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CERTAIN BLUFF MOUNDS OF WESTERN JERSEY COUNTY, ILLINOIS

P. F. TITTERINGTON

THE REGION

ARCHAEOLOGICAL interest has existed in Jersey County for a long period of time. As early as 1875, and up to about 1890, Mr. William McAdams was actively interested in collecting and excavating in Jersey, Calhoun, and Madison counties. His work was quite extensive, but unfortunately no detailed report of his Jersey County activities was made. The vast amount of material that he gathered has been widely scattered, except for a few thousand pieces which are in the Museum of the Monticello Seminary at Godfrey, Illinois. Mr. Charles A. Ruebel of Grafton has been collecting for sixty years. About one-half of his material is from Jersey County and the remainder from Calhoun County across the Illinois River. About fifty per cent of his collection was lost in a fire in 1912, and since that time the remainder has been stored and is not available for study at this time. Mr. George H. Daugherty of Otterville has been collecting for a similar length of time in Jersey, Calhoun, and Madison counties, about one-half of his material being from Jersey County. Mr. William L. Waters of Godfrey has been collecting in the three counties mentioned above for fifty years, about one-half of his material also being from Jersey County. There are numerous smaller collections throughout the county, and there is the Robert Meyer collection at Deer Plains, Calhoun County. My own interests began in Jersey County thirty-three years ago.

In studying all accessible material in the collections, the variety of artifacts encountered suggests a variety of cultures in the area. It is not uncommon to find the smaller arrowheads, even the multiple-notched and base-notched varieties, an occasional flint spade and notched hoe, and the thin shell-tempered potsherds that are identical with those at Cahokia. These Cahokia materials so far have been found only at village sites, and then only in comparatively small numbers mixed with larger amounts of materials of entirely different types. No mounds of the Cahokia type or culturally pure village sites have been located.

Ten miles below Nutwood there are two large mounds in the bottoms, and farther up the slope at the base of the bluff there is a row of several smaller mounds. A curved-base monitor pipe and a large conch

shell, from one of the smaller mounds, and a small copper celt from the surface suggest a "Hopewell" or Central Basin variant. No careful survey of the group has been permitted, but it is reported that there is a rather extensive village site around the lower mounds which have been greatly reduced in height by the plow. This outstanding group is similar to one fifty-five miles up the Illinois River at Montezuma which was excavated in 1905 by the late Gerard Fowke for the Missouri Historical Society and definitely proved to be the product of a "Hopewell" variant.

There are no doubt other "Hopewell" mounds in southern Jersey County. In Mr. Daugherty's collection there are four large, unsplit, copper-stained, double-drilled canine teeth of the bear; a frog-effigy monitor pipe of fossilized coral and an oval pendant of the same material; small rolled-copper and small spherical and ovoid shell beads; and drilled fresh-water pearls, all of which were taken from mounds somewhat further south and east of the group described above. In the collection of Mr. H. F. Foersterling, there is a sharply curved-base monitor pipe from a bluff mound two and one-half miles above Grafton. Mr. Stuart Parsell, digging in a mound five miles below Nutwood, uncovered a typical "Hopewell" pot which contained a mussel-shell spoon and a thin, rectangular, bone spatula 13.6 cm. long by 2.5 cm. wide.

The artifacts of Cahokia and "Hopewell" type form only a very small percentage of those found. The balance has not been identified culturally. However, in the bluff mounds considered in this report, a number of artifacts have been found that check with the surface materials from the village sites. These include numerous instances of grit-tempered pottery, two deeply oblique corner-notched arrowheads, one long expanding-stemmed and one straight-stemmed arrowhead, one triangular knife, one flint pick, one pendant, five discoidals, and six hammerstones.

Practically all of the commoner forms of arrowheads and knives are found in the western portion of the county. Many "blunts" of both types, flint picks, and flint skinners are found. The commoner type of "blunts" has the blade chipped from one side so that the cutting edge is continuous with the other side of the blade; the rarer type has been chipped from both sides so that the cutting edge is at the center. Many of the former type appear to have been made from broken arrowheads. "Skinner" is a local term applied to oval, turtleback-shaped pieces averaging 10 cm. by 4.5 cm. by 2 cm. in dimensions, some of which show a hand polish. Flint chisels are quite common; they are either oval or rectangular in shape, and a high percentage of those of oval

shape bear evidence that they have been resharpened. Rarer forms of flint are the effigies, such as the bird, turtle, and lizard forms.

Axes and celts are next in frequency. In Mr. Waters' collection alone there are four hundred fifty axes and four hundred seventy-five celts from Jersey County. Three-fourths of the axes are three-quarter grooved; the remaining fourth are full grooved or grooved on two sides, the former predominating. There are six double-bitted axes. A large percentage of the celts are straight-sided; a small percentage have a flaring bit and are as a rule better made. A few celts are grooved and can easily be distinguished from the axe by their general celt-like shape. The material used in almost every instance is granite, the only exceptions being an occasional hematite specimen and, more rarely, one of quartz.

The hammerstones occur in the spherical and biscuit-shaped types. They are made chiefly of granite, sometimes of quartz, and occasionally of flint. They show a great amount of use and were no doubt utility pieces. Another utility type of implement is an oval piece of granite with flat sides. It is completely grooved in the long diameter with the grooves passing over the flat sides, and is thought to have been used as a weight.

Approximately two hundred fifty plumb bobs from Jersey, Calhoun, and Greene counties have been studied. They are represented by three types: the grooved, holed, and plain. The grooved, as compared to the holed, occur in a 15 to 1 ratio when considering specimens found singly or in pairs. If a cache of twenty-eight holed plumb bobs from Calhoun County is included, the proportion is considerably reduced. In the spring of 1933, after a heavy rain, a cache of five holed and six grooved specimens was rooted out of the ground by some hogs. One of the holed type is decorated. It is 9.5 cm. long, made of magnetic iron, and has two faint parallel grooves just below the hole. Beginning in the lower groove, there are two incised, parallel lines that extend downward over the lower end and up the opposite side to again meet the lower groove. This divides the body of the plumb bob into two equal parts; in the center of each there is an incised circle 2.5 cm. in diameter within which there is a second circle 2 cm. in diameter. The inner circles are marked off by two sets of seven incised, parallel lines which lie obliquely to the long axis of the plumb bob, making a very definite lattice-work design. The decorated plumb bob is quite rare and seems to be a southern product. There are eight in the collection of the Lemley brothers of Hope, Arkansas, and one in that of Mr. E. Lee Renno of St. Charles,

Missouri. All of these are from the Bayou Mason district in northwestern Louisiana. It is also quite unusual to find plumb bobs in large caches; they are usually found singly and occasionally in groups of two or three.

Most of the plain type seem to be unfinished; they represent all of the various stages of manufacture, but once in a while one is seen that appears to be finished except for the hole or groove. Eighty to eighty-five per cent of all the plumb bobs are made of hematite. Most of the remainder are made of granite, a few of limestone, and an occasional one of quartz, galena or slate.

The discoidals of Jersey County are of a very distinct type. They vary from 2 to 12 cm. in width and are approximately one-half as thick. Practically all of them are made of granite, quartz and hematite sometimes being used. The edges are moderately rounded, and the depressions are shallow to moderately deep. The depressions usually fail to meet the edges by .5 cm., producing a flattened surface between the edges of the discoidal and the edges of the depressions. They are usually found singly, but one cache of six with a small, oval, flint spade is known. Two other types are found but their occurrence is rare; the first has a decidedly "V"-shaped edge instead of the rounded, and the second is very thin with deep depressions the edges of which meet the edges of the discoidal.

The pipes are of several different types, two of which have been placed culturally. The monitor pipes, both the plain and the effigy, have been found with other "Hopewell"-like materials, and the handled pipes have been found in the bluff mounds. Elbow pipes, mostly of clay, are present, and an occasional disc pipe of catlinite is found. Three large pipes of sandstone, two frog effigies and one of a cuboidal shape have been found in the bottoms at the mouth of Otter Creek. They weigh between three and four pounds each and the cuboidal pipe contains numerous grooves presumably made in the sharpening of bone implements.

Bannerstones are the rarest of the artifacts and, when found, are usually of the winged type. Three of quartz and a few of granite or slate are known. Pendants are more common, being made primarily of slate; however, specimens of granite and hematite are present.

In the spring of 1932, a find was made which may indicate the presence of another cultural manifestation. Sixty yards east of the Hartford Church, which is six miles up the river from Grafton, Mr. John Watson broke his plow on some limestone slabs in a low ridge adjacent to the

river bottoms. He dug the slabs out of the area, which was fifteen feet in diameter, and underneath found several burials in a layer of iron oxide (chemical analysis by the University of Michigan). He did not determine the type or number of burials but found seven grooved axes, three celts, three bone awls, five antler tips, one fragmentary antler, and forty-five flint artifacts consisting of arrows, knives, drills and scrapers. Six of the axes were three-quarter-grooved and one was full-grooved; the three celts were straight-sided. Three of the antler tips were unworked and two are thought to be arrowheads. Most of the flints were of the long, triangular, unnotched type, the longest being 22 cm. Of the notched flints, the side-notched predominated, followed by the straight-stemmed, and there were a few each of the expanding-stemmed and corner-notched.

This area was partially excavated October 30th, 1932. At a depth of twenty inches, there was a compact layer of iron oxide two to six inches thick. It was on a deposit of river sand and covered by black sandy soil above. No undisturbed burials were found, but there were many fragmentary bones all stained a brick red on the surface.

Twenty miles up the river from this site, in Greene County, one mile north of the Jersey County line, Mr. V. Varble has had a similar experience. He also plowed into some limestone slabs in a low ridge adjacent to the bottom land. He removed the slabs, and found below them extended burials but no artifacts or iron oxide. This site was excavated September 8th, 1934. An irregular circular area of slabs, twelve feet in diameter, was located at a depth of eleven inches. A few small bones and fragments of larger bones were found between the slabs. No complete burials or evidences of cremation were found and there were no artifacts. The slabs were removed and six inches below them the soil was undisturbed. The previous disturbance of the site had been so great that the information obtained was quite meager.

Both of these areas are at village sites and seem to be different from anything so far encountered; however, artifact types from the Jersey County site are common in the surface materials throughout the western part of the county.

DESCRIPTION OF THE SITE

The western and a portion of the southern boundary of Jersey County are formed by the Illinois River. At the mouth, the river bottom is rather narrow but it gradually widens out upstream, reaching a

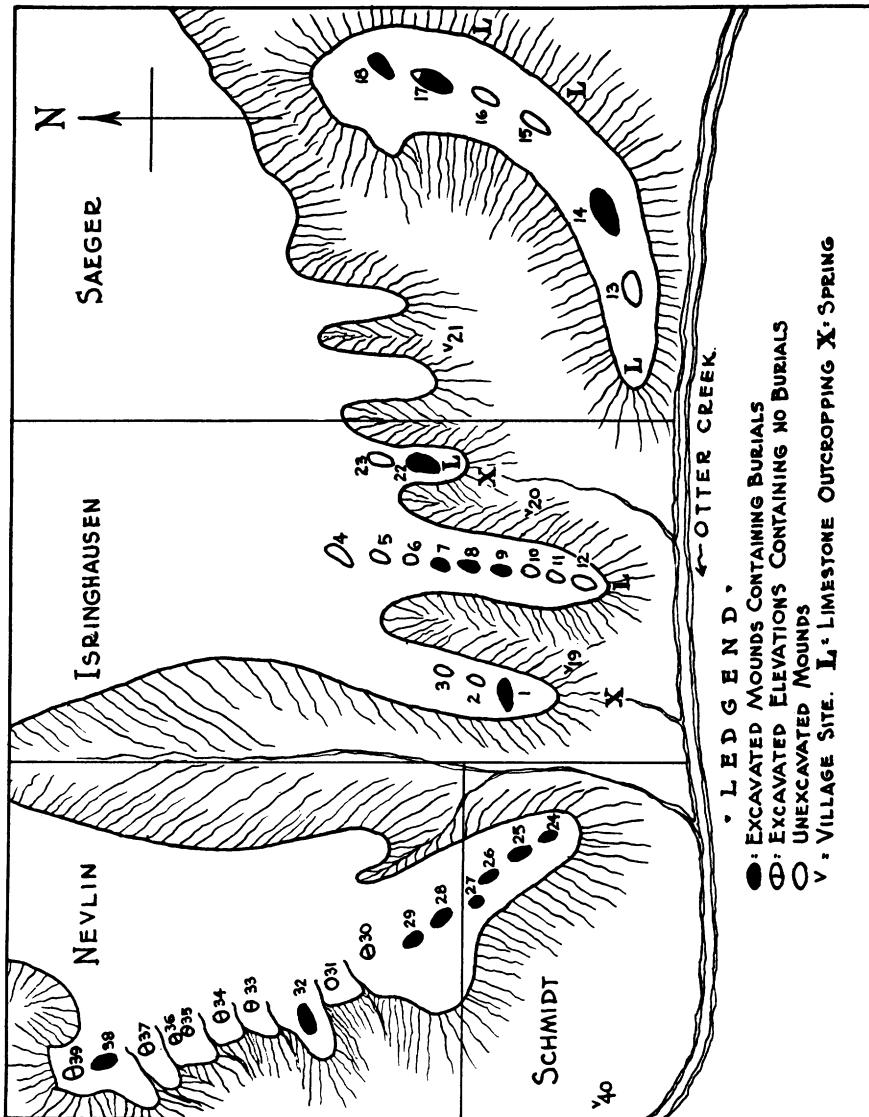


FIG. 1.—Diagram of the general site.

maximum width of about three miles on the Jersey County side. The bottoms are flanked by a series of bluffs and ridges ranging from fifty to two hundred eighty feet in height, the higher bluffs being at the lower end of the county. The upper ends of these bluffs and ridges are continuous with the prairie and have numerous mounds on their summits. No accurate survey has ever been made of archaeological features in the western part of the county, but it has been estimated that there are about seven hundred fifty mounds. This seems a high figure but may approximate the proper number when one takes into consideration the fact that there are from one to fifteen mounds on each ridge, that some of the ridges are less than one-quarter of a mile apart, and that the county is approximately twenty-five miles long.

