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Certain Sand Mounds

OF

DUVAL COUNTY, FLORIDA

TWO MOUNDS ON MURPHY ISLAND, FLORIDA

CERTAIN SAND MOUNDS

OF THE

OCKLAWAHA RIVER, FLORIDA

BY

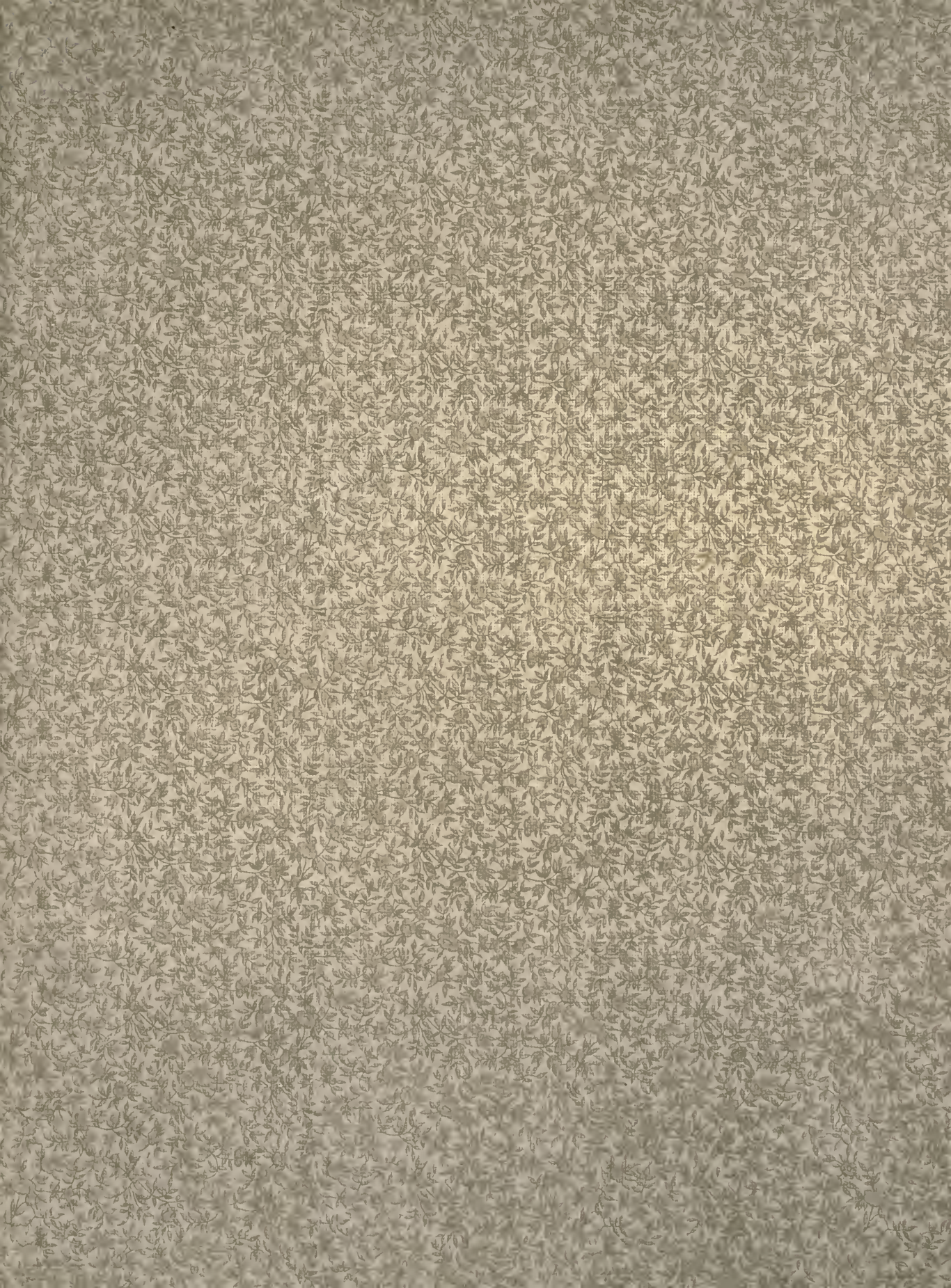
CLARENCE B. MOORE

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Gentlemen,

I take pleasure in
sending to you a number
of my reports of investiga-
tion of mounds in the southern
United States, conducted by
me. The reports sent you in-
clude everything I have pub-
lished in the subject with the
exception

"Certain Sand Mounds of the St Johns
River, Florida," Parts I and II.

"Aboriginal Mounds of the Coast
of South Carolina" etc.

I am entirely out of these
reports though I believe the
Academy of Natural Sciences,
which publishes my work
has them.

I am sending also
five copies of papers relating
to a recent discussion as to
morind copper. Kindly put
one or two of these in your li-
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to persons interested in ar-
cheology in your university
I have more of these should they
be desired.

Very truly yours

Charles B. Moore



GRANT MOUND.
[FROM SKETCH AND PHOTOGRAPH.]

Certain River Mounds of Duval County, Florida.

Two Sand Mounds on Murphy Island, Florida.

Certain Sand Mounds of the Ocklawaha River, Florida.

By CLARENCE B. MOORE.

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FROM ADVANCE SHEETS OF THE JOURNAL OF THE ACADEMY
OF NATURAL SCIENCES OF PHILADELPHIA, VOLUME X.

PHILADELPHIA, 1895.



PHILADELPHIA:
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PREFACE.

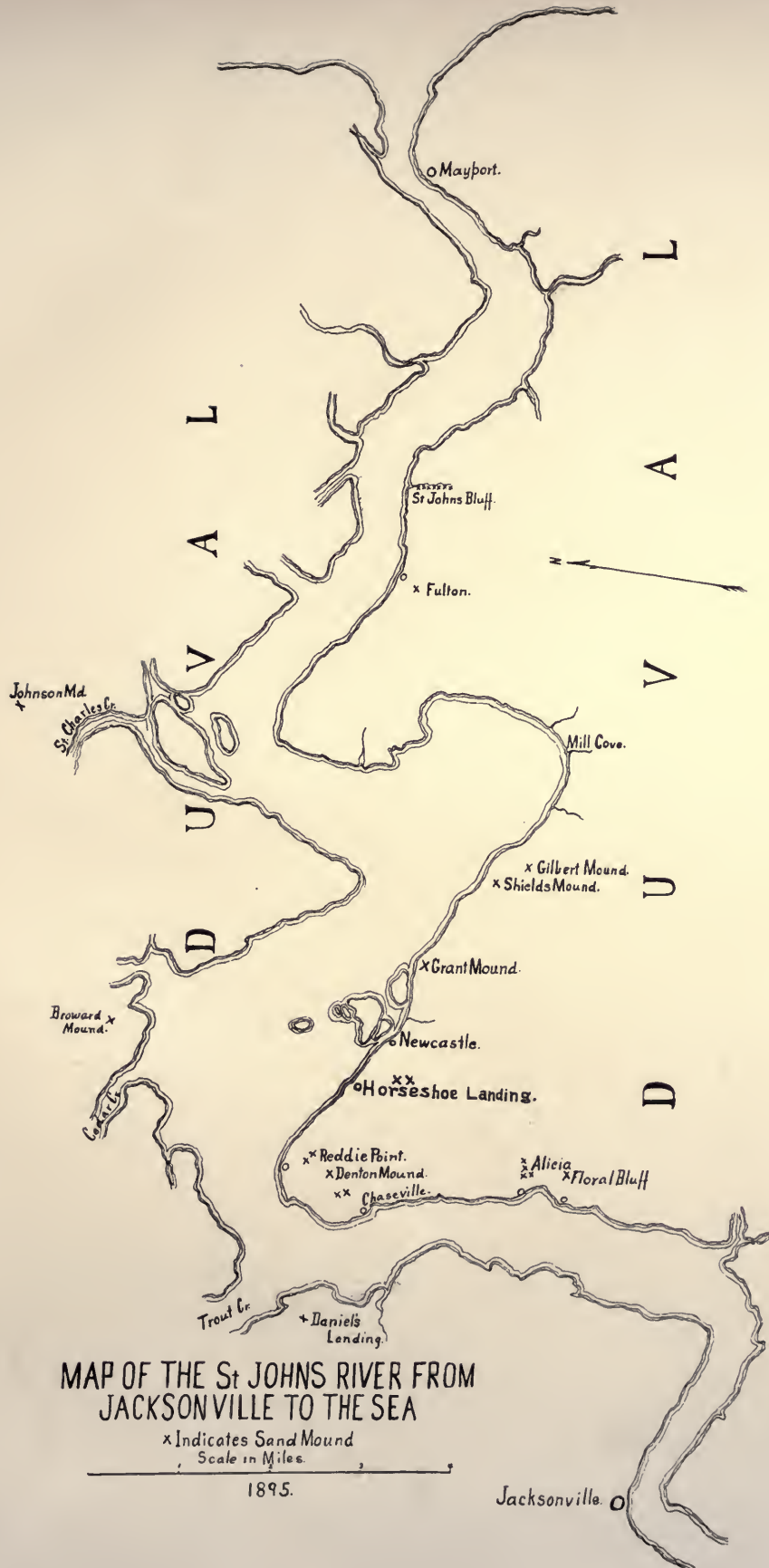
The three succeeding papers give the results of our work in Florida, from January 16th to June 16th, 1895. These results, though mainly cumulative, having been arrived at with great care, are, we think, worthy of publication.

We wish to return thanks for valuable assistance to Professor Cope, to Professor Putnam, to Dr. E. Goldsmith, and to Mr. H. A. Pilsbry for identification of numerous shells.

Again we express our indebtedness to Dr. M. G. Miller for continuous assistance in the field and in the preparation of these papers.

C. B. M.

August, 1895.



MAP OF THE St JOHNS RIVER FROM JACKSONVILLE TO THE SEA

x Indicates Sand Mound
Scale in Miles

1895.

Jacksonville O

CERTAIN RIVER MOUNDS OF DUVAL COUNTY, FLORIDA.



By CLARENCE B. MOORE.

Such mounds of Duval County as are considered in this paper, border that portion of the river between Jacksonville¹ and the sea, a distance of about twenty miles by water. The large mounds of this territory have been noticed in Part II of our previous report,² the smaller, often slight elevations, frequently covered with underbrush and unknown to the inhabitants of the neighborhood, escaped our notice during our previous work in this section, which was not so thorough as that on the upper portion of the river where the territory has been gone over literally dozens of times.

It is evident that this part of the river sustained a considerable population in former times, rendered possible, perhaps, by the great abundance of oysters in the waters near the river's mouth, where the low marshes are still studded with shell-heaps and a few years back contained deposits of great size.³

It will be noticed that the great mounds of this portion of the river resemble Mt. Royal, near Lake George, as to contents, while on the other hand, the low, irregular ridges which seem characteristic of the extreme lower portion of the river, differ considerably in the nature of the objects inhumed, from the mounds of the St. Johns farther south. Mica, so abundant in these low mounds and ridges, was rarely met with and in but small quantities on the river south of Jacksonville.⁴ Again, deposits of numerous pebbles and pebble hammers together, almost unknown on the upper river, were found in great abundance in the low mounds near the sea. The same may be said of numbers of mussel shells buried in association.

One point characterizing this whole region, the low mounds in common with the great, was the comparative abundance of tobacco pipes. From all the sand mounds south of Jacksonville but seven tobacco pipes rewarded our labors, while over double this number were taken from a circumscribed district between Jacksonville and the sea.

¹ The reader will bear in mind that the St. Johns, whose general course above is south to north, turns abruptly to the east at Jacksonville.

² "Certain Sand Mounds of the St. Johns River, Florida," Jour. Acad. Nat. Sci., Vol. X.

³ Stowe Island, in the Sisters Creek, when first visited by us, had a deposit of oyster shells thirty feet in height. Since that time the mass has been reduced by shipments to the jetties.

⁴ Abundance of mica was present in one mound of the Ocklawaha.

The grooved axe, present in Georgia and farther north, was absent from the mounds of this section in common with those of other portions of Florida investigated by us.

Mounds Described in this Paper.

Johnson Mound.	Broward Mound.
Shields Mound.	Reddie Point (2).
Gilbert Mound.	Daniel's Landing.
Monroe Mound.	Denton Mound.
Grant Mound.	Chaseville (2).
Low Mounds South of Grant Mound (5).	Alicia (2).
Horseshoe Landing (3).	Floral Bluff.

JOHNSON MOUND.

This symmetrical and previously uninvestigated mound lay in the pine woods about one-half mile in a northerly direction from the first landing on St. Charles Creek, a stream emptying into the St. Johns just east of the town of New Berlin.

The mound, which had a height of 7 feet 4 inches and a diameter at the base of 65 feet, was totally destroyed with the courteous consent of the owner, William A. Johnson, Esq., of Wilmington, N. C.

The mound was composed of a peculiarly dry sand of a light yellow shade, with occasional bits of charcoal scattered throughout and a limited number of fireplaces. Pockets of sand tinged cherry color by the artificial use of the red oxide of iron, increasing in number and in size toward the center, were encountered throughout the mound.

In all, human remains were met with at eleven points. In one case the burial was in anatomical order. In the remainder but limited portions of the skeleton were represented. The bones were past all possibility of preservation—a somewhat peculiar fact in view of the dry condition of the sand.

Sherds were very limited in number, the majority being undecorated, though three or four bore a complicated stamped pattern. No vessels or considerable portions of vessels were encountered.

Singly, loose in the sand, were: three arrowheads; one bit of mica; a small "celt" and several pebbles.

With human remains was a portion of a conch (*Fulgur*).

Three feet from the surface, with a few decaying fragments of human bones, were two flat pieces of fine-grained sandstone,¹ one roughly given the shape of a hatchet, the other resembling a keystone—a form sometimes met with in Florida

¹ The rocks from which were made the various objects of stone, described in this paper and the two succeeding ones, have been determined with care by Dr. E. Goldsmith of the Academy of Natural Sciences of Philadelphia. Exact determination has not been possible as, fearing to mutilate specimens, we have not furnished material for microscopic slides and for chemical analysis, which the careful petrologist requires.

mounds. With these were: a pebble about two inches in diameter; a coarse sandstone hone; seventeen chips of chert; two columellæ of marine univalves with part of another; a portion of the body whorl of a conch; one incisor of a large rodent, and several masses of certain fresh-water mussels—three to four dozen in all—laid one within the other. These mussels, *Unio Shepardianus*, Lea,¹ are not reported farther south than Georgia nor are any fresh-water mussels present in the tide water of this portion of the St. Johns or of its tributary creeks. Moreover, the mussels of the St. Johns are distinctive. These shells were doubtless an importa-

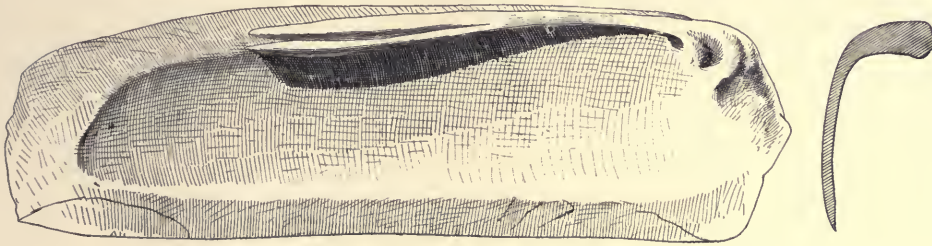


FIG. 1.—Mussel shell used as knife. Johnson Mound. (Full size.)

tion, and, as Fig. 1 shows, were peculiarly adapted for use as knives, for which we know mussel shells to have been employed by the later Indians.²

Almost in the immediate center of the mound, separately, were: a tubular bead of sheet copper; a fragment of sheet copper about 1 inch by 1.5 inches; a minute bit of the same material, and a portion of a sheet copper ornament about 5 inches long with an average width of 2.5 inches. This fragment lay with human remains about 4.5 feet from the surface and was too badly decayed for determination as to its original shape.

Nothing in the Johnson mound gave any evidence of intercourse with the Whites.

SHIELDS MOUND.

The Shields mound, near Newcastle, in section 35, township 1, has been briefly noticed by us in our report on the mounds of the St. Johns,³ where it is described as a mound near Mill Cove. As all our readers may not have access to the work in question, at the risk of repetition, we give certain details as to size and shape of the mound.

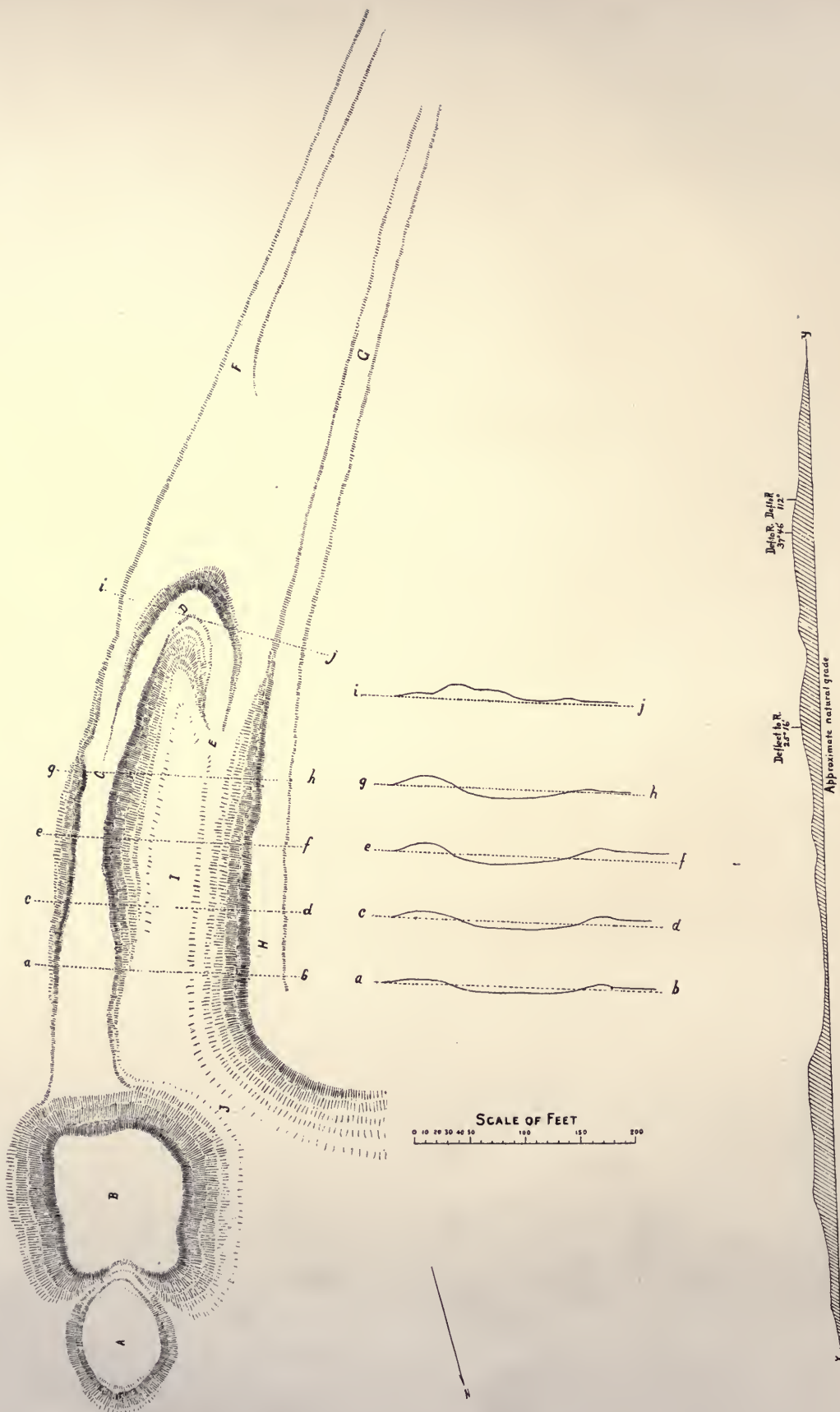
About 150 yards from the river's bank, which at this point forms a bluff commanding the stream for miles, is a great platform mound entirely unlike in form

¹ "Observations on Unio," I, Plate XIII, Fig. 38

² "A pair of mussel shells sharpened on a gritty stone." Heckewelder's "Indian Nations," page 205. Cited by Holmes.

³ "Certain Sand Mounds of the St. Johns River, Florida," Part II, Jour. Acad. Nat. Sci., Vol. X.

2 JOURN. A. N. S. PHILA., VOL. X.



any aboriginal earthwork on the river. Its shape is not circular, as we have stated in our report, but slightly oblong with rounded corners; its base diameter, about 214 feet; the diameter of its summit plateau, 115 feet by 133 feet. Situate upon rolling ground, its height depends upon the point from which the measurement is taken, a fair average being 18 feet. A graded way leads up to the summit plateau on the side toward the river, while certain curious ridges, one running directly from the mound, extend in a southerly direction for a considerable distance in the rear until lost in the surrounding level. Investigation indicated these ridges to have been made for some purpose other than sepulture. We are largely indebted to F. W. Bruce, Esq., engineer in the employ of the United States Government at the jetty at the mouth of the St. Johns, for the accompanying plan and elevation of the Shields mound and its adjuncts (Fig. 2). We have requested Dr. M. G. Miller, who assisted at the survey, to notice these curious ridges in detail.

"From the southern margin of the mound a long ridge (see plan) runs in a southerly direction for a distance of about 500 feet. With a height of about one foot where it joins the mound, the ridge gradually rises until at C it attains an altitude of 8 feet 10 inches above the level to the east. Beyond C is a marked depression from which the ridge again rises, reaching its greatest altitude, 13 feet 8 inches, at D, from which, making an abrupt turn northward, it descends gradually to the point E. The southern slope at D is so abrupt as to be difficult of ascent.

"From C a narrow terrace leads down the eastern side of the main ridge and continues, with gradually decreasing altitude to F from where a low ridge, varying in height from ten inches to six inches, extends a distance of about 350 feet, to be lost in the surrounding territory.

"About eighty-five feet to the west of this is a similar low ridge, G, leading northward along the margin of a well marked terrace, H.

"Limited by this terrace and the main ridge is a basin, I, which has two outlets, one at E leading to the space between the two low ridges, and the other at J, between the mound and the terrace H as it turns to the west.

"About 600 yards southwest of the mound lies a small lake, to which the space between the low ridges F and G may have served as a covered way. Unfortunately, the territory in which these ridges lie has been under cultivation and it is impossible to decide as to their original extent and character.

"At ab, cd, ef, gh, ij, are given the contours between corresponding points on the plan, while at XY is given the sectional elevation of the mound and main ridge."

EXCAVATIONS.

Seventeen days of seven hours each during parts of April and May, 1895, with an average force of thirty-one men, exclusive of those engaged in directing the work, were devoted to the investigation of the Shields mound.

The entire mound was encircled somewhat above the margin of the base and

work prosecuted for about two days, the discovery of a few interments, none over three feet from the surface, being the only result.

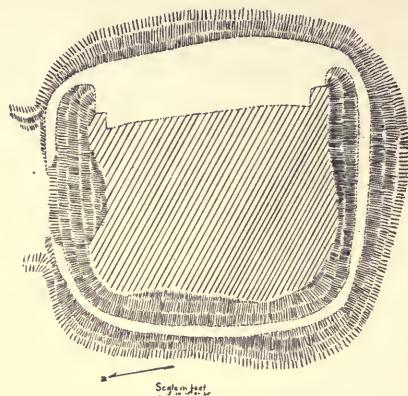


FIG. 3. Diagram of excavations in Shields mound. Clear space represents portion excavated to base; section lines, portion excavated to depth of seven feet.

Next, the entire eastern slope, commencing a little in from the margin, was removed for a distance of twenty-seven feet, where the trench, at this point 175 feet in breadth, had approached to within eleven feet in a horizontal line of the edge of the summit plateau. From this point the trench, reduced to a breadth of 115 feet, was carried along the base, as before, a farther distance of twenty one feet, or ten feet beyond the margin of the plateau, as shown by accompanying diagram (Fig. 3).

In this considerable portion of the mound comparatively few interments were found—possibly two dozen—none at a greater depth than three feet, nor were there any accompanying relics, with the exception of a few shell beads.

Next, the entire plateau, with about five feet of adjacent slope was dug through to a depth of from six to eight feet from the surface.

COMPOSITION OF MOUND.

No uniform stratification is apparent in the Shields mound. The base is not absolutely determinable, though a streak of sand from two to six inches in thickness, discolored by charcoal, was taken as indicating it, the light yellow sand beneath it being free from admixture of any foreign substance. Above this was a stratum of dark yellow sand from three to five feet in thickness, containing considerable charcoal in scattered particles, and this stratum continued to the point where the investigation ceased. Above it the composition of the mound varied at every stage of the digging. Yellow sand, yellowish brown sand streaked with small layers of white sand, pockets of gray sand calcined by fire with abundant charcoal, small pockets of brick red sand and layers and pockets of oyster shells and midden refuse containing sherds and fragmentary bones of lower animals, made up an almost indescribable whole. In the central portion of the broad summit plateau, extending to the eastern margin, was a very irregular layer, at places five feet in thickness, though this was exceptional. This layer, varying in shade from light chocolate to brick red, was due to intentional admixture of the red oxide of iron with the sand—a practice whose occurrence is frequently noted in our report on the mounds of the St. Johns.

We append a description of a fairly representative section of the mound taken at the junction of the eastern slope with the summit plateau, going down:

2 feet, 8 inches—Sand of brick red and of chocolate color.

11 feet, 8 inches—Irregular and local strata; pockets of gray sand showing effects of fire, with much charcoal; occasional pockets of shell; pockets of yellow sand darkened by plentiful admixture of charcoal.

2 feet, 8 inches—To base. Pure yellow sand with occasional particles of charcoal.

HUMAN REMAINS.

In that portion of the mound beneath the plateau, interments were, as a rule, in the last stage of decay, frequently marked by a few crumbling fragments, isolated teeth, or even a line of small disintegrating particles of bone—hardly more than a yellowish stain. It was, therefore, impossible to give the exact number of interments met with, or, in many cases, to determine the form of burial. At not less than 150 points human remains were encountered, presenting both methods of sepulture—the bunched variety and the burial in anatomical order. In most cases, careful examination showed an unnatural juxtaposition indicating the interment of the remains when denuded of flesh.

With four exceptions, when the burials were encountered at a depth of six feet, all human remains lay within four feet of the surface.

In the western portion of the plateau, six feet from the surface, virtually in contact, were six crania associated with but one vertebra and two clavicles. This burial, however, was entirely exceptional.

In the central portion of the summit plateau, 3.5 feet from the surface, was a quantity of small fragments of human bones and of bones of lower animals, charred and calcined. With them were a number of human bones entirely unaffected by fire.

Two pathological specimens and a number of platyemic tibiae were sent to the United States Army Medical Museum at Washington. One of these tibiae had an index of fifty; that is to say, its lateral diameter was but one-half of the diameter taken antero-posteriorly at the point of entrance of the nutrient artery. This

is the lowest index ever met with by us in Florida or recorded by anyone as from that State. Most of our readers will recall, however, that platyemia is no longer regarded as a racial characteristic.

No crania were recovered save in fragments.

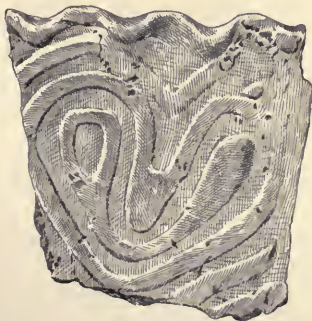


FIG. 4. Sherd with stamped decoration.
Shields Mound. (Full size.)

EARTHENWARE.

Occasional sherds were met with in all parts of the mound, especially with the midden refuse. In the material beneath the summit plateau, so far as explored by us, they were, however, infrequently encountered, though at times oblong pieces and triangular bits, doubtless intentionally given the outline of the arrow point, were encountered in close association with human remains. Undecorated earthenware predominated. The square and the diamond-shaped stamps were represented with the occasional occurrence of the complicated stamped decoration, though not of the patterns found so abundantly in several neighboring low mounds, but wanting in the great Grant mound less than one mile distant. Fig. 4 shows a complicated stamped decoration from the Shields mound.

Portions of two vessels in fragments, with cord-marked decoration, were

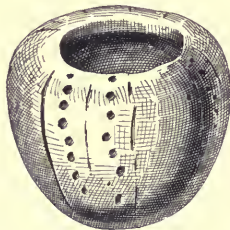


FIG. 5. Toy vessel of earthenware. Shields mound. (Full size.)

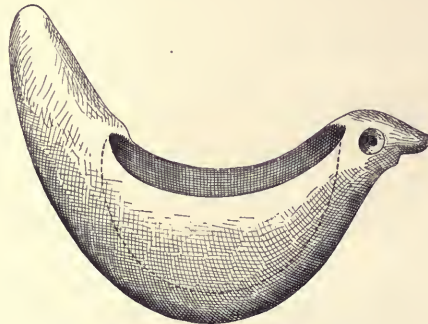


FIG. 6. Bird-shaped vessel of earthenware. Shields Mound. (Full size.)

colored inside and out with crimson pigment. Margins corresponding to missing parts gave evidence of ancient fracture, and it was clear that here, as in many other mounds demolished by us, broken, and consequently otherwise useless, vessels had been utilized for mortuary purposes.

During the investigation, nine entire vessels, none of so much as one quart capacity, were met with, including three unfortunately badly broken at the time of discovery. None were of special interest as to shape or decoration, and all were imperforate as to the base, if we except a toy vessel shown in Fig. 5.

A diminutive vessel, representing a sitting bird and to a certain extent recalling Tennessee forms of earthenware, was the only variation from common types (Fig. 6). Height, 2 inches; length, 3 inches; depth of bowl, .8 of one inch.

Two tobacco pipes of earthenware were found during the investigation. One, of ordinary type, somewhat broken, had an encircling line of indentations just beneath the outer margin of the bowl.



FIG. 8. Polished hatchet of igneous rock. Shields Mound. (Full size.)

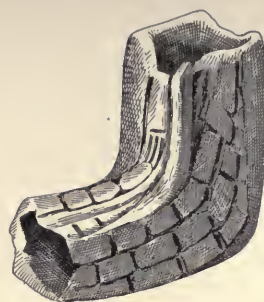


FIG. 7. Tobacco pipe of earthenware. Shields Mound. (Full size.)

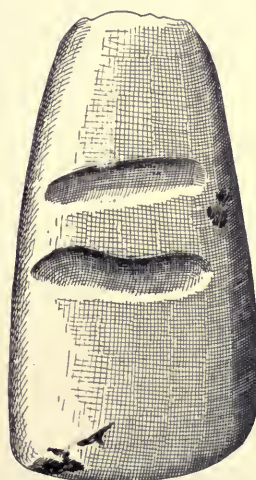


FIG. 9. "Celt" of slate, with double groove. Shields Mound. (Full size.)

