techniques and organization, but, unless there is a continuing cultural pressure, they do not necessarily accept the imposed religious ideas and goals. If the Poverty Point culture was the result of actual invasion by a limited number of early Hopewellian people, we need not expect to find a large number of sites representative of it, nor need the invasion have lasted any great length of time. On a very modest scale this may

have been similar to the invasion of Britain by the Romans. At present we know of only four or possibly five sites—Poverty Point, Calion on the Ouachita River in Arkansas, Jaketown in west-central Mississippi, the small site of Paxton Brake a few miles north of Jaketown, and possibly the initial occupation of the Insley Site on Maçon Ridge south of Delhi. On the basis of both radiocarbon dates and association with Stage C_1 channels of the Ohio and Mississippi rivers, the two largest of these sites, Poverty Point and Jaketown, were inhabited simultaneously. Perhaps the smaller sites have a similar date.

As stated above, the Poverty Point Culture seems to have flourished from 800 B.C. to 600 B.C. A breakdown of this culture and at least a partial regression to a more typical Archaic mode of existence may explain the apparent gap that exists between Poverty Point Culture and the appearance of the Tchefuncte-Tchula cultural stage. The earliest radiocarbon date for the latter is about 250 B.C., but the other dates are substantially later. River channel associations seem to be not earlier than Stages 5 or 6.[1] There are a number of different channel positions between Stage C_1 and Stage 5. This type of evidence suggests an even longer span of time intervening between Poverty Point and Tchula-Tchefuncte cultures than do the radiocarbon dates.

The people of the succeeding Tchula-Tchefuncte cultural stage lived in relatively small villages and made a rather poor variety of pottery which seems to combine traits derived from Early Hopewell of the Illinois Area, from the Alexander Complex of the Lower Tennessee River Valley, and from the fiber-tempered wares of the Southeast. Artificial cooking stones were still made, mostly of the biconical shape. Their mounds were modest conical or dome-shaped tombs for the dead. Geometrical earthworks similar to those at Poverty Point were unknown and, so far as we know, nothing resembling the Hopewell earthworks of Ohio was ever again constructed in the Lower Mississippi.[2] Also, the core and blade industry that was so prominent a feature of the Poverty Point complex is not represented. The variety of chert materials, hematite, magnetite, and large quartz crystals that were imported from the north in Poverty Point times, was no longer used. Projectile points were made of local material.

The Tchefuncte Period may represent the first normal diffusion of developmental Hopewellian elements into the Lower Mississippi. This stream of influence was intensified in the succeeding Marksville Period, when the ceramics became very similar to those made in fully developed Hopewell times. This later diffusion of traits seems to include very little that could be a retention from the Poverty Point Culture.

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

[2] The earthworks at Marksville and other sites of the Marksville Period are defensive works and are not geometrical. An exception may be the Spanish Fort Site in Sharkey County, Mississippi, where an embankment forms a geometrically perfect semicircle.

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CATALOGUE DATA FOR CERTAIN ILLUSTRATIONS

TEXT FIGURES

ILLUSTRATED SPECIMENS have been selected from the following collections preserved at the addresses given. In the lists that follow, collections are identified by appropriate symbols.

COLLECTION	SYMBOL
The American Museum of Natural History	20.2
Clarence H. Webb, Shreveport, Louisiana	W
Michael Beckman, Shreveport, Louisiana	B
Louisiana State University, Baton Rouge, Louisiana	LSU
E. C. Makin, El Dorado, Arkansas	M
Ray Hammons, El Dorado, Arkansas	H
Edward F. Neild, Shreveport, Louisiana	N
Harry J. Lemley, Hope, Arkansas	L

