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Antiquities  
OF THE  
FLORIDA WEST-COAST  
BY  
CLARENCE B. MOORE

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CERTAIN  
ANTIQUITIES

OF THE

FLORIDA WEST-COAST.

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BY

CLARENCE B. MOORE.

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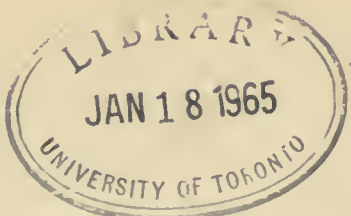
PHILADELPHIA, 1900.

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PHILADELPHIA :  
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## CERTAIN ANTIQUITIES OF THE FLORIDA WEST-COAST.

BY CLARENCE B. MOORE.

During the past eight years we have made certain investigations of aboriginal remains in the southern United States with the aid of a large flat-bottomed steamer containing a corps of assistants and numbers of trained men to dig. The results of these investigations have been embodied in reports appearing in the Journal<sup>1</sup> of the Academy of Natural Sciences of Philadelphia, where the collections made by us during our work are deposited.

Several years ago we explored the mounds bordering the Florida east-coast, following the footsteps of Mr. Andrew E. Douglass, of the Museum of Natural History, New York, finding, as he did, but little of comparative interest in the mounds of that section.<sup>2</sup>

A certain amount of investigation of the aboriginal remains of the west coast of Florida has been made by Mr. S. T. Walker, the results appearing in the reports of the Smithsonian Institution, Washington, D. C., for the years 1879 and 1883.

The data obtained by Mr. Walker, while of interest, were not of a nature to encourage farther archæological work on the west coast, and had it not been for the remarkable discoveries made in the muck on the upper end of the island of Marco, almost the northernmost key<sup>3</sup> of the Ten Thousand Islands, which border the Florida west-coast along the counties of Lee and Monroe, it is not likely a visit would have been made by us to the Florida west-coast. But when the magnificent collection, mainly of objects of wood, was shown us by Mr. Frank Hamilton Cushing, and we had studied his brilliant preliminary report,<sup>4</sup> we resolved to visit the west coast of Florida, and did so during about three and one-half months of the winter of 1900, to make a reconnoissance, as it were, to determine whether or not a series of seasons could profitably be spent by us in making a thorough examination of what might prove to be so rich a field.

<sup>1</sup> "Certain Sand Mounds of the St. Johns River, Florida." Parts I and II, Journ. A. N. S. P., Vol. X, 1894.

"Certain Sand Mounds of Duval County, Florida. Two Mounds on Murphy Island, Florida. Certain Sand Mounds of the Ocklawaha River, Florida." Journ. A. N. S. P., Vol. X, 1895.

"Certain Aboriginal Mounds of the Georgia Coast." Journ. A. N. S. P., Vol. XI, 1897.

"Certain Aboriginal Mounds of the Coast of South Carolina. Certain Aboriginal Mounds of the Savannah River. Certain Aboriginal Mounds of the Altamaha River." Journ. A. N. S. P., Vol. XI, 1898.

"Certain Aboriginal Remains of the Alabama River." Journ. A. N. S. P., Vol. XI, 1899.

<sup>2</sup> "Additional Mounds of Duval and Clay Counties, Florida. Mound Investigation on the East coast of Florida. Certain Florida Coast Mounds North of the St. Johns River." [Privately printed.]

<sup>3</sup> An island, from the Spanish *cayo*.

<sup>4</sup> "Exploration of Ancient Key-dweller Remains on the Gulf Coast of Florida." Proceedings of the American Philosophical Society, Vol. XXV, No. 153.

During the summer of 1899, G. W. Rossignol, formerly captain of our steamer, and thoroughly familiar with aboriginal remains, accompanied by a companion knowing the territory, made a journey along the coast from Ancote Key on the north to the Caloosahatchee river on the south, including the shores of Tampa Bay. Great numbers of mounds and shell heaps were located by him and the addresses of the owners<sup>1</sup> secured, from nearly all of whom we obtained in advance permission to investigate, so that our labors were greatly expedited. Never before had we set out so thoroughly prepared for work and never did our efforts meet with so little success.