At the center of the western part of the county, at the village of Nutwood, Otter Creek, a stream of moderate size, causes a break several hundred yards wide in the row of ridges and bluffs. At this point the creek flows in a general westerly direction and the river makes almost a right-angled bend to the west, so that the line of ridges on the north side of the creek is continuous with the line of river bluffs. On the south side of the creek the ridges lie at right angles to the line of river bluffs. These ridges extend up the creek on both sides for several miles, and have been carefully surveyed on the north side for the first mile and superficially on the south side for the first three-quarters of a mile. On the north side, there are four major ridges and several minor ridges of which all but one lie at right angles to the creek. They occur on four adjacent farms in Section 4, Township 7, Range 13 west, and are owned by Mr. John Isringhausen, Mr. Guy Saeger, Mr. and Mrs. Fred C. Schmidt, and Mrs. Caroline Nevelin. On the major and one of the minor ridges of these farms, thirty-nine mounds have been located. The other minor ridges have been under cultivation for many years, and any mounds that may have been present have been obliterated. In the bottom land of the creek and extending up between the ridges, village site materials are continuous. However, at four points they are more profuse, and two of these points are located near springs (Figure 1).

The survey on the south side of the creek, on the farms of Mr. McCarthy and Mrs. Cummings, included three ridges that lay at right angles to the creek and three major and three minor ridges that lay at right angles to the river; they are all considerably higher than those on the north side. Twenty-six mounds and three village sites were located, two of the latter being on the tops of the ridges adjacent to the prairie and one in the bottoms (Figure 1).

OUTLINE OF CULTURAL TRAITS

Excavations at this site resulted in the discovery of the following culture-indicative materials and traits:

- I. BURIAL TYPES—Based on 170 burials.
 - A. Uncremated—136 burials.
 1. Twenty-two in which the position was not determined.
 2. Twelve extended.
 3. One hundred two flexed, varying from a slight flexion of the lower limbs to a complete flexion of all extremities.
 4. Thirty-one of the uncremated burials were covered by stones.
 - a. Piles of limestone slabs—3 adults and 7 infants.
 - b. Layers of limestone slabs—3 adults and 2 infants.
 - c. Layer of flint rock—1 infant.
 - d. Limestone slabs under which nothing was found—4.
 - e. Layer of flint rocks under which nothing was found—1.
 - f. Limestone slabs^{on} edge partially around burial—3 adults and 1 infant.
 - g. Semicircular wall of flint rocks—1 infant.
 - h. Single limestone slab over a burial—5 infants.
 - B. Cremated—34 burials.
 1. Individual cremations.
 - a. Two flexed adults.
 2. Mass cremations.
 - a. Ten flexed individuals, Mound 14.
 - b. Seven flexed individuals, Mound 7.
 - c. Two flexed and one extended individual, Mound 7.
 - d. Two flexed, two extended, and at least eight in which the position was not determined, Mound 38.
- II. SHELL BEADS
- A. Aculosa shells.
 1. Necklaces.
 - a. Five instances in which the beads have been found definitely around the neck.
 2. Hair Ornaments(?)
 - a. Six instances in which the beads have been found at the side of the skull.
 3. Other Locations.

- a. One instance in which the beads were found under the pelvis of an infant.
 - b. One instance in which the beads were scattered the full length of a child of about five.
- B. Other types of shell beads
- 1. Necklaces.
 - a. Three instances of small disc beads.
 - b. One instance of a cylindrical shell bead.
 - 2. Hair Ornaments(?)
 - a. Two instances of Marginella beads at the side of the skull.
 - b. One instance of small Olivella beads at the side of the skull.
 - 3. Other Locations.
 - a. Four small disc beads under the larger end of a split-bone awl.

III. POLISHED SPLIT-BONE AWLS

- A. Hair ornaments or utility pieces carried in the hair.
- 1. Four instances in which the awls have been found in close proximity to the skull.

IV. HANDLED PIPES

- A. Found in our excavations.
- 1. Broken handled pipe found at the angle of the right shoulder and neck of burial No. 25, Mound 1 (a male of about 65).
 - 2. Human-effigy handled pipe found four inches beyond the top of the skull of burial No. 22, Mound 14 (a male of about 65).
 - 3. Small handled pipe over the left wrist of burial No. 2, Mound 25 (a male past middle age).
 - 4. Small handled pipe found under cervical spine of burial No. 21, Mound 17 (a male past middle age).
- B. Found by others.
- 1. Large handled pipe found seven miles above Grafton, Illinois, in contact with the left side of the skull of a flexed male (about 45 years of age).
 - 2. Bird-effigy handled pipe and a plain handled pipe plowed out simultaneously with the skull of a very old individual (age, 81 plus), found six miles above Grafton, Illinois.

3. Small plain handled pipe from near Grafton, Illinois.
4. Small grit-tempered pottery handled pipe, found in a mound two and one-half miles above Grafton, Illinois (Foersterling collection).
5. Plain handled pipe found in a mound eight miles above Grafton, Illinois (Foersterling collection).
6. Plain handled pipe, a surface find in Calhoun County across the river from the Marquette State Park which is six miles above Grafton, Illinois.
7. Small plain handled pipe, a surface find at the base of Mound 46, Cahokia Group, Madison County, Illinois.
8. Two unfinished handled pipes, part of a cache of four unfinished pipes found in a refuse pit, St. Clair County, Illinois (Herrington collection).

V. HAMMER STONES AND DISCOIDALS

A. Hammer Stones.

1. A pair at the edge of mass cremation, Mound 7.
2. A pair above individual cremation, Mound 14.
3. A pair in Mound 26, not associated with a burial.

B. Discoidals.

1. A pair above the edge of a mass cremation, Mound 38.
2. Three small, rough discoidals under a limestone slab, Mound 14.

VI. POTTERY

A. Absence of pottery with burials.

B. Pottery from mounds but not associated with burials.

1. Four conoidal based, cord-imprinted, grit-tempered, broken pots, Mounds 1, 17, and 24.
2. Four grit-tempered, decorated sherds from a single vessel, Mound 22.
3. Occasional grit-tempered sherds (mostly cord-imprinted), Mounds 14, 18, 29, 32, and 38.

VII. UNWORKED MUSSEL SHELL AND SMALL FRAGMENTS OF LIMESTONE

- A. In all mounds containing burials, numerous mussel shells and fragments of limestone were found scattered throughout. This feature did not occur in seven elevations excavated in which no burials were found.

VIII. OTHER ARTIFACTS—Occurrences not sufficiently frequent to be classed as positive traits in a local culture complex.

A. Plumb Bobs.

1. Two grooved and one unfinished granite plumb bobs from the surface of Mound 1.
2. One grooved and one unfinished hematite plumb bob from a disturbed area in Mound 1.

B. Polished Shell Pendants.

1. One large mussel-shell pendant from a disturbed area in Mound 14.
2. One small mussel-shell pendant at back of neck of burial No. 22, Mound 24.
3. One circular shell pendant from the surface of Mound 1.

C. Flints.

1. One deeply corner-notched, in disturbed area of Mound 1.
2. One corner-notched, Mound 38.
3. One expanding-stemmed, Mound 26.
4. Triangular knife under which there were four bone needles, 7.5 cm. long, Mound 26.
5. One straight-stemmed, at lower dorsal spine of burial No. 26, Mound 24.
6. One blackened, deeply corner-notched, in base of cremation, Mound 8.
7. One blackened pick in mass cremation, Mound 14.

D. Red Ocher.

1. Ball somewhat larger than a walnut at right costal margin of burial No. 7, Mound 24.
2. Irregular oval piece, 6.8 cm. long, with one side rubbed flat, below body of burial No. 23, Mound 24.

E. Fire Pit.

1. Eighteen inches in diameter, Mound 24, containing charcoal and masses of baked clay varying from the size of a walnut to the size of a fist.

BURIAL CUSTOMS

In the fifteen burial mounds completely excavated and the one which is only partially excavated at the present time, one hundred seventy burials have been uncovered. One hundred twenty-five or 73.4 per cent were flexed; fifteen or 8.8 per cent extended; and thirty or 17.5 per cent of indeterminate position. Most of the undetermined group



FIG. 1.—Mounds 4 to 12 as seen on the ridge top from a distance.

FIG. 2.—The usual type of flexed burial with extra bones over the feet and pelvis and around the left arm.



FIG. 1.—Burial flexed on the back, showing healed fractures of the left humerus and left clavicle, and also a periostitus of the tibia.

FIG. 2.—Burial flexed on the right side. Similarly flexed burials were found disposed on the left side.

was made up of cremations and the badly disintegrated burials under stone plats near the surface of Mound 17.

The burials were of two types, cremated and uncremated; there were thirty-four of the former and one hundred thirty-six of the latter. In the cremated group, there were two instances of individual cremation and four of mass cremation. In the uncremated group, there were seven instances of compound burials of two individuals, two of three individuals, and one of four individuals; all of the other burials were single. An interesting observation on the uncremated group is that 37.5 per cent were burials of infants and children up to about twelve years of age.

Most of the uncremated burials, one hundred two, showed some degree of flexion. There were only twelve that were extended. The flexion varied from a slight degree of the lower extremities to a complete flexion of all extremities. The most common form was a burial on the back with the thighs dropped to the right or left and flexed at right angles to the body (Plate 1, Figure 2). The legs were more or less completely flexed on the thighs with the feet near the pelvis. The flexion of the arms was either a right-angled flexion or a complete flexion of the forearm upon the arm, the former placing the hand to the opposite side of the body and the latter placing it over the clavicle or near the chin. Usually one arm was flexed at right angles and the other completely flexed in a given burial.

In those burials that were in complete flexion, some were on the back (Plate 2, Figure 1), and others were on the side (Plate 2, Figure 2). The thighs were flexed upon the abdomen and chest, and the legs upon the thighs. Most commonly, both arms were completely flexed with the hands near the chin, but occasionally either one or both arms were found to be extended.

Only a few burials were found with a slight flexion of the lower extremities. These usually had the arms extended along the sides with the hands under or at the side of the hips or over the pelvis. Occasionally the arms were flexed.

There were several instances of extra bones with a burial. The most outstanding feature of this type was a compound burial that had an extra skull between the upper chests of the two individuals; a set of leg bones, a humerus and a scapula over the flexed lower extremities; and two tibiae and a fibula at the top of one of the skulls. In another instance a flexed adult male burial had a femur, an innominate, a tibia, and a charred tibial head over the feet and pelvis; a portion of a humerus

at the left shoulder; an ulnar shaft at the left elbow; and a portion of a radial shaft across the lower chest. There was also a small fragment of limestone on the skull (Plate 2, Figure 2). Since these mounds are thought to have been unintentional in their construction, this condition might be due to the uncovering of a portion of a skeleton of an earlier burial at the time of preparation for a new burial. The bones uncovered in this manner were then placed with the new burial and recovered.