13. Baked clay cooking balls
    a. Trench 1, 12–18 inches (20.2-6232)
    b. Trench 1, 12–18 inches (20.2-6233)
    c. Trench 3, 6–12 inches (20.2-6234)
    d. Trench 1, 12–18 inches (20.2-6235)
    e. Trench 2, 48–54 inches (20.2-6236)
    f. Trench 2, 0–6 inches (20.2-6237)
    g. Trench 1, 18–24 inches (20.2-6238)
    h. Trench 1, 6–12 inches (20.2-6239)
    i. Trench 1, 6–12 inches (20.2-6240)
    j. Trench 3, 12–18 inches (20.2-6241)
    k. Trench 1, 18–24 inches (20.2-6242)
    l. Trench 1, 6–12 inches (20.2-6243)
    m. Trench 2, 6–12 inches (20.2-6244)
14. Unusual varieties of baked clay objects
    a–d. Surface (B)
    e. Surface (W)
    f–m. Surface (B)
16. Figurines of baked clay
    a. Surface (20.2-6245)
    b. Surface (B)
    c. Trench 4, 12–18 inches (20.2-6246)
    d. Surface (B)
    e. Surface (W)
    f. Surface (B)
    g. Surface (B)
    h. Trench 4, 13–18 inches (20.2-6247)
    i. Surface (B)
    j. Surface (W)
    k–m. Surface (B)
17. Projectile points of Gary Type
    a. Surface (20.2-6248)
    b. Surface (H 5402)
    c. Surface (20.2-6249)
    d. Surface (20.2-6250)
    e. Surface (20.2-6251)
    f. Surface (W)
    g. Surface (B)
    h. Surface (20.2-6252)
    i. Surface (B)
    j. Surface (B)
    k. Surface (H)
    l–p. Surface (B)
19. Projectile points of Maçon, Pontchartrain, Ellis, Carrollton, and Motley types
    a. Surface (B)
    b. Surface (B)
    c. Surface (20.2-6253)
    d. Surface (B)
    e. Surface (M 6811)
    f. Surface (20.2-6254)
    g. Surface (B)
    h. Surface (M 7783)
    i. Surface (20.2-6255)
    j. Surface (B)
    k. Surface (20.2-6256)
    l. Surface (B)
    m. Surface (M 9364)
    n. Mound B, fill (20.2-6257)
    o. Surface (W)
    p. Mound B, base (20.2-6258)
    q. Surface (20.2-6259)
    r. Surface (W)
    s. Surface (W)
20. Projectile points of Marshall, Epps, Delhi, and Marcos types
    a. Surface (20.2-6260)
    b. Surface (H)
    c. Surface (20.2-6261)
    d. Surface (B)
    e. Surface (H)
    f. Surface (20.2-6262)
    g. Surface (H)
    h. Surface (20.2-6263)
    i. Surface (W)
    j. Surface (M 9358)
    k. Surface (B)
    l. Surface (W)
    m. Surface (W)
    n–p. Surface (B)
21. Projectile points of Kent, Yarbrough, Trinity, Ensor, Martindale, Palmillas, Meserve, and Desmuke types
    a–e. Surface (B)
    f. Surface (W)
    g. Trench 2, 0–6 inches (20.2-6264)
    h. Surface (B)
    i. Surface (B)
    j. Surface (W)
    k. Surface (B)
    l. Surface (20.2-6265)
    m. Surface (B)
    n. Surface (B)
    o. Surface (H)

p. Surface (H)
q. Surface (B)
r. Surface (M 7776)
s. Surface (B)
t. Surface (B)
u. Surface (H)

22. Projectile points of Wells, Evans, Hale, and Webb types
a. Surface (B)
b. Surface (B 9372)
c–e. Surface (B)
f. Surface (H 5500)
g. Surface (H 3187)
h. Surface (H)
i. Surface (B)
j. Surface (M)
k–m. Surface (B)

23. Projectile points of Plainview, Almagre, and Morhiss types; also asymmetrical, unusual, and resharpened points
a. Surface (H)
b. Surface (H)
c–e. Surface (B)
f. Surface (W)
g. Surface (B)
h. Surface (H)
i. Surface (B)
j. Surface (H)
k. Surface (H 7781)
l. Surface (H 7780)
m. Surface (B)
n. Surface (B)
o. Surface (H 7482)
p. Trench 3, 6–12 inches (20.2-6266)
q. Surface (20.2-6267)

26. Examples of the microflint industry from Poverty Point
a. Surface (20.2-6273)
b. Surface (20.2-6274)
c. Surface (LSU 19600)
d. Surface (20.2-6275)
e. Surface (20.2-6276)
f. Surface (20.2-6277)
g. Surface (20.2-6278)
h. Surface (20.2-6279)
i. Surface (20.2-6280)
j. Surface (20.2-6281)
k. Surface (20.2-6282)
l. Surface (20.2-6283)
m. Surface (20.2-6284)
n. Surface (20.2-6285)
o. Surface (20.2-6286)
p. Surface (20.2-6287)
q. Surface (20.2-6288)
r. Surface (20.2-6289)
s. Surface (20.2-6290)
t. Surface (20.2-6291)
u. "Needle" (20.2-6292)
v. "Needle" (20.2-6293)
w. "Double-end" (20.2-6294)
x. "Double-end" (20.2-6295)
y. "Perforators" (20.2-6296)
z. "Perforators" (20.2-6297)
a′. "Perforators" (20.2-6298)
b′. "Perforators" (W)
c′. "Perforators" (20.2-6299)

27. Arrowpoints, ovoid blanks, abrader, irregularly shaped choppers, and pick-like tools
a. Surface (B)
b. Surface (M 7638)
c. Surface (M 9335)
d. Surface (W)
e. Surface (H)
f. Surface (B)
g. Surface (20.2-6268)
h. Surface (B)
i. Surface (20.2-6270)
j. Surface (20.2-6269)
k. Surface (20.2-6270)
l. Surface (LSU 19600)
m. Surface (H 5504)
n. Surface (20.2-6272)
o. Surface (B)
p. Surface (W)