Our journey extended from near Clearwater Harbor on the north to Tampa Bay, and to such mounds on the Bay as seemed of most interest, including parts of the Alafia, the Little Manatee and the Manatee, rivers; through Sarasota Bay; down Pine Island Sound, including some of the keys described by Mr. Cushing; part of the Caloosahatchee river; Estero Bay with Mound Island; Key Marco; and the Ten Thousand Islands to the Chatham river, not far from the North-west Cape.

#### FOUR MILE BAYOU, HILLSBORO COUNTY.

Four Mile Bayou was the northernmost point on the coast visited by us.

On the east side of Four Mile Bayou, beginning at a small bayou that connects with the greater one, is a ridge of shell, 640 paces in length, running parallel with the water and only a few yards back from high water mark. The ridge, which runs N. by W. and S. by E., has been cut into to a certain extent by the removal of shell for use on streets of the town of Clearwater Harbor. The section exposed showed no artifacts other than a few bits of pottery with the check stamp. One hundred yards from the northern end the ridge is 64 feet across and 5 feet high. Two hundred yards farther along its altitude is 3 feet 7 inches; its breadth, 76 feet. Five hundred yards from the northern extremity it is 79 feet across and 4 feet 10 inches high. The southern end, for the last 150 feet, has a breadth of 50 feet and is 8 feet 6 inches high.

On the east side of Four Mile Bayou, on the property of Mr. J. F. Girard, living near by, is a mound 4 feet high and 58 feet across the base. This mound had a top layer of shell and black loam 1.5 feet thick. Next came about 1 foot of yellow sand and finally a layer of shell and loam about 1 foot 4 inches in thickness. A central excavation and lateral trenching indicated this mound to be of a domiciliary character.

About 300 yards in a northerly direction from Mr. Girard's place, in woods, on property belonging to Mr. George T. Chamberlain, of Tampa, is a mound thickly covered with scrub growth, having an irregular basal outline. Excavations, whence came material for the mound, are near its base, and a person standing at the bottom of one of these would form an incorrect idea as to the height of the mound, which, measured from the western side, apparently from the

<sup>1</sup> To owners of mounds who so readily and so cordially granted us permission to dig, we wish to tender our warm thanks.



general level, is 18 feet. The diameter of the mound north and south is 150 feet; east and west, 116 feet. The summit plateau is 60 feet by 28 feet.

Considerable digging led us to believe the mound to be of irregular local layers of shell and sand, covered with sand which, at the summit plateau, is about 3 feet in thickness. A few burials closely flexed were met with, none at a greater depth than 3 feet. While there was not sufficient digging to enable us to determine positively, it is our belief that this mound is of a domiciliary character with superficial burials.

About 150 yards N. N. W. from the mound just described, also on the property of Mr. Chamberlain, is another mound, the N. E. slope of which has been eaten away by a small stream.

Excavations made previous to our visit, and the great section laid bare by the stream, showed no presence of shell or indication of interments.