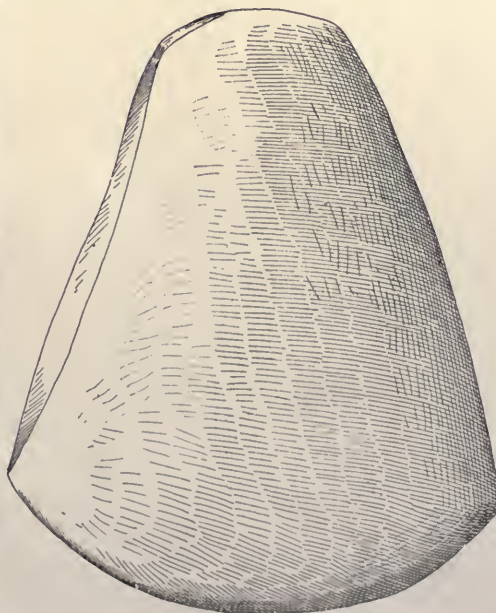


FIG. 10. Implement of sedimentary rock. Shields Mound. (Full size.)

The other, an interesting specimen, was decorated as shown in Fig. 7. Maximum length, 1.7 inches; height, 1.5 inches.

STONE.

Polished Hatchets.—Twelve polished hatchets, or "celts," were taken from the Shields mound. Their material has not been exactly determined. One, of fine-grained, compact rock of igneous origin, was within a small fraction of 13 inches in length, which is considerably more than that of any hatchet heretofore met with by us in Florida, and close to the limit of length attained by any other so far reported from any section (Fig. 8).

We are indebted to Mr. E. P. Upham, of the National Museum, for the information that a polished "celt" from Alabama, 13.5 inches in length, is probably the longest in that institution.

One small "celt" of slate, 3 inches in length, has two deep transverse parallel grooves on one side and a single one on the other (Fig. 9). These grooves may have been made by the sharpening of implements. If not, and the grooves were made for purposes of attachment to a handle, this is the nearest approach to the grooved axe ever, we believe, reported from Florida.

A chisel of sedimentary clay rock, 8.6 inches in length, was the only implement of the type discovered in the mound.

A handsome cutting implement of fine-grained sedimentary rock differed somewhat in form from any Florida implement we have seen (Fig. 10).

Arrow and Lance Points.—In the Grant mound, less than one mile away, as we shall presently see, arrow and lance points were of comparative rarity. In the Shields mound, on the contrary, they formed an important feature among the mortuary inhumations. In all, one hundred and fourteen were taken from the mound, the great majority of chert, a few of hornstone and of chalcedony. Numerous types and sizes are represented, none offering any unusual feature. On the tangs of some, considerable bitumen adheres showing the method of attachment to the shaft.

It is possible that some of the points classed by us as arrow heads may have served as knives, fastened into short handles for the purpose. Fig. 11 shows a number of selected lance and arrow points from the Shields mound.

Tubes of natural formation.—These objects, probably natural formations around some perishable material, such as wood, are occasionally found in the Florida mounds and were no doubt utilized as ornaments, though the larger may have served in lieu of tobacco pipes. Twenty-six of these objects, from 1 inch to 4.5 inches in length, were taken from the mound, and in every case, where determination was possible, they were found with human remains. One of these curious objects is figured in Part I of our Report as coming from Mt. Royal.¹

Spade-shaped implements.—This curious type, discussed at some length in Part I, has been reported from Florida we believe, by us alone, three specimens

¹ *Op. cit.*



FIG. 11. Arrow and lance points, Shields mound. (Full size.)

having been taken by us from Mt. Royal. Two of these implements, about fourteen inches and eight inches in length respectively, were taken from the Shields mound, associated with human remains. They are probably of saussurite, though for obvious reasons we have not permitted mutilation for microscopic examination. In type they differ somewhat from the Mt. Royal specimens. The end of the shaft is neither tapered nor squared but left rough and unfinished. The wings are much broader, those of the larger specimen being about 3.75 inches across. Each has four nicks, or tally marks, on each wing. The larger is shown in Fig. 12.

Gorgets.—With a small earthenware vessel and human remains was a pebble of sedimentary origin, pierced through the center. A little to one side of the perforation another had been attempted and abandoned.

A fragment of clear quartz crystal, 1.4 inches in length, found loose in the sand, forms part of what must have been a beautiful pendant, flat on one side, convex on the other. It is grooved for suspension.

A gorget, in the form of a double bladed axe, of the type figured by us¹ in Part II as coming from the smaller mound at Thornhill Lake, Volusia County, was found at a depth of one foot, where it lay with two arrowheads. The material is of dark chocolate claystone beautifully banded. Height, two inches; breadth, about 2.5 inches; maximum thickness, about .7 of one inch.

Another graceful ornament of a schistose rock of slaty texture, lay at a depth of three feet, with human remains. It is doubly perforated

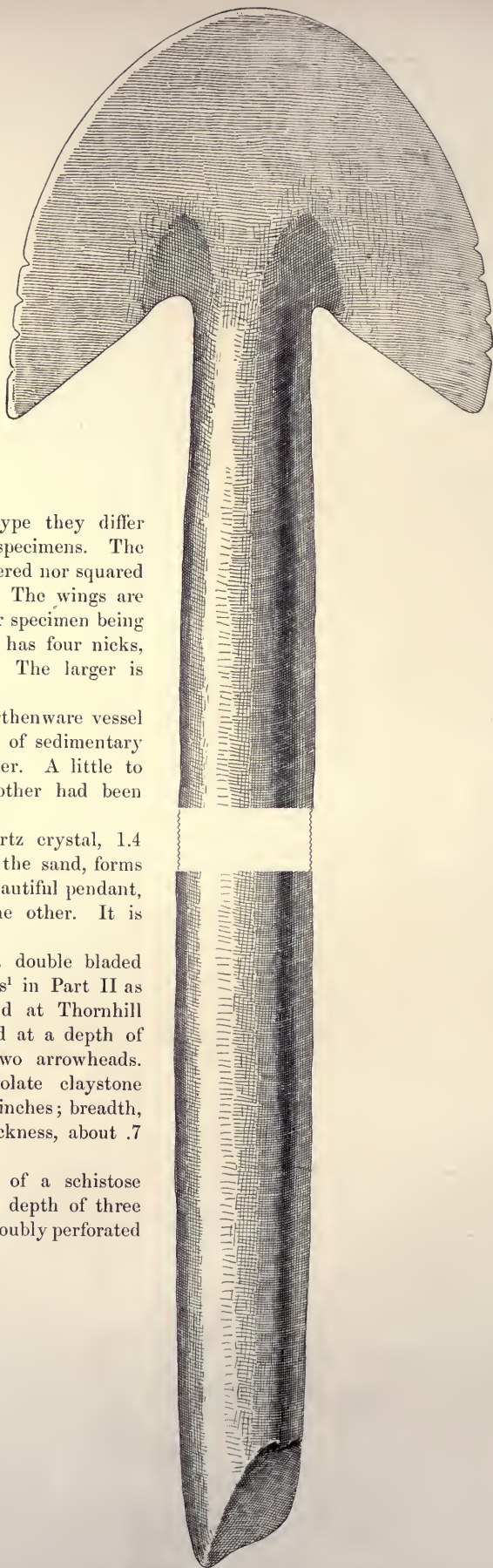


FIG. 12. Spade-shaped implement. Shields mound.
(Two inches removed from handle.)

¹ *Op. cit.*

and has many notches at either end. Length, 4.5 inches; breadth, 1.7 inches; thickness, .4 of one inch (Fig. 13).

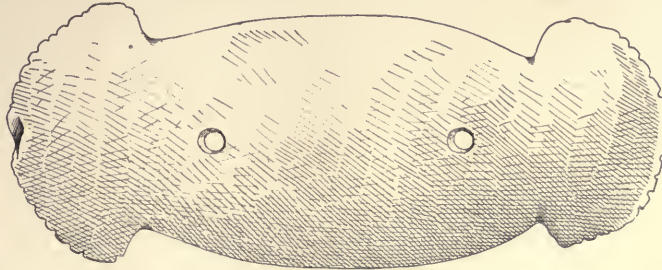


FIG. 13.—Pendant of schistose rock. Shields mound.
(Full size.)

Four feet from the surface, with the small earthenware pipe already figured and two arrowheads, was a gorget, probably of soft claystone, shown in Fig. 14.

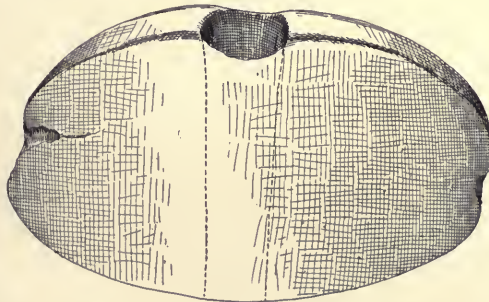


FIG. 14. Gorget of soft claystone. Shields mound. (Full size.)

Breadth, about 3.4 inches; height, 1.7 inches; maximum thickness, .9 of one inch.

A curious little boat-shaped pendant, presumably of soft claystone, of a form new to us, was found with human remains and numerous shell beads, three feet from the surface. A perforation at either end serves for suspension. A deep groove not possible to show in the cut is on the base. A perforation at either end served for suspension. Height, 1.3 inches; width, 2.7 inches; maximum thickness, 1.1 inches (Fig. 15).

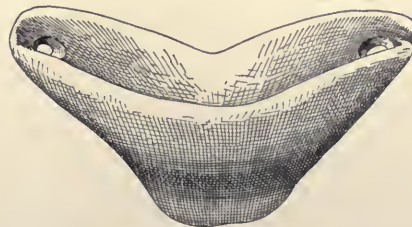


FIG. 15. Boat-shaped pendant. Shields mound.
(Full size.)

A small sedimentary pebble evi-

dently split during perforation, lay beneath a cranium, three feet below the surface. With the two parts were an arrowhead and a chip of chert.

Tobacco pipe.—But one tobacco pipe of stone came from the Shields mound. The material was *Steatite* and the type that of other stone pipes of the neighborhood. It was associated with human remains at a depth of three feet, and with it were an arrowhead and a few shell beads. Height, 3.7 inches; maximum length, 3.8 inches; orifice of bowl, 1.4 inches by 1.5 inches; orifice of stem, 1.2 inches by 1.3 inches (Fig. 16).

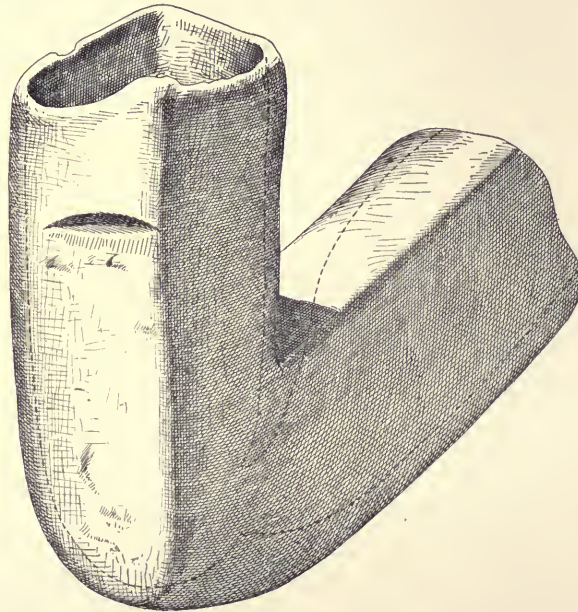
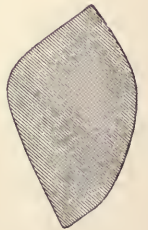


FIG. 16. Tobacco pipe of soapstone. Shields mound.
(Full size.)



Section of Fig. 17.

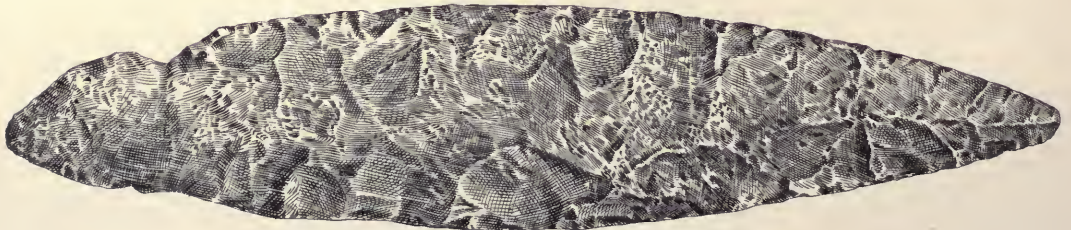


FIG. 17. Weapon of chipped chert. Shields mound.
(Full size.)

Miscellaneous.—Two and one half feet from the surface, in a mass of crimson pigment, with human remains, was a double pointed implement—possibly a weapon—of chipped chert, about seven inches in length with a maximum thickness of .8 of one inch. The section is triangular. The cut fails clearly to represent the two sides of the triangle. This type, so far as our experience extends, has not heretofore been discovered in Florida mounds (Fig. 17).

Together, with human remains, 1.5 feet from the surface, were: a leaf-shaped implement of chipped chert, one end unfortunately missing, with a length of 5.5 inches, and a maximum thickness of about .4 of one inch; a portion of a dagger or lance head about 4.5 inches in length, probably of crystalized sandstone; a sandstone hone, and a part of the lower jaw of a bear.

One implement of chert was rudely chipped to serve as a hammer.

One bit of sandstone, about the size of half of a closed hand, had a considerable cavity worked for some unknown purpose.

Two cylindrical beads of undetermined rock were found together, while from another portion of the mound came a part of what had been a beautiful bead or small pendant of red jasper, oblong with rounded corners.

Three small cubes of galena came from various depths.

Throughout that portion of the mound beneath the summit plateau were broken arrowheads, chips and spalls of chert, bits of sandstone and quartz pebbles, found singly.

But one or two small sheets of mica were encountered.

BONE.

Bone pins in considerable numbers were present in the Shields mound, often six or more with one interment. Their condition, as a rule, was fragmentary, none being so well preserved or so artistically carved as those we have figured in another report as coming from the Tick Island mound, Volusia County, Florida. Some show certain attempts at decoration (Figs. 18 and 19), while others have rudely carved heads. In other cases a shank projecting from the upper end shows traces of bitumen, indicating the former presence of a head of some perishable material, probably wood.

In close proximity to human remains was a section¹ of a leg of a turkey—doubtless a wild turkey, though determination is impossible—with the core of a spur. It is not

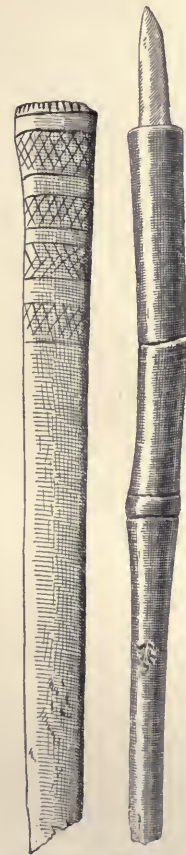


FIG. 18. FIG. 19.
Portions of bone pins,
Shields mound.

(Full size.)

¹ Tarsometatarsal.

unlikely that this portion of a turkey leg and spur may have been used as a decoration for the lobe of the ear. At the time of the occupation of the mouth of the St. Johns by the French protestants, in the third quarter of the sixteenth century, it was customary for the aborigines to wear ornaments of considerable size buttoned into or thrust through, the lobe of the ear. In Fig. 20



FIG. 20. Indian Warrior of Sixteenth Century.

we reproduce a portrait of an Indian warrior decorated with the leg and claws of some large bird, from Plate XIV of the "*Brevis Narratio*."¹ The artist, Jaques Le Moyne, was one of the few survivors of the ill-fated garrison of Fort Caroline, massacred in time of peace by the Spaniards, "not as Frenchmen, but as Lutherans." Fort Caroline cannot have been much over one league distant from the Shields mound.

COPPER.

Considering the interesting types in stone taken from the Shields mound, one would look for more varied forms in copper. In addition to a number of fragments of sheet copper five small sheets of familiar type were taken separately from various depths.

A portion of a large undecorated ornament of sheet copper, centrally perforated, 6.5 inches by 7 inches, lay near the surface. With it were fragments of vegetable fabric.

A curiously shaped object of wood with circular section, bent somewhat at one end, has a pin fitted into it evidently to connect

with a missing portion containing a socket. The wood has been overlaid with copper which remains at places. This fragment is too imperfect for identification.

¹ "*Brevis Narratio*," published by DeBry, Frankfort-on-the-Main, 1591.

A handsome double-pointed pin or piercing implement, a fraction over 12 inches in length, completes the meager list of copper from the Shields mound.

SHELL.

Large beads of shell were represented by few specimens, and the usual small discoidal beads were of by no means such frequent occurrence as in some other mounds. As usual, when found, they lay with human remains.

A few small shells (*Olivella*), longitudinally perforated, also were present with one burial.

One interesting feature of the Shields mound has not been noticed by us elsewhere. It was an aboriginal custom from Canada to Florida to inter with the dead, canine teeth of large carnivores, usually pierced for suspension. In the Shields mound were many such canines, the majority probably belonging to the bear, though a smaller one, submitted to Professor Cope, proved to be of the gray wolf. Sometimes with these teeth and sometimes alone, invariably with human remains, we believe, were a considerable number of pendants of shell, shaped and perforated in what seems to be a close imitation of the animal teeth also used as pendants. In Fig. 21 we show a canine of some large carnivore, the prototype of the form in shell given in Fig. 22.

One columella of a marine univalve and a portion of a body whorl, probably of *Fulgur*, worked to a certain extent, were found together.

A conch (*Fulgur carica*) from which a considerable portion of the body whorl had been cut, probably to furnish material for beads or for gouges, lay loose in the sand.

Near human remains, several feet from the surface, were three conchs (*Fulgur perversum*). Two have no unusual marks. The third, however, in addition to the regular hole so often found in the body whorl opposite the aperture, had three small perforations evenly made by some tool, at various points on the body whorl.

With one burial were twenty conch shells (*Fulgur*).



FIG. 21. Tooth of large carnivore, used as pendant. Shields mound. (Full size.)



FIG. 22. Pendant of shell. Shields mound. (Full size.)

MISCELLANEOUS.

Associated with skeletal remains was a tooth, probably of a drum fish.

The enamel covering of four teeth of the man-eating shark, were found

during the investigation. Two of these lay together, three feet from the surface, associated with human remains.

Upon the surface of the mound were bits of concrete indicating its occupation as a place of abode at a period previous to that of the existence of the frame house of the present owner, Mr. Shields, destroyed by fire some years since. Nails, bits of glass and the like, were found at a certain depth in the mound in excavations made and filled by ourselves the year previous. In addition, in excavations of limited area, possibly post-holes, and in one case, perhaps the foundation of a chimney, filled with disturbed material and debris, were bits of rusty iron, buttons, a glass bottle, bits of china, a brass bolt, a half-penny of William IV of England, and other articles of White origin. These relics of a late occupation of the mound were sometimes not far removed from purely aboriginal objects and brought forcibly to our mind how readily a careless or inexperienced investigator, or one drawing conclusions from incomplete reports, might formulate erroneous deductions as to the period of the origin of the mound.

REMARKS.

Before proceeding to base conclusions upon the results of the somewhat incomplete investigation of the Shields mound, several facts must be borne in mind, which, though previously noted, for emphasis are referred to here.

The few burials discovered toward the margin of the mound were at no great depth, the maximum being about three feet. The great bulk of sand beneath the eastern slope, lying between the point at which some of these burials were discovered and the margin of the summit plateau, contained no interments whatever. In this mass of material, as we have stated, were strata of midden refuse with oyster shells, bones of lower animals, fire places and all the marks of prolonged occupation. It is probable that these strata extend through the mound. In fact, a large bed of oyster shells was discovered in a central position about seven feet from the surface of the summit plateau. In this bed was a circular hole 8 to 10 inches in diameter, and about 4.5 feet in depth, which may have contained a pole or post during a period when that level was used for domiciliary purposes.

No burials were found in that part of the mound dug down by us at a greater depth than six feet, and those at that depth were very exceptional. While we freely admit the slight dependence to be placed upon conclusions in respect to a mound which has not been totally demolished, we are inclined to believe that the great Shields platform mound was gradually built, and during this period used as a place of domicile; subsequently being utilized on the summit plateau for mortuary purposes.

That the burials in the summit plateau were not intrusive was clearly shown by the unbroken layer of colored sand above.

With undisturbed interments were no objects save those of purely aboriginal origin, though, as we have stated, and as might be expected in ground beneath a site used for residence in recent times and most probably during the English and

Spanish occupation, at various points superficially were a number of objects found in use among the Whites. Under these circumstances there would seem to be no reason to assign to the burials beneath the summit plateau of the Shields mound a period other than one antedating the coming of Europeans.

GILBERT MOUND.

The Gilbert mound stood in the pine woods, in full view of the road, about one quarter of a mile southeast of the Shields mound. Its outline was that of an egg, its greatest height 4 feet 9 inches, being at the broadest portion from where it sloped gradually to the level of the surrounding territory. It was 86 feet in length, its maximum lateral diameter being 53 feet.

It was completely demolished, with the cordial consent of the owner, Mr. W. A. Gilbert, of Jacksonville, Florida.

The mound, unstratified, was composed of yellowish sand with occasional pockets of red sand in connection with some of the deposits of relics.

Human remains were encountered at various depths, superficially, in the body of the mound and below the level of the surrounding territory. In all, human remains were noted at twenty-seven points in the mound, though it is possible that a trench dug by a former investigator may have removed a certain number in addition. In no case did interments noted by us, which were of the bunched variety, include the entire skeleton. In a number of cases isolated crania were found and once, two skulls associated with no other bones. Again, the cranium was accompanied by the shaft of a long bone, while in one instance nothing was found but a portion of a tibia, curiously enough accompanied by art relics.

Virtually no sherds lay scattered loose throughout the sand, though numbers of fragments of vessels were found, usually with human remains. When put together, these fragments did not represent complete vessels. They belonged to vessels of ordinary type, of small or medium size and undecorated. In no case was stamped pottery met with, neither the stamped decoration of squares and diamonds so frequently found on the sherds of the two great neighboring mounds nor the complicated stamp of various intricate patterns so plentiful in the low mounds in the immediate vicinity.

Five and one-half feet below the surface, with an isolated cranium, was a globular bowl with inverted rim surrounded by an interesting raised decoration. The base is without perforation. Its height is 4.5 inches; its maximum diameter 6.5 inches; diameter of orifice, 2.8 inches (Plate LXXI, Fig. 1).

About two feet from the surface, associated with human remains, were two graceful vessels entirely intact. The larger (Plate LXXI, Fig. 2) of less than one pint capacity, is of fairly good material carefully smoothed. Its height is 3.6 inches; its maximum diameter, 3.9 inches, while the aperture, from which the rim turns out slightly, has a diameter of 2.9 inches. There are two perforations for suspension.

The smaller vessel, with a height of 3.3 inches, a maximum diameter of 3.3 inches, and a diameter at opening of 2.6 inches, has a perforation at either side for suspension. The rim is slightly scalloped and to a small extent everted. The body of the bowl is decorated as shown in Plate LXXI, Fig. 3. The material is of good quality.

In the southern margin of the mound, three feet below the surface, considerably below the level of the surrounding territory, near human remains, was a vessel of about one pint capacity, from which portions of the rim, old breaks, were missing. Height, 3 9 inches; maximum diameter, 4.4 inches. The base is imperforate. Its incised decoration lacks uniformity. The most interesting portion is shown in Plate LXXII, Fig. 1.

In caved sand was a toy vessel about two inches in height with imperforate base and flaring rim which was unfortunately damaged by contact with a spade.

A number of additional vessels of ordinary type and size, without decoration, were recovered during the investigation. Some were intact, while others had been intentionally mutilated as to the base.

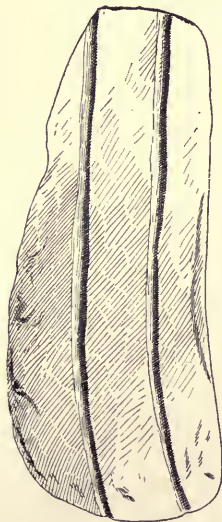


FIG. 23.—Chisel of shell, Gilbert Mound. (Full size.)

Loose in the sand, near the base, was a mass of cherty material about 5 inches by 3.5 inches by 2.75 inches. Its shape was ovoid. It was doubtless fashioned to do duty as a hammer. A somewhat smaller mass of coralline limestone, not so regularly shaped, lay unassociated, about 3 feet from the surface.

Sheets of mica, of somewhat irregular shape, some so large as 7 inches square, came from various depths. Some had perforations for suspension or for fastening to garments. These sheets of mica, as a rule, were associated with pebble hammers, chips of chert, bits of shell and of sandstone.

Two and one half feet from the surface, probably on the base, as the mound sloped considerably at that point, with part of the shaft of one human long bone, were one rounded piece of sandstone, one bit of chert, two pebbles, one small fragment of earthenware, and many marine mussel shells (*Modiola plicatula*). These shells lay in bunches, one within the other, showing them to have been inhumed without the fish, and therefore not as food.

About 18 inches below this curious medley was an undecorated bowl, imperforate as to base, of about one quart capacity.

A chisel or gouge, of shell, found alone, had two incised parallel grooves extending the length of one side (Fig. 23).

In the central portion of the mound, about 6 feet from the surface, with

human remains, including a tibia of considerable pathological interest,¹ were: five arrow heads of chert; two chisels neatly wrought from the lip of *Strombus*; one *Fulgur*; bits of sandstone; various fragmentary portions from columellae of marine univalves, also sections from the lips of large univalves, showing grooves, probably the initial step in the manufacture of some ornament.

Near the base, with human remains, were a piercing implement of bone, the articular portion remaining; a bit of coquina; part of a cannon bone of a deer, a fragment of buck-horn, and a considerable number of marine mussel shells.

In various other parts of the mound, curious collections, somewhat similar to those described, were met with. With one lot was a small chisel of stone, polished at one end and roughened at the other.

Nothing in any way indicating intercourse with the Whites was discovered in the Gilbert mound.

MONROE MOUND.

The Monroe mound lay about one quarter of a mile southeast of the Grant mound (see map), in a peach orchard, the property of Mr. George J. Monroe, of Joliet, Illinois. Its height had been reduced by cultivation. Its shape was somewhat irregular. Its length was about 63 feet; its breadth about 5 feet less. At the center of the broader portion, the maximum height of the mound was 3 feet 2 inches. A deep depression on the west showed whence the material of the mound had been derived.

There had been no previous investigation.

The mound was completely destroyed, being dug through at a depth of about 3 feet below the level of the surrounding territory.

It was evident that the mound had been constructed in the following manner. First, a fire was built on the surface, possibly to destroy the underbrush. Next, a pit of the area of the intended mound was dug to a depth of about 3 feet. In a central portion of this pit was made a deposit of human remains with certain artifacts to be described later. Then the pit was filled with the sand previously thrown out, through which was plentifully mingled charcoal from the surface fire. During the process of filling, various relics, but no human remains, were deposited, and covered by the sand. When the pit was filled to the general level, a great fire was made over its entire area as was evidenced by a well marked stratum of sand discolored by fire and containing particles of charcoal, extending entirely through the mound at the level of the surrounding territory. Upon this the mound proper was constructed and various bunched burials and art relics introduced.

In all, human remains were encountered eleven times, once at the base of the pit, the remainder in the body of the mound. The burials were of the bunched variety, but small portions remaining.

¹ Sent to the United States Army Medical Museum, Washington, D. C.

Sherds were fairly numerous, some of superior quality with lined decoration artistically executed. Others of less excellent material were undecorated or bore complicated stamped decoration of the type seen in neighboring low mounds (Plate LXXII, Fig. 2). The common square and diamond shaped stamp was present but twice in the mound and then superficially.

At a depth of 1.5 feet, apparently unassociated, was an undecorated bowl of about three quarts capacity, with a perforation of base made subsequent to manufacture, which afterwards fell into pieces too small for restoration.

At the same depth, in a different portion of the mound, was a vessel of heavy ware of much better quality than usual. Its outline is elliptical. Small handles, one of which is partly missing, extend horizontally from either end. On the rim, which is .7 of one inch in breadth, and on the handles, is incised decoration. Height, 2 inches; present length, 5.7 inches; width, 4.5 inches. The base shows perforation after manufacture (Plate LXXIII, Fig. 1).

With a burial about 1 foot from the surface, though no doubt at a greater depth before long continued cultivation of the mound, were one polished hatchet and a fragment of a marine shell. With these were great numbers of fragments of various vessels, though in no case was the entire vessel represented.

About 1 foot down was a vessel with intricate stamped decoration of about one quart capacity. Its base was intact. No human remains were noticed in its vicinity.

Four feet from the surface, unassociated, was a mass of graphite about 2 inches by 1.5 inches by 1 inch. One side was slightly pitted, the other deeply so.

Apparently unassociated with human remains, 4 feet from the surface, together, were: five arrow points of chert; one flake of the same material, used as a cutting instrument; one sheet of mica, and four worked masses of sandstone and of chert. One foot farther in, on the same plane, together, were: one pebble; one small mass of chert; one bit of coquina; two drinking cups wrought from *Fulgur perversum*, with perforated bases, one within the other, containing a number of marine mussel shells. With these lay an interesting little vessel, undecorated, with three compartments intact save a small portion missing from the base of one. The nature of this fracture would indicate the result of accident rather than an intentional perforation of the base. Length, 5.8 inches; maximum width, 3 inches; depth, 1 inch (Plate LXXIII, Fig. 2).

Almost in the center of the bottom of the pit of which we have already made mention, about 4 feet from the surface, were several decaying fragments of a cranium and a portion of the shaft of a long bone. With these was a boss of sheet copper with deep central indentation through the middle of which is a perforation for attachment. On the outside a knot of the original cord still remains. With this ornament was a lance head of copper, 7.6 inches in length, with a maximum breadth of 1.8 inches. This interesting piece, unlike anything else in copper we have seen in Florida, has almost a cutting edge at the sides with slightly increasing thickness to a maximum of .1 of one inch in the middle. A notch is at either

side of the base by which it was doubtless fastened to the shaft. One would hardly expect a weapon of copper of this thickness to be of much effect against any but unprotected bodies. Highly polished, it would have an attractive appearance, and may have been used for ceremonial purposes (Fig. 24).

With one burial were two shell beads each about .75 of one inch in length.

Several vessels of medium size and uninteresting as to type, were taken from various depths, as were a number of pebbles, always several together.

REMARKS.

It may be well to note here that pebbles which seem of so little value to us, and whose presence in these low mounds must strike many of our readers as curious, were to be had in this section of Florida by importation alone, and were distinctly of value either for use as small hammers or as raw material for the manufacture of pendants and the like.

Nothing discovered in the Monroe mound points to an origin other than aboriginal.