28. Large flake scrapers, ovate blades, and triangular blades
a. Surface (20.2-6300)
b. Surface (20.2-6301)
c. Surface (H)
d. Surface (H 5260)
e. Surface (M 7788)
f. Surface (W)
g. Surface (B)
h. Surface (H)
i. Surface (W)
j. Surface (M 9382)
k. Surface (H 5260)
l. Surface (H 5065)
m. Surface (H 5094)
n. Surface (20.2-6302)

29. Asymmetrical knives, chipped adzes, chipped celt, and drills
a. Surface (B)
b. Mound B, fill (20.2-6303)
c–e. Surface (H)
f. Surface (B)
g. Surface (W)
h. Surface (20.2-6304)
i. Surface (H 4250)
j. Surface (H)
k. Surface (H)
l. Surface (B)

30. Chipped stone tools
a. Surface (20.2-6305)
b. Surface (H 8877)
c. Surface (LSU 19600)

d. Surface (M)
e. Surface (W)
f. Surface (W)
g. Surface (M 9381)
h. Surface (20.2-6306)
i. Surface (20.2-6307)
j. Surface (20.2-6308)
k. Surface (20.2-6309)
l. Surface (20.2-6310)

31. Chipped adzes and ground celts
a. Surface (H)
b. Surface (H 2997)
c. Surface (B)
d. Trench 1, 24–30 inches (20.2-6311)
e. Surface (B)
f. Surface (H)

32. Rough ground adzes or possibly hoes
a. Surface (B)
b. Trench 2, 0–6 inches (20.2-6312)
c. Surface (B)
d. Surface (20.2-6313)
e. Surface (20.2-6314)

33. Plummets or bolas weights made of hematite and magnetite
a. Surface (B)
b. Surface (H)
c. Surface (H)
d–g. Surface (B)
h. Surface (H)
i. Surface (M)
j. Surface (H)
k. Surface (B)
l. Surface (H 5078)
m. Surface (B)
n. Surface (20.2-6315)
o. Surface (H)
p. Surface (W)
q. Surface (W)
r. Surface (W)

34. Rough stone tools
a. Surface (LSU 19600)
b. Surface (20.2-6316)
c. Surface (LSU 19600)
d. Surface (LSU 19600)
e. Surface (20.2-6317)
f. Surface (20.2-6318)
g. Surface (LSU 19600)
h. Surface (20.2-6319)
i. Surface (LSU 19600)
j. Surface (20.2-6320)
k. Mound B, fill (20.2-6321)
l. Surface (LSU 19600)

35. Gorgets and gorget fragments showing holes drilled for repair
a. Surface (H)
b. Surface (20.2-6322)
c. Surface (B)
d. Surface (W)
e. Surface (B)
f. Surface (20.2-6323)
g. Surface (H)
h. Surface (20.2-6324)
i. Surface (H)
j. Surface (B)
k. Surface (B)
l. Surface (W)

36. Pipes and problematical objects
a. Surface (W)
b. Surface (20.2-6325)
c. Surface (H 5355)
d. Surface (W)
e. Surface (W)
f. Surface (B)
g. Surface (20.2-6326)
h–j. Surface (B)
k. Ash bed at base of Mound B (20.2-6327)
l. Trench 10, 24–30 inches (20.2-6328)
m. Surface (LSU 19600)
n. Surface (20.2-6329)
o. Surface (M 9336)
p. Surface (H)
q. Surface (H)
r. Surface (M 9580)
s. Surface (H)

37. Stone beads
a. Surface (H)
b. Surface (20.2-6330)
c. Surface (20.2-6331)
d. Surface (W)
e. Surface (H)
f. Surface (H)
g. Surface (W)
h. Surface (H)
i. Surface (W)
j. Surface (W)
k. Surface (B)
l. Surface (H)
m. Surface (H)
n–p. Surface (W)
q. Surface (H)
r. Surface (H)
s–u. Surface (W)
v. Surface (W)
w. Surface (H)

38. Small ornaments
a. Surface (B)
b. Surface (W)
c. Surface (B)
d. Surface (W)
e. Surface (W)
f. Surface (B)
g. Surface (W)
h. Surface (W)
i. Surface (N)

39. Fiber-tempered potsherds
a. Surface (20.2-6332)

b. Surface (20.2-6333)
c. Surface (20.2-6334)
d. Surface (20.2-6335)