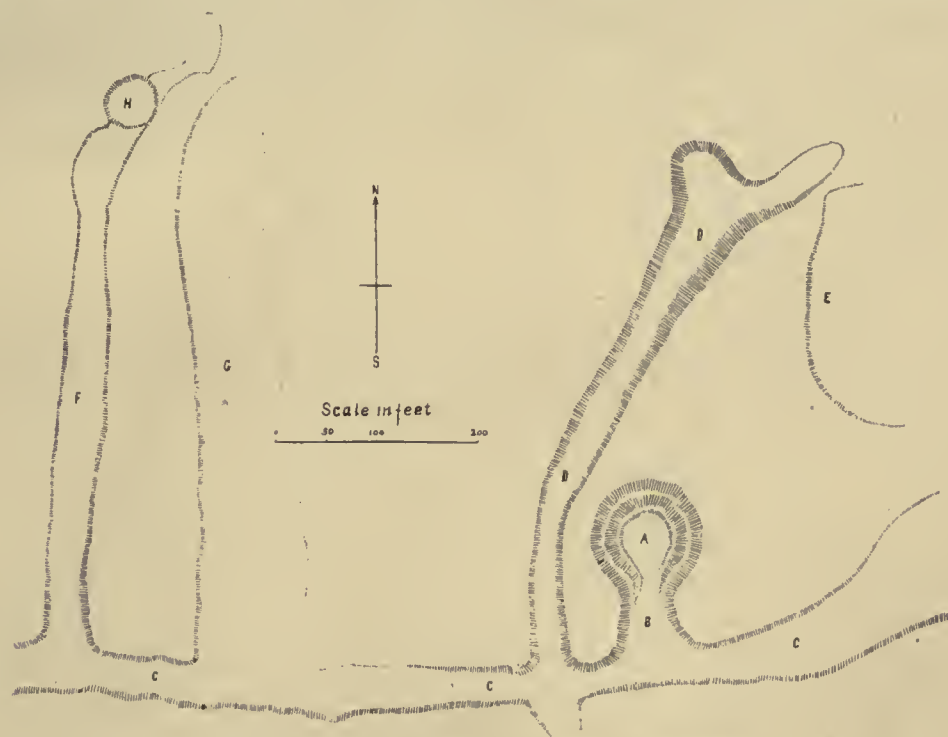


FIG. 1.—Plan of mounds and causeways, Point Maximo.

Disston City and New Cadiz are on the mainland a few miles south of Big Bayou. Small sand mounds on properties belonging to Mr. Martin Campos and Mrs. R. Barnett, yielded neither human remains nor artifacts.

#### POINT MAXIMO, HILLSBORO COUNTY.

Following the coast line down we come to Point Maximo. About half a mile in an easterly direction inland are several very interesting aboriginal works on the

property of Mr. R. Strada, of St. Petersburg, Fla., who refused permission to dig. Thickly covered by palmettoes, is a mound marked A on the plan (Fig. 1), apparently of sand and shell, now having a small frame cabin on the summit. This mound, which is referred to by Mr. S. T. Walker,<sup>1</sup> nearly circular as to outline of base, has a diameter at base of a little over 100 feet. The height is 10 feet above the general level.

From the southern side of the mound a broad ridge of shell (B) connects the mound with another ridge (C) running parallel to the water. The remainder of the base is surrounded by an excavation from 1 to 2 feet in depth below the general level, though seemingly much deeper when looked down upon from ridges adjacent to the mound. In a westerly direction from the mound is a curious ridge (D), 700 feet long, running in a northeast by easterly and southwest by westerly direction, with a maximum height of 6 feet 9 inches and a maximum breadth of 70 feet. This causeway does not seem to be a deposit of shell, formed during aboriginal occupation, but rather built for a purpose, as parts of it are of shell and sand mingled; parts, shell and sand side by side; parts, all sand. Beginning near the northeastern terminus of the ridge another causeway (E), mainly of sand, extends about 250 feet in a southerly direction where it turns to the east, having approached at this point within 50 feet of the ridge (C), which leaves the southern side of the mound. The area enclosed between these ridges is about 1 foot 3 inches below the general level, and doubtless furnished material for the causeways.

Beginning with, and nearly at right angles to, the shell ridges (C) fronting the water, about 500 feet in a westerly direction from the principal mound, two embankments (F, G) extend in a northerly direction about 500 feet, terminating at a mound of sand (H) about 3 feet 6 inches above the general level and 55 feet across the base, approximately. The embankments converge from 131 feet between them where they leave the shell ridge to 17 feet where they join the mound.

The westernmost causeway is well defined; is of sand, where excavations were made; is from 35 feet to 53 feet in breadth and 1 foot 6 inches in height. The eastern embankment is less well marked and merges, on the other side, with the surrounding country. Two excavations of moderate size were made in the sand mound; one without result; the other yielding human remains, badly decayed, just below the surface.

The space included between the ridges varies from 2 feet 8 inches to 1 foot in depth, and has somewhat the appearance of a canal. Presumably the removal of material for the ridges is responsible for the depression.

In the territory back of Point Maximo are other embankments of considerable size which were not investigated by us through refusal of permission by the owner. Numerous small shell ridges not included in the plan lie to the east of mound A back of shell ridge C.

<sup>1</sup> Smithsonian Report, 1879, p. 404.