There were two instances in which a burial showed that a part of the skeleton had been removed and the space so made filled by a portion of an undisturbed burial. Both were in Mound 1. The pelvis and lower extremities of an adult burial had been removed, and just below the space so created was the trunk of an extended adult burial. In the dirt above the extended burial, a set of pelvic and leg bones was found. The second instance of this type was that of a burial of a child of about ten or eleven. The right shoulder girdle, arm, and ribs had been removed and piled at the right side of the skull. The space so cleared was occupied by the extended lower limbs of a child about two years old. We were not able to trace the walls of pits that would indicate that these extended burials had been let intrusively into the mound at a later date.

There were ten instances, three adult and seven child, in which burials were covered with piles of limestone slabs (Plate 3, Figure 1); five instances, three adult and two child, in which burials were covered with layers of limestone slabs (Plate 3, Figure 2); one instance of a child covered by a layer of flint rocks; four instances of limestone slabs, and one of flint rock, under which nothing was found; four instances, three adult and one child, in which slabs were stood on edge partially around the burial; five instances of infants under large single slabs; and one instance of a semicircular wall of flint rocks around a small child.

The larger piles of slabs were more or less orderly in their arrangement, but in no way suggested vaults. The slabs over a burial ranged in number from seven to twenty-five, and in size from one foot long to pieces sufficiently large to render it difficult for one man alone to handle them.

The burial of one of the children covered by a pile of slabs was immediately below an adult burial covered in the same manner. The skeleton of the child was eight feet two inches below the top of the mound, and the mound was determined to be five feet one inch high.

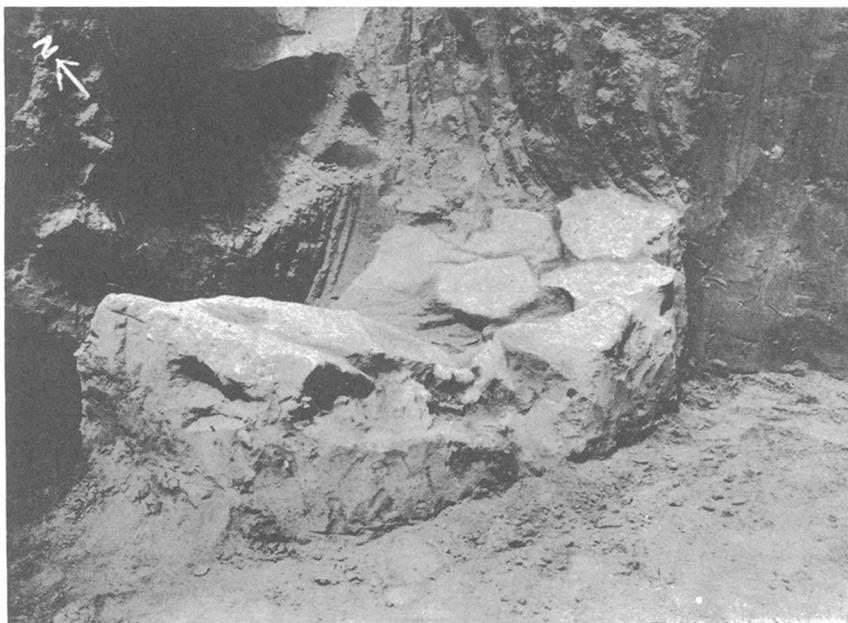
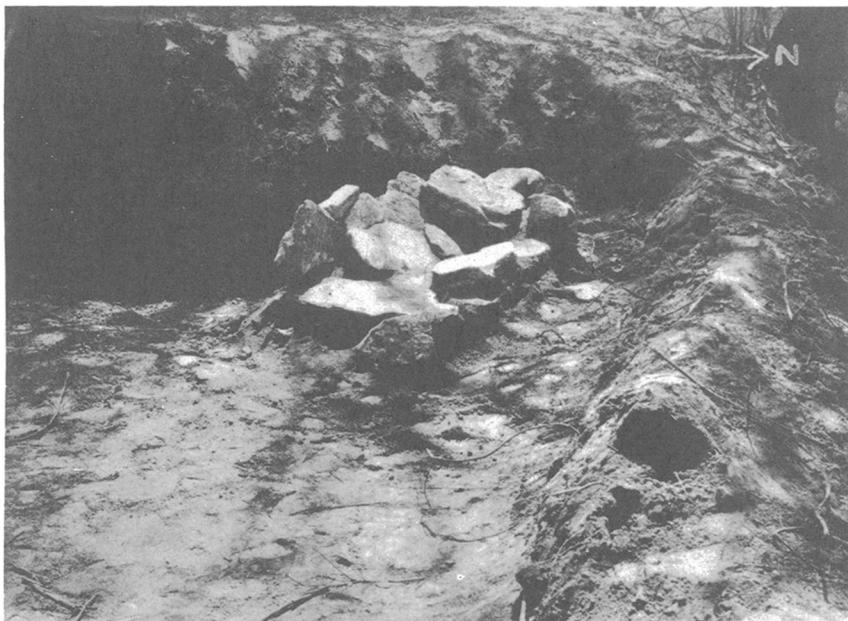


FIG. 1.—Pile of limestone slabs covering a burial.

FIG. 2.—Layer of limestone slabs covering a burial.



FIG. 1.—Skull restored from parts recovered from cremated burial.

FIG. 2.—A mass cremation before exposure, with two discoidals shown situated above its southern edge. Associated uncremated burials are shown exposed.

at the center. It is thought that the child burial was placed at a lower level along the side of the ridge and the mound built over it.

In those burials that were covered by a layer of limestone slabs and flint rocks, the stones were placed edge to edge without overlapping. In most instances the edges of the stones were placed as closely together as possible without trimming. The plats under which nothing or just a few teeth were found were all in Mound 17; they were close to the surface and, inasmuch as this mound had been under cultivation for a long period of time, it is possible that burials were present but have completely disintegrated.

Four burials were found in which limestone slabs were stood on edge. In three of these the slabs were placed around the head and body of the burial; in the fourth, they were placed along the sides of the burial, which was extended, in such a manner that the edges overlapped shingle fashion.

In the infant burials that were covered by single slabs, the stones were thirty to thirty-six inches in length, fifteen to twenty inches in width, and three to five inches in thickness. It was not uncommon to find one or two small slabs that appeared to have been thrown in with a burial. They were not placed with any regularity and are probably of no great importance.

Two peculiar adult burials were found in Mound 24. They were buried side by side, face down, one with the head to the southwest and the other with the head to the northeast. They were extended, except that the legs were flexed back upon the thighs. One had a foot at each side of the pelvis and the other had both feet over the right hip.

Mound 22 also produced two rather unique burials in that the individuals appeared to have been decapitated. Both of these burials were extended. The first was that of a male about thirty, extended on the back, disposed in a general direction from a little west of north to a little east of south. The skull was face down over the lower right chest. The cervical and upper dorsal spines, the bones of the left hand, and both feet were missing. The second was that of a male of about fifty-five, extended on the back in a due east and west direction. The skull was lying on its left side over the center of the lower chest. It was facing the right side of the skeleton with the vertex toward the pelvis. The first four cervical vertebrae, the entire right forearm, left radius, both hands, and both feet were missing.

The significance of the missing bones cannot be accurately deter-

mined because the bones of the hands and feet of a burial in extreme flexion of the usual type, found just above the lower half of the second so-called decapitated burial, were also missing. One burial of this type might be just an accidental occurrence, and while two instances do not establish a definite burial method, they do oppose the probability of an accident.

The cremations occurred both as single and mass burials. The two single cremated burials were in Mound 14. One was an adult male of about forty-five, disposed on the back with the thighs to the right and flexed at right angles to the body. The legs were well flexed on the thighs and the forearms were flexed at right angles to the arms with the hands over the lower chest. The bones were ebony black and badly broken, and were quite brittle and hard to handle. The skull was broken into about eighty pieces, seventy of which could be put back together. While the restoration of the skull was not complete (Plate 4, Figure 1), sufficient measurements could be made to determine that it compared favorably with the uncremated male skulls of the group. The soil around this burial was considerably darker than elsewhere in the mound. It extended several inches below a compound burial which was four inches under the cremation. The bones of the compound burial were a light brown in color and showed some evidence of heat. It is not thought they were intentionally included in the cremation.

The cremation of the second individual burial had been carried further. The bones were more badly broken and were gray in color. There was a moderate amount of gray ash present, and nothing more than the flexed position of the burial could be determined.

In the mass cremations, the bodies had all been placed closely together, and in one area seemed to have been piled. Portions of three spines were seen to overlap and to lie, respectively, in three different directions. Just above these three spines, there was a fire-hardened mud-dauber's nest in contact with charcoal that represented a piece of wood about three inches in diameter.

Mound 7 contained in one group seven cremated burials in an area five feet in diameter, and three feet four inches to the north there was a second group of three cremated burials in an area four feet in diameter. Both groups were at the base level of the mound. The space between the two groups was directly below a large pit in the top of the mound, and the absence of material is thought to be due to a previous excavation. Further evidence of previous disturbance was contributed by the finding of the extended lower extremities of a child at puberty

the trunk of which, had it been present, would have been in the vacant space. The evidence suggests that we had uncovered the ends of a mass cremation the center of which had been removed by previous excavators.

The soil, for a height of ten inches above this second mass cremation, was a light yellow to a light brick-red in color, showing evidence of fire. Throughout this layer there were sticks of charcoal one to three inches in diameter, and there was also a large amount of charcoal in direct contact with the bones. The finding of charcoal and of the baked soil above the burials may indicate that they were covered while the fire was still burning. Supporting this theory is the incompleteness of the cremations and the ebony black color of the bones, due to their having been burned in the absence of oxygen.

In both parts of this cremation, several large limestone slabs were found in the outer margins of the burial areas. They showed evidence of firing and may have been used to hold the brush and wood on the bodies.

The mass cremation in Mound 14 was six feet six inches in diameter and contained at least ten individuals. The features of the cremation were practically the same as described above, except that the soil above the burials did not show as much evidence of fire and the cremation was located two feet above the base of the mound instead of at the base level. The skeletal material was somewhat less consumed, and several of the long bones could be restored.

The mass cremation in Mound 38 (Plate 4, Figure 2) extended eight feet seven inches from north to south and seven feet eight inches from east to west, and was on the mound floor at a depth of three feet six inches. It contained two extended and two flexed adults and at least eight children. The heat at the center had been intense because most of the skeletal material was badly broken and gray in color. The adult skeletons were at the outer margins of the area and the bones were not so badly broken and were black in color. No limestone slabs were found at the edges.

The number of bodies in the mass cremations was determined by counting the mastoids and dividing them into rights and lefts. The group in which there was the larger number was taken to represent the minimum number of burials present. The mastoids were chosen because they showed less consumption by the fire than any of the other bones.

If any coverings had been erected over the groups of dead before cremation, we were unable to detect any traces of them. We were watch-

ful for the ends of charred logs or pieces of charred bark along the edges of the burned areas, but were unsuccessful in finding any.

There had been a mass cremation in Mound 8, but it had all been removed except the lowermost part. All that remained was a considerable quantity of charcoal in which there were a few blackened bone fragments and a blackened, deeply corner-notched arrowhead 7.6 cm. long.

SHELL BEADS

There were twenty-one instances of shell beads found with burials, in thirteen of which appeared *Anculosa* shells. In five instances, necklaces of *Anculosa* beads were found around the neck, the number of beads ranging from forty-three (Plate 8, Figure 1a) to two hundred fifty. An attempt was made to determine the original stringing of the beads, and on several occasions from ten to fifteen of them were seen to lie with the flat surfaces facing each other in such a manner that the upper half of one bead overlapped the lower half of the bead opposite.

In six instances, *Anculosa* beads were found on the front or at the side of the skull (Plate 5, Figure 2), the number ranging from seven to two hundred eight. With one of these burials there also were three small eagle or large horned owl claws¹ (Plate 8, Figure 1b). The beads in this location were more widely scattered than when found around the neck, and no definite pattern of their stringing could be worked out. Their use here is thought to have been as hair ornaments.