40. Profiles of fragments of soapstone vessels
After Webb, C. H., 1944, Fig. 30, 1–15 (W)

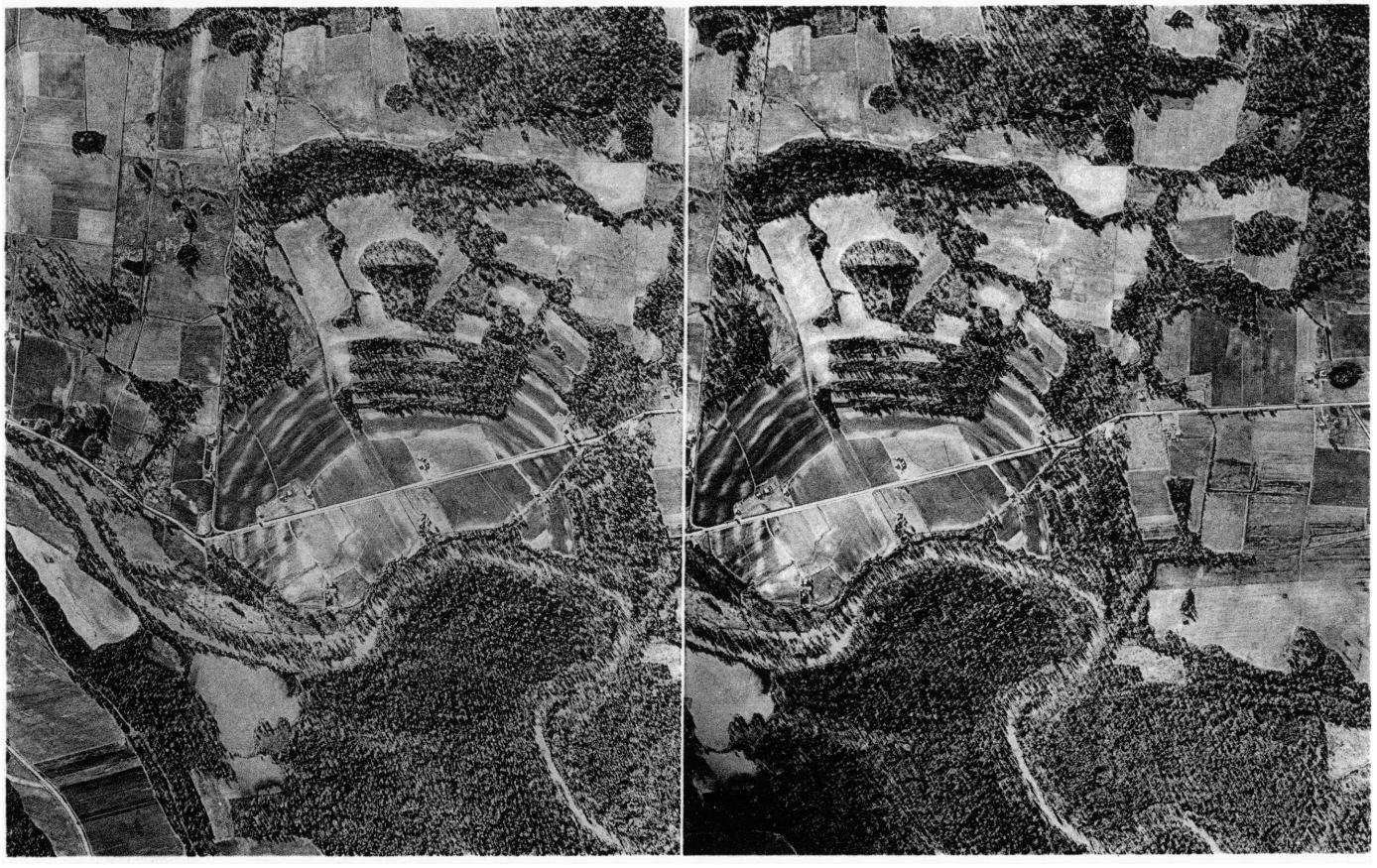
41. Steatite vessels and a large fragment with an animal figure carved in relief
a–b. After Webb, C. H., 1944, Fig. 30, 16–17 (W)
c. After Webb, C. H., 1944, Pl. 35, 1 (L)