## MOUND ON PINE KEY, HILLSBORO COUNTY.

Pine Key is one of the islands at the entrance to Tampa Bay. The mound described by Mr. Walker, is on the southernmost portion of Pine Key, which is divided into two parts by a small bayou. The mound, which is most difficult to find, being surrounded by trees and scrub growth, is about 300 yards in an E. S. E. direction from the southern end of a sheet of water called the Duck Pond, or about 50 yards in an easterly direction from a tongue, or continuation extending beyond the end of the lake. The tongue, itself apparently of artificial origin, is connected with the mound by a canal of irregular breadth, nowhere exceeding 58 feet, which, leaving the tongue at right angles, goes directly to the mound. The canal, at the present time, is not over 2 feet 3 inches in depth, though banks on either side make it appear considerably more.

The mound, which is very irregular, varies from 60 feet to 85 feet in diameter of base and is about 6 feet in height, taken from the general level. Deep depressions near parts of the base show whence the material for the mound was derived.

A number of small and shallow excavations were apparent.

Seven of our men dug 3.5 hours on parts of the mound previously undisturbed. The mound is made of unstratified white sand. Burials were met with at six points from 1 foot below the surface to 6 feet in depth. These burials were closely flexed in a manner to be described more particularly in our account of a mound on the Little Manatee river. With one burial were a number of massive beads of shell. With others were bits of earthenware vessels having incised and punctate decoration.

## MOUNDS NEAR POINT PINELOS, HILLSBORO COUNTY.

Point Pinelos is the southernmost extremity of the peninsula which bounds Tampa Bay on the west. On the property of Mr. Wm. B. Henderson, of Tampa, about three-quarters of a mile in from Point Pinelos, following a course N. W. by W., is an oblong mound with rounded corners, extending longitudinally almost due east and west. Its major diameter of base is 155 feet; its minor diameter, 47 feet. The summit plateau is 105 feet in length and 30 feet across at the center. Each extremity of the plateau is 19 feet across. Mr. S. T. Walker (Smithsonian Report, 1879, p. 407) gives this mound as No. 10 on his list, and gives the height as 25 feet. The exact altitude above the surrounding level is 16 feet 6 inches, and above the mass of sand which surrounds the base, 12 feet 6 inches. From the summit plateau to undisturbed sand at the base of the mound is a depth of 17 feet. The sides of the mound are precipitous, ascending at an angle of 30 degrees.

A graded way extends from the exact center of the southern side of the summit plateau almost due south, a distance of 112 feet. This causeway, made of sand with a sprinkling of shell, is 34 feet broad at its union with the mound and 23 feet across, 12 feet from its terminus.

The labor of seven men working five hours on a trench beginning 46 feet from the western end of the north side of the mound indicated the mound to be of

irregular layers of sand and of shell, the exterior being of sand. Several bits of rude, undecorated ware, one fragmentary bone piercing implement, a bit of chert lance-head were the only relics met with.

One hundred and thirty feet N. from the eastern end of the mound is an excavation of circular outline, 91 feet in diameter and 6 feet 7 inches deep, from which sand for the mound was taken. Another excavation 94 feet by 78 feet, similar in character and of the same depth, lies 125 feet E. S. E. from the eastern end of the mound.

A number of low sand mounds in the neighborhood of the one described gave no feature of interest.

There are several low mounds near St. Petersburg, which have been dug into. In addition, in the town, on the property of Mr. J. A. Armistead, of St. Petersburg, who granted permission to investigate, are two mounds in a field. One is conical, of shell and very steep; the other, of sand, has a rather unpromising appearance.

At the northern extremity of old Tampa Bay, near Safety Harbor, permission to dig was refused.

Near Tampa are two mounds which have been dug through by treasure seekers, it is said.

#### MOUNDS ON ALAFIA RIVER, HILLSBORO COUNTY.

The Alafia river runs into Hillsboro Bay, a part of Tampa Bay.

Riverview is a small settlement about 5 miles up the Alafia river. About 1 mile farther up on the opposite side of the river, somewhat back from the landing, is an unstratified sand mound where considerable digging was without result.