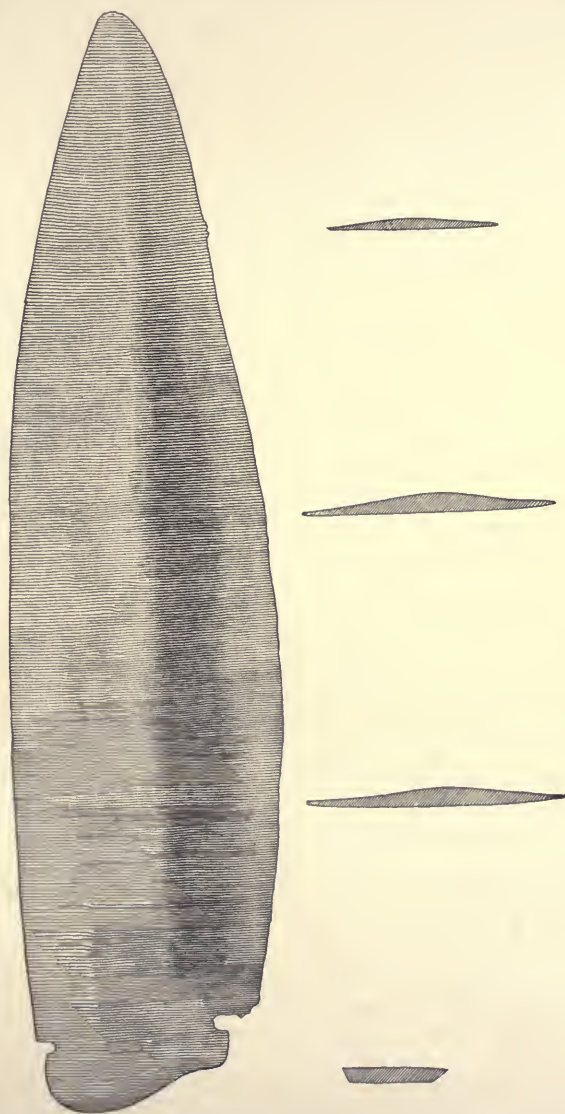


FIG. 24.—Lance-head of copper. Monroe mound. (Full size.)

GRANT MOUND.¹

The Grant Mound,² near New Castle, Duval County, Florida, in Section 35, Township 1, stood on the southern bank of the St. John's River, on a bluff 25 feet in height. Its situation is noted on the Government chart relating to this portion of the river. It lay about one mile in a westerly direction from the Shields mound.

The height of the mound, taken from the present level of the bluff on the west, was 26 feet 8 inches. On the eastern side is an abrupt dip of the land and a measurement from this quarter would have given an exaggerated idea of its altitude. The base of the mound, as we shall see later, was marked by a layer of oyster shells. From this base line, taken on the western side where no natural depression exists, the height of the mound was 30 feet 9 inches and even this considerable altitude must be increased by at least one foot to allow for material removed by us at a previous investigation, as was shown by trees growing on the summit. It is evident, then, that the territory around the margin of the mound, which was composed to a depth of several feet of dark loamy sand and scattered oyster shells, either was a deposit belonging to a period subsequent to the erection of the mound and had consequently lessened its height by about four feet, or previously existing, had been dug into to a depth of four feet.

Fully one-third of the mound on the north, undermined by the river previous to our investigation, had fallen into the stream, and it is probable that had not the hand of man anticipated its destruction, a limited term of years would have seen the mound entirely absorbed by the river—to a certain extent a consolation for the loss of so notable a landmark.

In shape the mound was the usual truncated cone. Its base diameter was 216 feet and that of the summit plateau but 24 feet. The western slope was at an angle of 28°, the others somewhat less steep, though, taken as a whole, the mound was one of the most symmetrical we have met with.

Two low ridges, one somewhat better marked than the other, almost parallel, start a short distance from the southernmost portion of the mound, and, after a time, merge in the surrounding level. Investigation failed to reveal either interments or art relics in them, and it is presumable that these causeways were used as approaches, like others found in connection with Florida mounds.

The mound was totally demolished by an average force of forty-three men, exclusive of those supervising the work, digging seven hours per day during a period of five weeks of March and April, 1895.

¹ A short account of a former investigation of this mound was given in our "Certain Sand Mounds of the St. John's River, Florida," Part II, Jour. Acad. Nat. Sci., Vol. X.

² See frontispiece.

COMPOSITION OF MOUND.

No uniformity of stratification was observed in the construction of the Grant Mound. The bluff on which it was built had previously served as a place of abode for the aborigines whose kitchen refuse, in the shape of oyster shells, fragments of bone, and of earthenware, mingled with black loamy sand and charcoal, formed an irregular layer sometimes five feet in thickness.

This layer constituted the base of the mound.

Upon this base, through the outer portions of the mound, ran a layer of sand intentionally given a cherry color by the use of hematite, from twelve to eighteen inches in thickness, which, gradually ascending, was lost, its place being taken, at certain points, by an irregular stratum of pure white sand with a maximum thickness of about two feet.

While the great bulk of the mound was composed of yellowish sand, there were very numerous pockets and local layers of considerable size of white sand, fine and again coarse and angular; of brown sand; of gray sand; of sand dyed a beautiful cherry, and of oyster shells mingled with black loam and midden refuse. A superficial layer of rich brown loam had a varying thickness of from two to three feet. The usual particles of charcoal were encountered throughout the mound.

At one point of the western side of the central portion of the mound was a striking combination of shades. Above the shell base was a layer of sand black in color through admixture of loam, six inches in thickness. This was surmounted by a band of white sand about ten inches through, above which was a stratum of sand of a chocolate tint, about three-quarters of a foot in breadth. Next came a layer one foot in thickness of sand of stone color, which was surmounted by seven inches of sand tinged a bright cherry. Above these layers were masses of yellowish sand with occasional strata of brown sand and of blackish sand containing oyster shells. This conformation, it must be borne in mind, was not representative of other portions of the mound.

Water-worn sherds, some from central portions of the mound, gave evidence that a portion of the material had been brought from the river front below.

Scattered oyster shells were frequently met with throughout the entire mound and to such an extent was their distribution that, by constant contact with the spade and thus exciting vain hopes of the discovery of more valuable articles, they considerably interfered with the interest of the search.

HUMAN REMAINS.

Skeletal remains in the Grant mound were singularly disproportionate in number to the vast bulk of material present, and emphasized more clearly than ever before in our experience how much needless labor was sometimes undertaken by the aborigines for their dead. Many men in our employ dug for days without encountering a vestige of human remains and in the entire eastern and southeast-

ern portion of the mound virtually none was present while in no part (excluding the side bordering the river, as to which we are not in a position to speak) had any interments been made within nineteen feet from the margin of the base.

During our first investigation, which included a superficial portion of the mound containing but few skeletal remains, no burials in anatomical order were met with, such as were encountered being of the bunched variety exclusively.

In point of fact, however, as was demonstrated by the demolition of the mound, the burial in anatomical order largely predominated, though both forms were met with. On the base, especially, few, if any, bunched burials were brought to our notice.

More forcibly than ever before was brought to our attention the opposite state of preservation of bones presumably of approximately the same age. At times, in various portions of the mound, the skeleton was represented by remains with hardly a greater consistence than putty, while again, often at no great distance from the base, the bones were fairly well preserved. Such remains lay near oyster shells from which, doubtless, the infiltration of lime was a potent factor in preservation.

In the Grant mound, as in all other mounds we have investigated, the great majority of skeletal remains was unaccompanied by relics of any sort.

No crania were preserved, the facial bones being in all cases crushed or wanting through decay and the vaults usually to a certain extent broken in.

Marked examples of platycnemias¹ and of the pilastered femur were noted, and these, with specimens bearing evidence of inflammation and others showing fracture, were sent to the United States Army Medical Museum at Washington.

After a careful examination of the bones from the Grant mound we were impressed, as has been the case during all our mound work in Florida, with the exceedingly limited number of fractures present among them, probably much less than would be encountered among modern skeletal remains. Presumably the level country, the sandy soil, the absence of ice and of horses and of vehicles, of scaffolding and of machinery, and of many other things incidental to civilization, militated against accidents to the human structure.

LOCATION AND ASSOCIATION OF RELICS, ETC.²

The proceeds of the demolition of the Grant mound were disappointing in so much as, contrary to our expectation, few new types or specimens of remarkable interest, were encountered. In fact, the eastern and southeastern portions of the mound were virtually barren, as was that part 25 feet in all directions from the

¹ The reader will recall that this flattening of the tibia is no longer regarded as a racial characteristic but rather the result of muscular traction upon the bone, in running and climbing. *Mémoire sur la Platycnémie chez l'Homme et chez les Anthropoïdes. Dr. Manouvrier Mémoires de la Société d'Anthropologie de Paris. Tome troisième, deuxième Série Paris, 1883-1888, page 469 et seq.*

² The reader of our "Certain Sand Mounds of the St. Johns River," Part II, will recall that at the previous investigation of the Grant mound we found one sheet-copper ornament, a number of beads of the same material, two small vessels of earthenware and a number of "celts" of polished stone.

margin of the base, save on the north where the encroachment of the river, to which we have referred, prevented determination. The objects discovered, comparatively few, when we consider the enormous mass of sand removed, were mainly confined to the north and northwest portions of the mound surrounding the summit plateau. Beneath the plateau itself the discovery of relics was comparatively infrequent. All the tobacco pipes found by us and five previously taken out by persons well known to us, were from the northern, or river, side of the mound.

So great was the height of the mound that frequent slides of masses of sand were unavoidable, and thus exact depths of objects found were often unobtainable, though at times close estimates were to be had since sections of the mound, sliding down a few feet as a whole, retained their integrity, holding undisturbed human remains and associated objects.

In describing various articles from the Grant mound we shall not give in all cases exact details as to objects found in association, but shall content ourselves with a few representative examples of "finds" of various relics encountered together and in the immediate neighborhood of skeletal remains, stating at the same time that, as we have said, most burials were without accompanying relics when found;¹ that shell beads, usually unassociated with other objects, were the most frequent tribute to the departed; that beads and sometimes ornaments, of sheet copper, were occasionally found with the beads of shell and that stone hatchets, singly, in pairs or very rarely three at one time, occasionally lay with the bones, sometimes associated with other objects.

About four feet from the surface, in the northern slope, a short distance apart, were two drinking cups wrought from *Fulgur perversum*. Into each a skull had been crushed to fragments by weight of sand. With one were a number of large shell beads and several ellipsoidal objects of shell. About one foot above was a large fossil shark's tooth.

Beneath the cranium of a skeleton in anatomical order, 20.5 feet from the surface, in a mass of crimson pigment, were a tobacco pipe of sandstone and several shell beads.

Together, with human remains, in contact with, and partially enclosed in, a mass of red pigment, were many shell beads; several small sheets of mica, one cut square with central perforation, doubtless for attachment; small beads of sheet copper; numerous fragments of sheet copper, a large tobacco pipe of *Steatite*, and one human molar with incised line around the crown and a central perforation for suspension.

In the eastern side of the mound, with human remains, were: a shell drinking cup; many shell beads; small beads and very fragmentary ornaments of sheet copper; a mass of red pigment about the size of a cocoanut; a tobacco pipe of undecorated earthenware of the usual type found in the mound, and a disc of lime-

¹ It is possible that objects of wood, fur, vegetable fabric and other perishable materials, when not in contact with copper, may have, in some cases, disappeared without leaving a trace.

stone 1.5 inches in diameter and .2 of one inch in thickness, centrally perforated and overlaid with sheet copper on one side. These objects were about six feet from the surface.

PEARLS.

With shell beads, near human remains, were two symmetrical pearls perforated as is the case in the mounds. The larger pearl is .35 of one inch by .25 of one inch.

SHELL.¹

Beads.—Shell beads in great abundance, always with human remains, were present in the Grant mound. Though great numbers of the smaller forms were not recovered, nevertheless a box 14 inches by 10.25 inches by 5.75 inches, was entirely filled. The beads were of every shape, discoidal, spherical, barrel-shaped, tubular, of various sizes. One discoidal bead of shell, of about one inch diameter, had been overlaid with copper.

Two beads found 10 feet down in the northern slope, with other beads and associated with human remains, were of graceful and unusual pattern; the larger, with a length of 1.2 inches and a maximum diameter of .5 of one inch; the other somewhat smaller (Fig. 25).



FIG. 25.—Beads of shell. Grant Mound. (Full size.)

In a few instances, numbers of small elongated marine shells (*Olivella* and *Marginella*) longitudinally perforated, lay in lieu of beads with human remains. These little shells were in use for a like purpose in post-Columbian times.

Drinking cups.—The reader will recall that the conch (*Fulgur perversum*) was utilized by the aborigines as a drinking cup by the removal of the columella and a portion of the body whorl.

Nine such drinking cups were met with during our last investigation, usually associated with other objects. Some of these were perforate as to the base; others were intact.

Pendants.—A number of pendent ornaments of shell, mostly resembling in type others described and figured by us before, were found throughout the mound. One, cylindrical in shape (Fig. 26) is of somewhat unusual design for Florida. Its length is 3.2 inches. The perforation begins at one side, meeting one from the top.

Another pendant, found with a long tubular bead of shell, is of a somewhat elongated pear shape with one side flattened.

A graceful ellipsoidal ornament of shell from the mound is shown in Fig. 27.

Miscellaneous.—Four columellae of marine univalves were found during the excavation.

¹ The reader is referred to Holmes' exhaustive memoir "Art in Shell," Second Annual Report, Bureau of Ethnology. 1890-1881.

A cockle shell (*Cardium*) contained a certain amount of crimson pigment, but whether it had been used as a receptacle for paint, an aboriginal use for certain shells in California, or whether the pigment was accidentally obtained through proximity to one of these masses present throughout the mound, we are unable to say.

EARTHENWARE.

Thirty-five vessels of earthenware were taken from the Grant mound, none of so much as one quart capacity. Some had the base intact; others a hole knocked through after baking, though the great majority were of the "freak" style of mortuary pottery with perforation in the base made prior to baking. None bore any traces of soot or evidence of use over fires. These vessels, as a rule, did not seem to be associated with human remains, though, as many came from sand caved from above, absolute determination in all cases was impossible. The material of all was of the usual flimsy sort used for vessels made in advance for mortuary purposes.

In Plate LXXIII, Fig. 3, is shown a bowl 1.8 inches in depth with a maximum diameter of 5.3 inches. In common with all other vessels in the Grant mound, it shows no sign of use over fire and is probably of the mortuary variety.

In Plate LXXIV, Fig. 1, we have a vessel doubtless of a similar type, though in both cases the base has been perforated after completion. Height, 2 inches; length, 6.9 inches; maximum breadth, 4.8 inches.

A specimen of the pure "freak" variety is shown in Plate LXXIV, Fig. 2. The perforation at its base was made previous to baking. The form is entirely new to us. Height, 4.2 inches; maximum diameter, at rim, 3 inches.

Plate LXXIV, Fig. 3, represents a portion of a vessel with perforations of side and base. The motive for constructing a vessel of this sort is not apparent. Very recently vessels each with numerous perforations at the base have been found



FIG. 26. Pendant of shell. Grant mound. (Full size.)

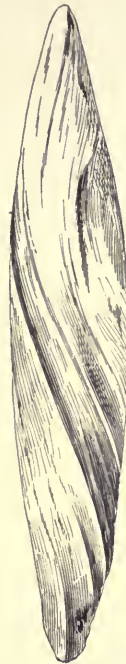


FIG. 27. Ellipsoidal object of shell. Grant mound. (Full size.)

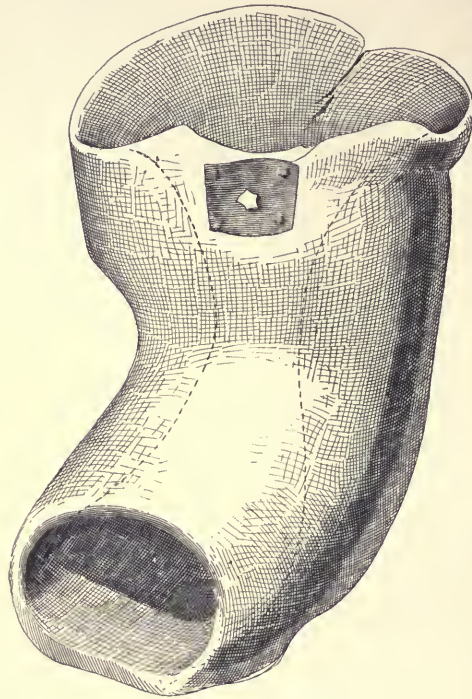


FIG. 28. Tobacco pipe of earthenware Grant mound.
(Full size.)

ware. The larger has a perforation at base made prior to baking; the smaller, imperforate as to the base, has two small holes for suspension.

A bowl of about one quart capacity, with incised and stamped decoration beneath the margin, has but one of the two holes, one on either side, usually made for suspension. As the base has a large perforation made previous to baking, it is probable the potter was not over-careful as to the bestowal of details not likely to be called into requisition.

One small vessel with perforation of base made prior to completion, has a small hole on

in certain Kentucky mounds. These are supposed to have served as colanders or sieves, like those in use in southern Mexico for straining the cactus fruit. In the case of our vessel, however, such cannot have been the case, as a perforation at the base, made previous to baking, has a maximum diameter of almost 1 inch. It is, perhaps, an emphasized form of "freak" mortuary ware.

A vessel of a type entirely new to us was recovered in a somewhat fragmentary condition. The form calls to mind certain tobacco pipes, but in this specimen the perforation is wanting. Two small holes, one on either side of the rim, served for suspension (Plate LXXV, Fig. 1). Length of base, 5.3 inches; width of base, 2.2 inches; full height, 3.1 inches; maximum diameter of bowl, 2.7 inches; diameter of orifice, 1.7 inches.

Plate LXXV, Figs. 2 and 3, are doubtless types of mortuary

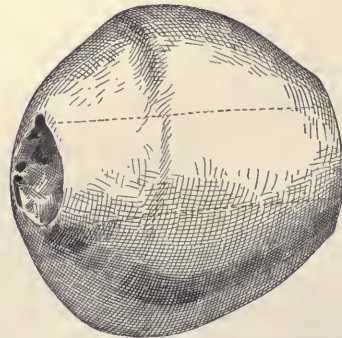


FIG. 29. Bead or pendant of earthenware.
Grant mound. (Full size.)

either side of this perforation and none beneath the rim. We have never before seen this proceeding and are at a loss to account for its motive.

Another bowl with the usual small perforations beneath the margin on either side, has, about one inch below the rim in the other two sides, holes about three-quarters of an inch in diameter, carefully cut.

A number of other vessels from the Grant mound, though of considerable interest, will not be particularly described here, since, to a certain extent, they resemble vessels from other mounds referred to, and figured in, our previous reports.

Sherds were of infrequent occurrence in the Grant mound. Some bore the usual stamped squares and diamonds but in one instance only was there brought to our notice the complicated stamp of such frequent occurrence in many low neighboring mounds.

But two tobacco pipes of earthenware were recovered. The larger, with length of stem 2.8 inches, height of bowl 3 inches, orifice of bowl 1.7 inches by 2.8 inches, had, when found, a small ornament of sheet copper fastened beneath the margin of the orifice facing the smoker by an encircling cord which crumbled into dust (Fig. 28).

A somewhat smaller tobacco pipe of ordinary type came from a depth of 6 feet, with human remains and many associated objects.

A large bead or pendant, of earthenware, was of equal proportions in height and in length, 2.3 inches (Fig. 29).

STONE.

Hatchets or "celts".—In all, 117 hatchets, or "celts," were taken by us from the Grant mound during the second investigation. Their material has not been separately determined, the majority, however, being from rocks of igneous origin, while an occasional sedimentary or metamorphic rock is represented. None of these rocks is found in Florida.

Twelve feet from the surface, just beneath a skeleton with which were beads of shell, was the most perfectly symmetrical and beautiful "celt" it has been our good fortune to find. The material, light green in color, is believed to be an altered *Felsite*. The semi-circular outline of the cutting edge has been conferred with wonderful precision. This implement is of the pure Santo Domingo type. The cuts by no means convey a fair idea of the appearance of the original. Length, about 5.5 inches; maximum breadth, about 2.6 inches; maximum thickness, about 1.5 inches (Figs. 30 and 31).

Arrow and lance heads.—The interment of arrow and lance points with the dead was largely a matter of fashion. In the Shields mound, less than one mile distant, they were very abundant, as was the case in Mt. Royal which closely resembled the Grant mound in many particulars. In the Grant mound but fifteen were taken out by us. None was of unusual size or of especial interest.

Tobacco pipes.—Three pipes of soapstone, variously associated, came from the Grant mound. One of these was about the size and form of the one figured from

In many places in the mound mere traces of the copper remained and at times a discoloration of bones or of beads was the only evidence of the former presence of the metal.

Upon a number of occasions a single bead of sheet copper, not over one-third of an inch in length, lay with many beads of shell, showing the scarcity of the material.

As in other mounds, no two ornaments of sheet copper were alike and the sheets were slightly irregular in length, in breadth, and in thickness.

What we have before noted, namely, the almost entire absence of copper implements of any sort in Florida,¹ was emphasized in the Grant Mound, where no object of that character was present save pins or piercing implements and even these may have done duty in the hair.

As in other mounds, the copper of the Grant Mound was at times wrapped in bark or in vegetable fabric, a custom, as we have before stated, prevailing in other parts of the United States and in Canada, and, curiously enough, the occurrence of the same custom is noted in England where, upon one occasion at least, prehistoric bronze was wrapped in linen.²

In addition to a considerable number of sheet copper ornaments in a fragmentary condition, nine of the usual type consisting of repoussé bosses and beaded lines, were recovered entire or nearly so from the Grant Mound, two of which we show, full size, in Figs. 36 and 37.

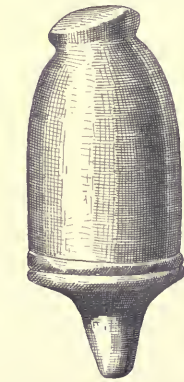


FIG. 34. Pendent ornament. Grant mound. (Full size.)



FIG. 35. Fragment of bone pin. Grant mound. (Full size.)

One ellipsoidal bead of sheet copper, of the same shape though somewhat smaller than the one recovered during the previous investigation of the mound and figured³ in Part II, came, with human remains, from the western slope of the mound. In addition, four beads of the same material, though more elongated in shape, were met with, the largest being 2.75 inches in length with a maximum

¹ From the interesting "Notes on Primitive Man in Ontario," by David Boyle, we learn that the reverse of this is true in Ontario where such specimens of copper as are found are almost invariably tools or weapons.

² Cited by Clodd. "The Story of Primitive Man," page 165.

³ *Op. cit.*

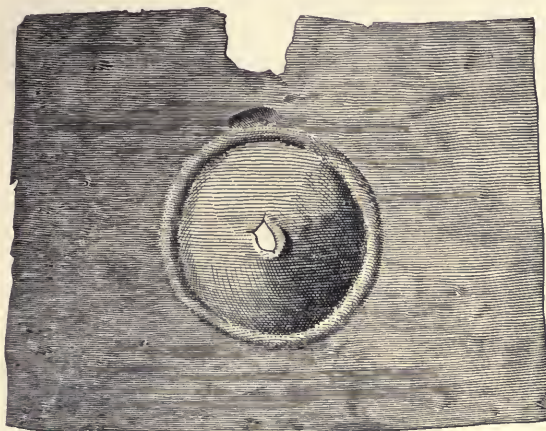


FIG. 36.

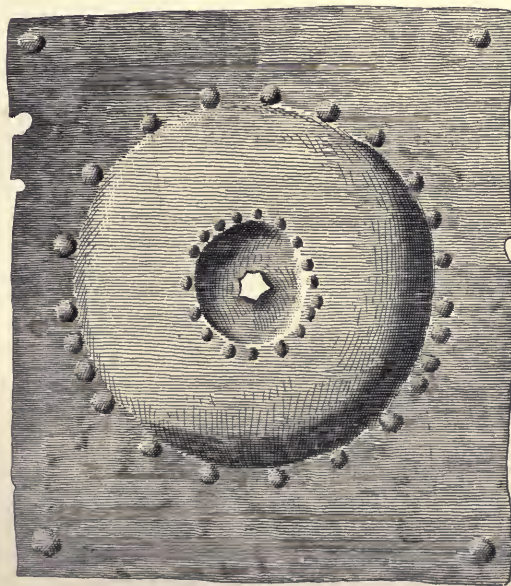


FIG. 37.

Ornaments of sheet copper. Grant mound. (Full size.)

6 JOURN. A. N. S. PHILA., VOL. X.

diameter of .75 of one inch. Smaller beads of copper were found in considerable numbers.

A large bead of wood, 1.6 inches by 1.3 inches, spheroidal in shape, had been overlaid with sheet copper, portions of which still adhere.

Seven pins or piercing implements of copper, the longest 13 inches in length, were found variously associated at different depths. All seem to have been made by hammering sheet copper into the required shape.

A disc of limestone, 2 inches in diameter, with a central perforation, overlaid with sheet copper on one side, and a somewhat smaller disc of shell or of limestone of the same type, came from different portions of the mound. With the smaller was an earthenware pipe.

Two discs, probably of limestone, overlaid with sheet copper, with shanks extending from the lower central portions, were found together near human remains and were doubtless used as earplugs. A somewhat similar ornament is figured by us¹ in Part I as coming from Mt. Royal.

About 13.5 feet from the surface, near together, associated with human remains and a mass of red pigment, were two cones of wood, 3.2 inches and 1.7 inches in height, respectively, each with base diameter of 1 inch. These cones had been overlaid with thin sheet copper which had preserved the wood. Portions of the coating were still adherent. From the base of the larger cone projected a pin .9 of one inch in length, exactly fitting into a socket having a depth of .6 of one inch in the base of the smaller cone. This pin was not an integral portion of the cone from which it projected, but had been let into a small socket and secured with bitumen.

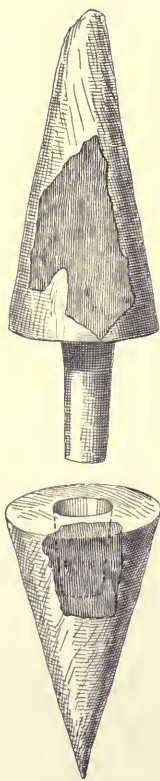
These interesting specimens, unique so far as we know, were carefully allowed to dry and then treated with shellac.

It is not unlikely that these objects form two parts of an ear ornament, one worn on either side of the lobe, the pin passing through the perforated portion (Fig. 38). The difference between the length of the pin and the depth of the socket would be about made up by the thickness of the lobe of the ear.

Fig. 38. Ornament of wood overlaid with sheet copper. Grant mound. (Full size.)

During the investigation an ornament, or, more probably, two somewhat similar ornaments, of sheet copper, were laid bare at a depth from the surface of about 20 feet. Before this

¹ *Op. cit.*



copper could be removed, a section of the mound fell from above, burying the objects beneath tons of sand and breaking them to a certain extent, as we learned hours later when they were recovered. It was apparent at the same time, however, by the carbonated edges of certain fractures that the ornaments had undergone some breakage previous to the caving of the sand.

The larger ornament consists of a shield, or escutcheon, shaped concavo-convex sheet of copper, with a maximum length of 2.6 inches and a maximum width of 2.2 inches. This shield has repoussé decoration probably intended to represent the human face, the raised portion of the decoration being on the concave side of the shield. Near the margin, about .7 of one inch from the upper edge, is a small perforation on either side as shown in Fig. 39. From the convex side of the shield, where the design is depressed, the remaining portion of a band of copper, about 1.3 inches broad, projects (see section, Fig. 40). It is slightly bent,



FIG. 39. Ornament of sheet copper.
Grant mound. (Full size.)

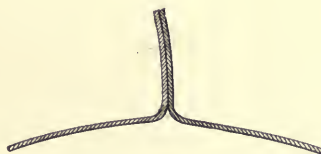


FIG. 40. Transverse section of same.

is heavily carbonated, being cleared by acid, shows a straight line of rivets, running transversely, where it had probably been joined to the tongue projecting from the shield.

The shield-like portion of the second ornament is somewhat smaller, having a maximum length of 2.3 inches, and a maximum width of 1.9 inches. It is thinner than the larger shield from which it differs in that it has repoussé decoration on the convex side alone, the concave side being undecorated and the excised portion from the upper part in the concave side does not end squarely but has its base in the form of an upright wedge. Vegetable fabric, not shown in the cut (Fig. 41), adheres to the convex side which shows considerably less convexity than the larger shield. From the convex side as in the case of the other specimen, a band of sheet copper, irregularly bent over, probably by weight of sand, projects as represented in section (Fig. 42a). Near the shield lay a band of copper about 2.5 inches in

length, of the same breadth as that portion projecting from the shield. The line of fracture shows a recent break as does that of the band on the ornament. As the two portions do not join, it is probable an intervening portion is missing. This

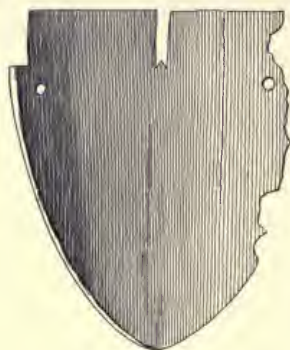


FIG. 41. Ornament of sheet copper.
Grant mound. (Full size.)

band of copper differs from that probably belonging to the larger shield, which is made of but one thickness of copper, in that it is constructed of one sheet bent upon itself to give double thickness, the edges meeting at the margin.

Dr. M. G. Miller, who has made a careful examination of the method of construction of these ornaments, writes as follows:

"The surfaces of both shields were obscured by a thick coating of carbonate, the removal of which required the use of acid.

"The smaller ornament consists of two plates. That on the concave side, smooth, undecorated and showing no fissure in the median line, was made from a solid sheet. The plate of the convex surface is composed of two sheets each cut

according to the pattern shown in Fig. 42c and united in the following manner: First, the tongue, D, was bent to a right angle with the remaining portion. Then the sheet of the other side



FIG. 42a. Transverse section.

being prepared in a corresponding fashion, the two were brought together in such a way that the tongues were in apposition and the margins overlapped at E and F, Fig. 42b. Rivets along

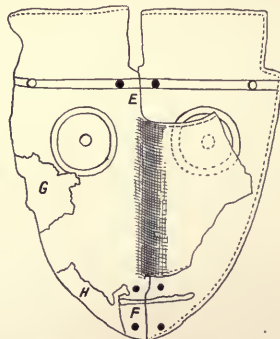


FIG. 42b. Convex surface.

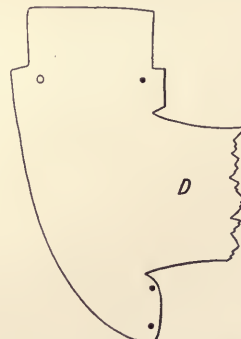


FIG. 42c. Pattern of one-half
of convex sheet.

these margins, as indicated at E, F, in Fig. 42b united the sheets, while the edges of one tongue were bent around those of the other as shown by the dotted lines. The plate thus formed was decorated as represented in the cut, and attached to its companion by applying it against the convex surface and turning its edges around the margin of that plate and pressing them tightly against the other side (Fig. 42a and dotted lines on 42b). More rivets than those represented in the cut may have been used in the formation and union of the plates, but fear of serious injury to the

specimen restricted the search. At G and H are indicated places where the convex plate has fallen away exposing the plate beyond.

"The larger ornament was examined on both surfaces as carefully as its condition would allow but no rivets were discovered. It was, however, apparently constructed after the fashion of the convex sheet of the smaller ornament, as shown by the overlapping at the point, by the fissure along the median line of the concave surface and by the apposed tongues projecting from the convex surface."

REMARKS.

It is probable that the demolition of the Grant mound was a work as extensive and as carefully conducted as anything of the kind ever undertaken in this country. During the entire investigation not one object in any way connecting the mound with a period subsequent to White contact, was discovered. Under the circumstances, we think the mound and its contents may safely be assigned to a period prior to the arrival of Europeans.