42. Stone vessels
After Webb, C. H., 1944, Fig. 31 (W)

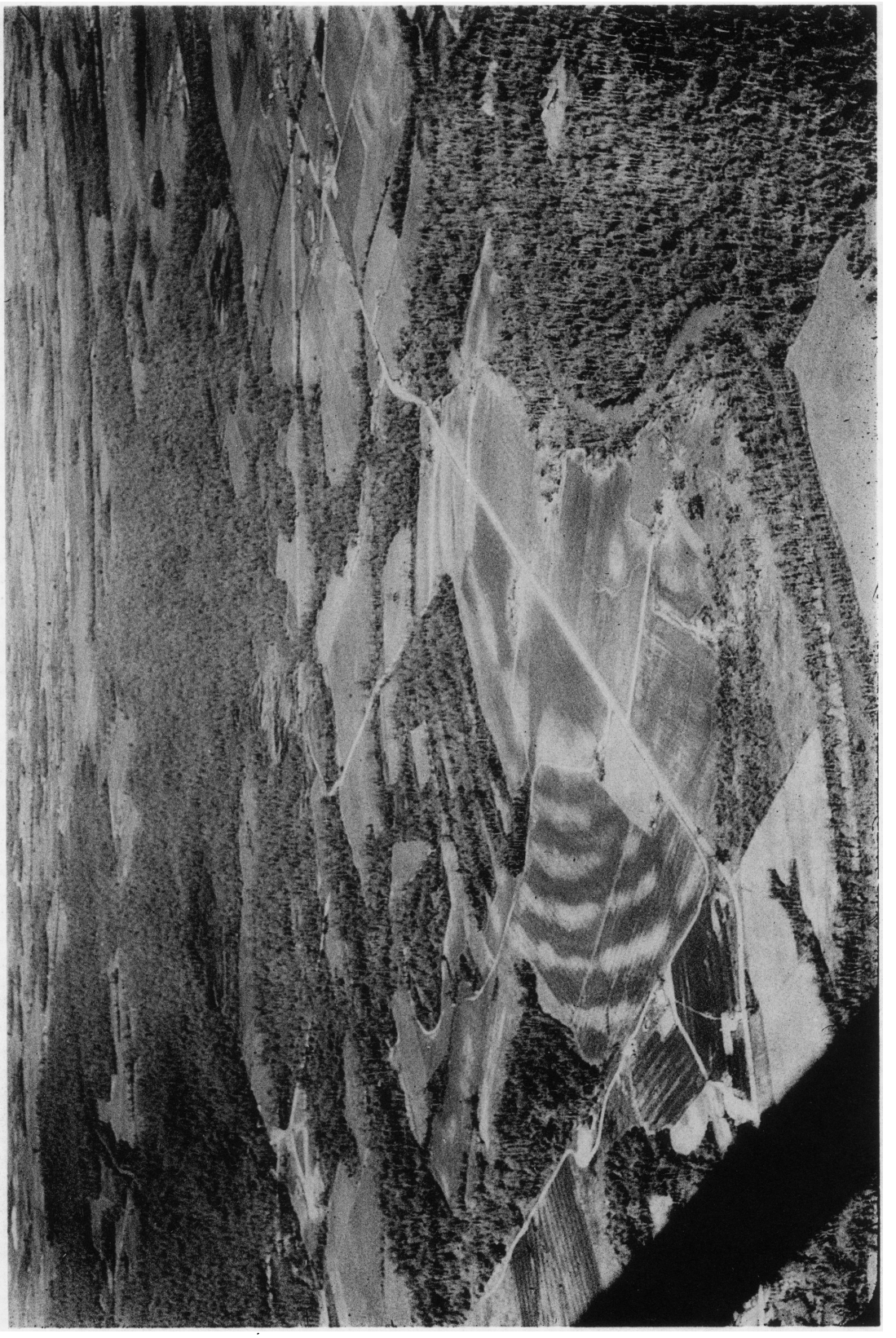
43. Basketry impressions
a. Basketry impression from Motley Mound
b. Basketry drawn from clay impression found in Floor 4, conical Mound B (20.2-6426)