About one-half mile above the mouth of the river is Shell Bluff, the property of Mr. R. E. Gibson, in whose orange grove is a low, irregularly shaped sand mound about 2 feet in height, with a diameter of 55 feet at present time. Owing to presence of orange trees, trenching only was attempted. A considerable number of burials were met with, flexed and lying on the left side as a rule. No artifacts were with the remains.

Mill Point is less than one-half mile above the mouth of the Alafia river, on the right-hand side going down. At this point are a number of aboriginal works which are shown on the accompanying plan (Fig. 2). Investigation was made by us with the consent of Mr. W. B. Henderson, of Tampa, to whom we are indebted, in addition, for kindness shown us in other ways.

Along the banks of the river are shell ridges (A) with a maximum height of 8 feet. In rear of these ridges are shell fields and other ridges running back, not shown on the plan. Parallel with the water of a sort of bay to the east of the point, is a steep ridge of sand (B) terminating abruptly at either end, containing local layers of shell. A certain amount of investigation in this ridge, which is 148 feet long, about 62 feet wide at the base and somewhat over 11 feet high, gave no indication of interments. A roadway about 30 feet wide at its central part slopes



upwards and joins the ridge about at right angles, near the center of the western side. The length of this roadway from its beginning to the mid-line of the ridge is 82 feet. Off the northern end of the ridge is a depression (C) with sloping sides, having a maximum depth of 4.5 feet, a maximum breadth of 56 feet and 96 feet in length. From this depression doubtless came material for the ridge. A short distance west of the ridge is a mound (D) very much spread out, which, apparently, has been under cultivation in earlier times. Its basal dimensions are 80 feet by 68 feet; its height, 4.5 feet. Various excavations showed it to be of white sand with a certain intermixture of loam, and local layers of shell. A few fragments of human bones lay near the surface.

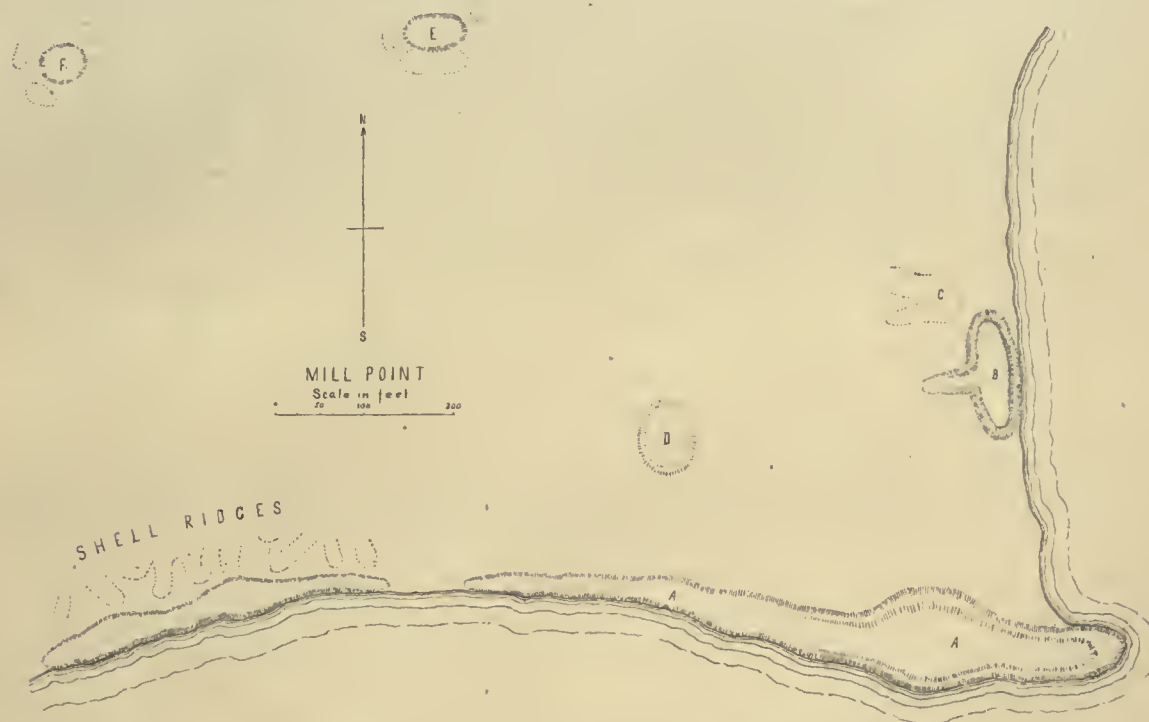


FIG. 2.—Plan of mounds and causeways near Mill Point.