LOW MOUNDS SOUTH OF GRANT MOUND.

About 500 yards in a southerly direction from the Grant mound, in dense underbrush, was a series of low elevations of irregular shape, which had been considered of natural formation, by persons who knew of their existence.

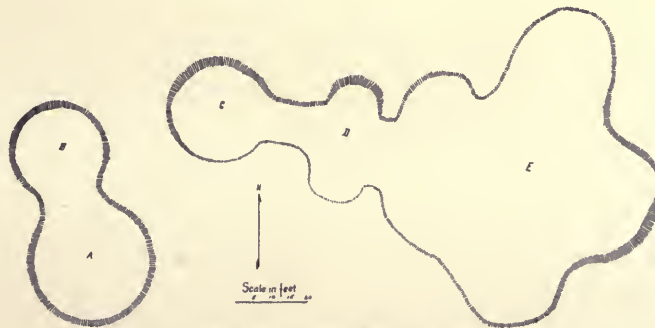


FIG. 43. Plan of low mounds south of Grant mound.

It was difficult to determine whether these earthworks consisted of one curved ridge with occasional depressions, or a number of low intersecting mounds. For purposes of description we shall treat them as a series of mounds as figured in accompanying plan (Fig. 43). The mounds were totally demolished by permission of James B. Grant, Esq., the owner.

Mound A. Height, 4 feet; diameter of base, 36 feet. But two burials were discovered in this mound, both of the bunched variety, one representing portions

of two skeletons. In addition, two bones were found separately. All skeletal remains and, with trifling exceptions, all artifacts were deposited near the margin.

In the southern margin, about 1 foot below the surface, was a small vase, imperforate as to the base, with interesting decoration as shown in Plate LXXV, Fig. 4. A portion of the rim is wanting. This vase was apparently unassociated with human remains.

Two feet down in the S. S. W. margin, unassociated with human remains, were two bowls, each of about three quarts capacity. The material is inferior. Traces of red pigment are visible exteriorly.

With a bunched burial in the southern margin, 3.5 feet from the surface, were: one pebble-hammer; one rounded mass of stone about 2.75 inches in diameter, flattened on one side and slightly pitted at places; one columella of a large marine univalve, considerably affected by decay.

A polished stone "celt" lay 3.5 feet from the surface, about 1 foot above a bunched burial.

With no human remains in association, or, at least, with none remaining, 4 feet from the surface, were: one small "celt;" one slab of bituminous slate, 5 inches by 6.25 inches by .75 of one inch, rudely cut in the form of a keystone; three sheets of mica.

One and one half feet down was a bowl with inverted brim, of about one quart capacity, bearing traces of red pigment. Immediately beneath were: three incomplete arrow-heads; a portion of another; ten fragments of chert and of sandstone, showing workmanship to a certain extent. No human remains were encountered near these relics.

Several other vessels of ordinary type, crushed by weight of sand, were met with in the mound and numerous sherds of good material, with the complicated stamp of Georgia and of Carolina, lay loose in the sand. This intricate stamped decoration is not met with on the St. John's river farther south than Dunn's Creek, ten miles above Palatka.

Mound B. Height, 2 feet; diameter of base, 28 feet. With the exception of one fire place, no evidence of human origin was encountered.

Mound C. Height, 3 feet; diameter of base, 30 feet. One small sherd alone was recovered from this mound.

Mound D. Height, 3 feet 4 inches; major and minor axes respectively 36 feet and 17 feet.

Together, toward the center, with a few fragments of human remains, in sand dyed with red hematite, 4 feet from the surface, were: eleven conchs (*Fulgur carica*); numerous shells of salt-water mussels; many sections of columellae of marine univalves; several small bits of stone.

In the margin, about 3 feet down, was a pocket of cherry colored sand leading to a mass of crimson pigment, followed, on the same plane, by a seam of cherry sand, about 1 foot in length, connecting with another mass of pigment.

No human remains were discovered in association, nor were there apparently any farther traces of skeletal remains in any other portion of the mound.

Mound E. Five feet eight inches in height; major and minor axes 91 feet and 78 feet respectively.

This mound was dug through with great care at a level considerably below that of the surrounding territory.

At but four points in the mound were skeletal remains encountered. All interments were of the bunched variety, in no case representing the full complement of bones.



FIG. 44. Sherd with complicated stamped decoration. Low mounds south of Grant mound. Mound E. (Full size.)

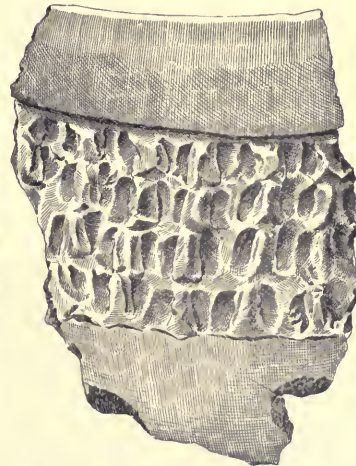


FIG. 45. Sherd showing pinched decoration. Low mounds south of Grant mound. Mound E. (Full size)

The mound was literally filled with earthenware—whole vessels, fragmentary ones, and sherds. Many sherds bore complicated stamps, one of which we show in Fig. 44. Another had a pinched decoration (Fig. 45).

With an isolated cranium, 2 feet 8 inches from the surface, lay a piercing implement of bone, badly decayed, with a number of large fresh-water mussel shells

(*Unio Jayanus*, Lea), pierced through the impression of the anterior adductor muscle, to enable them to be worn strung as a necklace. These large shells with the nacreous portion in evidence, must have made an effective showing. In addition, were portions of columellae of marine univalves and a vessel of earthenware. This vessel, 12.2 inches in height, has a maximum diameter of 8 inches. It is centrally constricted and decorated and has decoration below the margin. It is imperforate as to the base and absolutely intact and is by far the finest specimen of earthenware recovered by us from any Florida mound. Considerable soot remaining upon it shows it to have been in actual use (Plate LXXVI).

With a small earthenware pot was a graceful ovoid vessel of good material, handsomely decorated beneath the rim (Plate LXXVII). Its height is 7.2 inches; its maximum diameter, 5 inches. Considerable soot still remains upon it, showing culinary use for so ornamental a vessel. A portion of the rim and body is wanting through a fracture previous to inhumation as the missing portions were not present with the remainder of the vessel. Below the line of the fracture is a perforation with a semi-perforation a short distance away. It is evident that the intention was, by boring holes in the broken portion, to attach it to the remainder, a purpose for some reason abandoned.

A small bowl with two compartments, somewhat crushed, of a type already noticed by us, lay about 1 foot down with many fragments of various vessels. It has been entirely restored. Length, 5.1 inches; width, 3 inches; height, 1.3 inches.

In the northern slope, 5 feet down, were two vessels together, unaccompanied by skeletal remains. One, a bowl of ordinary type but of good material, holding about three quarts, has traces of red pigment inside and out. The rim projects. It is imperforate as to base and otherwise intact with the exception of several cracks produced by pressure.

The other, gourd-shape, of yellow ware, absolutely intact save a slight chipping at the mouth, lay on its side. It is unornamented save for traces of red pigment. Height, 9.6 inches; maximum diameter, 7.7 inches; diameter of aperture, 2 inches (Plate LXXVIII). About 1 foot above these vessels was a layer of charcoal nearly 4 feet in length.

About 1 foot below the surface, with fragments of various vessels, was a vessel with two compartments, and a handle somewhat resembling a third, though much shallower. Small holes had been broken through the bottom of each compartment. In Plate LXXIX, Fig. 1 the vessel is shown, the handle to the front. Length across compartments, 6 inches; across handle and partition, 5.1 inches; height, 1.5 inches.

About 2.5 feet below the surface, with a mass of crimson pigment about the size of a cocoanut, and apparently not in proximity to human remains, were: sheets of mica; two pebble hammers; two chips of chert; a bit of clayey substance about the size of a chestnut; the head of a shell pin with shank missing through

decay; a mass of bituminous clay about 2.5 inches by 3 inches, evenly pitted on one side to the size of about the first joint of a human thumb.

In a central portion of the mound, 3 feet down, together, each resting on its base which showed intentional perforation after manufacture, with no traces of human remains apparent, were five vessels of ordinary type, each of about two quarts capacity. The material was very inferior, several dropping to pieces after discovery. The only decoration was traces of red pigment exteriorly.

Surmounted by crimson sand, 3 feet 9 inches down, together, were: one large tobacco pipe of earthenware of ordinary pattern; one thick sheet of mica, 3 inches by 4 inches, and a bit of marine shell. Here again no skeletal remains were encountered.

In the E. N. E. margin of the mound, 2 feet down, were two vessels together, one in somewhat fragmentary condition, in addition to the loss of a portion of its base. This vessel, of medium size, offered no novelty as to type. Its decoration is parallel lines running diagonally. The second vessel, of ware fully equal to any found by us in the Florida mounds, has a capacity of about five quarts. Bowl-shaped in form, its rim, 1.5 inches in breadth, is inverted horizontally. It is interiorly decorated with crimson pigment. Portions of the vessel, broken but not detached, by pressure of sand, were readily fastened into place. Within it were seven pebbles and two chips of chert. Nearby, on the outside, were two pebble hammers and one small bit of chert. No human remains were evident in association.

In the margin of the mound, unassociated with human remains, together, were two small undecorated vessels, rude and of ordinary type. Their bases were intact.

About 4 feet down was an isolated cranium, badly decayed, lying in cherry sand. One foot distant, in the same plane, lay a pebble hammer of considerable size, showing use, and pitted on one side.

Together, in the southern margin, were many fragments of a small bowl and a globular bowl of about one quart capacity, the bottom of which had been knocked out and, with the exception of a small portion, placed within the vessel.

Two and one half feet from the surface, in the southern margin, apparently apart from human remains, together, were: three small undecorated vessels of ordinary type and poor material, imperforate as to bases; two curious toy vessels, unbroken, with side perforations of suspension, one showing decoration (Fig. 46). In addition was a cylindrical vessel with slightly round imperforate base, the rim somewhat flaring. The decoration is of the complicated stamp variety. This vessel was slightly broken by contact with the spade. With all these were a number of pebbles, chips of chert, and pieces



FIG. 46. Toy vessel of earthenware. Low mounds south of Grant mound. Mound E. (Full size.)



FIG. 47. Pendant of banded slate. Low mounds south of Grant mound. Mound E. (Full size.)

of marine shell which probably at one time had some definite shape. Again, human remains were wanting.

In the northwest slope, together, unassociated with human remains, were two rough undecorated bowls, one imperforate as to base, the other showing perforation intentionally conferred. With these were: one "celt" of polished stone; one small boss of sheet copper; bits of sandstone and a number of pieces of chert resembling small rude arrowheads.

Four feet from the surface, without association, in red sand, was a pendant of polished banded slate, 5.5 inches by 2.5 inches, with maximum thickness of about 1 inch (Fig. 47).

Two feet down, apart from human remains, were a polished hatchet of stone and a fragmentary ornament of sheet copper with central double perforation.

A small vessel of ordinary type lay 3.5 feet from the surface. With it was an undecorated cylindrical vessel with rounded imperforate base and slightly flaring rim. Height, 7.25 inches; maximum diameter, 4 inches; aperture, 3.75 inches. With these, placed one within the other, were several cockle shells (*Cardium*).

Occupying a central position in the mound, 5 feet from the surface, in pale cherry sand, was a curious medley of objects with fragmentary remains of an adolescent at one extremity and probably the entire skeleton of a young child at the other. Included in the deposit were: bits of charcoal; a large clay tobacco pipe of the usual type; a curious object of polished sedimentary rock (Fig. 48); a slab of syenitic rock, entirely smooth and slightly concave on one side, probably a sharpening stone; several phalanges of the deer; part of the core of a buck horn; two "celts;" hammer stones; pebble hammers; pebbles; a small fragment of bitumen; many worked portions of columellae of marine univalves; numerous chips of chert, some very diminutive; one arrowhead; bits of coquina; sheets of mica; a small bit of clayey substance; one small undecorated earthenware bowl; one cutting implement of chipped chert; many large and small beads of shell; a circular ornament of sheet copper.

Throughout the mound were various other bowls of ordinary types, some imperforate; pebbles; bits of marine shells and the like, variously associated and often in pockets of cherry or reddish sand.

At various points were considerable deposits of bits of earthenware representing parts of different bowls, but in no case sufficient for restoration.

REMARKS.

These low mounds offer, so far as the earthenware is concerned, a striking contrast with their near neighbor, the great Grant mound. In that mound the earthenware, almost entirely of the "freak" mortuary variety, showed no marks of domestic use, while the vessels in the low mounds were in many cases evidently originally intended for culinary purposes and bore on their bases and sides, the soot received during domestic use. Earthenware of complicated stamped decoration, virtually absent from the Grant mound, abounded in these low neighboring mounds.

As we have stated, human remains were encountered at but four points in the largest mound. That so great a heap of sand should have been thrown up for so few interments seems unlikely, in view of the number of art relics found in every portion. In mounds where relics are inhumed in a general way, they are found in a central position and somewhat superficially. We deem it not unlikely that all traces of other interments in this mound have entirely disappeared.

Nothing was discovered in these low mounds in any way connecting them with a period other than pre-Columbian.

LOW MOUNDS NEAR HORSESHOE LANDING.

These low mounds and ridges lie about 500 yards in a southerly direction from the landing. They were thickly covered with scrub and had sustained no previous examination. Our investigation was conducted with the kind permission of J. B. Parsons, Esq., the owner.

Mound A, the easternmost, was somewhat irregular in shape, and had an average diameter of base of 50 feet. Its maximum height was 3 feet 7 inches. It was completely demolished.

Human remains were encountered but four times, in each case but a small portion of the skeleton being represented.

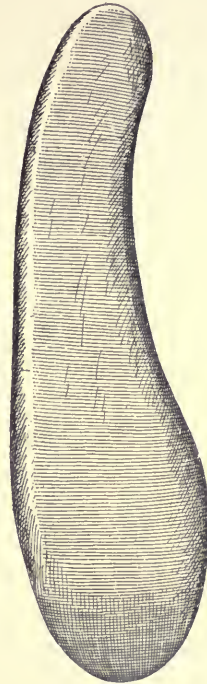


FIG. 48. Unidentified object of sedimentary rock. Low mounds south of Grant mound. Mound E. (Full size.)

Sherds were infrequently met with. Several bore the complicated stamp of the type encountered in neighboring low mounds. Three undecorated vessels of medium size and of poor material came from various depths. One of these, on four sides, about equidistant, showed careful chipping away of material without perforation. The base had been treated in a similar manner over an extent about 2.5 inches in diameter. We have before met with chipping of this nature at one or possibly two points on the surface of certain vessels, but never before have we noticed it executed with such evident intent.

Three feet down was a small hatchet of stone and two arrow heads, in a pocket of sand blackened by fire. No skeletal remains were in association.

Together, unassociated with human remains, 3 feet down, were eleven fragments of stone including four partially completed arrowheads, the end of a polished chisel, and six bits of chert. In addition, variously associated, were small "celts," mussel shells, smoothing stones, pebbles and arrowheads. Several of these arrowheads were coated as to the tangs, with bitumen which bore the impress of some long-fibred wood, probably reed or cane.

Certain others smaller mounds in the immediate neighborhood were partially investigated with negative results.

About one quarter of a mile in a southerly direction from the

low mounds was a mound on the property of an old colored man named Brutus. Its shape was somewhat unusual (Fig. 49).

A careful investigation, not, however, carried to complete demolition, indicated its erection for other than sepulchral purposes.

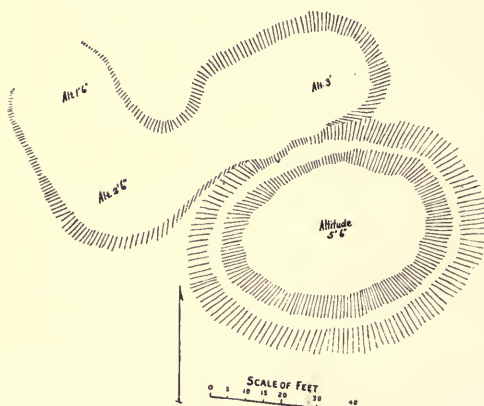


FIG. 49. Plan of Brutus mound.

BROWARD MOUND.

This symmetrical mound, in the pine woods, about one quarter of a mile northwest from Cedar Creek Landing, had a height of 8 feet, a breadth of 60 feet across the base.

It was totally demolished with the courteous permission of its owner, Napoleon Broward, Esq., of Jacksonville.

Above the level of the surrounding territory was an irregular layer, from 6 inches to 14 inches in thickness, of pure white sand often containing beds and

pieces of charcoal. The remainder of the mound was of yellowish sand with local streaks and pockets of white sand throughout and several small seams of cherry colored sand in the northeastern portion.

Human remains were not present in the marginal portion of the mound but were encountered toward the center at twelve different places. The usual bunched burial of fragmentary portions of the skeleton prevailed. Four times, isolated crania were encountered. Again, shafts of a femur and tibia lay with a pelvis and a single vertebra. In one case two long bones represented an entire burial and again, a single humerus was found unassociated. The bones, in the last stage of decay, were encountered at different depths, from the base to within a short distance of the surface.

Sherds were infrequently met with.

Two and one-half feet from the surface, near no human remains, was an interesting cylindrical cup 4.4 inches in height, with a diameter of 2.8 inches. It is absolutely intact. The base is flat, permitting the maintenance of an upright position. There are two holes for suspension at opposite sides of the rim. It has interesting incised and punctate decoration (Plate LXXIX, Fig. 2).

Chippings, flakes, and cores, of chert, so abundant in some mounds, were wanting in this one.

In all, five polished stone hatchets were met with, four separately in caved sand, one about 2 feet from the surface. None seemed to be in the neighborhood of human remains.

A serrated arrowhead of chert lay, unassociated, 1 foot from the surface.

A pebble about 2 inches long, showing use at either end, completed the list of art relics taken from the mound.

REMARKS.

The Broward mound is typical of a certain class of sand mounds met with on the St. Johns in that the considerable amount of material was wholly disproportionate to the small number of interments.

In another respect also it was typical of certain mounds of the river. All relics were comparatively centrally located, and, so nearly as could be determined, at no great distance from the surface and unassociated with skeletal remains, showing the inhumation of art relics to have been made toward the completion of the mound, in common. There were, however, it must be remembered, many mounds on the St. Johns, not embraced in this class, where artifacts were discovered from the margin throughout and associated with human remains. Of this class of mounds were that at Tick Island, Thursby mound, the mound at Blue Creek, and others.

Nothing in the Broward mound gave evidence of White contact.

LOW MOUNDS NEAR REDDIE POINT.

About one-quarter of a mile in from the landing at Reddie Point were two low mounds on the property of Dr. Anita Tyng.



FIG. 50. Sheet of mica given the outline of a lance-point.
Larger mound near Reddie Point. (Full size.)

Two "celts" and two arrow-heads were found separately, and numbers of pebbles and pebble hammers variously associated. Mica was in comparative abundance. One sheet had been rudely given the outline of a lance point (Fig. 50).

Four feet from the surface, with human remains and shell beads, some over one inch in length, was a neatly made ornament elliptical in shape, with central

The larger mound had a base diameter of 80 feet. The territory is reported to have been in use for years as a cotton field, and the mound had been virtually levelled. At three points near the margin were deep depressions from which the material had been taken. The mound was dug through at a depth varying from 4 feet to 6 feet below the surface. It was composed of yellowish sand, unstratified, with the usual charcoal and fire places.

Human remains, infrequently met with and fragmentary, were found so far down as 4 feet.

Earthenware was represented by several vessels of ordinary type and size, undecorated and of poor quality. All showed portions missing from the base through intentional fracture. Other pots had important portions missing and evidently had been utilized for mortuary purposes.

Sherds were mainly undecorated, some, however, bearing an intricate stamped design (Plate LXXIX, Fig. 3).

Two "celts" and two arrow-

perforation. The material is of sedimentary origin, composed mainly of iron pyrites. Length, 1.3 inches; breadth, 1.2 inches (Fig. 51).

Apparently unassociated was a mass of somewhat deteriorated *Hematite*, about the size of a clenched hand.

A small fragment of sheet copper lay with human remains.

Near an isolated lower jaw were three small ornaments of sheet copper, of

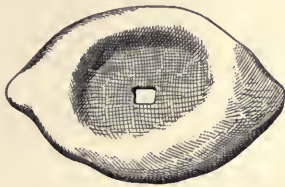


FIG. 51. Pendent ornament. Larger mound near Reddie Point. (Full size.)



FIG. 52. Ornament of sheet copper. Larger mound near Reddie Point. (Full size.)

about the same size, oblong with rounded corners (Fig. 52) and a portion of another. At the end on one side of each of the three unbroken ones was a flat circular deposit of bitumen, used for purposes of attachment.

About 25 yards east of this mound was another with a height of about 1.5 feet and a diameter of base of 60 feet.

It was completely dug through.

No copper was present in this mound. In other respects it resembled many mounds of the neighborhood as to deposits of mica, pebble hammers, arrowheads, and the like.

MOUND AT DANIEL'S LANDING.

This mound, about one-quarter of a mile in a northerly direction from the landing, had long been under cultivation, and had previously been dug into to a considerable extent.

Its height was 2.5 feet; its diameter of base, 60 feet. It was virtually demolished.

The usual fragments of shell, mica, etc., were present with fragmentary human remains.

LOW MOUNDS AT ALICIA.

On the property of John G. Driggs, Esq., of Jacksonville, to whom our thanks are tendered for permission to investigate, at Alicia, about 400 yards in from the landing, were four low mounds.

Mound A. Height, 3.5 feet; diameter of base, 45 feet. This mound was about two-thirds demolished by us, human remains in small fragments being encountered at three points. Near the center was a mass of sandstone pitted on

either side, weighing about ten pounds. Nothing else of interest was encountered.

Joining mounds A and B was a causeway about 28 feet long, 1 foot 4 inches in height, with an average width of 12 feet at the base.

Mound B. A considerable portion of this mound had been carted away for use on the neighboring orange grove. The discovery of many art relics is said to have been made at the time. The height of the remainder of the mound was about 18 inches. Judging from trees still remaining, the original maximum altitude was from 3 feet to 4 feet. The diameter of the base was 86 feet.

The mound was carefully dug through by twenty men during two and one-half days.

The sand was of a brownish color, apparently from effects of fire and a considerable intermingling of particles of charcoal. This combination extended about 2 feet below the level of the surrounding territory. Relics were found from the margin in, both above and below a dark line showing a large percentage of charcoal, which ran through the mound at the level of the surrounding territory and seemingly marked where a fire had been built after the filling of an excavation.

Human remains were represented by small fragments in the last stage of decay.

As much of the contents of this mound suggest those of many low neighboring mounds, we shall not give in detail the various associations of pebbles, pebble-hammers, mica, chips of chert, hones of sandstone, marine shells, and fragments of shell contained therein.

Three "celts" were met with, several arrowheads, small pendants of shell, and at one point a large mass of crimson pigment.

Near the base, that is to say about 2 feet below the general level, or 3.5 feet down, together, were: two pebbles; a toy pot; a shark's tooth, and 142 minute chippings of chert.

Earthenware constituted the feature of the mound, and was encountered in great abundance, though, with two or three exceptions, so poor was the material that vessels were recovered in a very fragmentary condition. Certain large vessels and numerous smaller ones, inhumed with portions missing and badly crushed by weight of sand, were abandoned.

Sherds were abundant and, in common with fragmentary vessels, presented various intricate stamped designs shown in Plate LXXX, and Plate LXXXI, Figs. 1 and 2.

Lined and punctate decoration also was represented on fragmentary vessels and sherds, while in one case the use of a small tubular stamp was apparent, showing a circular prominence surrounded by a depression.

Of the larger vessels, some of so much as about four gallons capacity, none was capable of restoration. Four vessels were recovered intact, and nine in a more or less imperfect condition. Four vessels were imperforate as to the base; the remainder, and apparently all others interred in the mound, had suffered intentional mutilation of the base after completion.

Two small bowls lay together, one containing the other. A vessel of good material, thick and heavy, somewhat globular, with sloping rim, is decorated with red pigment inside and out. A portion of the base is missing. Maximum diameter, 5.8 inches; depth, 3.4 inches; diameter of orifice, 3.6 inches (Plate LXXXI, Fig 3).

An interesting vase was recovered virtually intact. Its height is 9 inches; maximum diameter of body, 4 inches; diameter of aperture, 4.2 inches. The imperforate base is flat with a diameter of about 1.75 inches. Interesting incised and punctate decoration surrounds the rim to a depth of about 2.5 inches. On one side are two perforations about 1.5 inches apart, nearly three inches below the rim. Their use is not apparent (Plate LXXXII).

One tobacco pipe of earthenware came from the mound. The type is the same as that found in the neighboring mounds with the exception that, on the part facing the smoker, two raised parallel lines, one at either side, run the entire length of the pipe.

The two remaining mounds at Alicia, each about the size of Mound A, were not investigated. One had been utilized as a place of burial within recent years.

DENTON MOUND.

About one-half mile east of Chaseville, in thick undergrowth, was a ridge or possibly three intersecting mounds of irregular shape, the largest to the east, two smaller side by side to the west. The length of the ridge was 77 feet. The eastern end was 40 feet across; the western, 30 feet. The maximum height, which was near the eastern extremity, was 2.5 feet. These low mounds were not before supposed to be aboriginal remains, and had undergone no previous investigation.

They were completely dug through with the consent of the owner, James L. Denton, Esq., of Jamaica, N. Y.

The usual yellow sand and charcoal were present.

Human remains were few and very fragmentary.

Sherds were infrequently met with. One small bowl, undecorated, was broken by contact with a spade. An undecorated globular vessel, perforated through the base after completion, had a height of about 2.5 inches, and a diameter of 3.75 inches approximately.

Three feet from the surface, in numerous fragments, crushed contemporary with or previous to inhumation and with certain missing portions chipped off by use of a pointed tool, was a vessel of great interest. This vessel, of excellent material and graceful design, with incised decoration of straight diagonal and of curved lines, has on one side, the repoussé head of a duck, neatly made. The upper portion of a similar head is on the opposite side. As we have said, this form of ornamentation, so novel for Florida, is, in this case, repoussé, and was not modelled previously and fastened on by pressure, as is the case of the human head from the mound near Old Okahumpka, described in this volume. These two ex-

amples of such use of effigies of heads are the only ones to come under our notice in Florida. The height of this interesting vessel is 7.75 inches; its maximum diameter, 10.5 inches; diameter of aperture, 4.5 inches. It is shown, pieced together, in Plate LXXXIII, while in Plate LXXXIV, Fig. 1, we give a front view of the head.

We have above alluded to the chipping off of portions of vessels, with pointed implements. In Part II of our report on the St. Johns mounds we spoke of many sherds not broken but detached by piercing implements, and stated that this curious custom seemed to be confined to a limited area bordering the lower portion of the St. Johns River. Since the publication of that report, we have noted the occurrence of these peculiar sherds and of vessels intentionally deprived of certain parts by the aid of pointed implements, at points throughout a wide area, including a mound on the Econlockhatchee Creek, Orange County, about thirty-five miles by water south of Sanford, and certain mounds of Crescent Lake, Putnam County.

A sheet of mica and a handsome arrow point of jasper were the only other art relics discovered in the mound.



Fig. 53. Lance-head of chert. Mound at Chaseville.
(Full size.)

About 10 feet south of the western extremity of the Denton mound was a mound about 1 foot in height and 20 feet across the base. In the center, about 2.5 feet down, was a small layer of charred human bones. Two or three sherds completed the contents of the mound.

TWO LOW MOUNDS AT CHASEVILLE.

On the property of Mr. I. Harrington, who readily granted permission to explore, was the site of a mound which had been entirely leveled and carted to an adjacent field. The diameter was about 30 feet. It probably once had a height of about 2 feet.

It was completely dug through at a depth of 2.5 feet below the surface. The usual

mica, chips of chert, fragments of marine shells, variously associated, were present, and in addition, a noble barbed lance-head of reddish chert, 5 inches in length, lying with a shell chisel at a depth of 2 feet (Fig. 53). No human remains were met with.

A few yards from the mound just described, on the property of Mrs. Mary Bennevis, was a mound one foot in height, with a diameter of base of about 20 feet.

About 1.5 feet from the surface was a central deposit of human bones representing parts of various skeletons. No others were met with.

Loose in the sand and singly were: one undecorated bowl in fragments; one cube of lead sulphide; one arrowhead; one bit of pottery intentionally given the outline of the arrow point and various sherds.

LOW MOUNDS AT FLORAL BLUFF.

By the roadside, about 300 yards inland from the landing at Floral Bluff, on the property of Mr. G. H. Shepard, to whom we wish to express our thanks, was an asymmetrical mound, or, more properly, a V-shaped ridge, having its maximum height of 4.5 feet in the western arm, about 50 feet from the apex which points almost due south. The western arm has a length of 170 feet; the eastern, about 30 feet less. The maximum width of the western arm was 46 feet; that of the eastern, 37 feet.

The most prominent portions of the ridge were dug through at considerable depth.

Human remains—mere fractional portions of the skeleton—were encountered seven times, all within an area of a few square yards, beneath the highest portion of the ridge.

With human remains, about 3 feet down, was a large tobacco pipe of earthenware, one portion filled with bitumen and with a considerable quantity near by. This pipe, somewhat broken, had all portions present. About 1 foot above was a smaller tobacco pipe of earthenware in many fragments and incapable of restoration.

About 3.5 feet from the surface, near human remains, was a vessel of bean-shaped outline of about one quart capacity. Its base is intact. Traces of red pigment are inside and out (Plate LXXXIV, Fig. 2). With it were many pebbles and chips of chert.

At various depths were nests of fragments of parts of different vessels laid away together, and one deposit of many minute chippings of chert.

Two Sand Mounds on Murphy
Island, Florida.

BY CLARENCE B. MOORE.

TWO SAND MOUNDS ON MURPHY ISLAND, FLORIDA.

BY CLARENCE B. MOORE.

Murphy Island, on the eastern bank of the St. Johns River, by water ten miles south of Palatka, Putnam County, is separated from the mainland by a small stream known as Murphy Creek.

Two sand mounds and a considerable shell deposit were briefly noticed by us in Part I, "Certain Sand Mounds of the St. Johns River, Florida."¹

Unfortunately, during our investigation of the mounds of the St. Johns, we were unable to come to terms with the owner of the property, but have, however, availed ourselves of an arrangement subsequently made.

Neither of the sand mounds on Murphy Island is believed to have sustained any previous investigation, with the exception of a small hole in one, made by a party of excursionists from Palatka during part of one day in the early seventies.

The northernmost mound, visible from the steamboat landing, was one of the most symmetrical earthworks we have encountered in Florida. Its shape was almost a perfect truncated cone; the slope of the sides being at an angle of thirty degrees. The diameter of base was 80 feet; that of the summit plateau, 21 feet; the height 11 feet 9 inches.

Large sweet-orange trees and towering palmettoes grew on the top and sides.

The mound was totally demolished by us during four and one-half days of June, 1895.