There were three instances of small disc beads under the chin, ranging in number from five to twelve (Plate 8, Figure 1h), and one instance of four small disc beads under the larger end of a split bone awl. A small child had a cylindrical shell bead at the angle of the right side of the mandible.

There were two instances of *Marginella* shell beads placed at the side of the skull, numbering sixteen in one instance (Plate 8, Figure 1d) and twenty-three in the other. At the base of the skull of one burial there were twenty-three beads, of a species of small *Olivella* shell (Plate 8, Figure 1c). The beads in these three cases are also thought to have been used as hair ornaments.

POLISHED SPLIT-BONE AWLS

There were four instances in which polished split-bone awls were found in close association with the skull. The high polish and the posi-

¹ Identification by the Milwaukee Public Museum.



FIG. 1.—Near view of the discoidals shown in Plate 4, Fig. 2.

FIG. 2.—Anculosa shell beads associated with skull in a burial.

tion of the awls are suggestive that they also were used as hair ornaments, or it may be possible that they were utility pieces carried in the hair. They vary in length from 7 to 17.3 cm. One is double-pointed (Plate 8, Figure 1e), and the other three have expansions at one end that form rather definite bases. The base of one is decorated with two incised parallel lines (Plate 8, Figure 1f). In the collection of Mr. George Daugherty, there is a bone awl 19 cm. long with the same type of decoration. It is from a bluff mound near Grafton. With the same burial there was a highly polished, engraved, turtle-effigy gorget, 19 cm. by 10.5 cm. in dimension, made from a portion of a conch shell. It has two holes drilled in the upper edge for suspension and was accompanied by eight hundred fifty-two Anculosa beads.

HANDLED PIPES

Four of these pipes have been removed from the mounds so far excavated. Ten other similar pipes from the same and nearby localities are described so as to establish the type, and also because a total of fourteen handled pipes is all that has been located up to the present time from this area.

The pipes of this type are from 5.7 cm. to 18.8 cm. in height and most of them are made of limestone. The shape is roughly that of a long, narrow, inverted, blunt-pointed cone with a straight stem extending at right angles from the side at one-third to one-half of the way down from the base of the cone, which is the top of the bowl. The holes for the bowls have been drilled into the larger or basal portions of the cones and are 4.5 cm. to 7 cm. deep and average 2.5 cm. in diameter. The stems, from 2 cm. to 6.3 cm. long and from 2 cm. to 2.5 cm. in diameter, have been drilled so that the holes enter the bowls at their bases. The smaller portions of the cones below the stems represent the handles.

Ten plain, two effigy, and two unfinished pipes of this type are known. Three of the plain pipes and one of the effigies were found in our excavations, and the others were either plowed out of mounds by farmers or dug out by local collectors.

Burial No. 25, Mound 1, a male of about sixty-five, had a broken, plain, handled pipe (Plate 9, Figure 1d) at the angle of the right shoulder and the right side of the neck. The handle was broken off 3.5 cm. below the stem, and the stem was broken obliquely 1 cm. from the bowl. The outside measurement of the top of the bowl is 3.8 cm., and .5 cm. below the top the outside measurement is 3.2 cm. These meas-

urements indicate the very decided flange around the top of the bowl. The hole in the bowl is 6.4 cm. deep and 2.9 cm. wide, and the pipe with the broken handle is 10.3 cm. high.

Four inches beyond and a little below the top of the skull of burial No. 22, Mound 14, a male of about sixty-five, a human-effigy pipe was found (Plate 9, Figure 2). It is 11.5 cm. high. Rising from the front of the bowl and extending upward and outward, there is a sharply featured head 2.5 cm. in diameter. The hair is represented as parted in the center and brought down low upon the forehead with a knot above each ear. In the part of the hair and at the bases of the hair knots, there are traces of a red paint. Beginning at each side of the neck and extending all the way around the bowl just below the top, there is a groove 1 cm. wide and .3 cm. deep. This groove produces a very definite collar around the top of the bowl, except in the portion at the front occupied by the neck of the effigy. The front of the pipe is flat. Along each edge of the upper portion, the arms are worked out in relief with the forearms extending obliquely upward across the chest and grasping a shoulder-strap coming down each side of the upper chest. The shoulder-straps are worked out in relief, and the shoulders are represented by the lower portion of the deep groove beginning at each side of the neck. The effigy is holding an object in the right hand that somewhat resembles one of the plain, handled pipes. The thighs are worked out in relief at the edges of the lower portion of the front of the pipe. They are angled somewhat forward and the legs extend backward along the side of the bowl so that the effigy is in a kneeling position.

Over the lower chest and upper abdomen, there is something resembling an animal skin, hanging with the head down. The main portion of the skin is represented by a raised rectangular area, extending outward and downward from which there are numerous, closely parallel, incised lines. These are thought to designate the hair. At the lower end of the rectangle, there are two outward projections for the fore-legs and a downward triangular projection for the head. There is nothing to represent the tail of an animal at the upper end of the rectangle. However, down between the knees of the effigy there are three elevations, a small one on either side of a larger one, that suggest the hind legs and tail of an animal.

Inasmuch as the shoulder-straps are continuous with the upper corners of the animal skin, we may have represented an individual holding an animal skin in front of his body, the skin being folded a little in

front of its mid-portion so that the hind legs and tail hang somewhat lower than the forelegs and head.

The stem of the pipe is 2.5 cm. long and 1.9 cm. in diameter and comes straight out from the back of the pipe just below the center. The hole in the bowl is 5.1 cm. deep and 2.5 cm. in diameter. This pipe differs from the others of the type in that the long handle portion has been cut off 1 cm. below the effigy's legs.

Burial No. 2, Mound 25, an old adult male, had a small, plain, handled pipe over the back of the left wrist (Plate 9, Figure 1e). It is 8 cm. high and has a shallow groove .8 cm. wide just below the top of the bowl. The hole in the bowl is 2.9 cm. deep and 1.6 cm. across the top. The stem is different from all the others: instead of being round, it is broad and flat, similar to those of pipes from Ohio and Wisconsin, as shown by West². The stem, 1.7 cm. long, is wider than the pipe, and forms a slight ridge around the front and sides of the pipe. The drillings in both the bowl and the stem are quite crooked; that in the former breaking through the side of the bowl just above the stem, and that in the latter entering the base of the bowl at the side.

Burial No. 21, Mound 17, an adult male of about middle age, had a small handled pipe under the cervical spine (Plate 8, Figure 2). It is 6.4 cm. high and different from the others in that the handle is an elongated knob-like projection extending outward and downward from the junction of the bowl and stem of the pipe. There is a wide flange around the top of the bowl and the hole in the bowl is 3.9 cm. deep and 2 cm. wide at the top. The stem is 3.2 cm. long and is of interest because it has two holes drilled in it, one above the other. The upper hole connects with the bowl, and a portion of the original bone stem is in its outer end. The x-ray shows the bone stem to be inserted into the stem-hole 1.4 cm. The lower stem-hole does not connect with the bowl but passes approximately .25 cm. below it.

Eight miles below our excavations, Mr. Robert McPheron, while digging in the end of a small bluff mound, uncovered the burial of a male about forty-five years old, in extreme flexion on the back. With this burial he found the largest plain, handled pipe reported from the district (Plate 9, Figure 1a.) This specimen, 18.8 cm. high, was in contact with the left side of the skull at the level of the external meatus. The bowl of the pipe was toward the top of the skull and the stem was point-

² West, Geo. A., *Tobacco, Pipes and Smoking Customs of the American Indians*. Milwaukee Public Museum Bul., v. 17, 1934.

ing away from the skull. The outer surface of this pipe is considerably rougher than that of the others and does not appear to be finished; however, the drilling of the bowl and the stem is complete. There is a moderate flange around the top of the bowl, and the hole in the bowl is 7 cm. deep and 2.8 cm. in diameter at the top. The hole gradually tapers to approximate a point at the bottom, while the holes in the bowls of all the other pipes are practically of a uniform diameter throughout with the bottoms somewhat concave. Mr. McPheron also found fifty-eight *Anculosa* beads around the neck, and a broken split-bone awl under the skull of this burial.

Nine miles below our excavations, a plain handled pipe (Plate 9, Figure 1c) and a bird-effigy handled pipe (Plate 9, Figure 1b) were plowed out of a large mound simultaneously with the almost adentulous skull of a very old individual. The age is agreed to be eighty-one plus, but the sex is not definite. One anthropologist pronounces it male; another, female with a question-mark. The exact location of these pipes in relation to the skull is not known, but inasmuch as they were plowed out together it must have been close. The plain pipe is 12.6 cm. high with a slight flange at the top. The hole in the bowl is 4.8 cm. deep and 2.2 cm. in diameter. The stem is 3.8 cm. long and 1.6 cm. in diameter. The pipe was broken into three major portions by the plow and has been repaired. In the collection of Mr. H. F. Foersterling, there is a pipe 10.9 cm. high, similar to the one just described. It was dug from a bluff mound eight miles above Grafton, or six miles below our excavations, about twenty years ago.

The head of the bird-effigy pipe suggests the crow. The pipe is 16.3 cm. high, with the head rising from the front edge of the bowl which is moderately flanged at the sides and back. The head extends outward and somewhat upward and is 3.8 cm. long. The eyes are represented by small incised circles in each of which there is an incised dot at the center. The mouth is represented by a rather deeply incised line beginning low under the eye on each side and extending out to the end of the beak. The outer portion of the bowl is so shaped that the breast and wings of the bird are well represented by a ridge in front and a ridge on each side. The legs arise from the lower ends of the side ridges and are in low relief. No attempt has been made to work out the feet, but an elevation which represents them rests on top of what appears to be a human head at the mid-portion of the front of the pipe. Disintegration has eradicated all the facial features of the human head except the eyes and nose. The handle of the pipe is worked out in the

shape of a bird's tail over which the wings are shown in relief. The stem is 2.2 cm. long and diamond-shaped in cross section. It comes out of the back of the pipe at the center. The hole in the bowl is 6.3 cm. deep and 2.5 cm. in diameter. About one-fourth of the circumference of the top of the bowl, for a depth of .3 cm., was obliterated by the plow.

There is a small handled pipe made of grit-tempered pottery in the collection of Mr. H. F. Foersterling that was dug from a bluff mound two and one-half miles above Grafton. It was placed at the elbow of an adult flexed burial. This specimen is 5.7 cm. high. The top of the bowl is flanged, and the hole in the bowl is 3.5 cm. deep and 1.8 cm. across the top. The stem is 4.7 cm. long. This pipe is similar to the one found with burial No. 21, Mound 17, in that the handle is small and extends outward and downward from the junction of the bowl and stem.

One of the plain handled pipes (Plate 9, Figure 1*h*) is a surface find from Calhoun County, Illinois, and was picked up just a few miles across the Illinois River west of the Marquette State Park. It is 14 cm. high and badly weathered. There is a very slight flange around the top of the bowl, and the hole in the bowl is 5.7 cm. deep and 2.4 cm. in diameter. The stem of this pipe is 6.3 cm. long, the longest stem of any specimen under consideration, and is elliptical in cross section.

Two small pipes of this same general type have been found in which the stems are very short. One (Plate 9, Figure 1*g*) was found in the bluffs near Grafton, but whether it was a mound find or a surface find is not known. It is 8.5 cm. high and has a deep groove .8 cm. wide around the outside of the bowl, .4 cm. below the top. This groove is quite similar to the one in the human-effigy pipe. The hole in the bowl is 3.2 cm. deep and 2.8 cm. in diameter while the stem is only .6 cm. long. The other pipe (Plate 9, Figure 1*f*) is a surface find near the base of Mound 46 of the Cahokia Group (the Powell Mound which was razed in December of 1930), which is about forty miles southeast of the center of western Jersey County. This pipe is 8.3 cm. high with a slight flange around the top of the bowl. The hole in the bowl is 3.7 cm. deep and 2.2 cm. in diameter, and the stem is .6 cm. long.

In the paupers' section of the Centerville Cemetery, St. Clair County, Illinois, there is a low mound, and in digging graves the lower portions of the excavations pass through what appears to be an old refuse pit. Several years ago, the colored grave-digger threw out four unfinished pipes, two of which are of the larger plain handled type and two of indefinite types.