Several hundred yards from this mound, in a northerly direction, in pine woods, on property of Mr. L. G. Newman, of Tampa, is a sand mound (E) about 3 feet in height. Considerable digging showed it to be domiciliary. A similar mound (F) but a short distance from the other yielded no result. Depressions around these mounds are shown in broken lines.

Bullfrog creek is a tributary of the Alafia river. On this creek was formerly a shell heap of considerable size. It is referred to by Mr. Walker in his list of shell heaps of Tampa Bay and its location given on a plan. This mound has since been largely demolished to furnish shells for the streets of Tampa, and its destruction was watched with interest by many. We are informed on all sides that no

object of interest was met with during the work, and as this so closely agrees with our experience of the shell heaps of the west coast, we are inclined to accept it.

MOUND NEAR LITTLE MANATEE RIVER, HILLSBORO COUNTY.

On the north side of the Little Manatee river, about 1.5 miles up, is the residence of Mrs. Cordelia Hoey, on the summit of a great aboriginal shell heap, possibly one of those seen by DeSoto and his men. A short distance in a northerly direction from the house is a mound thickly covered with scrub, into which a small trench had been dug prior to our visit. The mound, irregularly circular and rather rugged as to its surface, has a base diameter of about 58 feet, a height of 6 feet. From the southwest side of the mound an aboriginal canal, almost straight, runs a distance of 238 feet to the water. Leaving the mound the canal is 64 feet across, converging to a width of 36 feet at its union with the water. The canal, in common with the field through which it runs, has been under cultivation, and consequently is irregular as to sides and bottom. The maximum depth is now 3 feet 3 inches, though, according to Mr. Hoey, twenty years ago, when first he came to the place, the sides were steeper and the canal about 2 feet deeper, so that high tides entered the field until a dam was placed across the mouth of the canal.

Beginning in the marginal part of the northeast side of the mound, a trench 35 feet across at the beginning was run 29 feet in to the center of the mound, where the trench had converged to a width of 9 feet. The mound was of pure white sand, unstratified. At the very outset burials were encountered. In all, 112 burials were met with, classing as such human remains with which the cranium was present and omitting a limited number of bones found loose in the mound. These burials were in a much greater state of flexion than we have usually seen in our mound work. The prevailing form of interment was a squatting position, the feet on a level with the pelvis, the legs against the thighs and these drawn up against the body. The upper arms were against the sides with the forearms sometimes raised parallel to the upper arms and sometimes on the chest, reaching to the neck. The head was bent over and forced down between the thighs, sometimes to the pelvis. Certain skeletons lay on the side with the same general arrangement of the extremities and the skull pressed over against the knees. So compact were these bundles of bones, which were not the bunched burial so often met with, where separate bones, not in order, are loosely piled in a heap, that we believe the skeletons in this mound, perhaps denuded of flesh, but held together by ligaments, were enveloped in wrapping of some sort and tightly bound with cord or sinew. One of these bundles of the average size was 23 inches long and about 26 inches in circumference.

The crania were so decayed and so injured by roots of palmetto scrub which covered the mound, that none was preserved.

In connection with human bones lying loose in the mound, and with probable denudation of flesh from the skeletons prior to interment, the reader will recall that it was near Tampa that DeSoto rescued Juan Ortiz, a member of a former Spanish expedition, who was found guarding from wild beasts, dead bodies of aborigines, exposed for a period prior to interment.