ADDENDUM

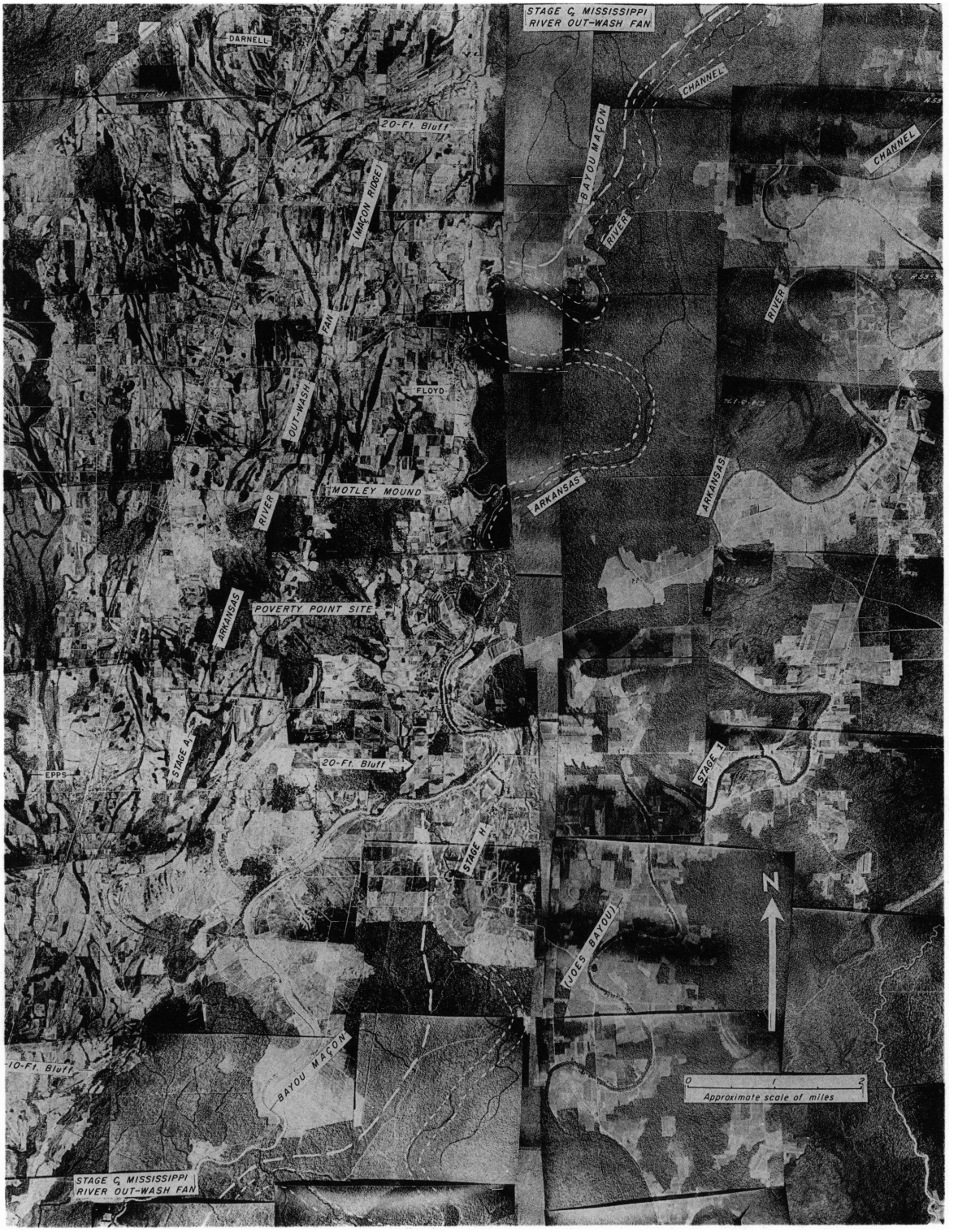
While the pages of this paper were in final proof form, Clarence Webb gave the specimens in his collection that are illustrated here to the American Museum of Natural History. They have been assigned catalogue numbers beginning at 20.2-6338.



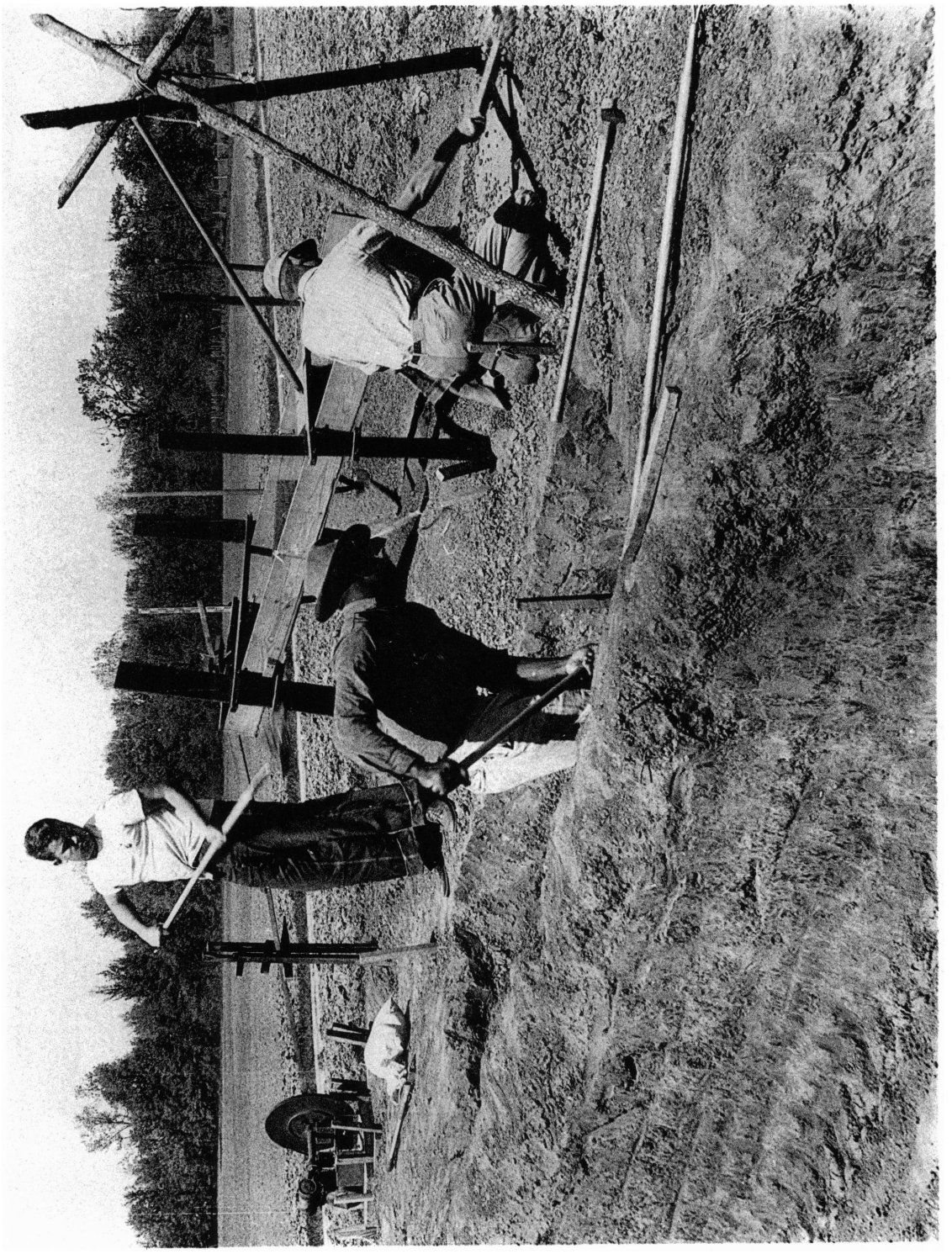
Stereogram of air photographs of the Poverty Point Site. Vertical heights are exaggerated. Note Poverty Point Mound and the artificial ridges between this mound and the low bluffs along Bayou Maçon. The Motley Mound to the north (right) is not shown. Courtesy of the Mississippi River Commission, United States Army Corps of Engineers.