Three of these pieces were apparently discarded by their original owner on account of faults in the stone, and the fourth because it was broken in two through the bowl. They were recovered by Mr. Wm. E. Herrington of East St. Louis, and are now in his collection. Centerville is about fifty miles southeast of central-western Jersey County.

HAMMER STONES AND DISCOIDALS

Three pairs of hammer stones have been found in the mounds. They are circular or slightly oval in shape and range in size from 6.8 cm. by 7.5 cm. by 3.8 cm. to 8.6 cm. by 10.4 cm. by 5 cm. The first pair was found in Mound 7 on a limestone slab at the edge of a mass cremation. Both the hammer stones and the limestone slab show evidence of fire. The second pair was found in the upper portion of one of the individual cremations in Mound 14. Both show evidence of fire. The third pair was in Mound 26. They were not definitely associated with any of the mound features and show no evidence of fire.

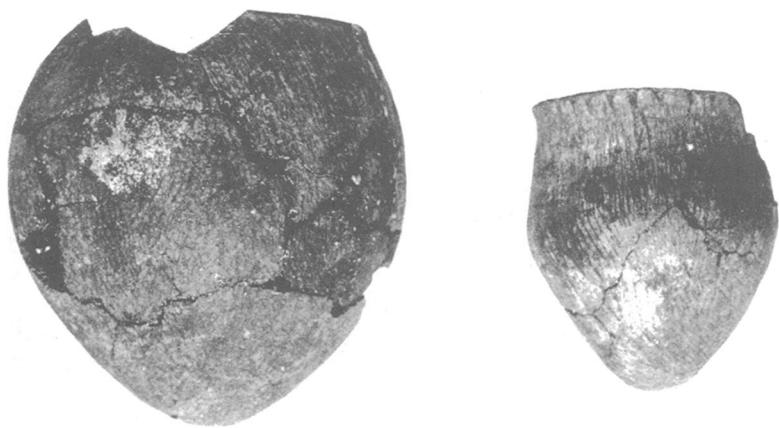
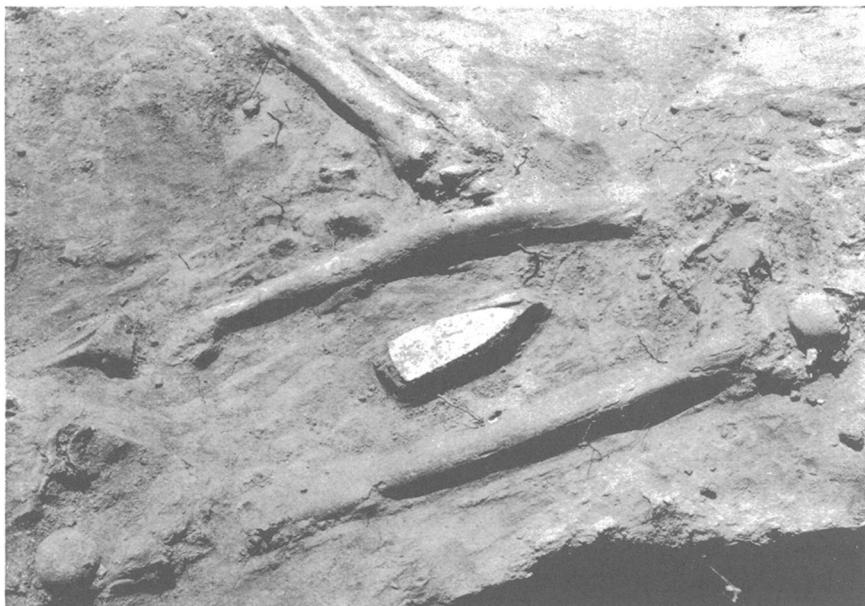
A pair of granite discoidals (Plates 4, Figure 2; 5, Figure 1) was found in Mound 38 just above the south end of a mass cremation. Small particles of charcoal were scattered around them but they showed no direct evidence of having been in a fire. One of the discoidals is of blue granite and very well made; it is 7.5 cm. by 4 cm. in dimension. The second is of gray granite and only fairly well made; it is 7.3 cm. by 3.5 cm. in dimension and has a crude cross made of numerous lightly incised lines in each depression.

Three small rough discoidals were found under a rather large limestone slab in Mound 14. They are made of limestone and the smallest is 3.4 cm. by 1.7 cm. in size. The other two are about the same size, one being 4 cm. by 2.1 cm. and the other 4.1 cm. by 1.9 cm. in dimension. The last specimen described has a cross in each depression made by two deeply incised lines that bisect each other at right angles.

MUSSEL SHELLS AND FRAGMENTS OF LIMESTONE

In all of the mounds excavated that contain burials, numerous un-worked mussel shells and small fragments of limestone were scattered promiscuously throughout and were not definitely associated with the burials.

When the survey of the group was made, there were eight elevations numbered as mounds, located between the upper ends of deep ravines in the side of one of the ridges. The numbers given them were 30, 31, 33, 34, 35, 36, 37, and 39 (Figure 1). From one-third to one-half



A

B

FIG. 1.—Triangular flint knife situated between femora in a burial. Four bone needles were found under the knife.

FIG. 2.—Conoidal-based cord-imprinted pots found in Mound 1.

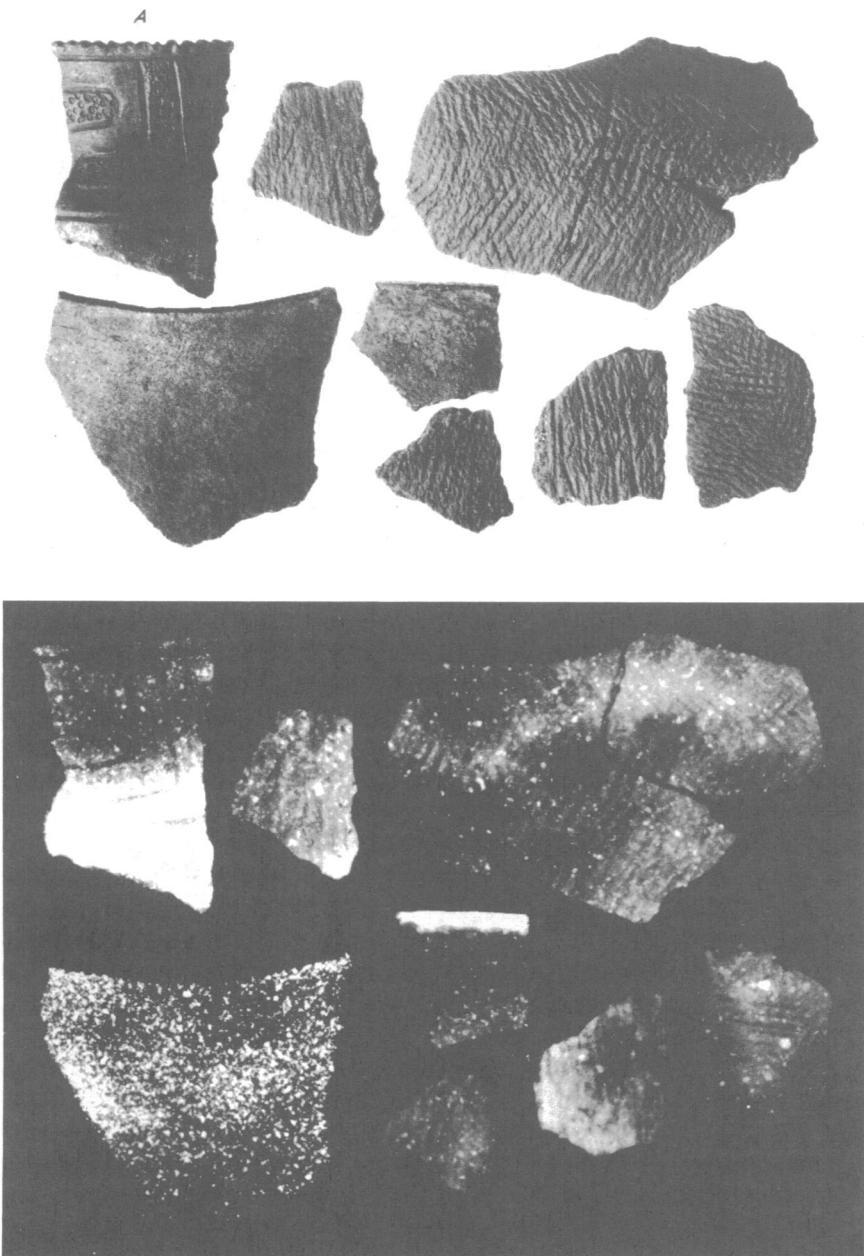


FIG. 1.—Potsherds from the mounds and adjacent village sites.

FIG. 2.—X-ray of potsherds shown in the figure above. The scattered white dots represent the grit-temper.

of all but No. 31 was removed and nothing was found. The mussel shells and fragments of limestone, so characteristically present in the material of these bluff mounds, were conspicuous by their absence, and the conclusion is that they are not burial mounds but are probably natural elevations between the ravines. This observation did prove of value in the case of Mound 18. We worked almost a day in this mound, and threw out numerous mussel shells and limestone fragments but found no burials. Feeling that burials were present, we started at the edge of the mound again and increased the depth of the excavation by two feet. We found that we had not gone deep enough the first time and had passed eighteen inches above the burials.

POTTERY

No pottery has been found with a burial. There are four instances in which sufficient fragments from one pot have been found in the mounds to permit a restoration of three-fourths or more of the vessel. Two of these are shown in Plate 6, Figure 2. One to three sherds were found in Mounds 14, 18, 32, and 38, and four sherds from a single pot were in Mound 22. Eleven sherds, representing four or five different vessels, were found in a small area in Mound 29. All of the pottery from the mounds is grit-tempered, and all but a few rim-sherds are cord-imprinted.

The four restored vessels have conoidal bases. Three are cord-imprinted and the fourth apparently has been marked with a blunt pointed instrument to resemble a faint and rather widely spaced cord-imprinting. The rims of three vessels are contracted, and the fourth is slightly flared above a somewhat contracted neck. The largest pot is 18.7 cm. high and the smallest is only 6.3 cm. high.

The four sherds from Mound 22 are different from the others and may be from a small water bottle. They are brown in color and of a very hard, smoothly surfaced ware, moderately tempered with a fine grit. The largest is a rim-sherd (Plate 7, Figure 1a) and is .3 cm. thick at the center of the rim and .6 cm. at the shoulder. The top of the rim is scalloped and there is a deep, smoothly incised line just below the top of the rim and another at the top of the shoulder. Between the two lines there is a reversed "L"-shaped design, 1.3 cm. wide, attached to the upper line and outlined by a deep, smoothly incised line. The inner portion of the design has been lightly stippled with a hollow instrument .2 cm. in diameter. There is enough of the pattern to suggest that possibly a similar but inverted motif rose from the line at the shoulder, so

that the horizontal portion of each "L"-shaped element lay above the horizontal portion of a reversed "L" in the uppermost row.

Eighty sherds have been picked up on village site No. 20. Seventy-two are grit-tempered, seven are shell-tempered, and one is "hole"-tempered. Forty-six of the seventy-two grit-tempered sherds are cord-imprinted; the others have smooth surfaces. The ware is rather coarse and lightly fired, and the tempering is quite variable, ranging from a small to a large amount of either a fine or coarse grit. The thickness of the sherds is .3 to .9 cm., the average being .5 to .6 cm. The shell-tempered sherds are heavily tempered with a finely pulverized shell, and two of them resemble the Cahokia material.

The heavy spring rains of 1935 cut a ditch about two feet deep through the lower end of village site No. 19. In one place this ditch apparently cut through a refuse pit, and twenty-three sherds of a large, cord-imprinted, grit-tempered pot were found. When assembled, these sherds form almost one-half of the upper portion of a pot, approximately 25 cm. across the opening at the top and 32 cm. across at its widest portion. None of the base was recovered, but from the slope of the sides the pot is thought to have been conoidal-based and probably 28 cm. to 30 cm. high.

OTHER ARTIFACTS

Numerous types of artifacts have been found, the occurrence of which has not been repeated a sufficient number of times to justify their inclusion as culture traits in any classified complex. On the surface of Mound 1, Mr. Isringhausen found two very fine, grooved, white limestone plumb bobs, and later a large, unfinished, granite plumb bob was picked up on the surface of the mound. During the course of the excavation, a grooved and an unfinished hematite plumb bob were found in one of the previously disturbed areas. None of the other mounds has produced any plumb bobs.