The body of the mound was composed of the whitish sand of the surrounding territory, with the marginal portions, 4 feet or 5 feet in, dyed a light pink through intentional admixture of the red oxide of iron. Pockets of pink sand and of light chocolate colored sand, some of considerable size, were encountered throughout the mound. The material of the mound was notably cohesive as through a certain admixture of clay. Although a considerable deposit of *Paludina* and *Ampullaria* with fire places, fragmentary bones of lower animals and all the usual midden refuse, exists within a short distance of the site of the mound, no shells were encountered at any depth beneath the immediate surface where cultivation would not explain their presence. We were informed that superficial shells had been hauled from the adjacent shell heap to serve as a fertilizer.

¹ Journ. Acad. Nat. Sci., Vol. X.

HUMAN REMAINS.

Burials were of the bunched variety, which, our readers will recall, consists of piles of bones previously denuded of flesh by exposure to the elements. In this case separate interments were often represented by isolated crania or by various long bones of one skeleton or of several individuals.

Certain burials found near the surface with iron implements and glass beads had also the appearance of belonging to the bunched variety of interment, though of these we may not speak positively as they had possibly been subjected to disturbance by subsequent cultivation of the mound and the setting out and removal of orange trees.

In that portion of the mound included in the slope and not covered by the summit plateau, human remains were noted at forty-eight different points, many of these deposits, however, including the remains of a number of individuals.

In that portion of the mound beneath the summit plateau, that is to say, a mass of material about 12 feet high and 21 feet in diameter, interments were so numerous at places and so frequently in contact—single crania, bunches of long bones and great layers of human remains, over one foot in thickness in places—that all efforts to record the number of individuals represented, were abandoned. Moreover, in many places—and this applies also to other portions of the mound—mere discoloration of the sand or at most yellowish powder, marked the former presence of bones.

No human remains were encountered at a depth greater than 12 feet, though certain objects of aboriginal design were fully one foot lower.

No skeletal remains were preserved.

EARTHENWARE.

The earthenware of this mound was of markedly inferior quality and design.

In the northern portion of the mound, including about one-third of the circumference, beginning near the margin and extending in for about 15 feet, between 2 and 3 feet from the base, was a curious layer of bits of earthenware and considerable fragments of vessels. These sherds were not laid in close proximity but at irregular distances, here and there, as though strewn upon that portion of the mound during its erection. No human remains were encountered with these sherds.

None but comparatively small vessels were recovered intact, though, from a considerable depth, near the center of the mound, four vessels of several quarts capacity each, but fragmentary and incomplete, were found in association. Several large fragments and one complete vessel had basal supports which we have noted as present in but three or four other mounds of the St. Johns. The use of feet on early aboriginal earthenware is unusual in any section of the United States, and

we are informed that the clay pots found in Ontario are round bottomed and without supports.¹

It has been suggested that feet on aboriginal vessels of earthenware might possibly be attributed to an imitation of metallic forms obtained from the Whites. So far as our experience goes, we are strongly inclined to doubt this, since we have always obtained earthenware with basal supports from depths to guarantee original deposit in mounds where evidence of European influence, if present at all, was superficial. Moreover, the European kettle with feet, if we mistake not, had three supports, while the pottery of the Florida mounds, when supplied with feet, has four.

While the bases of a majority of the vessels of the mound showed perforation after manufacture, some were entire, and a few samples of the "freak" variety of ready made mortuary pottery, with perforation of base previous to baking, also were present. This perforation of the base of earthenware by the aborigines of the Peninsula was done, it is believed, to free the soul of the vessel to accompany the spirit of the dead to the land beyond.

As a rule, though with occasional exceptions, vessels seemed to be unassociated with human remains, though taking into consideration the advanced state of decay of some of the bones, exact determination was impossible. It is not unlikely, however, that most of the earthenware was put into the mound in a general way, and not to accompany individual interments.

In all, twenty-five vessels of earthenware were found in the Murphy Island mound in a condition to justify removal. These, in common with vessels in fragments and isolated sherds, were almost invariably at considerable depth—some so low as 13 feet from the surface. None bore stamped, punctate, or incised superficial ornamentation. One small vessel of the "freak" mortuary variety, 2.5 inches in height with a diameter of 2.7 inches across its laterally extending rim, and 1.65 inches through the body, was covered with crimson pigment inside and out. The base showed perforation prior to baking.

One vessel, 4.4 inches in height with a diameter of 3.5 inches, had a rude fluting around the body surmounted by the remains of an encircling projecting band 1.5 inches below the aperture. The entire bottom had been knocked out. This vessel lay 12 feet down with another broken vessel.

About 7 feet down were three bowls, the largest with a diameter of 14 inches, containing the other two, one within the other. Near by lay a fourth. These vessels, incomplete at the discovery, later fell into pieces, rendering restoration impossible—no great loss, so poor was their quality and so ordinary their type. We have already made reference to them.

Ten feet from the surface was an imperforate pot resembling a crucible in shape. Height, 3 inches; diameter at mouth, 2.2 inches; diameter at base, 1 inch.

¹ "Notes on Primitive Man in Ontario," by David Boyle, Toronto, 1895, page 31.
9 JOURN. A. N. S. PHILA., VOL. X.

With it was a toy vessel also intact as to the base, having a height of 1.5 inches; a diameter at aperture of 1.4 inches, and .9 of one inch across the base (Fig. 54).

A spool-shaped object of earthenware, with edges slightly broken, has a height of 3 inches; a diameter at each expanded end of 2 inches; a diameter through the body of 1.5 inches. These spool-shaped objects of earthenware probably belong to the "freak" variety. We have figured one¹ from the mound at Davenport on the Ocklawaha, and found a somewhat similar specimen in the mound in the pine woods near Duval's, Lake County.

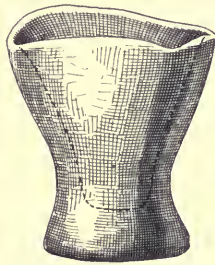


FIG. 54. Toy vessel of earthenware. Northernmost mound, Murphy Island. (Full size.)

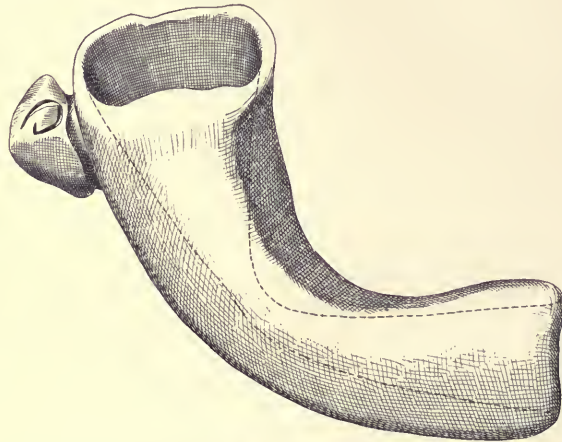


FIG. 55. Tobacco pipe of earthenware. Northernmost mound, Murphy Island. (Full size.)

The remaining vessels from the mound at Murphy Island offered no feature worthy of remark.

But two tobacco pipes of earthenware were recovered from the mound. One, of the usual type found on the lower river, was in fragments, with several considerable portions missing; the other (length, 3.5 inches; orifice of bowl, 1.6 inches by 1.2 inches; orifice of stem, .7 of an inch by 1 inch) is of especial interest, having a rude projecting animal head below the distal margin of the bowl as shown in Fig. 55.

A curious pendant of earthenware, rude and of poor material, came from 11 feet from the surface. Length, 1.8 inches; maximum diameter, .7 of one inch (Fig. 56).

An earthenware pendant or bead, with transverse perforation, found loose in the sand, is shown in Fig. 57. Length, 1.5 inches; diameter, .6 of one inch.

Near human remains, was a ring of earthenware, 1.6 inches in diameter, .7 of one inch across

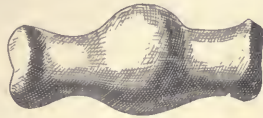


FIG. 56. Pendant of earthenware. Northernmost mound, Murphy Island. (Full size.)

the opening, and .3 of one inch in thickness. It was found 7 feet from the surface (Fig. 58).

COPPER.

The reader of our report on the mounds of the St. Johns may recall that between Jacksonville and Lake Washington—the end of navigation—aboriginal copper was met with in but four mounds. It was, therefore, especially gratifying to find a variety of objects of this metal in the principal mound on Murphy Island.

Well in toward the center, in the northern

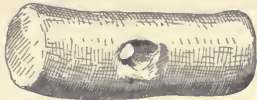


FIG. 57. Pendant of earthenware. Northernmost mound, Murphy Island. (Full size.)

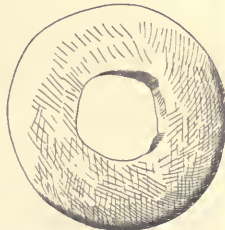


FIG. 58. Ring of earthenware. Northernmost mound, Murphy Island. (Full size.)

portion of the mound, at no great distance apart, but each with a separate interment, 12 feet from the surface, were: (1) fragmentary remains of an ornament of wood overlaid with very thin sheet copper. One side is flat, the other repoussé. The breadth is about 2.2 inches; its original length is undeterminable. With it was a large sheet of mica. (2) An ornament of sheet copper, bent over and repoussé as shown in Fig. 59. A part of one side is missing

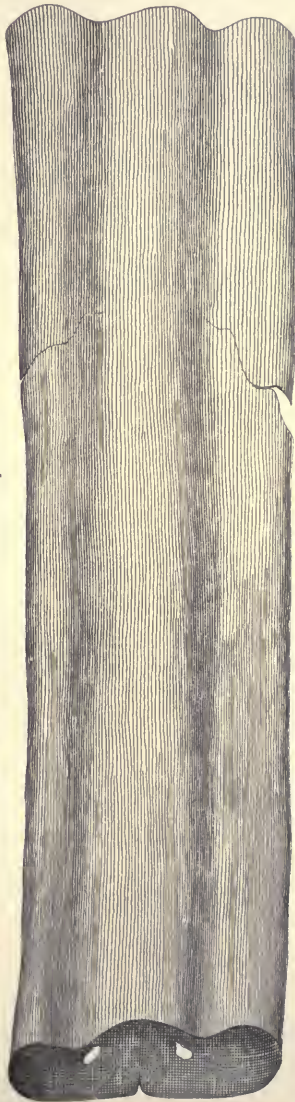


FIG. 59. Ornament of sheet copper. Northernmost mound, Murphy Island. (Full size.)



FIG. 60. Crescent of copper. Northernmost mound, Murphy Island. (Full size.)

through corrosion. At one end of the broken side are two perforations. Length, about 7 inches; width, about 2 inches. (3) An ornament of thin sheet copper apparently at one time coating a tube of some long-fibered substance like cane. It was recovered in several fragments, but probably when entire had a length of about 8 inches, with a slightly irregular diameter averaging 1.5 inches. (4) A fine specimen of sheet copper, entirely unbroken, and not materially affected by corrosion, representing the crescent moon. Distance between horns, 10.3 inches; maximum width, 1.7 inches; thickness, .04 of one inch. About one-half inch from the central part of the convex margin of the body, 1.7 inches apart, are two perforations by the aid of which this ornament, in early times doubtless highly polished, could be fastened to the chest or suspended from the neck, the horns pointing down (Fig. 60).

Toward the center, in the eastern portion of the mound, 12 feet from the surface, with human remains, together, associated with a pendant of shell, were: (1) apparently a number of separate discs, each about 1.8 inches in diameter, of sheet copper firmly cemented together through corrosion and too greatly carbonated to permit any successful attempt at separation. (2) A disc of sheet copper, centrally concavo convex, about 2 inches in diameter. (3) A much corroded object of sheet copper, apparently of the sort known as spool-shaped, supposed by some to have served as an ear-plug, by others, as a button or stud for garments. Similar objects have frequently been figured as coming from Ohio mounds and elsewhere. Diameter of upper and lower portions, about 1.8 inches. (4) An ornament of sheet copper consisting of a disc centrally perforated and symmetrically bent and repoussé, as shown in Fig. 61 with section. Maximum diameter about 2 1/4 inches.

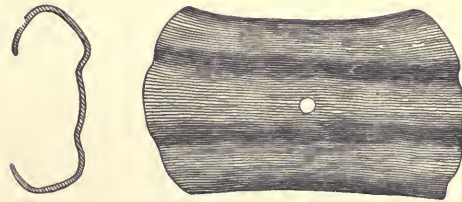


FIG. 61. Ornament of sheet copper. Northernmost mound, Murphy Island. (Full size.)

Loose in caved sand was a small disc 1 inch in diameter. Within its slight concavity lay remains of wood.

SHELL.

Twenty-two specimens of shell drinking cups wrought from *Fulgur perversum* by the removal of the columella and a part of the body whorl, were taken from the mound. Some were intact; others showed an intentional perforation of the bottom. So far as we could determine, these drinking cups, though coming from different points, were all from within a few feet of the surface.

The quantities of small beads so often found with interments were not met with in this mound. At two points, beads from .5 of one inch to one inch in

diameter—thirty in all—were encountered with human remains, while perhaps one dozen others were gathered from various portions of the mound.

Two feet from the surface, with human remains, were two shell discs with diameter of about 3 inches and 2.5 inches respectively, probably cut from the body whorl of *Fulgur*. The smaller had near the margin a double perforation for suspension. In neither was any decoration apparent.

A somewhat smaller disc was found loose in the sand.

Two shell pins, the larger 5 inches in length, lay together, near human remains, 2.5 feet from the surface. Two others, somewhat smaller, also with skeletal remains, were about 2 feet down. A fifth pin was recovered loose in the sand. These pins were all of types previously figured by Mr. Holmes in his exhaustive "Art in Shell," by others, and by ourselves in our account of the mound at East Palatka, Putnam County.

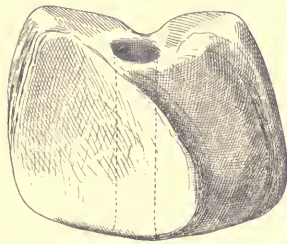


FIG. 62. Pendant of shell. Northernmost mound, Murphy Island. (Full size.)

An interesting ornament, as shown in Fig. 62, is a pendant probably cut from the lip of the great marine *Strombus*. Its length is a little less than 2 inches; its breadth, about 1.3 inches. It had evidently formed a central ornament in a string of little shells (*Olivella*) longitudinally perforated, as one of these still lay in its perforation.

With a layer of human bones, 8 feet down, were four chisels of shell, probably cut from the lip of *Strombus*, approximately from 2 inches to 4 inches in length. With them were two stone "celts" and a columella of some large marine univalve. These columellae, as we have pointed out elsewhere, were probably removed from the shell for shipment, to be manufactured into beads and ornaments.

Several other chisels of shell were found variously associated.

STONE.

During the demolition of the mound, sixty-six hatchets, or "celts," of smooth or polished stone, from about 2 inches to 12 inches in length, were taken from the mound. These hatchets—mainly of igneous rock—presenting no points of difference from other mound specimens, were not separately determined as to material.

A cutting implement of chipped chert, about 3 inches by 6 inches, flat on one side, lay 3 feet from the surface with human remains and several pebbles.

A pitted hammerstone, about 2.6 inches by 4 inches, was apparently unassociated.

Mica was found in but three places.

Twenty-six arrow and lance points of chert and of chert breccia were found separately, at various depths and a number of others associated with various objects. None presented anything unusual as to type.

Ten feet down, in a pocket of red *Hematite*, near human remains, together, were: twelve arrow and lance points; a sharpening stone of claystone, almost rectangular, about 6.3 inches by 3 inches, with an average thickness of about .3 of one inch; one "celt;" a heart-shaped bit of rock, apparently claystone, 3.8 inches by about 2.5 inches, used for sharpening pointed tools, grinding beads, or both, as shown by grooves on either side across its widest part; a small bit of sandstone; one flake of chert, and twenty-two chips of the same material. We have frequently remarked the inhumation of great numbers of fragments, chips, and flakes, of chert, especially in the smaller river mounds between Jacksonville and the sea, while from Mt. Royal, near Lake George, Putnam County, we took 951 associated masses of chert averaging about the size of a hen's egg. Lieutenant-General Pitt Rivers, in his monumental work,¹ speaks of great numbers of flakes, chips, and cores, of flint (which is almost the same as our chert) found by him in the barrows.

Four quartz pebbles; one core of chert; three fragments of fossil bone, shaped to a certain extent, the largest rectangular, about 1.6 inches by 2.5 inches, with an average thickness of .5 of one inch, were found in association. Fossil bones are not infrequently met with in Florida in the clay and in the bottom of streams.

Two and one-half feet from the surface, in immediate association, were: a pebble hammer of quartz, 5 inches long; fifteen smaller pebbles and pebble hammers; three small bits of sandstone; one fragment of an apparently clayey substance; four arrow heads of chert; a small natural formation, tubular in shape; ten bits of fossil bone, some worked to a certain extent; one unidentified object of the same material, about 3 inches long, 1.5 inches high, with an average thickness of 1.6 inches; a portion of a tooth of a fossil shark; an astragalus of a fossil llama,² and a small fragment of striated rock.

Three feet from the surface was another curious medley consisting of: one bit of fossil bone; two rude arrow heads of chert; one pebble hammer; four small pebbles; one chip of chert; four bits of sandstone; two pieces of coquina, and one small fragment of *Steatite*.

All together, 4 feet down, were: sixteen bits of fossil bone from .5 of one inch to 3 inches in length, some by their even edges showing a certain amount of work; ten pebble hammers; thirty small pebbles, one pebble partially ground for suspension, an incipient pendant; seven fragments of sandstone and of other rocks; two chert arrow heads; one tubular bead of soapstone, about .75 of one inch in length.

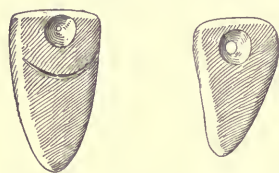
In addition to these curious deposits there lay separately throughout the mound, pebble hammers, sharpening stones, and certain natural formations in the form of tubes, largely used by the aborigines, similar to one figured by us in Part I of our Report on the St. Johns mounds as coming from Mt. Royal, and found in such numbers in the Shields Mound, Duval County.

¹ Excavations in Cranborne Chase, near Rushmore. Printed privately. Three volumes, 1887-1892. England.

² Identified by Professor Cope. Three species of fossil llama from Florida have been described by Ledy.

Loose in the sand was a cuboidal mass of carbonate of lime, with rounded corners, about the size of an English walnut, while apparently unassociated was a mass of undetermined rock about the same size, spheroidal, with depressed poles. A flat pebble of clayey material, about 2 inches by 4 inches, with a maximum thickness of .8 of one inch, has four perforations apparently of natural formation around twigs. These perforations, doubtless, the aborigines had been quick to utilize.

Two small pendants, one of crystalline granular rock, possibly of igneous origin, the smaller of *Agalmatolite*, lay with human remains, 8 feet from the surface, with a small shell chisel. Their shape is triangular and each has a counter-sunk perforation for suspension. In addition, the larger, 1.1 inches in length with a maximum width of .6 of one inch and a thickness of .2 of one inch, has a curved groove extending across one side (Figs. 63 and 64).



FIGS. 63 and 64. Pendant ornaments. Northernmost mound, Murphy Island. (Full size.)

Nine feet down, with human remains, was a handsome pendant of a crystalline rock in which the silica projects while the felspathic material is much decomposed—possibly a *Granulyte*. It is laterally and longitudinally perforated. Two shoulders with median grooves encircle it. A small portion is broken from one side. Length, 3.4 inches; minimum diameter of shaft, .6 of one inch; maximum diameter of shaft, .8 of one inch; diameter of smaller shoulder, 1 inch; of larger, 1.1 inches (Fig. 65).

A graceful pendant of a crystalline granular rock, probably syenitic, came from a depth of 5 feet with a "celt." Human remains were in association. At

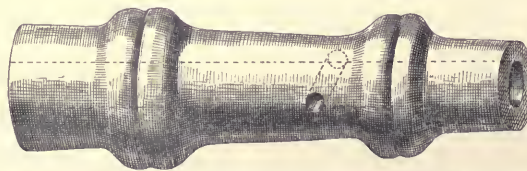


FIG. 65. Gorget of stone. Northernmost mound, Murphy Island. (Full size.)

either end is a rim, while from one end is a small projection as shown in Fig. 66. Length 2.6 inches; diameter of body, 1.3 inches; diameter of larger rim, 1 inch; of smaller rim, .7 of one inch.

A fusiform pendant, probably of steatitic material, grooved at one end for suspension, strongly resembles in shape pendants of shell found by us in the mound on Tick Island and figured in Part II of our report. Length, 3.7 inches; maximum diameter, 1 inch (Fig. 67).

A curiously shaped pendant of steatitic rock, having a length of .9 of one inch and a maximum diameter of 1.2 inches, lay with a burial 6 feet from the surface (Fig. 68).

Two pendants of quartz were found separately in the mound. One, a rough fragment about 1 inch in length, is rudely grooved at one end. The other, a crystal, 1.9 inches in length with a maximum diameter of .5 of one inch, is neatly grooved and shows considerable wear (Fig. 69).

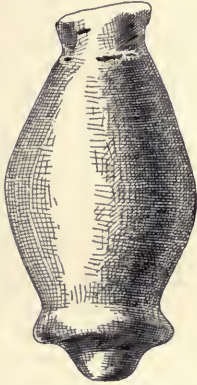


FIG. 66. Pendant of syenitic rock. Northernmost mound, Murphy Island. (Full size.)

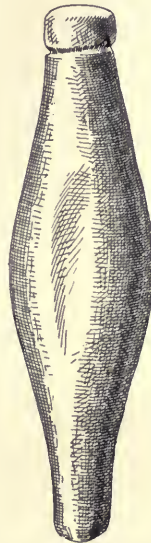


FIG. 67. Pendant of steatitic material. Northernmost mound, Murphy Island. (Full size.)



FIG. 68. Pendant of steatitic rock. Northernmost mound, Murphy Island. (Full size.)



FIG. 69. Pendant of quartz crystal. Northernmost mound, Murphy Island. (Full size.)

We have, in a former report, quoted Laudonnière's statement as to presents of fine crystal, made by southern Indians.

At various depths, though at no great distance from the surface, singly, were seven beads of soapstone, some cylindrical, others oblong, varying in length between 1.1 inches and 2.2 inches.

INTRUSIVE DEPOSITS.

Two and one-half feet from the surface, with a burial and a chisel of stone, was a comb apparently made of leather, with scroll decoration on either side.

With a burial three feet down, were an iron or steel axe with long narrow blade, and an unidentified tool of the same material. With these implements, of

necessity obtained from the Whites, were a number of long blue cylindrical beads of glass and spherical polychrome beads of the same material.

Together, accompanying a burial, 1.5 feet from the surface, were a long knife, two chisels, a triangular chisel or tomahawk, and an unidentified tool, all of iron or of steel.

An implement resembling a modern grubbing hoe, and a narrow bladed axe, both of steel or of iron, lay together with fragmentary human remains about 2 feet from the surface. Near by was a hatchet of polished stone. It is not unlikely that these implements of metal were placed in the neighborhood of a pre-existing deposit of stone, nor is it unlikely that all belonged to the same period, since implements derived from White contact did not at once supplant all products of aboriginal art.

AN OBJECT OF UNDETERMINED DERIVATION.

Twelve feet from the surface, toward the central portion of the mound, in association with human remains, was taken out, in our immediate presence, an object resembling the lower portion of a small nail (Fig. 70). Its length is .8 of one inch. It is affected by the magnet, and is therefore iron or steel or iron ore.



FIG. 70. Unidentified object. Northernmost mound, Murphy Island. (Full size.)

It may be well to explain to the general reader that the aborigines were unable to reduce iron from its ores and that this metal in a native state, if it exists at all on this earth, is of extreme rarity, and that the only iron in aboriginal use in pre-Columbian times was that obtained from meteorites, as is shown by the high percentage of nickel present when analytically tested. There is no reason why the aborigines of Florida should not have been possessed of some small piercing implements of meteoric iron. Unfortunately, the original material of this specimen cannot be determined by analysis, as it weighs but 215 milligrams and is corroded through and through.

It seems unlikely that aborigines in a way to obtain iron and other products of White contact such as lead, pewter, brass, bronze, glass, china, glazed earthenware, etc., should have scrupulously kept them from the body of the mound wherein lay the great majority of the burials and then place upon the base a portion of a single nail.

It may be well, moreover, to state in this connection that not one spadeful of sand was thrown back from this mound save in our presence, and that, in addition, three persons trained to careful mound work for years, were present at all times to aid us. Furthermore, after the discovery of superficial iron, if possible, greater vigilance than ordinary was exercised by all, no part of the mound being left without constant inspection. In addition, the work at this mound was done at the close of the season by picked men mostly for many months in our employ. It is, therefore, unlikely that any deposit in the mound escaped us.



REMARKS.

The contents of the northernmost mound on Murphy Island are of considerably above the average interest. The numerous fragments of fossil bone are new to us, while the collections of pebble hammers, chips of stone, and the like, buried together, have not been met with before above Jacksonville, though in low mounds between that point and the sea, they are common enough. The period when the mound was built depends upon the nature of the small piece of iron discovered at the base, and of this we have already spoken.

SOUTHERNMOST MOUND, MURPHY ISLAND.

About two hundred yards in a southerly direction from the mound we have just described is another in full view of the river, did not a thick growth of sour orange trees intervene. The height of the mound is 10 feet; its diameter of base 70 feet. A number of large forest trees grew upon it. Irregular ridges, evidently artificial, not directly connected with the mound, ran in an easterly direction from it.

Owing to the presence of many orange trees around a portion of the margin, the entire mound was not demolished.

A trench 103 feet wide at the beginning, including the south, southeast and southwest parts of the circumference, was carried in until over one-half the mound had been removed.

The mound proved structurally of great interest. From the start, with its base at about the level of the surrounding territory, was a black layer of midden refuse surmounted by a stratum of sand artificially colored by the use of the red oxide of iron, sometimes pink, and again a bright cherry. Above this was mottled sand containing various local streaks and layers. As the work progressed a second layer of midden refuse was observed.

At the center of the mound, the strata, though somewhat irregular in thickness, were about as follows:

Superficial 4 feet.—Mottled sand, pink, white, and gray at places.

1.5 feet.—Black loam, solidly packed, containing midden refuse, sherds, bones of lower animals, charcoal, and very occasional shells.

6 inches.—Cherry colored sand with pockets, extending into the layer below.

2 feet 10 inches.—Mottled sand.

1.5 feet.—Black loam—midden refuse.

7 inches.—Sand brownish in color, resembling a stain.

Beneath this was pure white sand showing occasional signs of mottling and containing scattered particles of charcoal and at least one worked fragment of chert. There was no definite base line, and how much of this white sand may have been filled into a previous excavation there was no method to determine.

During the entire investigation but seven burials were encountered, all of the bunched variety and none deeper than 5 feet from the surface. In association were several small bits of pottery, a chipping of chert, and, together, two pins of bone.

Occasional sherds were in the midden refuse, and two small imperforate bowls were found separately in the same material. A few arrow heads lay loose in the sand and in the loam.

This curious mound, evidently a place of abode during two extended periods, had been subsequently used to a small extent in the upper portion, for sepulchral purposes.

In default of total demolition we do not feel justified in drawing conclusions as to this mound.

Certain Sand Mounds of the
Ocklawaha River, Florida.

BY CLARENCE B. MOORE.



CERTAIN SAND MOUNDS OF THE OCKLAWAHA RIVER, FLORIDA.¹

BY CLARENCE B. MOORE.

The Ocklawaha river, whose narrow, winding and rapid current enters the St. Johns from the western side of that river, about twenty-five miles above Palatka, has its source in Lake Apopka (see map) though the head of navigation is at the channel between Lakes Eustis and Dora.² From Lake Apopka, running in a northerly direction, it traverses Lake Dora, Lake Eustis and Lake Griffin and continuing first through marsh and then through swamp land and joining Orange Creek, an unnavigable stream, it turns abruptly to the east, pursuing this course until its union with the St. Johns.

Passing through a portion of Lake County, traversing the county of Marion and skirting on the south about one-half of Putnam County, the Ocklawaha, irrespective of curves, has a length of about seventy-five miles. So tortuous, however, is the stream that these figures convey not the faintest idea of the distance to be travelled by water in a journey from the outlet of the river to its source.³

In comparison with the St. Johns, the Ocklawaha had little to offer the aborigines as a place of abode. From the mouth to the union with the stream from Silver Springs (where the acquaintance of the tourist with the river usually comes to an end) the Ocklawaha runs between cypress swamps with very occasional bits of solid land; while above, the course of the stream is through saw-grass marshes offering an equal paucity of landing places.

It is therefore evident that the archæologist exploring this stream, fully cognizant of the fact that the aborigines were no mean judges of living sites, must set out with a less sanguine spirit than would be justified on the St. Johns, especially as it is doubtful whether the lower Ocklawaha, obstructed at every turn as it must have been by huge trunks of fallen cypresses, offered in early times a channel of communication. In point of fact, the paucity of shell-heaps and their restricted

¹ The mound on Bear Island and that at Davenport, within a few miles of the mouth of the Ocklawaha river, have been described in Part II of our "Certain Sand Mounds of the St. Johns River, Florida." *Jour. Acad. Nat. Sci., Phila.*, Vol. X.

² The channel between Lakes Eustis and Dora has, at places, scarcely two feet of water. In addition, two immovable bridges bar the way.

³ A table of distances used on the line of steamers plying on the river, gives as 101 miles the distance by water between the point of union with the St. Johns and the entrance into Silver Springs Run, somewhat less than one half the length of the Ocklawaha, and this, be it remembered, is a less tortuous portion of the stream than that farther south. Between Alligator Landing and Moss Bluff on the upper river, the distance by land is given as three miles by those in a position to know, and as five times that number when the journey is made by water.

size, insignificant if compared with the great shell deposits of the St. Johns, testify to a scanty population.

From the mouth to the end of navigation, the territory bordering the Ocklawaha was found to contain no mound over eight feet in height¹ and very few approaching even that altitude. It has been, therefore, in the power of the ignorant treasure seeker, or of the "relic hunter," even with his limited time and means, seriously to impair the archaeological value of many of these mounds by the removal of central portions—an impossibility in the case of the greater earthworks of the St. Johns.

As the reader will see, the mounds of the river proper were virtually barren, while no rich harvest was yielded by those of the lake country beyond.

This investigation was conducted with steam motive power and an abundant force of men during portions of January and March and all of February, 1895.

We append a list of mounds investigated on the Ocklawaha River, to be followed by a detailed account of those offering any interest either structurally or as to human remains or relics of aboriginal art.

Ditch Creek (2).	Near Umatilla.
Indian Bluff.	Near Fort Mason.
Palmetto Landing (7).	Lake Griffin (3).
Delk's Landing.	Lake Eustis.
Silver Springs.	Near Tavares.
Electra Landing.	Barclay's.
Lake Weir Landing.	Near Yallaha.
Moss Bluff (3).	Richmond Mound.
Stark's Landing (2).	Near Helena.
Hopson Mound.	Okahumpka.
Near Higley.	

MOUNDS NEAR DITCH CREEK, PUTNAM COUNTY.