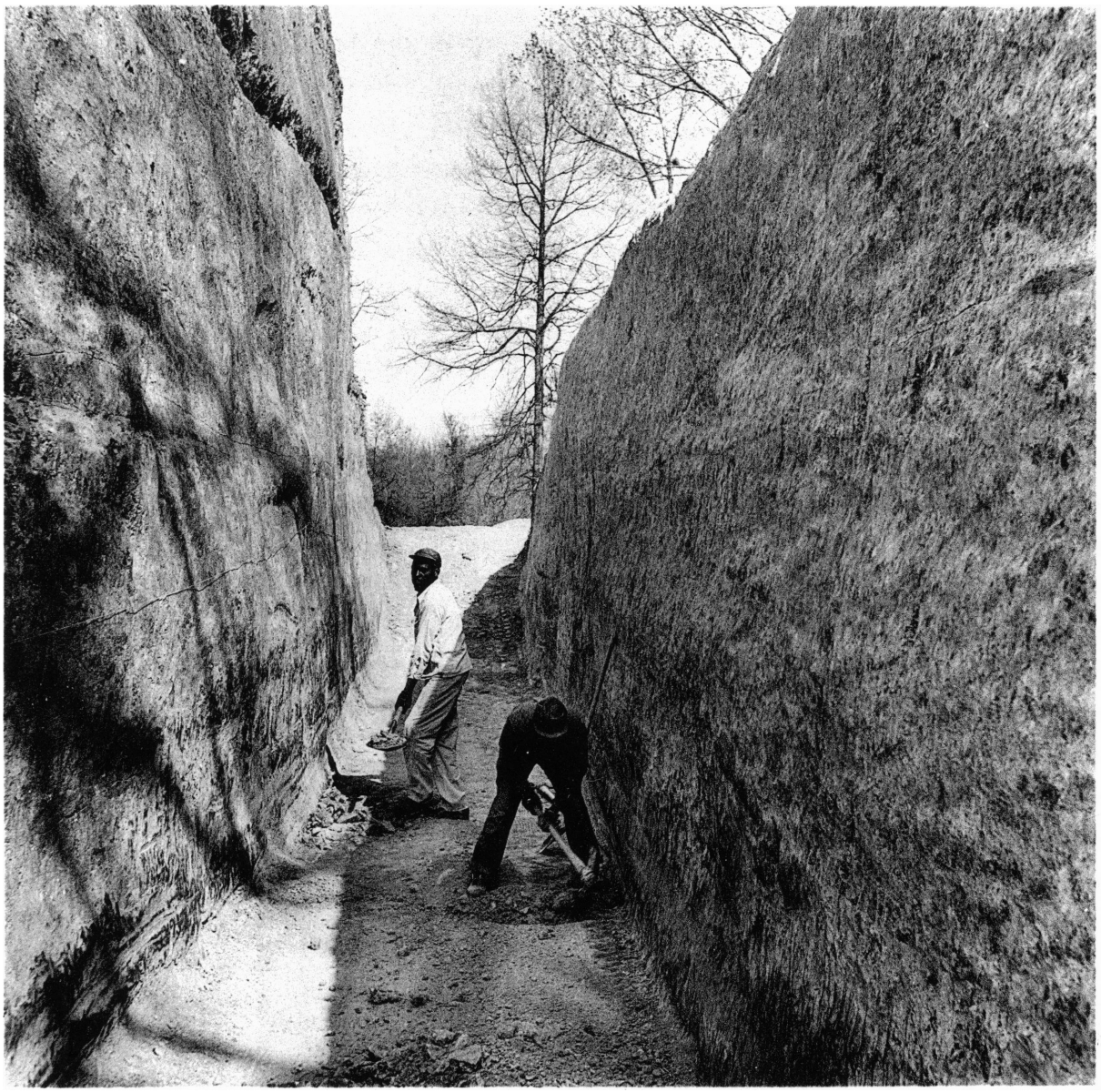
Oblique air view of the Poverty Point earthworks. View is towards the northwest. Photograph by Junius B. Bird