Two polished pendants, each made from one-half of a mussel shell, have been recovered; one (Plate 8, Figure 1j) was at the back of the neck of a child burial in Mound 24, and the other was in a previously disturbed area in Mound 14. A rough granite pendant was found eighteen inches above a burial in Mound 22. This area was badly disturbed, and the pendant probably had no connection with the burial above which it was located. A circular shell pendant was picked up on the surface of Mound 1.

The flint artifacts found in the mounds are listed under heading "VIII C." in the classification of culture traits

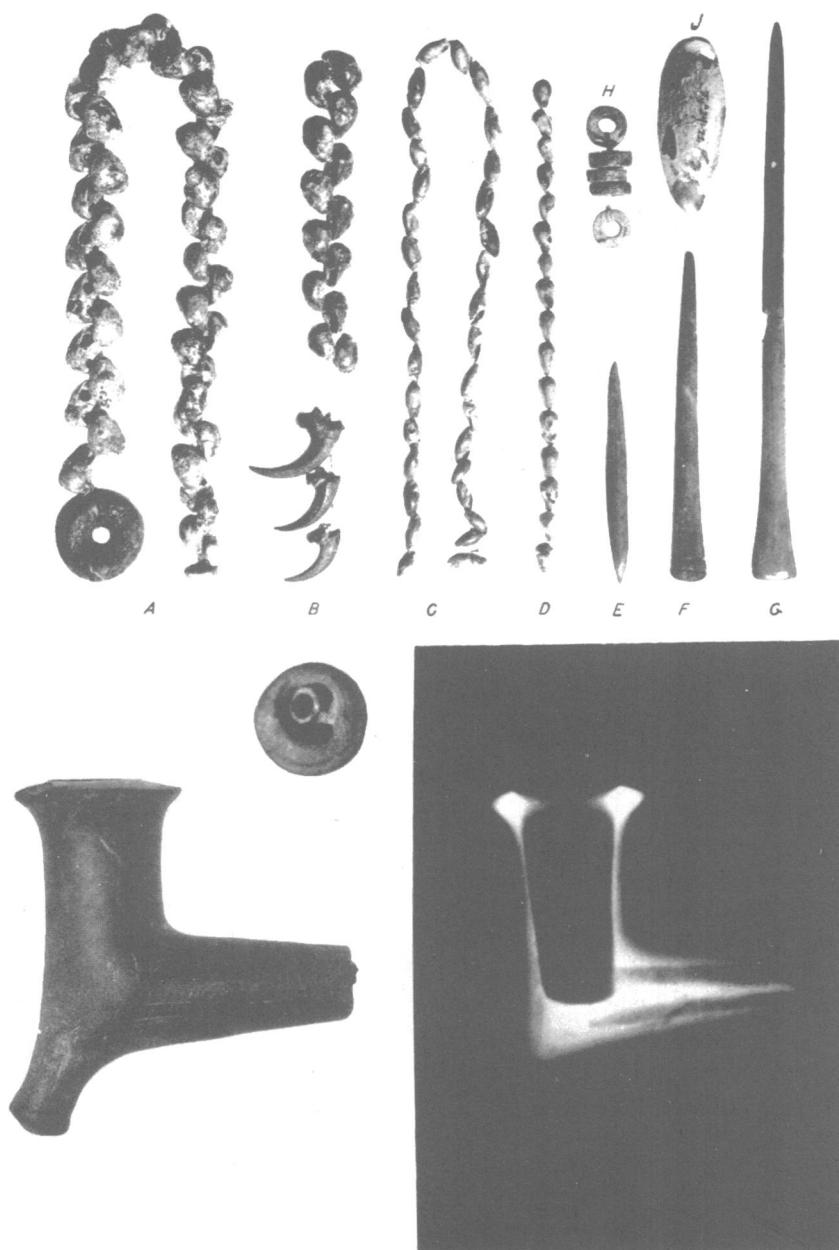


FIG. 1.—Shell and bone artifacts from the mounds.

FIG. 2.—Handled pipe containing a portion of original bone stem. The insert shows the end of the bone element and two stem holes. The x-ray shows that only the upper of the stem holes connects with the bowl.



FIG. 1.—Handled pipes.

FIG. 2.—Human-effigy pipe of the handled variety.

Two balls of red ocher have been found with burials. One was about the size of a walnut and located at the right costal margin of a burial, and the other was somewhat larger and located under the lumbar spine of a burial.

A fire-pit eighteen inches in diameter was found in the east-central portion of Mound 24. It contained masses of baked clay and charcoal and was not definitely associated with any of the other mound features.

DETAILED DESCRIPTION OF THE MOUNDS

Fifteen burial mounds have been completely excavated and one partially excavated, but no work has been done in the village sites. The largest mound removed was 82 ft. 6 in. long, 35 ft. wide, and 5 ft. 2 in. high, and the smallest was 33 ft. long, 17 ft. wide, and 2 ft. 6 in. high. The average mound is 50 to 60 ft. long, with a width about or somewhat less than one-half the length, and 2 to 4 ft. high. The long axes of all except Mound 1 are parallel to the long axes of the ridges.

All of the mounds excavated were composed of a loess which is the same as the soil of the ridges. There were no lens formations and the bases of the mounds were difficult to determine. The soil immediately below the base was usually more compact and slightly lighter in color.

The lowermost burials were placed on the original ground level with no definite arrangement in regard to each other or to the points of the compass. The burials above the base are irregularly placed so that there are no definite layers above the base line. About sixty per cent of the burials have been placed parallel to the long axes of the mounds, about thirty per cent at right angles, and the remaining ten per cent obliquely. No pit burials have been encountered.

Mound 1. A mound 67 ft. 6 in. long, 33 ft. wide, and 4 ft. high with the long axis east and west, at right angles to the long diameter of the ridge. Excavation was started on the south side and all of the mound was removed except a strip five feet wide along the north side.

Twenty-five burials were exposed: twenty-two flexed and three extended. There were no cremations and neither were there any limestone slabs in direct contact with the burials; however, there were numerous fragments of charred bone and several stone slabs in the previously disturbed area. The western three-fifths of the north half of the mound showed extensive disturbance, and many scattered bones were found throughout. Mr. William McAdams is known to have dug in this mound in the early eighties, and this is thought to be the location of his work.

Numerous artifacts were present. Two grooved, white limestone

plumb bobs, 7 cm. and 7.5 cm. long, an unfinished granite plumb bob 10.5 cm. long, and a circular shell pendant 3 cm. in diameter were picked up on the surface of the mound. In the previously disturbed area were found a grooved hematite plumb bob 6 cm. long, an unfinished hematite plumb bob 8 cm. long, and a broken, deeply corner-notched arrowhead 4 cm. long. Two hundred fifty *Anculosa* beads were found around the neck of an extended burial, No. 3; five small disc beads, at the front of the neck of an extended child burial, No. 10; and six small disc beads, under the chin of a flexed adult burial, No. 16. A broken handled pipe 10.3 cm. long was found at the angle of the right shoulder and neck of burial No. 25. The fragments of two broken pots (Plate 6, Figure 2) were found eighteen inches apart in the extreme west end of the mound. Enough fragments of each were recovered to permit fairly complete restorations, and the vessels were found to have conoidal bases and to be of a grit-tempered, cord-imprinted ware.

Mound 7. A mound 51 ft. long, 27 ft. wide, and 3 ft. high, with the long axis north and south. A few feet south of the center, there was a deep pit due to a previous disturbance. Beginning at the south end, the entire mound was removed except a section of the extreme north-east portion which was occupied by three medium-size trees.

A point sixteen feet north of the south end of the mound, three feet west of the long axis, was the center of a mass cremation which was five feet in diameter. It was on the mound floor at a depth of two feet ten inches. In it there were at least seven flexed burials some of which were placed on top of the others. The dirt around and above these burials was very hard and showed evidence of fire and the presence of considerable charcoal. At the southwest edge of the cremation, there was a limestone slab upon which there were two hammer stones, one on top of the other. In the hard dirt in the south end, there was a mud-dauber's nest associated with some charcoal.

Three feet four inches to the north of this cremation, there was a second cremation of three individuals: a flexed adult, a flexed baby, and the extended lower extremities of a child at puberty. The presence of baked earth and charcoal was again noted, and in addition there were two large limestone slabs at the east and west sides, respectively. The position of these slabs was such that they might have been used to hold in place the brush used to make the fire.

These two cremations were on the mound floor, separated by a space of three feet four inches. This space was directly under the pit in the top of the mound, and if all the skeleton of the child at puberty

had been present, the trunk would have been in this space. This suggests that originally a single large mass cremation existed, the center of which had been removed by previous excavators.

Two feet south of the western portion of the first mass cremation was the burial of a baby about fourteen months old. It was flexed on the back and had two hundred eighteen *Anculosa* beads around the neck and over the chest.

Mound 8. A mound 47 ft. long, 24 ft. wide, and 5 ft. 2 in. high with the long axis north and south. There was a large depression at the west-central portion, due to previous disturbance.

Starting at the south end with a ten-foot trench, the center of an area of charcoal and baked earth was encountered at about the center of the mound. It was no doubt a mass cremation, all but a small portion of which had been previously removed. In this area, there were charred bone, charcoal, and a fire-blackened, deeply corner-notched arrowhead 8.1 cm. long.

A fifteen foot cross-trench was cut through the center of the mound, and six feet east of the long axis, at a depth of three feet four inches, there were numerous uncremated adult bones. They were not in their normal relative positions, and may have been thrown in and covered by the previous excavators.

In the disturbed area under the large depression, two humeri, a clavicle, a calvarium, and a mandible were recovered. The northern third of this mound was left standing for a profile study by the University of Illinois.

Mound 9. A mound 33 ft. 2 in. long, 17 ft. wide, and 2 ft. high, with the long axis north and south. A ten-foot trench was cut through its entire length and all that was found was the lower legs of an uncremated burial.

Mound 14. A mound 82 ft. 6 in. long, 35 ft. wide, and 5 ft. 1 in. high. This was the largest mound in the group and was covered by nineteen medium-size trees. The long axis was east and west. The mound was located in a hog pasture and Mr. Saeger, the owner of the farm, kindly allowed us to shut the hogs up for two nights so that the burials exposed could be left in place. This was done so that we would be able to show the material to Mr. Thorne Deuel and associates from the University of Chicago, and to Dr. Walter Jones and associates from the University of Alabama, who spent a day with us.

This mound produced burials of several different types, both cremated and uncremated. There were twelve that were cremated: two

individual cremations and one mass cremation of ten individuals. Thirty-three were uncremated: twenty-one adults and twelve children and infants. Four adult and seven child burials, of which one each was a compound burial, were covered with limestone slabs. In all four of the adult and three of the child burials the slabs were in piles, and in four of the child burials single slabs had been used. With thirteen of the adults and five of the children, no slabs had been used.

Numerous artifacts were recovered, the most common being the Aculosa shell bead. One hundred forty-five of these beads were around the neck of burial No. 8, fifty-five at the left side of the head of burial No. 27, thirty-six under the chin of burial No. 31, and thirty-eight on the left frontal area and left side of the skull of burial No. 34. There were twenty-three Marginella shell beads at the top of the left side of the skull of burial No. 33. A split-bone awl, 17.3 cm. long (Plate 8, Figure 1g) was found just beyond the top of the skull of burial No. 33, and a double-pointed split-bone awl, 7 cm. long (Plate 8, Figure 1e) was found on the front of the left shoulder of burial No. 34. A blackened flint pick 14 cm. long was found in the mass cremation, and two hammer stones of average size were found just above burial No. 17, one of the individual cremations. Three small, rough discoidals had been placed under a large limestone slab somewhat removed from the mass cremation. They showed no evidence of firing. In a previously disturbed area near the west end of the mound, a fragment of worked shell and the bowl of a broken pottery pipe were found. The pipe was of the "L" type with the stem projecting a short distance beyond the front of the bowl. The most interesting artifact was the human-effigy pipe with burial No. 22.

The prominence of this mound had subjected it to the attacks of many relic hunters. All through it many disturbed areas were encountered and most of our material was obtained from around and under the numerous trees.

Mound 17. A mound 72 ft. 6 in. long, 28 ft. wide, and 5 ft. high, with the long axis north and south. This mound is on the summit of a ridge one side of which has been under cultivation for over fifty years and the measurements are only approximate. Excavation is not complete, only about seventy-five per cent of the mound having been removed up to the present time.