Ditch Creek enters the Ocklawaha from the left going down, about eighteen miles by water from the river's mouth. About one mile up the creek is a landing and from this landing, about four hundred yards W. N. W., was a mound 1.5 feet in height and 45 feet in diameter of base. It had apparently lost somewhat in height by the trampling of cattle.

It was totally demolished.

It consisted of gray, loamy sand with the usual admixture of charcoal. At one point were two bits of human femur; at another, charred fragments of human bones. Numerous chips, flakes, and two cores, of chert were found and one bit of plain undecorated earthenware.

¹The mounds of Lake Harris, though not properly belonging to the Ocklawaha River, are included in this paper. The territory bordering this lake had one mound of an altitude greater than the limit given above.

About one mile north of the landing at Ditch Creek was a mound 4 feet 9 inches in height and 60 feet through the base. It was much spread out, probably by trampling of cattle and bore marks of previous superficial investigation.

It was completely dug through with the kind permission of J. J. Cummings, Esq., of Beaufort, S. C.

Bunched burials were comparatively numerous, and all or nearly all within 1 or 2 feet of the surface, though, of course, at greater depth when the height of the mound was unimpaired. With one burial were charred turtle bones, while with several were associated calcined fragments of human remains.

About 2 feet down, not far from the center of the mound, was a considerable mass of calcined fragments of human bones mixed with those of lower animals in similar condition. These apparently were in proximity to no interment.

Throughout the mound were sherds of fairly good quality for Florida, some decorated with red pigment, others with incised lines, etc.

With the exception of the sherds and of a rude and somewhat fragmentary cutting implement chipped from chert, no relics were met with.

MOUNDS NEAR PALMETTO LANDING, MARION COUNTY.

Palmetto Landing on the Ocklawaha river is said to be about seventy-seven miles by water from the river's mouth. About one mile in an easterly direction from the landing were five mounds at no great distance apart, while about one half mile and one mile respectively farther in the same direction were two others.

Nearest the landing were two symmetrical mounds with base margins almost in contact at one point. The northernmost had a height of about 5 feet with a base diameter of about 52 feet; the southernmost, a height of 6 feet 3 inches and a diameter of base of 57 feet.

These mounds were completely demolished.

They consisted of coarse yellow sand, unstratified and almost, if not entirely, devoid of the usual intermingled charcoal.

No human remains nor indications of burial nor, with one exception, sherds of any description were encountered.

A number of cores and chippings, of chert with two rude chipped cutting implements of the same material, lay loose in the sand. No other relics of any sort were found.

Fifty-five paces in an easterly direction from the northernmost of the twin mounds was another, with a height of 4 feet 4 inches and 48 feet across the base. The entire central portion of this mound was dug out with no return.

Eighty-five paces northeast of the preceding mound was another, 4 feet 3 inches high with a diameter of base of 55 feet. Absolutely nothing was obtained from this mound.

About 20 paces farther was a fifth mound 3.5 feet high. The base had a diameter of 53 feet. Again careful investigation was absolutely unrewarded.

On the property of Mr. R. D. MacDonald, about one half mile farther to the east, was an unsymmetrical mound of yellow sand. 7.5 feet high and 71 feet through the base. This mound was not demolished. A certain amount of investigation yielded nothing.

Still farther on, about one half mile in the same direction, was a beautiful little mound 4 feet in height with a diameter of base of 68 feet. It was built on the edge of a small lake which bordered a portion of its margin, while the remainder was surrounded by a trench about 24 feet wide and 1 foot in depth, which, in the wet season makes an island of the mound.

It was totally demolished, the task being a very difficult one owing to the presence of great quantities of scrub palmetto roots.

The mound was unstratified. Its material was coarse white sand. The usual charcoal was not noticed. A few sherds, undecorated save one which showed marks of red pigment, were scattered through the sand as were a few flakes of chert and a fragmentary lance head.

Almost centrally situated in the mound, at three separate points, each about 18 inches from the surface, were fragmentary human remains, while a small excavation made by a previous visitor showed fragments of human bones in the sand.

This mound illustrates the amount of work at times undertaken by the aborigines to make a limited number of interments.

We can form no conclusion as to the five mounds nearest the landing. They may have been erected for domiciliary purposes, but it is worthy of remark that no village site refuse was found upon them. But, for that matter, we have never in Florida found any marks of habitation upon any mound which, through absence of human remains and products of aboriginal industry, we have been inclined to assign to the domiciliary class.

MOUND NEAR SILVER SPRINGS, MARION COUNTY.

This mound, about one mile in an easterly direction from Silver Springs, had a height of 4 feet 2 inches, with a base diameter of 50 feet. A trench surrounding it, from which its material had been taken, gave an appearance of considerably greater altitude to the mound.

The mound had undergone much previous exploration. A trench had been dug on one side from the margin to the center, and the upper central portion had been excavated to a depth of about 2 feet.

The mound was totally demolished, being dug through, as is our habit, at a level considerably below that of the surrounding territory. Its material was yellow sand without stratification, but with the usual intermingling of particles of charcoal. In various parts of the mound, especially on the base, were small pockets of sand showing marks of fire.

Burials were of the bunched variety, but human remains, when found, were

in the last stage of decay. At one point on the base was a layer of intermingled bones representing a number of individuals. No human remains were saved.

EARTHENWARE.

Great numbers of sherds, usually undecorated, some, however, bearing traces of red pigment, and, in two instances at least, ornamented with graceful curves and lines, were met with. A number of fragmentary vessels were found which had evidently been interred in an incomplete condition, as careful search failed to reveal the missing portions. This utilizing of otherwise useless earthenware was very prevalent among the makers of the mounds in Florida. Fragments of various vessels showed perforation of the base subsequent to manufacture.

One small vessel somewhat broken (Plate LXXXV, Fig. 1), with everted brim and stamped decoration on the body, had four feet for support, a somewhat uncommon occurrence in Florida, though we have met with it on the St. Johns in

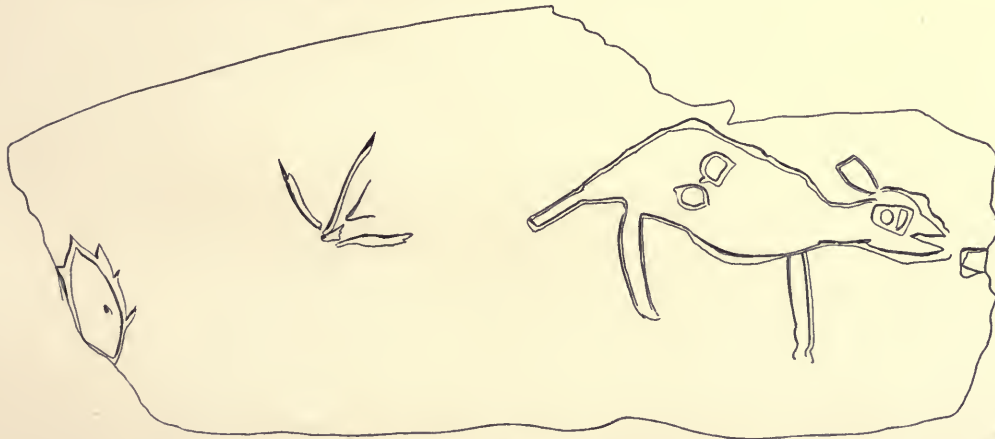


FIG. 71. Diagram of incised delineation. Mound near Silver Springs. (Full size.)

the mound at Racey Point, and seen basal supports on fragments from the mound at Tick Island and on vessels from Murphy Island.

In a portion of the mound at some distance from previous excavations, so far as the most careful investigation could determine, at 3 feet from the surface, in sand where the closest scrutiny could discover no previous disturbance, was found, in our immediate presence, a portion of a small bowl of earthenware. The remainder was not discovered, and was probably not present in the mound. The hollow portion of this fragment contained a solid mass of roots probably belonging to scrub palmettoes on the surface of the mound. Upon examination by us it became

apparent that incised figures were on the fragment, one probably representing a deer, and that others had been on the missing portion, since incomplete figures were at the broken margins at either side. A close inspection showed that a certain amount of soot, gained doubtless during the entirety of the vessel while in use for culinary purposes, still remained upon the fragment, and that the incised figures were cut through this soot, or after the abandonment of the vessel for domestic use. It is, therefore, evident either that the decoration is aboriginal, but made subsequent to the vessel's final contact with the flames, or that our judgment as to undisturbed sand, in the absence of stratification, is at fault, and that the fragment was a recent addition to the mound, left by some previous investigator. It is shown diagrammatically in Fig. 71.

We have submitted this fragment to Professor Putnam and append the opinion of this high authority.

"Thanks for allowing me to see the fragment of pottery from the Florida mound. It is a very interesting piece of incised work, and again shows the rude character of the art of the people who buried their dead in the sand mounds of Florida.

"That the cutting is not recent I think is shown by the edges of the lines, and also by the fact that in the lines forming the front leg and foot there are little

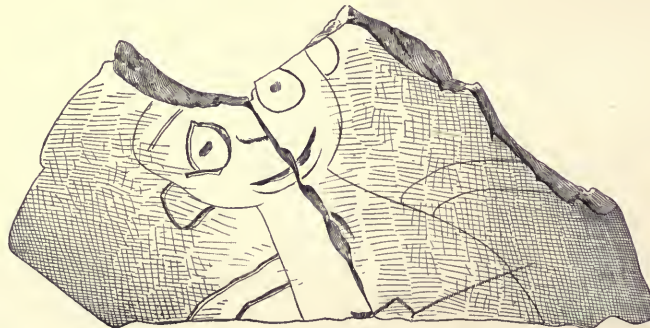


FIG. 72. Incised delineation of human figure. Shell-heap at Mulberry mound. (Full size.)

particles of mica that seem to be cemented to the bottom of the incised lines. Now this, it seems to me, could not have happened if the cutting were of recent date and the bowl put into the mound only a short time ago.

"There is every indication, to my mind, that the carving was made by the people who buried their dead in that mound, and no indication of fraudulent work. The whole thing is in keeping with what you have found before.

"We took a piece of similar pottery from Florida and cut lines upon it of the same character, and we found that in making a very slight line we cut into the black interior of the pottery, and the edges were sharp. Whereas, the edges of

your specimen are smoothed over, as if considerable handling had taken place since they were cut. If you will try this on a piece of the same kind of pottery you will at once see the difference between the lines on the bowl and the lines that you cut."

The incised delineation of an animate object on earthenware has never before been encountered by us in a sand mound, and but once previously in a shell-heap.

In the island shell-heap constituting Mulberry mound, Orange County, Florida, from a depth of 10 feet, were thrown out, in our presence, two fragments of the same earthenware vessel, which, upon being fitted together, showed incised delineation representing a human head and portion of the body, the remainder of the body having been on parts of the vessel not left in that portion of the shell-heap.

Incised delineation of the human form on early earthenware, it may be interesting to know, is believed to be represented by this specimen alone within the limits of the United States and probably beyond. We have given in "The American Naturalist"¹ a full account of our work at Mulberry mound, and have borrowed from it, for comparison, a representation of the incised figure (Fig. 72). Certain parts of the delineation, represented in the cut as less distinct than others, are not of unequal depth, but still contain a certain amount of soot, a relic of pre-historic fires. This point, of considerable interest, shows the decoration to have been made during the entirety of the pot, and not to have been scratched on a detached sherd subsequent to breakage.

STONE.

Flakes and chippings of chert were present in the mound in unusual numbers. Four arrowheads and one drill, also of chert were met with separately.

A small polished cutting implement of compact igneous rock was in caved sand.

On the base, near the margin of the mound, was a small object of sandstone, probably an ornament, a little short of 2 inches in length. Its shape is ellipsoidal, flattened on one side. A median groove is confined to the curved portion.

In immediate association, 4.5 feet from the surface, lay eleven masses of chert showing cleavage, varying in length from 3 to 9 inches, evidently material for implements. Some were several pounds in weight.

SHELL.

At depths showing them to be of original deposit were two chisels probably from the lip of *Strombus* and a gouge from the body whorl of *Fulgur*. One chisel lay with human remains. The other was with a copper bead.

COPPER.

Three cylindrical beads of copper were found during the excavation, all apparently of original deposit. These differed from beads of the same material found by

¹ August, 1893.

us on the St. Johns, on which river all beads are of thin sheet copper or of wood, limestone, or shell, overlaid with a thin coating of metal. The copper beads from this mound were more massive and while the method of manufacture by hammering to overlap the edges was the same, the thickness of copper employed was greater.

MISCELLANEOUS.

The tooth of a fossil shark lay 3 feet from the surface. A notch on either side had served as a medium of attachment by cord or sinew.

REMARKS.

In no portion of the mound was anything found in any way indicating contact with the Whites.

GAMBLE MOUND, MARION COUNTY.

This mound, about one-quarter mile from Stark's Landing, on property of Mr. R. Gamble, of Tallahassee, to whom we wish to express our indebtedness, was demolished by us during three days in February, 1895. We take occasion here to return thanks also to Mr. T. J. McKinnon, superintendent of the grove.

The Mound, long under cultivation, had been reduced to a height of 5 feet 8 inches. The diameter of the base, increased by material from summit and sides, was 76 feet.

The mound was composed of yellow sand, unstratified, with the usual particles of charcoal intermingled. In the sand were present throughout the mound, pockets of fire-whitened sand and deposits of charcoal. One at least of these deposits of charcoal had been made subsequent to the extinction of the fire, as sand unaffected by the flames was mingled with the charcoal.

Throughout the mound, at about the level of the surrounding territory, was a layer of an approximate thickness of 3 inches, composed of fire-whitened sand, mingled with small particles of charcoal. At places in this layer, pockets of sand, nearly one foot in thickness, showing marks of fire, and containing considerable charcoal were met with.

No occurrence of human remains was noted until well on toward the central portion of the mound, when fragmentary bones, indicating the bunched burial, were found, though by no means in numbers proportionate to the size of the mound.

Sherds, plain and stamped in squares, were met with at every depth; also several portions of vessels with base supports. In the eastern margin of the mound, on the base, 2 feet from the surface, was an undecorated bowl 4.5 inches in diameter at aperture and about three inches high. The base has two perforations made subsequent to manufacture, one through the agency of a pointed tool.

Six and one-half feet from the surface was an ellipsoidal object of shell without perforation. These objects are not uncommon in the mounds.

STONE.

Five and one-half feet from the surface was a pendent ornament wrought from a nodule of chert, globular in shape, with grooved projection for suspension. Traces of bitumen surround the groove. The ornament lay in a pocket of fire-whitened sand, though no traces of heat are upon it, and the presence of bitumen



FIG. 73. Pendant made from chert nodule. Gamble mound. (Full size.)



FIG. 74. Pendent ornament. Gamble mound. (About full size.)



FIG. 75. Pendant of silicified fossil bone. Gamble mound. (Full size.)

shows the deposit to have been made after the extinction of the fire. Length, about 2.5 inches; maximum diameter, 1.7 inches (Fig. 73).

A graceful pendant of slate, of a type not met with by us elsewhere, was recovered from previously disturbed sand. Former explorers state that from the small excavation made by them, an exactly similar ornament was recovered. The shape of the pendant is cylindrical, swelling out somewhat at and below the center and then tapering to a point. A groove surrounds the upper portion. Length, 3.7 inches; maximum diameter, .5 of one inch (Fig. 74).

A pendant, probably of silicified fossil bone, in shape somewhat suggesting our "Indian clubs" used for exercise, though thicker at the handle, has a length of 2.6 inches, a maximum diameter of .75 of one inch. Considerable bitumen surrounds the groove and upper portion of the ornament (Fig. 75).

From a depth of 5 feet came a pendant of a sedimentary rock approaching *Agalmatolite*, somewhat similar in shape to the preceding. The lower portion is missing. Its length is 3.5 inches; its maximum diameter, .8 of one inch (Fig. 76).

A pendent ornament of sedimentary rock, elliptical in outline, flattened on



FIG. 76. Pendent ornament, Gamble mound. (Full size.)



FIG. 77. Pendent ornament, Gamble mound. (Full size.)

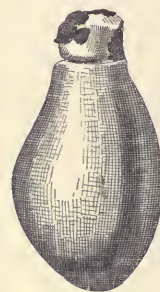


FIG. 78. Pendant of igneous rock. Gamble mound. (Full size.)

one side, with a small portion missing above the groove, has a length of 2.3 inches with a maximum diameter of .6 of one inch (Fig. 77).

A pear-shaped pendant of some igneous rock, with a length of 1.9 inches and a maximum thickness of 1 inch, came from a depth of 3.5 feet. This specimen also has bitumen adhering to the upper portion. A part of one side is missing (Fig. 78).

On the base, in a pocket of fire-whitened sand, was an ovoid pendant of limestone, unfortunately somewhat injured by contact with a spade. Length, 2 inches; maximum width, 1.4 inches.

So far as careful search would indicate, none of these pendants was associated with human remains though it is of course possible that all traces of the former presence of bones may have disappeared. It is worthy of note that the inhumation of pendants seemed to prevail in this mound and that these pendants were uniformly grooved for suspension, bitumen, upon certain occasions at least, having been used to aid in attaching the cord or sinew. We shall see later how, in the mound at Tavares, the pendants, as a rule, had perforation, in which case the use of bitumen would be needless and it was apparently not employed.

A sheet of mica, 2 inches by 3 inches, came from a depth showing original deposit. Sheets of mica, so abundant in the low mounds between Jacksonville and the sea but scarcely found in the larger ones, are of very rare occurrence and found only in small quantities in the mounds of the St. Johns river above Jacksonville.

Two and one half feet from the surface was a portion of a superb lance head or dagger, of chaledony, 6 inches in length. Judging from the point of fracture, the weapon may have been of considerably greater size. Weapons of this character are virtually absent from the mounds of the Ocklawaha and of the St. Johns though the type is not unknown in Florida. Some years ago a hoard of similar ones was unearthed by the workmen on a construction train not far from Palatka. The find, seven in all, if our memory serves, was unfortunately scattered, though one, which we have seen, is in the possession of Andrew E. Douglass, Esq., of the Museum of Natural History, New York, and one of the smaller specimens, which also we have examined, of milk white chert, 11 inches in length, is owned by Mr. Fry, of Palatka.

An arrow head of chaledony lay at a depth of 6.5 feet. Throughout the mound were various chippings of chert.

COPPER.

In caved sand was a bead .25 of one inch in length, of copper somewhat thicker than the usual sheet copper of the mounds of the St. Johns.



FIG. 79. Pendant of copper. Gamble mound. (Full size.)

A massive bead, or rather a pendant of copper, has a maximum diameter of .86 of one inch; maximum thickness of band, .34 of one inch; maximum width of band, .58 of one inch. A groove showing continued wear was apparent on the inner surface (Fig. 79). During all our work on the St. Johns river we have found no ornaments of copper other than those wrought from thin sheets, and why beads of the Ocklawaha, which are made in the same manner, as their overlapping margins testify, are more generously supplied with metal, we are unable to decide.

CONCLUSIONS.

Nothing from the Gamble mound suggested an origin other than pre-Columbian.

HOPSON MOUND, LAKE COUNTY.

At Emerald, in the orange grove of Robert L. Hopson, Esq. of that place, to whom we are indebted for cordial permission to investigate, was an interesting little mound. It had long been under cultivation, and had suffered considerable diminution in height through the agency of the plow. It had sustained but little previous examination. Its height was 4 feet 2 inches; its base diameter, 42 feet. It was carefully dug through at a level considerably below that of the surrounding

territory, since, in nearly all the Florida mounds examined by us, some sort of excavation seems to have been made previous to the erection of the mound proper.

The upper 3 feet was composed of yellow sand, beneath which was sand of a dark color to a depth of 2 to 3 feet. Charcoal was abundant, and numerous fire-places were encountered throughout the mound. Several pockets of sand colored red with *Hematite* were at various depths.

HUMAN REMAINS.

Human remains were numerous. The usual bunched burial prevailed, with, in addition, isolated bones scattered throughout the mound. None was in condition to justify preservation.

One foot from the surface, though of course originally at a considerably greater depth, lay a skull in fragments, the shaft of a femur, a large part of a humerus, and an os innominatum, entirely unaffected by fire, in immediate association with fragments of charcoal and small portions of calcined bones, some unmistakably human and others too small for identification.

At various other points in the mound were fragments of human bones affected by fire.

STONE.

Six polished "celts," as a rule unassociated, were found separately at from 3 to 6 feet from the surface. None exceeded 4 inches in length.

At various depths in the mound, separately, were twelve arrow points, while together, about 6 feet down, almost in contact with a fire-place, were four arrow-heads. These sixteen projectile points, all of chert or of chert breccia, were in each case in a more or less imperfect condition. We have noticed in many mounds a strong aboriginal tendency to be rid of imperfect objects through mortuary deposit and to discharge a duty with as little cost as possible.

Separately, were three pendants of quartz, grooved for suspension, none over two inches in length, one tapered to a point, somewhat resembling an arrow head.

At at least half a dozen points in the mound, sometimes associated with human remains and with other objects, were sheets of mica, some so large as 3.5 inches by 5 inches. One had the form of a circle with a diameter of 3.25 inches.

A few chippings of chert were scattered throughout the mound.

SHELL.

At various points, always with human remains, were beads of shell, at times in considerable numbers. Some were very minute, others nearly 1 inch in length.

As a rule, separately and at all depths, were a number of ellipsoidal objects of shell, imperforate, none over 1 inch in length.

A considerable number of mussel shells were at one point in the mound.

COPPER.

A small tubular bead of copper lay 3.5 feet from the surface, while, with a large number of shell beads 1 foot down, were minute fragments of thin sheet copper.

With human remains, 5 feet 2 inches from the surface, lay an ornament of sheet copper, 1.3 inches by 1.5 inches. Four flutings ran parallel to the lesser diameter. Unfortunately, this object was badly injured by a blow of a spade.

Five feet from the surface, with human remains and associated with many shell beads, a thick sheet of mica, a small shark's tooth, three canines of some large carnivore (one perforated for suspension, the others broken at a point preventing determination), a pendant of quartz, and a small ellipsoidal object of shell, was a disc of thin sheet copper, about .66 of one inch in diameter, resembling certain ones taken by us from Mt. Royal, and figured in one instance in our account of that mound.

EARTHENWARE.

The chief feature of this interesting little mound was the earthenware with which it was filled. Sherds were abundant at all points, while vessels in fragments were numerous, and unbroken ware not uncommon. In the case of one sherd, interesting raised decoration was noticed around the aperture; another bore incised ornamentation, but with these two exceptions, the sherds, when ornamented, showed the use of crimson pigment exclusively, usually consisting of a uniform coat.

No gritty ware was present in the mound, and, as a rule, the pottery was of very inferior quality.

Three feet from the surface, unassociated, was a small globular pendant of earthenware, with projecting neck grooved for suspension.

Three neatly made beads of earthenware of about the same size, the dimensions of one being 1.1 inches by 1 inch by .8 of one inch, lay together with a portion of an arrow head, 3.5 feet from the surface.

Many vessels, some evidently of considerable size, were represented by portions only, and these, being in comparatively small fragments, were not preserved.

An interesting vessel, scaphoid in shape, imperforate as to the base, with inverted rim, had a uniform coat of crimson pigment inside and out. It was found unassociated, 3 feet from the surface. Length, 2.8 inches; width, 2.3 inches; average height, 1.4 inches; diameter of aperture, 2 inches by 1.3 inches (Plate LXXXVI, Fig. 1).

An undecorated circular bowl, with perforation of bottom made after baking, lay apparently unassociated, 3 feet 8 inches from the surface. Height, 2.2 inches; diameter of opening, 4.2 inches.

Near a fire-place, with charred human remains, 5 feet 2 inches from the surface, was a vessel of inferior ware but of interesting design, consisting of two

nearly circular bowls joined, originally with projecting handles 1 inch in length, one from the outside of each. One handle was missing through breakage. Each bowl had a portion of the base knocked out after completion. Dimensions of one bowl, applying to both in the main: height, 1.4 inches; length, 2.8 inches; width, 2.4 inches (Plate LXXXV, Fig. 2). This unusual form of a double bowl, may be a highly conventionalized form representing the open bivalve. We have seen the type before, upon one occasion from Mt. Royal, and several times from the low mounds bordering the St. Johns between Jacksonville and the sea. General Thruston figures¹ an artistic double vessel much more directly pointing to the shell, as from Tennessee.

Two and one-half feet from the surface was a globular bowl with perforation of base after baking. A small hole on either side of the mouth had served for purposes of suspension. This vessel, with a height of 3.7 inches, a maximum diameter of 4.5 inches and a diameter at aperture of 3 inches, was completely filled with mussel shells. We do not recall the discovery by us before of any object in vessels from Florida mounds with the exception of certain pebbles in one instance, and an occasional vessel of inferior size placed within a larger one.

A globular vessel and a bowl, both undecorated and both wanting a portion of the bottom through breakage done after manufacture, lay together, 4 feet 8 inches from the surface.

Six feet down, beneath human remains, was an imperforate bowl with oval section, decorated with red pigment inside and out. Depth, 2 inches; length, 4.2 inches; breadth, 3.6 inches.

An unassociated vessel, 3 feet, 6 inches down, with oval aperture and with portion of bottom knocked out, had a coating of red pigment on the outside and on the inside a band of the same color 3 to 4 inches in width, beginning at the margin. Height, 8 inches; average diameter of aperture, 10.5 inches. This vessel was somewhat broken by pressure of sand.

With fragments of a large bowl 1.5 feet from the surface, was an urn with flaring rim and red pigment decoration on outside and part way down the interior. Height, 7.7 inches; maximum diameter, 8.8 inches; width of top with rim, 6.8 inches; diameter of aperture, 5.5 inches. A portion of the bottom is missing through breakage after manufacture. Near this urn lay an undecorated globular vessel of ordinary type.

One foot three inches from the surface, with human remains immediately above, were two flaring basins of the same pattern and of approximately the same size, recalling in shape a basin from Thursby Mound shown in Plate XXVI, Fig. 1, in Part II of our report on the St. Johns mounds. Traces of red pigment are apparent on both sides of one and interiorly on the other. Height, 4.5 inches; maximum diameter, including the flaring rim, 18 inches. One bowl lay face down while the other, also inverted, lay upon it, covering about one half its base.

¹ "Antiquities of Tennessee."

Associated with human remains, about 5 feet from the surface, were two trough-shaped vessels of earthenware. With them was another of similar pattern with one of the shorter ends omitted in manufacture, while a fourth showed marked concavity of one shorter end (Plate LXXXV, Fig. 5). These specimens of mortuary "freaks" in earthenware had each a perforation in the base made previous to baking. Traces of red pigment were apparent on some. But one of the four was in perfect condition. Largest, 6 inches by 3.5 inches by 1.5 inches high. Smallest, 4.1 inches by 2.8 inches by 1.2 inches high.

Five feet from the surface, though not at the same point as the vessels just described, the smaller inverted within the other, were two trough-shaped vessels nearly similar to the others but imperforate as to the base. The larger, 5.6 inches by 3.1 inches by 1.4 inches high, has traces of red pigment inside and out (Plate LXXXV, Figs. 3 and 4). The smaller is undecorated. Its dimensions are approximately 5 inches by 2.5 inches by 1.3 inches high. We have never before met with this curious type of earthenware.

At various depths were four other vessels of ordinary type, somewhat crushed by weight of sand but capable of restoration.

REMARKS.

Nothing in any way indicating contact with the Whites was discovered in the Hopson mound.

MOUND NEAR HIGLEY, LAKE COUNTY.

About one mile south of Higley, on property belonging to Mr. Hart, in whose absence we are indebted to Mr. W. J. Young, of Higley, for permission to investigate, was a mound in pine woods, within sight of the western bank of Lake Yale, 5 feet 4 inches in height, with a diameter of base of 65 feet. This mound had previously been dug into to a considerable extent, the immediately central portion having been removed. The mound had doubtless in former times been of considerably greater altitude.

It was totally destroyed.

It was composed of yellow sand with occasional pockets of white sand and sand scarlet from admixture of *Hematite*.

Human remains, fragmentary and much decayed, were infrequently met with.

Sherds were mostly plain, though one of good material showed very neat square stamped decoration, separated at intervals by parallel perpendicular incised lines (Plate LXXXVI, Fig. 2).

With human remains, 2 feet from the surface, about 1 foot apart, were two polished hatchets. One arrow head came from a depth of 3 feet. From a like depth was taken an oblong flat perforated pendant of shell, with rounded corners, 1.7 inches long, 1.2 inches wide, .7 of one inch thick.

Beyond these, no objects of interest were encountered.

REMARKS.

The amount of previous investigation sustained by this mound renders accurate conclusions impossible.

MOUND NEAR UMATILLA, LAKE COUNTY.

This mound, about two and one-half miles west of Umatilla, lay in the grove of Mr. R. McS. Byrnes. Mr. J. F. Holton, superintendent of the grove, kindly consented to the investigation. The mound had long been under cultivation, and was evidently much reduced in height. It had, moreover, sustained much pre-

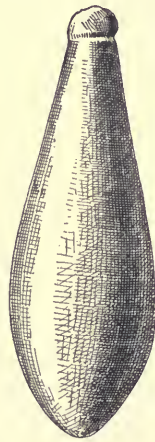


FIG. 80. Pendant of shell with antero-posterior section. Mound near Umatilla. (Full size.)



FIG. 81. Pendant of shell. Mound near Umatilla. (Full size.)

vious examination with a reported yield of numerous objects of interest. Its height was 4 feet; its basal diameter, 46 feet. It was completely dug through.

No stratification was apparent, yellow sand with the usual admixture of charcoal composing the mound. Occasional fire-places were scattered throughout. Scattering pockets of white sand and numerous streaks and pockets of sand, pink from the use of the red oxide of iron, were present.

Human remains in the usual bunched form of burial were abundant.

From depths indicating original deposit came: one small bowl of earthenware, imperforate as to base, with single perforation for suspension on either side below the margin and with punctate and incised linear decoration, as shown in Plate LXXXVI, Fig. 3, height, 2 3 inches; maximum diameter, 2.4 inches; a small

rude undecorated oblong vessel with rounded corners and perforation of base subsequent to completion; separately three arrow heads, thin and carefully made; two shell pendants, one wrought from the lip of the great marine univale, *Strombus gigas* (Fig. 80), the other, diamond shaped, from the body whorl of the conch (*Fulgur*) (Fig. 81); a number of shell beads with human remains.

REMARKS.

Nothing from this mound gave evidence of other than aboriginal art.

MOUND NEAR FORT MASON, LAKE COUNTY.

About one mile northwest of Fort Mason, just south of Lake Yale, on the property of Mr. G. D. Jackson, was a mound 50 feet in diameter of base and 2 feet in height, though considerable depressions from which material had been taken, gave the mound the appearance of greater altitude.

The mound was completely demolished, the excavation being carried to a level considerably lower than that of the surrounding territory. Mr. W. J. Gladwell, manager of the property, to whom, in the absence of the owner, we are indebted for permission to dig, informed us that the land containing the mound had been cleared by him two years previously, and that subsequent cultivation had lessened the height of the mound by about one foot.

Unlike other mounds demolished by us on the Ocklawaha, the method of burial in this mound was in anatomical order in various forms of flexion. In all, fifteen skeletons were encountered, in such condition, however, that no crania were preserved. In the majority of cases, skeletons lay from 1 foot to 18 inches beneath the surface.