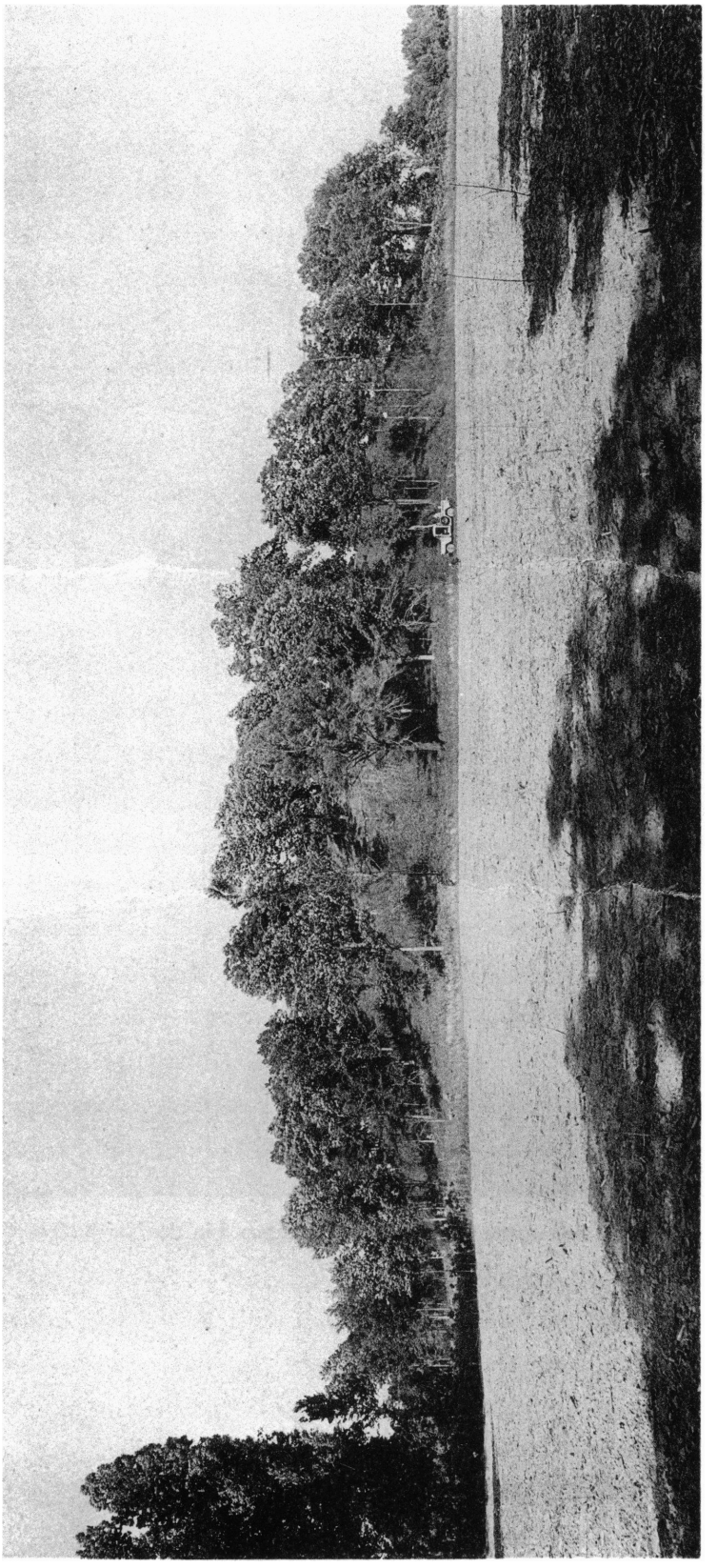
Mosaic of air photographs of the Poverty Point Site and vicinity. The site is near the center of the plate
Courtesy of the Mississippi River Commission, United States Army Corps of Engineers



Excavating the strata cut, Trench 8, using motor sifter



Excavating the hard-packed ash bed at the base of Mound B exposed in the North 60 to 70-foot trench



The Poverty Point Mound from the west

ANTHROPOLOGICAL PAPERS

OF THE

AMERICAN MUSEUM OF NATURAL HISTORY

Volume 46

PART 1. Poverty Point, a Late Archaic Site in Louisiana. By James A. Ford and Clarence H. Webb, in collaboration with Junius B. Bird and Michael Beckman. Pp. 1–136, 6 plates, 45 text figures, and 9 tables. 1956. Price, $2.00.