Twenty-one burials have been uncovered, of which only ten were associated with limestone slabs. There was one adult under a pile of slabs, and another adult had a large single slab over the chest. Four of

the remaining eight slab burials were of children of which only a few teeth and an occasional bone fragment remained; and nothing remained under the other four piles or layers of slabs. The extreme disintegration of the skeletal material is thought to be due to the fact that all of these burials were less than one foot below the surface, and to the long time that the mound has been under cultivation. The eleven burials not associated with slabs were divided into five flexed infants and six flexed adults. The skull of burial No. 6 was scattered throughout an area two feet in diameter, and twelve small shell disc beads .8cm. in diameter, were found in the area around the skull. Burial No. 10 was that of an infant and thirty-seven Anculosa beads were found over the chest and neck.

Burial Nos. 18, 19, 20, and 21 made up a compound burial of four adults all of which appeared to be males. Three were in a row, placed very close together and partially overlapped, with the heads to the east, and the fourth had the head to the south with the lower extremities over those of the southernmost of the other three burials. This burial had a large, single, limestone slab over the chest, and a small handled pipe (Plate 8, Figure 2), with a portion of the original bone stem remaining in the stem-hole, was found immediately under the lower cervical spine.

Mound 18. A mound approximately 51 ft. long, 20 ft. wide, and 4 ft. 2 in. high, with the long axis north and south.

A total of eight flexed burials was found, of which only four were associated with slabs. There was a compound burial of two adult males and one adult female. The males were side by side with the heads to the north, and the head of the female was to the south; the lower extremities of all three overlapped. A large limestone slab was placed on edge at each side of the chest of the female, and there were smaller slabs piled over the abdomen and pelvis. A child about four years old had a slab erected on edge at each side of the trunk and one at right angles to these two at the head. There were no slabs over the lower extremities. The head and trunk of a child about six years old were covered by a layer of good-sized flint pieces. This burial also failed to have the lower extremities covered. There was an infant burial, the bones of which were scattered between four slabs that were very close together and in a tilted position. The seventh burial was that of an adult male, found at a depth of six inches, with the skull and cervical spine missing. The eighth was that of a child about four years old that had an extensively diseased process of the middle third of the right ulna. No artifacts were found in this mound.

Mound 22. This mound had been so badly disturbed by previous digging that nothing more than its northwest to southeast direction could be determined. Originally, it was not over 60 ft. long, 30 ft. wide, and 3 ft. 6 in. high.

Notwithstanding this extensive disturbance, three undisturbed burials were found. One was in complete flexion on the left side and two were extended on the back with the skulls lying over the chest, suggesting a possible decapitation. Among the previously disturbed materials there were two fairly good skulls and a right radius showing an old, healed Colles fracture.

A rough granite pendant 8 cm. long was found in a disturbed area eighteen inches above one of the extended burials. In the same area were four sherds from a water bottle, one of which is shown in Plate 7, Figure 1a, and a bead made from a small Olivella shell.

Mound 24. A mound 61 ft. 9 in. long, 27 ft. 6 in. wide, and 4 ft. 6 in. high, with the long axis extending northwest to southeast. It was located out on the end of a high ridge with very steep sides.

A total of twenty-nine burials was uncovered: seventeen adults and twelve children. The only new burial features were exhibited by two that were disposed on the face with the lower limbs flexed back on the thighs. Only one burial was found to be covered with limestone slabs. These were arranged as a layer rather than a pile, four inches above which was a compound burial of a flexed male and a flexed female. There were no cremations.

Several artifacts were found. Twenty-three shell beads of a species of a small Olivella were at the right occipital region of burial No. 4; the points of two split-bone awls and a portion of a *Fulgar perversa* shell were under the skull of burial No. 11; two pieces of red ocher were respectively with burials No. 7 and No. 23; a small shell pendant 5.5 cm. long was under the neck of burial No. 22; a straight-stemmed flint knife 9.5 cm. long was over the lower dorsal spine of burial No. 26; and a cylindrical shell bead 4 cm. long was at the right side of the mandible of burial No. 27.

A fire-pit 18 inches in diameter, containing charcoal and masses of baked clay varying from the size of a walnut to the size of a closed fist, was found at about the center of the southeast quarter of the mound. It was not close to any burials and contained no outstanding features.

Just a few feet north of the center of the southeast half of the mound a small broken pot was found. It is 6.3 cm. high, the smallest of the four that have been recovered. It is a thick, scantily grit-tem-

pered ware, with a conoidal base, and made of a brick-red clay. Its markings suggest a faint and widely spaced cord-imprinting. At one point there is a rather sharp angle in the rim.

Mound 25. A mound 27 ft. 10 in. long, 17 ft. 6 in. wide, and 3 ft. high, with the long axis north and south. Four burials were found in the area measured as the mound. The ridge to the north of the mound was very steep and it was trenched for a distance of fifteen feet. Three more burials were located in this ridge and for convenience are included here.

The four burials in the mound proper were flexed. Burial No. 1 had been badly disturbed, only the skull, cervical spine, and shoulders remaining. Burial No. 2 was an adult male and had a plain handled pipe (Plate 9, Figure 1e) 8 cm. high, over the back of the wrist. This is the only pipe that has been found in these mounds that has a wide flat stem similar to those of handled pipes found in Ohio and Wisconsin. Burial Nos. 3 and 4 represented a compound interment of an adult and a child flexed on their left sides, the child placed immediately back of the adult.

In the ridge to the north of the mound, one of the burials was that of a child about five years old. It was extended on the back and had forty-five *Anculosa* beads and one small cylindrical shell bead scattered promiscuously over its entire length. One of the other burials outside of the mound was that of an adult male in extreme flexion on the back. The skull was badly crushed and parts of it were missing. A small arrowhead was found imbedded in the posterior portion of the right side of the body of the twelfth dorsal vertebra. It apparently had passed upward from the left side obliquely through the neural canal. The third burial was that of a young adult female flexed on the right side.

Mound 26. A mound 35 ft. long, 23 ft. wide, and 3 ft. 6 in. high, with the long axis north and south. A year ago a four-foot trench was cut crosswise through the center of this mound and a few fragmentary child bones and an expanding-stemmed arrowhead 7.5 cm. long were all that were found. Since Mound 25 had been quite productive, it was thought advisable to remove all of Mound 26.

Six adult human burials and an intrusive dog burial were found. Burial Nos. 1 and 2 represented a compound disposal of two adult males extended on the back, with an extra humerus and the bones of an extra leg in their normal relationship placed between the two. Burial No. 3 was a pile of bones situated above the lower extremities of burial No. 1. It is not thought to be a bundle burial because some of the

vertebrae were in their normal alignment. Between the femuri of burial No. 1, there was a triangular knife 10 cm. long and 4.2 cm. wide at the base. Under the knife there were four slender bone needles approximately 7.5 cm. long. They were badly disintegrated, and an attempt to save them was unsuccessful. Burial No. 4 was that of a young flexed adult encountered at a depth of 2 ft. 6 in. Directly above it, at a depth of 11 inches, there were two hammer stones placed one above the other; these stones were not associated with any definite mound feature. Burial No. 5 was that of another young flexed adult of which the greater portion of the spine was missing. The dirt in this area and behind it was quite loose and contained many small roots. This loose dirt was removed exposing an irregular pit in the bottom of which was the skeleton of a large dog surrounded by many small fragments of a badly disintegrated gunnysack. Burial No. 6 was that of an adult male flexed on the right side. There were many small fragments of charcoal around the head and shoulders, and there was a charred mud-dauber's nest in contact with the left side of the skull, but the skeletal material showed no evidence of cremation.

Near the surface of the south end of the mound, a large bead 4.5 cm. long, made from a marine shell, was found. The ridge at both ends of this mound was quite steep and was trenched for a distance of fifteen feet, but nothing of interest was found there.

Mound 27. A mound 30 ft. in diameter and 2 ft. 6 in. high located on a short spur extending out from the main ridge. A 10 ft. trench was dug north and south and another east and west; the excavations at the center of the mound were additionally enlarged.

Two burials were found. The first was that of an old adult female in extreme flexion on the right side, and the second was of a young adult male flexed on the right side. Burial No. 2 had an extensive diseased process of the bones forming the right elbow. There were no artifacts in this mound.

Mound 28. A mound 35 ft. 5 in. long, 20 ft. 3 in. wide, and 3 ft. high, with the long axis north and south, containing a total of eight burials. Three of these were slab burials. Two were of infants: one was covered by a large pile of slabs and the other was immediately in front of a large pile of slabs. The third was an extended burial that had slabs placed on edge at each side, the edges of the slabs overlapping shingle fashion. There was an extended male burial that had a pile of bones above the lower legs, similar to that found with burial No. 1, Mound 26. The pile of bones is not looked upon as a bundle burial because

some of them were found in their normal anatomical relationships. The remaining four burials were of two flexed adults and two flexed infants of the usual type. There were no artifacts in this mound.

Mound 29. A mound 38 ft. long, 20 ft. wide, and 2 ft. 6 in. high, with the long axis north and south. The southern two-thirds of this mound was completely riddled by relic hunters two years ago.

In the northern third there were two flexed burials, one of which had been disturbed, only the lower extremities remaining in their original positions. The left radius of this burial showed a healed Colles fracture and the right clavicle showed a healed fracture at the junction of the outer and middle thirds.

Ten feet south of the north end of the mound, midway between the top and the base, eleven grit-tempered potsherds, representing four or five different pots, were found in an area eighteen inches in diameter. All were cord-imprinted except one rim sherd. One foot south of the sherds, seven unworked mussel shells were found at a depth of 2 ft. 2 in. The lengths varied from 5.5 cm. to 13.7 cm., and they were fitted one into the other so that the largest one was on the bottom and the smallest on top. On the mound floor just to the east of the sherds and the shells, there was an irregular red area 2 ft. in diameter that appeared to be fired clay. It was two inches thick. There was no charcoal either above or below it.

Mound 32. A mound 50 ft. long, 20 ft. wide, and 3 ft. high with the long axis east and west. The owner of the land upon which this mound was located had sold digging rights to relic hunters while my own excavations were being carried on, with the result that the mounds on this farm have been badly mutilated. When this was called to my attention, the whole top of Mound 32 had been disturbed to a depth of eighteen inches, and in three places, to the base. It was thought advisable to finish the mound before winter set in. As it was impossible for me to be present at the time, the men who have assisted in my excavating went through the mound at my request with the idea of salvaging what they could.

Eleven flexed burials were encountered, of which only three had not been recently disturbed. One of the undisturbed burials was that of an adult male (burial No. 7) and had thirteen large Anculosa beads and three small eagle or large horned owl claws at the left side of the skull (Plate 8, Figure 1b). The second was a child of between four and five (burial No. 8) and had forty-three large Anculosa beads and a large limestone disc bead around the neck (Plate 8, Figure 1a). The third

was that of an adult male (burial No. 9) and had a split-bone awl 10.8 cm. long (Plate 8, Figure 1*f*) at the left side of the base of the skull.

Of the remaining eight burials, all of which were disturbed, five were of adults and three were of children. Seven Aunculosa beads were placed around the skull of one of the adults. A large cord-imprinted, grit-tempered potsherd was found in the east end of the mound. It is reported that several good skulls, two bone awls, and quite a few Aunculosa beads were found by the relic hunters.

Mound 38. A mound 56 ft. long, 20 ft. wide, and 3 ft. 6 in. high, with the long axis north and south. The ridge upon which this mound was located has a definite drop to the north, so that the south end of the mound was approximately four feet higher than the north end. There was a total of twenty uncremated burials, eighteen flexed and two extended, and at least twelve individuals in a mass cremation.

Only one burial was definitely associated with stone. It was the burial of a child about two years old, around each end and one side of which a semi-circular wall had been built of rough stones. Most of these were of a poor grade of flint and there were a few each of limestone and granite. They varied in size from that of a golf ball to almost a foot in diameter. The child was flexed on its left side, facing the wall, the opening in the wall situated at the back. The arch of the superior maxilla of the child was high and the front teeth protruded, a deformity very similar to that seen in thumb-sucking children of today.

Just beyond the top of the skull of a young adult female extended on the back, there was a stone cist 18.5 in. in diameter and 9 in. deep. It was composed of nineteen flint rocks and two of limestone, each about the size of the two fists. Nothing was found in or around the cist.