Sherds were fairly numerous, but not in association with human remains. They lay loose in the sand, and were probably gathered with it from the surface during the formation of the mound. The majority were undecorated; the square stamp appeared upon one or two occasions, and once a punctate decoration.

With one burial was an iron spike; with another, an iron or steel hunting knife 9 inches in length, including the projection for the handle, no other trace of which remained. Both knife and spike were badly affected by rust.

Three skeletons had each one polished stone "celt" in association. Another "celt" lay loose in the sand.

With a skeleton, in contact with the lower jaw and cervical vertebræ, were: beads of shell and numerous minute shells (*Olivella*) longitudinally perforated for use as beads; a carbonized ball about 1 inch in diameter, of bark or some kindred material many times rolled upon itself; a tubular bead of sheet silver with overlapping edges, 1.3 inches in length and .3 of one inch in diameter, and a tubular bead of sheet copper 2 inches in length and .25 of one inch in diameter. Whether this copper bead was wrought from metal obtained from the Whites or was a

purely aboriginal ornament made from native¹ copper, we have not determined by analysis, which, however, could readily be done.

It may not be out of place here to explain to the reader who may not have seen our monograph on aboriginal copper, contained in Part II of our report on the St. Johns River mounds, that chemical analysis can readily distinguish *native* copper from the product of *smelting* of any ores obtainable in Europe during any possible mound-building period. In the first place, native copper, in use among our aborigines, was purer than the copper resulting from early smelting processes. And again, lead, almost universally present in the products of European smelting, is never found in native copper. Moreover, any copper that has been in a state of fusion contains a small percentage of *combined* oxygen which is entirely absent from native copper. Still further, most native copper is free from arsenic, while in Europe the copper supply was obtained from highly arsenical *sulphide ores*. Even now, arsenic cannot be totally eliminated from copper and was much less readily excluded in early times.

To return to the mound. A large shell bead wrought from the lip of *Strombus* lay with a skeleton, while elsewhere in the mound were a *Fulgur perversum* and a curved cylindrical ornament of shell, with tapering ends, possibly for use in the lobe of the ear.

On the surface of the mound was a copper- or brass-coated convex bit of wood, almost circular, with double perforation.

Throughout the mound were four arrow heads and a number of chippings and flakes, of chert; also a small chipped "celt" somewhat broken.

With human remains was a small bowl with stamped decoration, the bottom of which had been knocked out subsequent to manufacture.

REMARKS.

In this interesting little mound we have a good example of the tumuli raised in undoubtedly post-Columbian times² for mortuary purposes. Here we have the polished "celt" at the same depth in the mound as iron, and other objects probably of European origin are found side by side with articles purely aboriginal. It is interesting to note the survival of the perforation of the base in pottery—the killing of the vessel—to a comparatively late period.

MOUND ON LAKE EUSTIS, LAKE COUNTY.

On the northern shore of Lake Eustis, about one mile west of Fort Mason, in a field belonging to Mr. J. F. Walker, were two low mounds about fifty yards

¹ The reader will recall that native copper is copper found in nature, with no elements in chemical combination.

² In all the mounds examined by us in Florida, including virtually every known tumulus on the St. Johns river, in addition to those described in this paper, we have encountered but two mounds—this, and one near Bayard Point, Clay County, about 4 feet in height—where articles of European make were other than superficial. July, 1895.

apart. The larger one, the nearer to the lake, was completely dug through by permission of the owner. Its height was 2 feet 5 inches; its base diameter, 48 feet.

The most careful search failed to reveal any traces of human remains.

Loose throughout the sand were: numbers of chips and flakes, of chert; two bits of quartz; a hone of sandstone with double groove, and several rude cutting and piercing implements of chipped chert, whole and fragmentary.

MOUND NEAR TAVARES, LAKE COUNTY.

In the "scrub," about one mile southwest from the town of Tavares, the county seat of Lake, was a mound about 5 feet in height and about 50 feet across the base. It had sustained considerable previous investigation. It was completely dug down by us.

Its composition was peculiar. The northern portion, unstratified, was of pure white sand, while the section to the south was made up of sand of a brownish yellow color. The usual charcoal and fire-places were present.

Bunched burials were in considerable numbers. The very fragmentary condition of the bones rendered useless any attempt at preservation.

No whole vessels were discovered nor any represented by a full complement of fragments. Sherds were fairly numerous and at times indicative of large vessels. Undecorated fragments and those adorned with red pigment predominated. One, with somewhat striking ornamentation, is shown in Plate LXXXVI, Fig. 4.

A portion of a small oblong dish with rounded corners had the somewhat unusual addition of feet.

No copper was met with in the mound but a portion of a human clavicle dyed a bright green indicated the former presence of the metal.

Two and one half feet from the surface, with human remains, together, were a number of shell beads and four ellipsoidal objects shaped from columellæ of marine univalves, 3 inches to 5 inches in length. Singly, in various portions of the mound, were five similar objects of shell, two pear-shaped pendants of like material, and two shell beads of considerable size.

A cube of galena, 1.4 inches by 1 inch by .7 of one inch, apparently shows wear on one side.

As in the case of the Gamble mound, the feature of the mound near Tavares was pendent ornaments.

A graceful ellipsoidal pendant of fine-grained, compact rock of igneous origin, 1.3 inches in length, is perforated at one end for suspension (Fig. 82). Another, of a compact crystalline igneous rock, *Dolerite* or *Diorite*, pear-shaped, has a rim for suspension.

A small pendant of banded red jasper lay loose in the sand.

Found separately, but from the same portion of the mound, were four pendent



FIG. 82. Pendant of igneous rock. Mound near Tavares. (Full size.)

ornaments, two of syenitic and two of sedimentary rock, ranging in length between 3.4 inches and 2.9 inches, each perforated at one end, three transversely, one from front to back, and more or less rounded at the other end (Figs. 83, 84, 85, 86). In one instance, one side has an incised longitudinal line. In the case of three others, the line is represented by a deep groove. One is highly polished. This type is new to us, though we have figured¹ something similar in Part I as coming from the low mound in the pine woods back of Duval's, Lake County, a duplicate of which as to type but larger, is shown in "The Archaeological Collection of the United States National Museum," Charles Rau, figure 322, page 90.

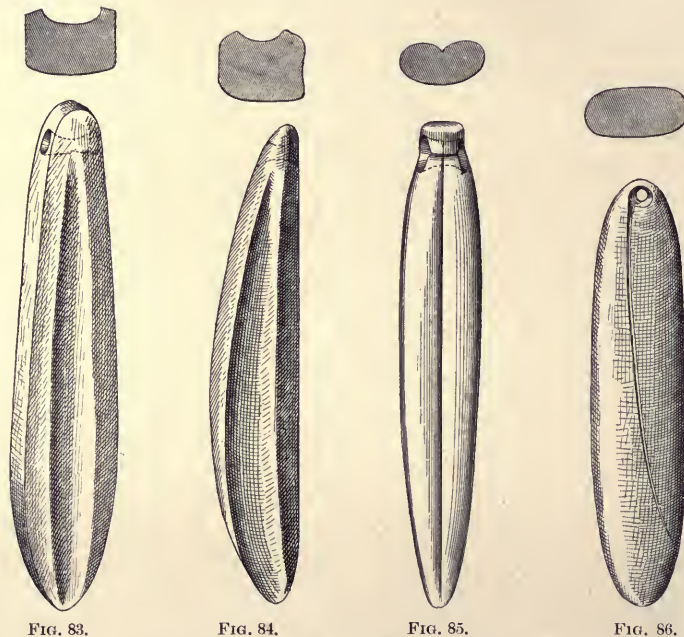


FIG. 83.

FIG. 84.

FIG. 85.

FIG. 86.

Pendent ornaments. Mound near Tavares. (Full size.)

An interesting discovery, since the type, we believe, is hitherto unreported from Florida, was an effigy of igneous rock, probably *Diorite*, representing a bird at rest. The length is 2.1 inches; maximum width, 1.2 inches. The wings are clearly defined, while the tail spreads out to afford a means for suspension. The head, unfortunately, is missing. This type, the bird amulet, is well known to

¹Op. cit.

archæologists as found in many sections,¹ though this particular specimen offers many points of variation from the forms usually encountered (Fig. 87).

Separately, in two cases with human remains and once in caved sand, were three polished "celts," one having a length of 10 inches.

At various depths were: several fragmentary arrow heads of chert; two small and gracefully shaped points of like material; a lance head of chipped chert, 4.7



FIG. 87. Bird amulet of igneous rock. Mound near Tavares. (Full size.)

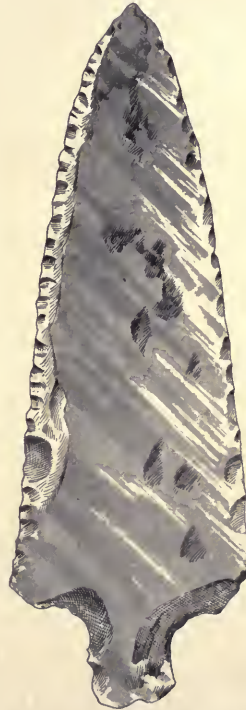


FIG. 88. Polished spear head of red jasper. Mound near Tavares. (Full size.)

inches in length; another slightly larger, of red jasper, with a high polish on either side, a very unusual feature (Fig. 88).

A number of chippings of chert lay scattered throughout the mound.

We see no reason to ascribe to this mound an origin other than pre-Columbian,

¹ "Notes on Primitive Man in Ontario," David Boyle, page 67, *et seq.*

"Antiquities of the Southern Indians," C. C. Jones, page 374, *et seq.*

"Ancient Monuments, Miss. Valley," Squier and Davis, page 239.

"Smithsonian Arch. Coll.," Charles Rau, page 53.

"Primitive Industry," Abbott, chap. XXVI.

though a much smaller mound in the neighborhood, completely dug through by relic hunters, is generally reported to have contained articles of brass or of bronze, while at the time of our visit glass beads were present on its surface.

MOUND AT BARCLAY'S, LAKE COUNTY.

On the southernmost extremity of Lake Harris is the property of Mr. C. M. Barclay, upon which was a mound 2.5 feet in height with a diameter at base of 55 feet. It had long been under cultivation. A trench nearly traversing the mound and other excavations had been made by members of the family of Mr. Barclay, to whom our thanks are due for permission to demolish the mound.

The mound was composed of yellowish and brownish sand intermingled; the "dumps," or individual loads, being unusually well marked. In the northernmost portion streaks and pockets of brick-red sand were present as was the usual charcoal throughout, often in pieces of considerable size.

But few interments were encountered by us, though the bunched form, scattered bones, and in one case, an original burial plainly in anatomical order, were present.

At various depths, always with human remains, were five polished hatchets of stone, three separately, two with the same burial.

Loose in the sand, were various flakes, chippings and broken arrow heads, of chert, and four small, delicate ones of the same material.

Sherds were undecorated, or stamped in squares or diamonds. One small vessel, considerably broken, with bottom knocked out, had beneath the rim two encircling lines of punctate markings.

We obtained from Mr. Barclay, whose son, he assured us, found it in the mound, a bead of copper, 1.8 inches in length, with a maximum diameter of .6 of one inch. The shape is nearly ellipsoidal, though the ends do not agree as to diameter. It is made of copper hammered over in the usual fashion, and is more massive than any ornament of copper met with by us on the St. Johns, recalling in weight though not in shape, a heavy copper ornament from the Gamble Mound.

A number of small shells (*Olivella*) used for beads, lay with one skeleton.

Two beads of blue glass were picked up on the immediate surface, but most careful search failed to reveal any in the body of the mound. One point noticeable in the majority of the Florida mounds was clearly emphasized in this one. While the height of the mound was but 2.5 feet above the surrounding level, it was necessary to go down 6 feet 4 inches from the surface before evidence of artificial construction came to an end, showing that, before the building of the mound, an excavation of some sort had been made. This custom obtained upon the St. Johns also, where, it will be remembered, when mounds were built upon pre-existing shell-heaps, one layer of burials was placed in the shell.

RICHMOND MOUND, LAKE COUNTY.

The Richmond Mound, at Helena, near the southwestern shore of Lake Harris, was 12 feet high and 90 feet across the base. Pines of large size grew upon its surface. Though considerable previous investigation had been attempted in a desultory way, yet, so great was the bulk of the mound, that comparatively little material had been removed and the mound presented a symmetrical appearance.

Former explorers and residents of the neighborhood concurred in reporting negative results from previous investigation. Testimony of this character in relation to mound work may usually be accepted with safety.

We are indebted to the Reverend John F. Richmond, whose residence is near Helena, for cordial permission to investigate, and to his family for many courtesies.

The mound was totally demolished during six and one-half days of seven hours each with an average force of sixteen men surrounding the mound and throwing back.

There was no uniformity of stratification. The level of the surrounding territory was marked by a layer of brownish sand with a certain intermixture of charcoal and an occasional fire-place. Above, the body of the mound was composed of yellow sand of irregular thickness surmounted by a number of feet of brown sand. From the base almost to the summit were pockets and local layers of sand artificially colored a brick-red. One of these layers, from 1 to 6 inches in thickness, began on the southernmost side and continued at least half-way through the mound.

During the entire investigation, evidence of not exceeding ten interments, apparently of the bunched variety, was met with. During the second day, two crania were found separately at about 3 feet from the surface. On the fourth, a burial was found 9 feet down, while during the last day's work an interment was encountered at no great distance from the base. The burials were all in the last stage of decay, and were associated with no relics of any sort.

During the fifth day's work, one polished stone hatchet was met with near the surface. On the sixth day, five were discovered, of which four were comparatively superficial, while one was in caved sand. Six arrow heads lay separately, loose in the sand, one at a depth of 7 feet.

Sherds were of extreme rarity. On the base with charcoal, were two fragments of earthenware with a square stamped decoration.

REMARKS.

The Richmond mound is another example of the mass of sand sometimes thrown up for comparatively few interments. The hatchets found 2 or 3 feet from the top, were doubtless put in in a general way at the completion of the mound.

One would look for more interments and for a greater supply of art relics in a mound of this size where such care was shown as to construction.

LOW MOUND NEAR HELENA, LAKE COUNTY.

In the grove of Messrs. Steiner Brothers, near Helena, was a mound which years of cultivation had reduced to a height of less than 2 feet and whose diameter, excluding later additions from above, was about 45 feet. We are indebted to Mr. William Henry Bennett, superintendent of the grove, for permission to investigate.

The mound, which was entirely dug through at a level considerably below that of the surrounding territory, was of yellowish sand, brownish at places, probably through admixture of organic matter.

The usual fireplaces and fragments of charcoal in the sand, were observed.

Interments and art relics were virtually confined to the northwest portion of the mound, continuing well in toward the center, first, single burials, then almost a continuous layer. In all, fully thirty bodies were at least partially represented.

Sherds were abundant, both plain and decorated with red pigment and a few ornamented with punctate curves. No whole vessels were discovered.

Numbers of flakes, chips and cores and imperfect and broken arrow heads lay at all points throughout the mound. With one burial were minute remnants of an ornament of thin sheet copper while with another were small fragments of the metal with two flat oblong bits of earthenware, about 1 inch by 1.3 inches each, with rounded edges and central perforation, evidently cut from a broken vessel. These had not been overlaid with the copper but simply interred in association (Fig. 89.)

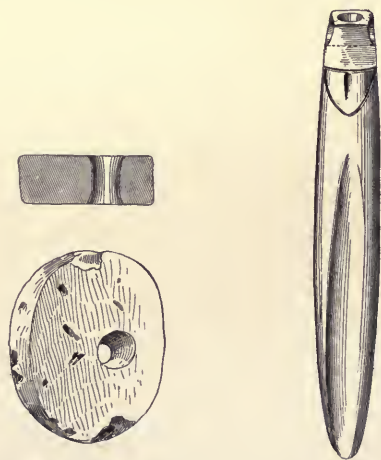


FIG. 89. Ornament of earthenware. Low mound near Helena. (Full size.)

FIG. 90. Pendent ornament. Low mound near Helena. (Full size.)

With a single burial, not far from the northwestern margin was a highly polished and beautifully made pendent ornament of a rock which we have not identified through hesitation to mutilate so beautiful a specimen. In type it resembles one from the mound at Tavares, though in addition to the median groove on one side, it has incised line decoration at the upper end while the lateral perforation unites with one from the top to allow perfect perpendicularity of suspension. Length, 3 inches; maximum diameter, about .4 of one inch (Fig. 90).

MOUND NEAR OLD OKAHUMPKA, LAKE COUNTY.

About one half mile, in a northwesterly direction from Old Okahumpka, in the orange grove of Robert A. Green, Esq., of Ocala, was a low mound, for years under cultivation and doubtless much reduced in height. Its altitude at the time of its total demolition by us was less than 2 feet above the surrounding level though most of the human remains and accompanying art relics came from a depth of from



FIG. 91. Fragment of vessel of earthenware. Low mound near Old Okahumpka. (Full size.)

3 feet to 4.5 feet from the summit of the mound. The diameter of the base was about 40 feet.

The mound was composed of brownish sand apparently changed from the yellow of the surrounding territory by admixture of organic matter. It was unstratified. The usual scattered bits of charcoal and fireplaces were present.

Human remains were numerous, the bunched form of burial being indicated.

In this mound, all art relics were in immediate contact with human remains. Pockets and streaks of sand colored by *Hematite* were not present.

STONE.

Numerous chips of chert were present in the mound, also one arrow head of the same material.

Seven "celts" of the usual rocks were found separately with human remains, and upon one occasion two lay in contact with long bones, one on either side of the mass.

With a bunched burial was a rude "celt" of sandstone, associated with a copper ornament.

EARTHENWARE.

Sherds, plain or decorated with red pigment, were very numerous. No vessels, whole or approximately so, were encountered.

We have obtained from Mr. Russell W. Bennett, of Helena, a sherd which he informs us was ploughed up from this mound. This fragment of earthenware, shown in Fig. 91, is of considerable interest as possessing the only plastic effigy of the human face ever seen by us in Florida. This face, apparently modeled by hand, appears to have been constructed separately, and pressed onto the clay of the vessel previous to baking.

The reader will recall that this joining of heads to earthenware was prevalent in other sections. Upon but one other occasion in Florida have we seen a head of any sort serving as a decoration on the side of a vessel of earthenware and in that case a portion of a vessel from a low mound near the mouth of the St. Johns had the head of a duck, not added to it by pressure, but repoussé.

COPPER.

With bones tinged green from contact and in association with a few small shell beads were the remains of a long tubular bead of copper overlaid on a cylinder of fibrous wood.

Eighteen inches from the surface was a heavy bead of copper .7 of one inch by .6 of one inch, in contact with a human lower jaw which formed part of a bunched burial.

With a burial about 4.5 feet from the top of the mound, was a sheet of copper, 2.8 inches by 6 inches, bent under and crumpled at one end. The two shorter and one larger side show a clean-cut edge, but the uneven appearance of one larger side proves but a portion of the plate to have been inhumed. The state of this copper sheet precludes inspection of the entire ornamentation which is repoussé and seems to be of an interesting character, entirely dissimilar from the usual lines of semi-perforations. With it were bark and some fibrous material, a rude "celt" of sandstone and a small core of chert.

SHELL.

With a burial were fifty-six beads of shell, many of unusual size, the largest 1.9 inches in length. Many were not symmetrical but were apparently perforated portions of great marine univalves such as are figured as massive beads in Holmes' "Art in Shell." With the beads was a polished stone hatchet.

REMARKS.

There seems to be no reason to connect this mound with a period subsequent to the coming of the Whites.

INDEX.

- Alicia, low mounds at, 55
- Barclay's, mound at, 102
- Bead of silver, 97
- Beads of earthenware, 93
- Bird amulet, 100
- Broward mound, 52
- Bruce, F. W., 11
- Brutus mound, 52
- Canine teeth imitated in shell, 23
- "Celt" of unusual type, 37
- Chaseville, two low mounds at, 58
- Cope, Professor, 23
- Copper, 9, 22, 28, 33, 37, 39, 50, 55, 67, 87, 99, 102, 104, 106
- Copper-coated earplug of wood, 42
- Copper crescent, 69
- Copper earplug, 69
- Copper, lance head of, 28
- Copper, massive beads of, 91, 102
- Copper, native, determined by analysis, 98
- Copper on tobacco pipe, 37
- Copper, shell-bead overlaid with, 34
- Copper, shield-shaped ornaments of, 42
- Copper, wood bead overlaid with, 42
- Copper wrapped in bark or vegetable fabric, 40
- Crescent of copper, 69
- Daniel's Landing, mound at, 55
- Denton mound, 57
- Discs of limestone overlaid with copper, 42
- Discs of shell, 70
- Ditch Creek, mounds near, 82
- Earplug of copper, 69
- Earplug of wood overlaid with copper, 42
- Earplugs of limestone overlaid with copper, 42
- Earthenware, 14, 25, 28, 35, 47, 48, 49, 50, 52, 53, 54, 56, 57, 59, 64, 76, 85, 88, 99, 102, 106
- Earthenware, perforated discs of, 104
- Feet on earthenware, 64, 85, 88, 99
- Floral Bluff, low mounds at, 59
- Fort Mason, mound near, 97
- Fossil bones showing workmanship, 71
- Gamble mound, 88
- Gilbert mound, 25
- Grant mound, 30
- Grant mound, composition of, 31
- Grant mound, low mounds south of, 45
- Graphite, 28
- Head modelled from clay, 106
- Helena, mound near, 104
- Higley, mound near, 95
- Hopson mound, 91
- Horseshoe Landing, low mounds near, 51
- Human molar perforated for suspension, 33
- Incised figure on earthenware, 85, 86
- Intrusive deposits, 73
- Island mound, 84
- Johnson mound, 8
- Lake Eustis, mound on, 98
- Lance head of copper, 28
- Map of Ocklawaha River, 79
- Map of river mounds of Duval County, 5
- Mica, given the outline of a lance point, 54
- Mica, rare in the river mounds south of Jacksonville, 91
- Miller, Dr. M. G., 11, 44
- Monroe mound, 27
- Monroe mound, construction of, 27
- Mound, post-Columbian, 97
- Mounds, certain of Duval County, list of, 8
- Mulberry mound, incised figure from, 86, 87
- Murphy Island, southernmost mound, 75
- Murphy Island, two mounds on, 63
- Mussel shells perforated for suspension, 47
- Mussel shells used as knives, 9
- Ocklawaha River, description of, 81
- Ocklawaha River, mounds of, 81
- Okahunipka, mound near, 105
- Palmetto Landing, mounds near, 83
- Pearls, 34
- Pendants, 18, 19, 34, 38, 56, 66, 70, 72, 73, 87, 99, 100, 104

INDEX.

Perforation of base of earthenware, reason for, 65
Pins of bone, 21, 39, 76
Pins of shell, 70
Plastic head of clay, 106
Polished lance head, 101
Post-Columbian mound, 97
Putnam, Professor, 86

Reddie Point, low mounds near, 54
Richmond mound, 103

Shells used as beads, 34, 102
Sherds, layer of, in Murphy Island mound, 64
Shields mound, 9
Shields mound, composition of, 12
Shields mound, earthenware of, 14
Shields mound, human remains in, 13
Shields mound, plan of, 10
Silver, bead of, 97

Silver Springs, mound near, 84
Spade-shaped implements, 16
State of preservation of bones, 32

Tavares, mound near, 99
Tobacco pipes, 14, 20, 33, 37, 38, 42, 49, 50, 57, 59, 66
Tobacco pipe with copper ornament attached, 37
Trough-shaped vessels of earthenware, 95
Tubes of stone, of natural formation, 16, 39, 71

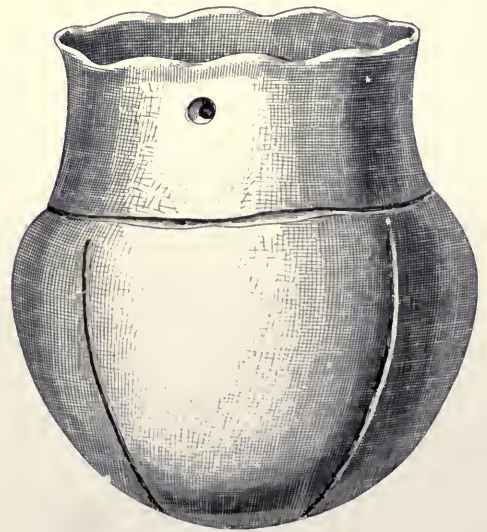
Umatilla, mound near, 96
Upham, E. P., 16

Vessel of earthenware with numerous perforations
of sides, 35
Vessel of earthenware with repoussé duck heads, 57
Vessels of earthenware chipped with pointed tools,
58





2



3

MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

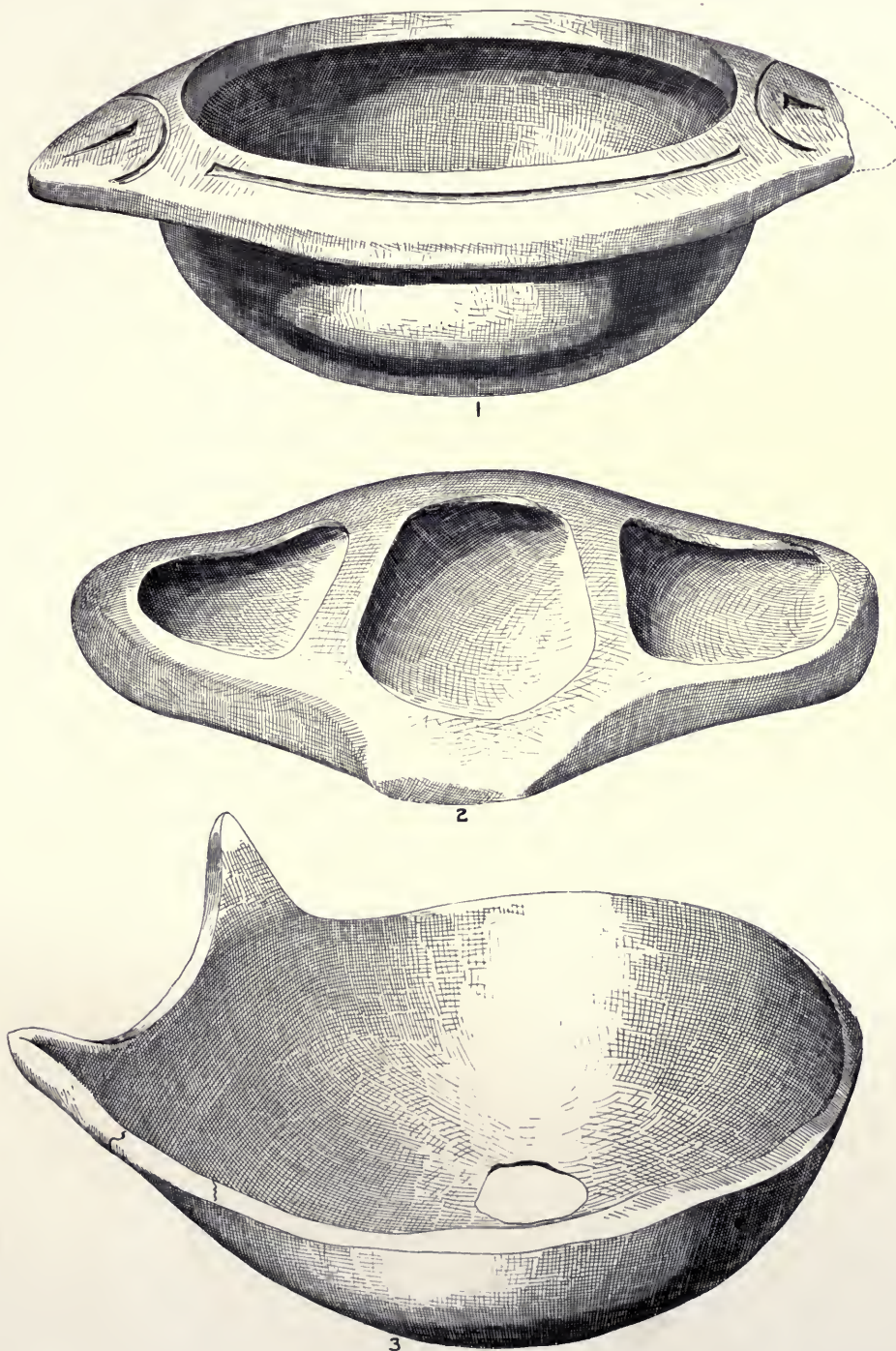
1, 2, 3. VESSELS OF EARTHENWARE, GILBERT MOUND. (FULL SIZE.)



MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. EARTHENWARE VESSEL WITH CURIOUS INCISED DECORATION, GILBERT MOUND. (FULL SIZE.)

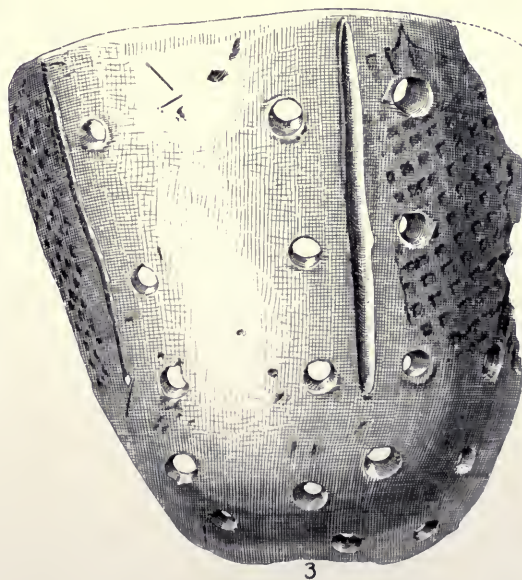
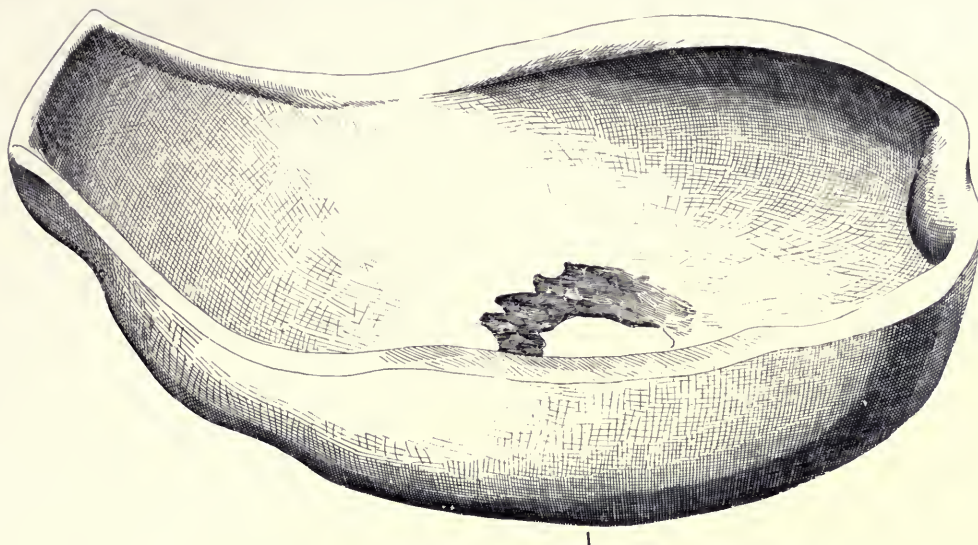
2. SHERD WITH COMPLICATED STAMPEO DECORATION, MONROE MOUND. (FULL SIZE.)



MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. BOWL OF HEAVY EARTHENWARE, MONROE MOUND. (FULL SIZE.)
2. CURIOUS EARTHENWARE VESSEL WITH THREE COMPARTMENTS, MONROE MOUND. (FULL SIZE.)
3. MORTUARY VESSEL OF EARTHENWARE, GRANT MOUND. (FULL SIZE.)





MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1 AND 2. MORTUARY VESSELS OF EARTHENWARE, GRANT MOUND. (FULL SIZE.)

3. FRAGMENT OF PERFORATED VESSEL, GRANT MOUND. (FULL SIZE.)

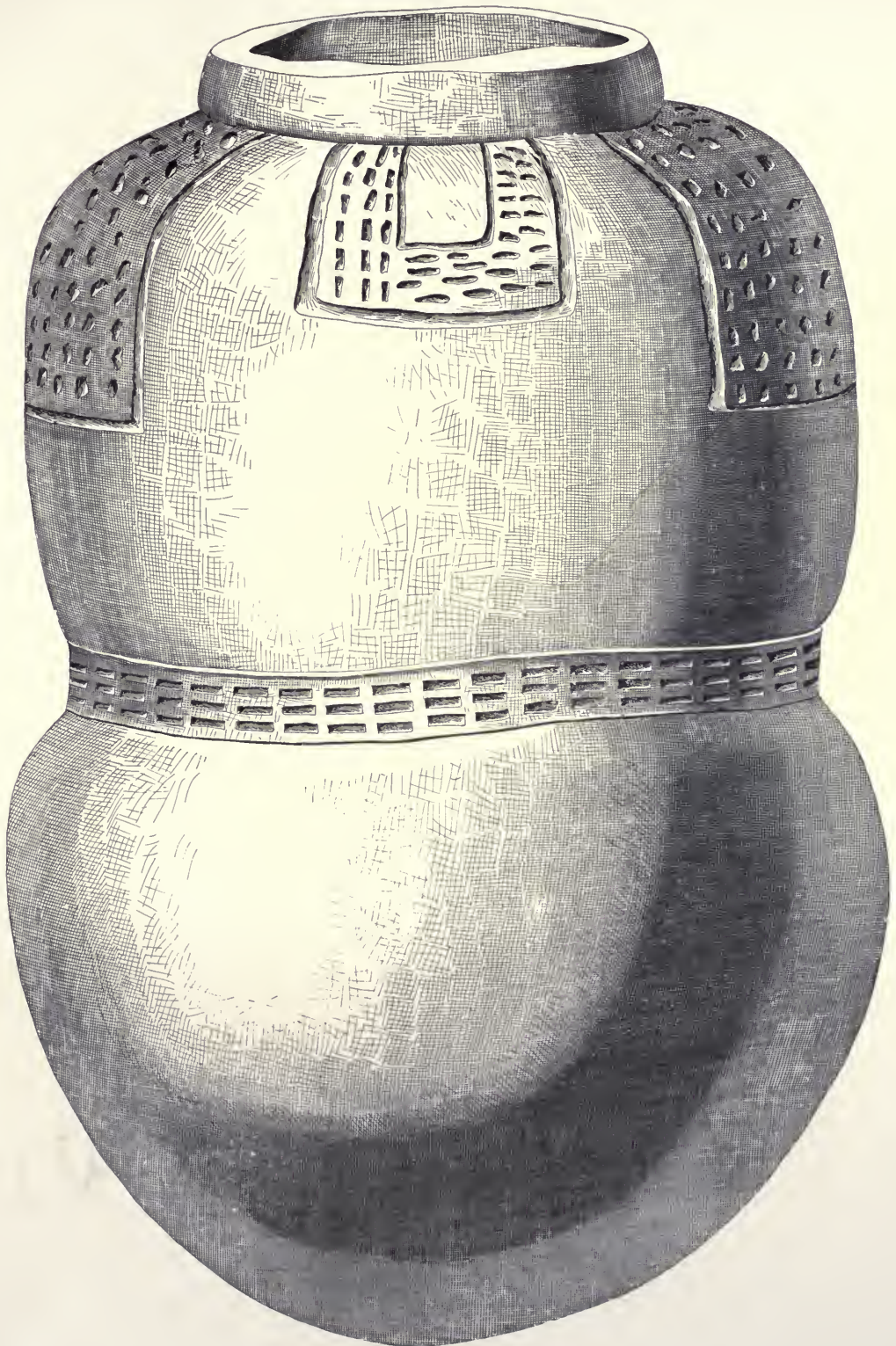




MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. CURIOUS VESSEL OF EARTHENWARE, GRANT MOUND. (FULL SIZE.)
 2 AND 3. MORTUARY VESSELS OF EARTHENWARE, GRANT MOUND. (FULL SIZE.)
 4. VASE OF EARTHENWARE, MOUND A, LOW MOUNDS SOUTH OF GRANT MOUND. (FULL SIZE.)

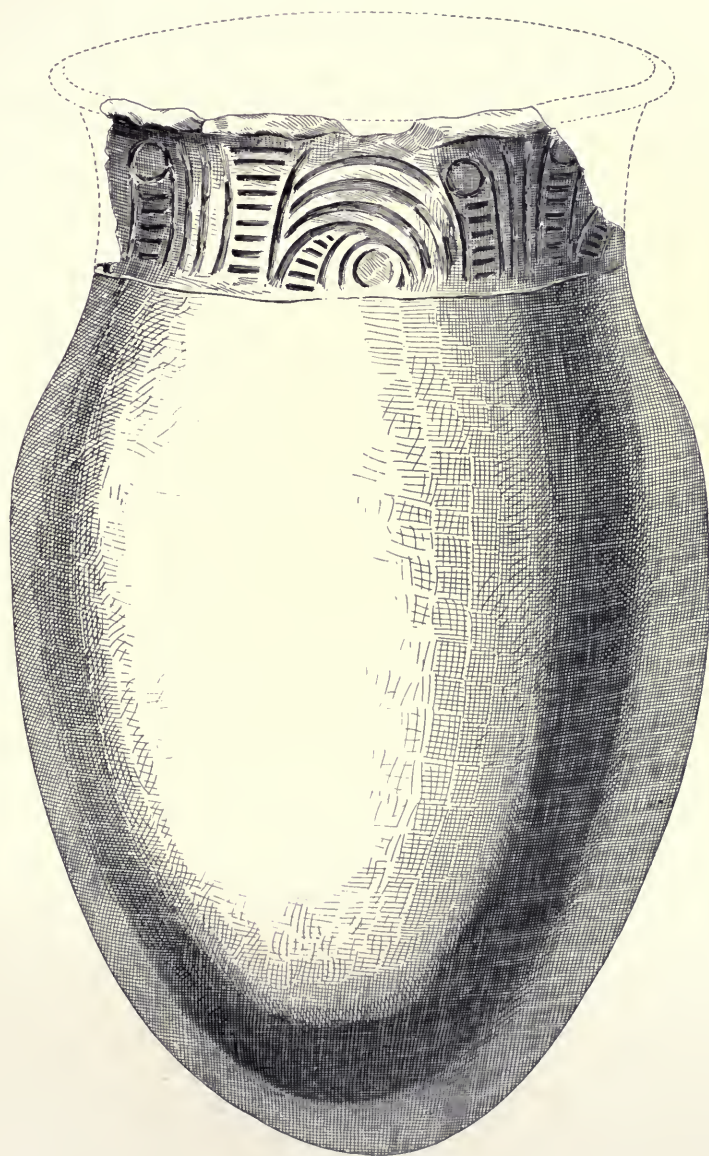




MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

VESSEL OF EARTHENWARE, LOW MOUND SOUTH OF GRANT MOUND. MOUND E (SEVEN-EIGHTHS SIZE.)





MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

OVoid URN OF EARTHENWARE. LOW MOUNDS SOUTH OF GRANT MOUND. MOUND E (FULL SIZE).

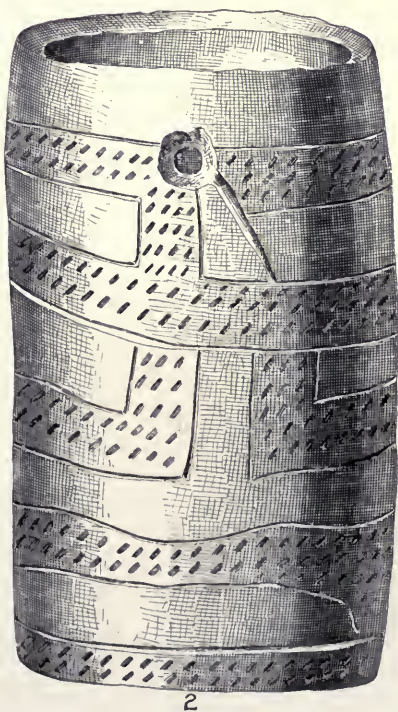
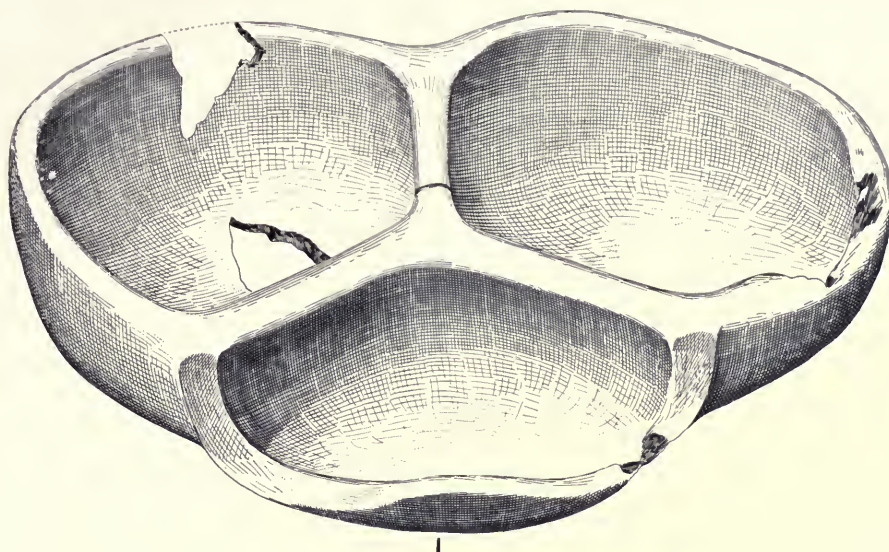




MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

GOURD-SHAPED VESSEL OF YELLOW WARE, LOW MOUNDS SOUTH OF GRANT MOUND, MOUND E. (FULL SIZE).





MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. EARTHENWARE VESSEL WITH TWO COMPARTMENTS AND HANDLE, LOW MOUNDS SOUTH OF GRANT MOUND, MOUND E. (FULL SIZE.)
2. CUP OF EARTHENWARE, INCISED AND PUNCTATE DECORATION, BROWARD MOUND. (FULL SIZE.)
3. SHERD WITH COMPLICATED STAMPED DECORATION, LARGER MOUND, REDDIE POINT. (FULL SIZE.)



MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

FRAGMENTS OF EARTHENWARE VESSEL WITH COMPLICATED STAMPED DECORATION, LOW MOUNDS AT ALICIA, MOUND B. (FULL SIZE.)

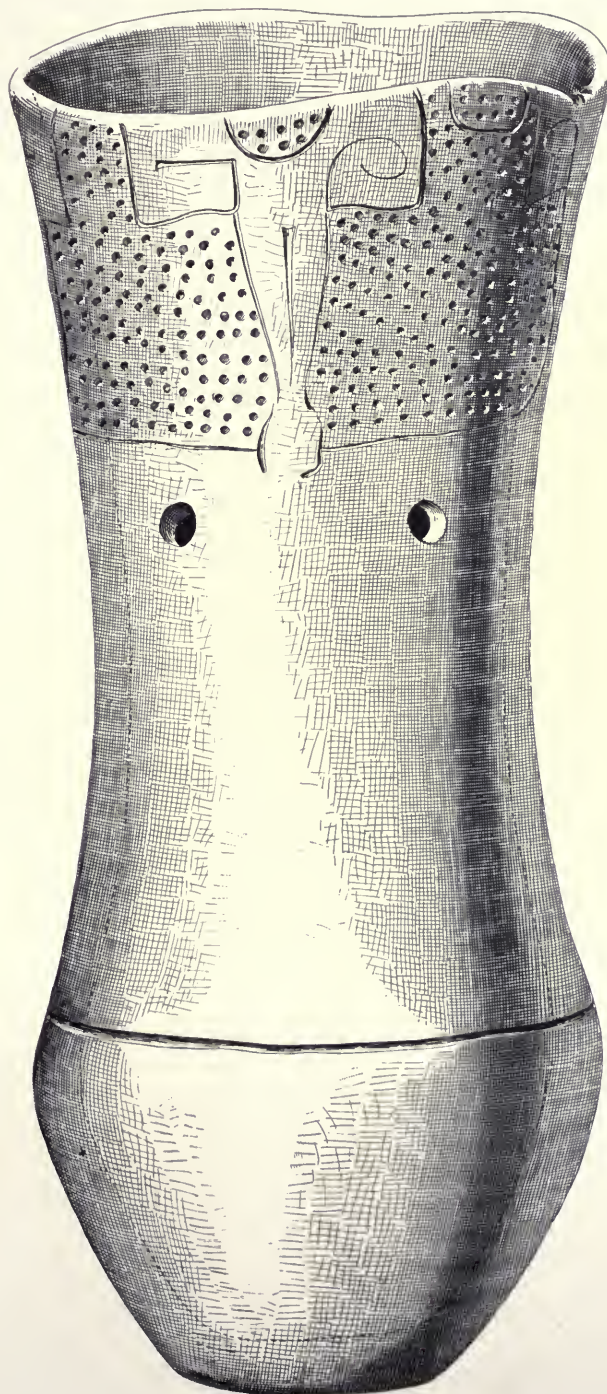


MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. AND 2. SHERDS WITH COMPLICATED STAMPED DECORATION, LOW MOUNDS AT ALICIA, MOUND B. (FULL SIZE)

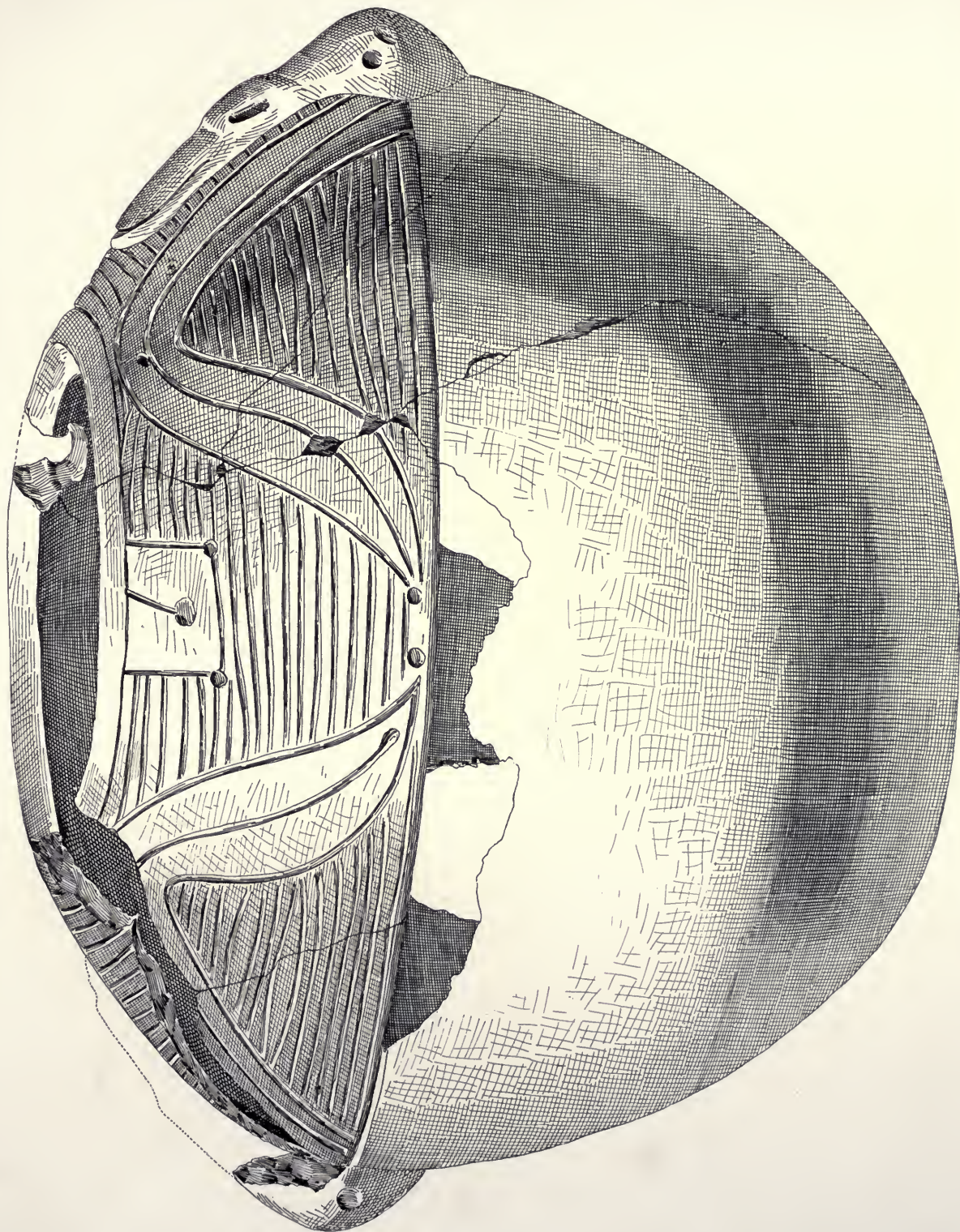
3. VESSEL OF HEAVY WARE, LOW MOUNDS AT ALICIA, MOUND B. (FULL SIZE.)





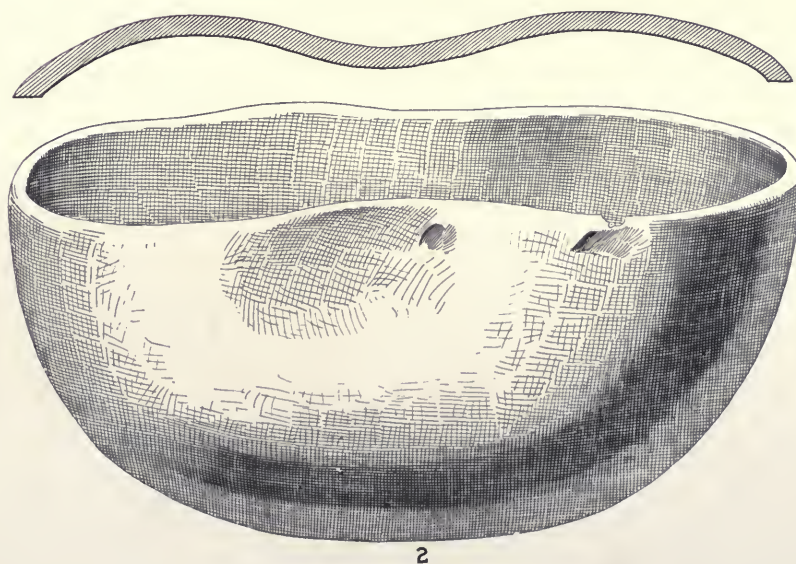
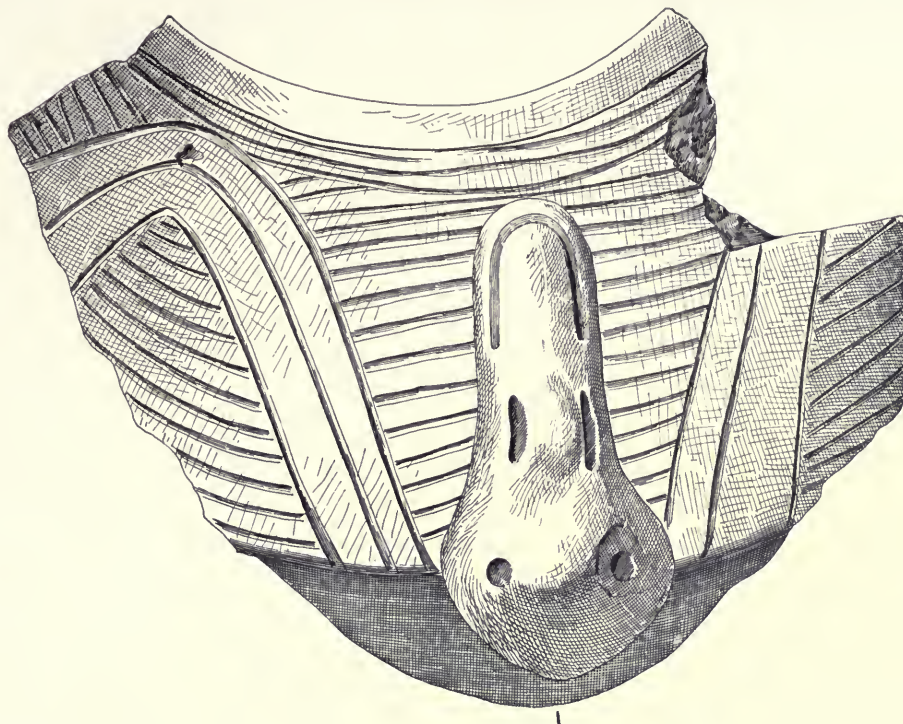
MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

VASE OF EARTHENWARE, INCISED AND PUNCTATE DECORATION, LOW MOUNDS AT ALICIA, MOUND B. (FULL SIZE.)



MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

VESSEL WITH INCISED DECORATION AND REPOUSSE DUCK HEADS, DENTON MOUND. (FULL SIZE.)

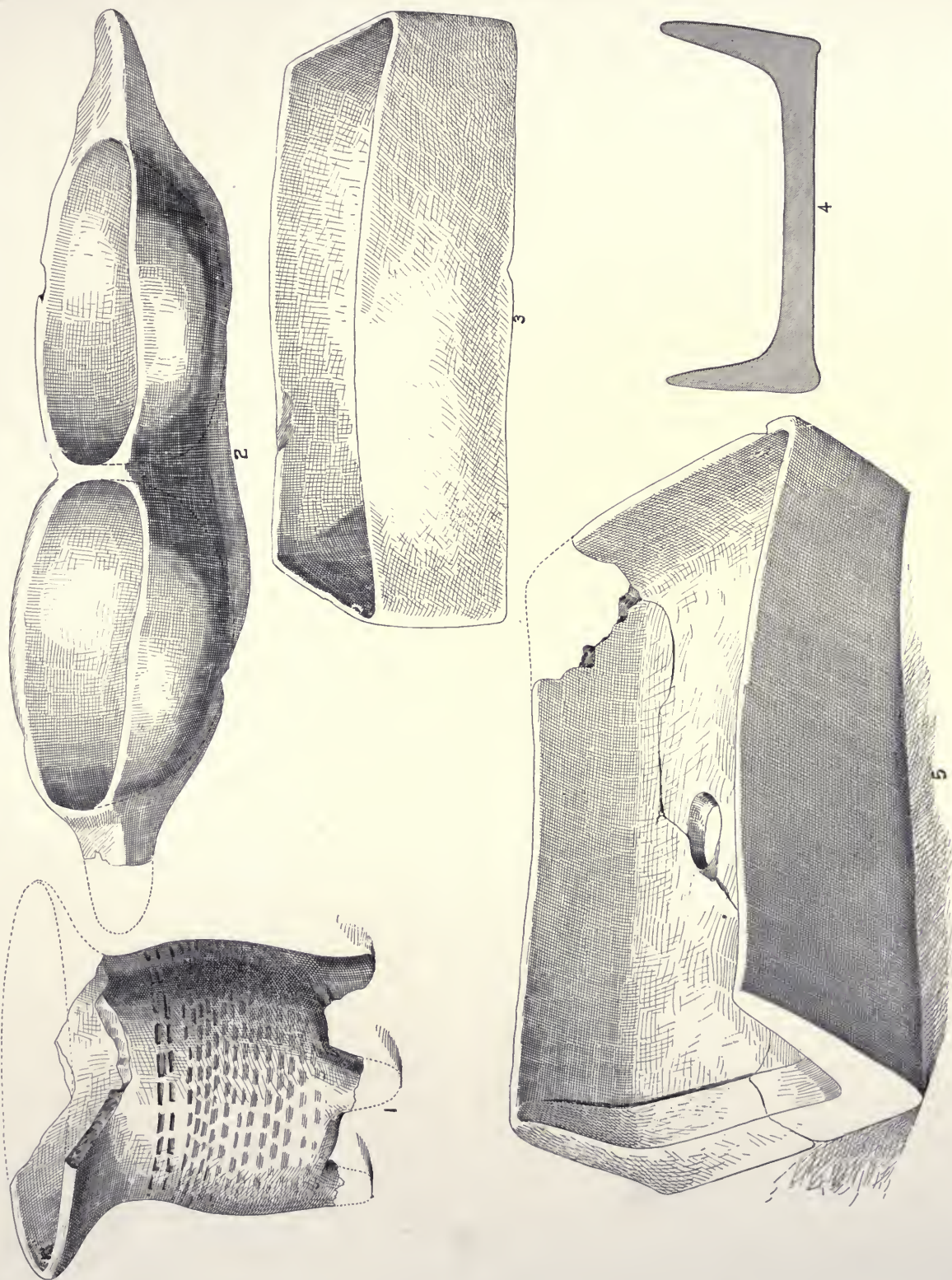


MOORE: SAND MOUNDS OF DUVAL COUNTY, FLORIDA.

1. FRAGMENT OF EARTHENWARE VESSEL, DENTON MOUND. (FULL SIZE.)

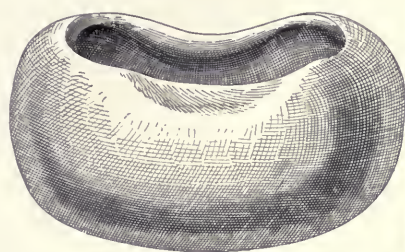
2. BEAN-SHAPED VESSEL OF EARTHENWARE, WITH HORIZONTAL SECTION OF PORTION OF MARGIN. LARGEST MOUND, FLORAL BLUFF. (FULL SIZE.)



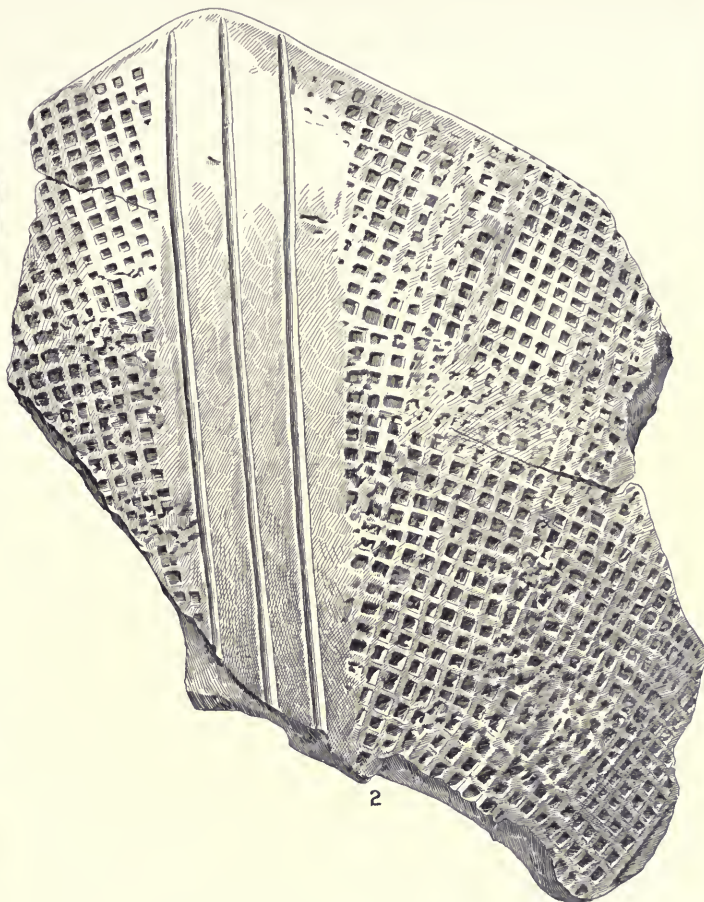


MOORE: SAND MOUNDS OF OCKLAWAHA RIVER, FLORIDA.

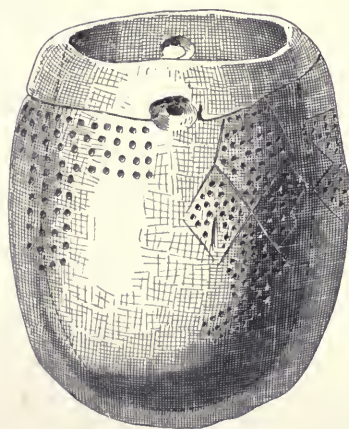
1. VESSEL OF EARTHENWARE WITH BASAL SUPPORTS, MOUND NEAR SILVER SPRINGS. (FULL SIZE.)
2. VESSEL OF EARTHENWARE WITH DOUBLE COMPARTMENT, HOPSON MOUND. (FULL SIZE.)
3. OBLONG DISH OF EARTHENWARE, HOPSON MOUND. (FULL SIZE.)
4. TRANSVERSE SECTION OF NUMBER 3. (FULL SIZE.)
5. OBLONG DISH OF EARTHENWARE, HOPSON MOUND. (FULL SIZE.)



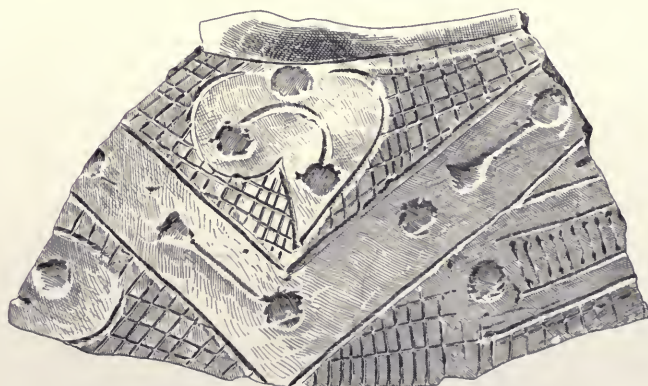
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2



3



4

MOORE: SAND MOUNDS OF OCKLAWAHA RIVER, FLORIDA.

1. BOAT-SHAPED VESSEL OF EARTHENWARE, HOPSON MOUND. (FULL SIZE.)
2. SHERD WITH STAMPED AND INCISED DECORATION, MOUND NEAR HIOLEY. (FULL SIZE.)
3. VESSEL OF EARTHENWARE, INCISED AND PUNCTATE DECORATION, MOUND NEAR UMATILLA. (FULL SIZE.)
4. SHERD, MOUND NEAR TAVARES. (FULL SIZE.)



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