Of the remainder of the uncremated burials, two represented a compound interment of two flexed children, and three a compound burial of two flexed children and a flexed adult male.

The mass cremation (Plate 4, Figure 2) was on the mound floor. It was 8 ft. 7 in. in dimension north and south, and 7 ft. 8 in. east and west, and its center was 16 ft. south of the north end of the mound. The soil for 12 in. above the burials was from yellow to brick-red in color and contained a large quantity of charcoal, mostly in minute particles. There were two flexed and two extended adult individuals and at least eight children, as determined by the mastoid count. The heat in the north-central area had been the most intense, and the bones there were gray in color and quite fragmentary. The adults were in the outer margins and the bones were black and not as badly broken.

At the south edge of the mass cremation, well down in the discolored soil, there were two discoidals (Plates 4, Figure 2; 5, Figure 1) that showed no evidence of having been in the fire. One was in the horizontal position and the other was in the oblique position at a slightly higher level. They were one inch apart.

There were three large areas of recent disturbance in the mound and all contained scattered skeletal material. In the undisturbed portion at the edge of one of the disturbed areas, there was an imprint of a skull around which eighty-one Anculosa beads were recovered. Two and one-half feet south of this point, at the edge of the same disturbed area, the lower spine, pelvis, and a femur of an infant were found, and under the pelvis there were twenty Anculosa beads.

Two hundred eight Anculosa beads were found at the left side of the skull of burial No. 9, a young adult male with lower extremities flexed, and one hundred eight Anculosa beads were found at the left side of the skull of burial No. 11 (Plate 5, Figure 2), an adult female extended on the back. Burial No. 8 was that of a flexed adult male. Four inches above the center of the left chest, there was a split-bone awl, 14.2 cm. long, under the larger end of which there were four small disc shell beads. Lying parallel to and against the right side of the upper dorsal spine of this individual, there was an unworked antler tip 6.5 cm. long.

Two small grit-tempered, cord-imprinted potsherds were found in the south end of the mound.

SKELETAL MATERIAL

The condition of the long bones is usually good while that of the spongy bones is poor, comparatively speaking. The vertebrae are in the poorest state of preservation, followed by the pelvis, scapulae, and ribs, in the order named. The material is usually poor when found in or adjacent to a disturbed area, and the bones of the children are quite poor, only two child skulls permitting reconstruction.

The skulls and greater portions of the skeletons of fifty-five adults have been preserved. Ten of the skulls have been restored and the degree of accuracy is doubtful. The others are in good condition. There were thirty skulls, both adult and child, that were broken and the fragments so warped that reconstruction was unsatisfactory or not even attempted. The maxillae and mandibles of these were saved as dental specimens.

The teeth of the children and young adults are usually in good con-

dition, showing only the earlier stages of attrition. After this age, pathology is more prevalent. The latter stages of attrition are seen; also many instances in which teeth have been lost before death and in which there is a complete healing of the alveolar process. Abscessed teeth are quite common, one individual having had at least twelve. Caries is present but it does not occur as frequently as might be expected. In seventy adult specimens there are thirteen instances that are thought to show a congenital absence of one or more of the third molars. No impaction of a third molar appears in the series. There are two instances of a supernumerary tooth, one of which is erupting through the floor of the nose. There are numerous dental pearls.

Admitting that abscessed teeth are one of the causes of hypertrophic arthritis, it is not surprising that this condition is found in abundance. Small spurs are found on the vertebrae of individuals as young as thirty, and on the older individuals very large spurs are seen. There is one case of fusion of the fifth lumbar vertebra and sacrum, and another of a very extensive involvement of the sacro-iliac joints with fusion of the right. Arthritic involvement of other joints, especially the knee, appears several times. There is one instance that is thought to be a destructive arthritis of the right elbow of a young adult male.

In six individuals, five male and one female, there is a very extensive periostitis of the tibiae and fibulae and, to a lesser extent, of the bones of the forearms. The tibiae show the most involvement and have become so thickened that almost all evidence of normal bone has been lost. There are two individuals in which there is a marked increase in the anterior bowing of the tibiae, but apparently very little change in the normal bone structure. It is of interest to note that three of the four handled pipes found in the mounds in this excavation were with burials showing the periostitis, and the fourth with one of those showing the increased anterior bowing of the tibiae. The significance, if any, of this observation has not been determined.

Numerous healed fractures are present in the series. The most interesting is a fracture of the right femur at the junction of the middle and distal thirds of the shaft. There is a very firm union with three inches over-riding and with no lateral displacement of the fragments. There is a fracture of a humerus at the insertion of the deltoid muscle; two fractured clavicles, the fractures situated at the junction of the middle and outer thirds; and two ulnae with fractures in the distal ends of the shafts. The position of fragments in these five fractures is good. There is a fracture in the distal head of a radius in which the position

is very poor, and another in which the position is only fair. There is a compressed fracture of a twelfth dorsal vertebra, the compression equal to approximately sixty per cent of the normal thickness of the bone. A skull of an old male has a comminuted fracture in the right side of the upper portion of the occipital bone and the lower posterior portion of the parietal bone. One branch of the fracture extends down through the base of the mastoid process, through the auditory canal, obliquely forward across the base of the skull, and on through the left side of the sphenoid. There is no depression. Dr. Robert J. Terry of the Department of Anatomy, Washington University School of Medicine, is of the opinion that this fracture occurred at about the time of death.

There is a mandible in which the right ramus, angle, and mandibular notch are shortened. No fracture line is demonstrated, but it is thought that the condition might be due to an injury in childhood with under-development. This under-development could have been caused either by a fracture or a soft tissue injury in which there was a large, contracted scar. The same type of deformity, but not as extensive, is seen in a second skull. A pronounced malocclusion of the teeth on the left side, especially in the incisor, cuspid, and bicuspid areas, is present. Another skull shows an extensive bony overgrowth in the upper portion of the nose, especially the left side. The septum has been included and is deviated markedly to the left.

Two congenital conditions have been found: there is one instance of a unilateral sacralization of a transverse process of a fifth lumbar vertebra, and another of a bilateral sacralization. There is one instance of a spina bifida occulta in which none of the sacral segments is closed.

Mr. Georg K. Neuman of the Anthropological Department, University of Chicago, has studied fourteen of the skulls from Mounds 1 and 14, and a calvarium from Mound 8. His preliminary report follows:

"In Illinois, we probably deal with four or five physical types of American Indians which seem to follow one another in a fairly definite sequence, as far as archaeological horizons are concerned. One of these types temporarily designated as type B is often associated with the basic Woodlands culture in this state. It appears in the earlier burials (however, this may not apply to the burials of the Central Basin phase, the Illinois variant of the Hopewell) and later appears again in late prehistoric times. Here we probably have a reinvasion of Woodlands culture peoples after the Middle Mississippi phase occupation. Type B has been found at the Gooden Mounds (Tampico site near Lewistown, Illinois) and several other sites that have been excavated by the De-

partment of Anthropology of the University of Chicago in Fulton County, Adams County, Jersey County, etc. Skulls from one culture horizon in a site, or in some cases from a mound, are treated as a unit; there is no selection of types from within one group as yet.

"The Jersey County group of skulls from Mounds Jy 1, Jy 8, and Jy 14 belongs to the physical type that has been temporarily designated type B. So far very little of the material from the different culture horizons of Illinois has been worked over, hence there is little to which we can compare the Jersey County material." There follows a brief discussion of some measurements and indices as well as some observational data to give an idea as to what the Jersey County skulls are like. The indices have been worked out on the slide rule, and are therefore only approximately accurate. It must also be borne in mind that this group of skulls is very small statistically speaking; the data have to be used with care, as they might not be entirely representative.

"*The Cranial index* for fifteen skulls of both sexes ranged from 70.3 to 78.4, with the exception of a male skull (80.1) which showed some cradle-board deformation. Males 72.8 to 77.1; females 70.3 to 78.4. The arithmetic mean for the whole group of fourteen skulls is 74.4; that is, the skulls are dolicho-cranial or long-headed. In this respect, the group checks fairly well with the other Woodlands groups, especially the Tampico series. The mean of the cranial indices of the Indians of the Middle Mississippi phase will probably fall somewhat higher, and those of the Upper Mississippi levels from the Fisher site (Langford) are brachi-cranial or round-headed.

"*The Nasal index* for fourteen skulls of both sexes ranges from 43.9 to 55.8, with the mean falling at 50.25, which makes the group mesorrhine or "medium nosed," but on the border of being chamaerrhine or "broad nosed." The nasal index of the skulls from the Tampico site also falls into this category.

$$\text{"The Facial index} = \frac{(\text{Nasion-gnathion length} \times 100)}{\text{bzygomatic width}}\text{."}$$

In the width of the face (across the cheek bones = zy to zy) the skulls range from 123 mm. to 152 mm., from quite narrow to broad, with an average width of 135 mm. which is about medium considering races from all over the world. Generally, the American Indian is considered to have very wide cheek bones; here then is a group that is rather intermediate in this respect. The same applies to the facial index which ranges from 70.0 to 92.1 with the mean of 86.4, which makes the group

mesoproscopic. In this trait the Jersey County and Tampico site group again check very closely.

"*Observational data.* Occipital: Development of the external occipital protuberance, slight to medium. No marked development of the superior nuchal lines. Foramen magnum elliptic.

Parietal: Parietal eminences medium in development. None of the skulls show praelambdoidal flattening.

Frontal: Supraorbital ridges of the mesa-like type (as contrasted with the undulating type): they are medium in size. Upper orbital margin blunt. Glabella rounded. Fronto-nasal junction generally beetling. Frontal eminences weakly developed.

Temporal: Mastoid processes fairly heavy.

Maxillae: Paraboloid palate of medium depth. Shallow canine fossa.

Nasals: Rather high nasal bridge. Back of the nose straight or convex (double curve) indicating a straight or aquiline nose; none of the flat low type. Inferior margins of nasal aperture neither troughed nor sharp.

Orbits: Mesocnch (neither long and low nor high in their proportions).

Mandibles: Well developed chin of the Caucasoid type; 'square.'

Teeth: Shovel-shaped incisors to a fairly high percentage.

Prognathism: Moderate amount.

Occipital view of skull: Pentagonal shape: 'house-shape.' "

CONCLUSIONS

The archaeological evidence in western Jersey County indicates the presence of three and possibly four cultural manifestations. It can be said with a fair degree of certainty that Cahokia is represented, and definitely that a "Hopewell" variant exists. The bluff mounds present are not thought to be connected with Cahokia because no Cahokia type artifacts have been recovered from them. No "Hopewell"-like artifacts have been found in the bluff mounds excavated in this work, but there are several known instances in which they have been found in bluff mounds in the southern third of the county. The slab-covered mass burials in the low ridges between the river bottom and the base of the bluffs may be a fourth cultural manifestation but cannot be definitely classified at this time because no reliable data concerning them are available. One of these burials has been located in Jersey County and another in Greene County, but not until after they had been so badly disturbed that they were of very little value scientifically.

From the close proximity of Jersey County to the Cahokia Mound Group, about thirty miles, it is not surprising to find traces of Cahokia in the county. The University of Chicago has found mounds of a "Hopewell" variant in Fulton County, which is on the Illinois River, and the Missouri Historical Society has found a "Hopewell" variant at Montezuma, about fifty-five miles above the mouth of the Illinois River; so again it is not surprising to find traces of a "Hopewell" variant in Jersey County near the mouth of the river. The cultures that built the bluff mounds and made the slab-covered mass burials at the bases of the bluffs, if they can be considered as separate and distinct cultures, have not been accounted for; but, considering the geographical location of the county, the presence of more than one culture would be the natural expectation. The several cultural manifestations make the area an important archaeological local site and one that will necessitate a large amount of scientific work before each culture can be properly placed and their relationships, if any, determined.

The cultural traits found in the bluff mounds have been divided into three groups: those that favor a northern or Woodlands culture, those that favor a southern culture, and those that have not been classified. The grit-tempered, conoidal-based pottery, Anculosa beads, flexed burials, and cremations are basically Woodlands: while the Marginella, Olivella, disc, and cylindrical shell beads; split-bone awls; discoidals; and the few extended burials are southern. The traits that have not been classified are the handled pipes, hammer stones, compound burials, and burials covered by piles or layers of stone. More work will be necessary before this complex group of traits can be correlated and the culture of the bluff mounds determined.

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