Under two crania was sand made pink by admixture of hematite. With, or in the immediate vicinity of, burials were: a shell drinking cup; a well-made bead of shell; a number of blue glass beads and two bits of lookingglass; a spear-head of

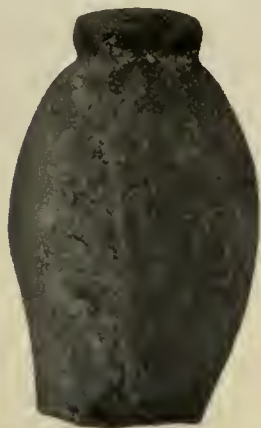


FIG. 3.—Pendant. Mound near Little Manatee river. (Full size.)

chert; a large flake of the same material, doubtless used as a knife; a pebble hammer; a smoothing stone, apparently of lime rock; a fossil shark's tooth over 4 inches in length, considerably worked at the base, probably for hafting;<sup>1</sup> a polished pendant of stone, minus a portion of the base; a stone pendant, badly broken; a pendant, probably of fine-grained sandstone,<sup>2</sup> representing the head of a bird, of which, unfortunately, most of the bill is wanting (Fig. 3). Pendants in the form of birds have<sup>3</sup> frequently rewarded our search in southern mounds. In a mound near Tavares, Lake County, Florida, we found a bird amulet of igneous rock, the head of which was wanting.<sup>3</sup> We have seen, described and figured,<sup>4</sup> a beautiful pendant representing the head of a duck, which came from the Turkey creek mound, among a cache of other pendants, and is now in possession of Andrew E. Douglass, Esq., of the American Museum of Natural History, New York.

Throughout the mound were sherds mostly plain, though some bore incised, and some punctate, markings. One had stamped decoration.

About 400 yards E. by N. from the mound just described, in pine woods, is a mound 3 feet high and 72 feet in diameter, the property of Mr. J. A. Darcey, living nearby. A central excavation yielded neither burials nor artifacts.

#### INDIAN HILL, HILLSBORO COUNTY.

About 3 miles down Tampa Bay from the mouth of the Little Manatee river is an island known as Indian Hill, probably eight acres in extent, almost covered by an aboriginal deposit of shells, including oyster, clam, conch (*Fulgur*), cockle (*Cardium*), *Pecten*, *Strombus gigas*, *Strombus pugilis*, *Fasciolaria gigantea*, *Fasciolaria tulipa*. Part of the shell deposit is made of irregular mounds and ridges. At one extremity, however, the deposit rises steeply, forming a great heap seemingly composed of three mounds with depressions between. The circumference of base is 423 paces. The largest of these heaps has a height of 30 feet above the surrounding shell deposit and 36 feet 7 inches above water level. We believe, after personal inspection of the majority of Florida shell heaps and careful inquiry as to the rest,

<sup>1</sup> A shark's tooth similarly treated, was found by us in a mound on Ossabaw Island, Georgia, and is described in our "Certain Aboriginal Mounds of the Georgia Coast."

<sup>2</sup> Theodore D. Rand, Esq., of the Academy of Natural Sciences, has kindly identified all rocks referred to in this Report. As we have not furnished Mr. Rand with sections of the specimens, the determinations are not considered final by him.

<sup>3</sup> "Certain Sand Mounds of the Ocklawaha River, Fla.," Journ. Acad. Nat. Sci. Phila., Vol. X.

<sup>4</sup> "A Cache of Pendent Ornaments," p. 190, Journ. Acad. Nat. Sci. Phila., Vol. XI.

that the shell deposit at Indian Hill exceeds in height any in the State, though considerably greater altitudes for other sites have been given by writers who base their assertions upon estimate. In Fig. 4 we give a photograph showing the great deposit at Indian Hill, extending completely across the background of the picture, with the house of the owner of the island, Mr. F. B. Walker, occupying the westernmost extremity of the heap. Unfortunately, it is beyond the power of the camera to show the slope or comparative height of mounds owing to undue prominence given to the foreground.

Close to the great shell heap is another, also of shell, very symmetrical, with upward slope of 28 degrees, in places. This mound, shown in the photograph in front of the greater heap, oblong with rounded corners, extends 76 feet in a N. E. and S. W. direction. Its minor diameter is 55 feet; its height above the general level of the surrounding shell is 12 feet 4 inches. At the S. W. end of the mound a trench was run in from the margin 21 feet, converging from 41 feet at the beginning to 20 feet at the end. The mound was built of layers of small oyster shells and strata of crushed shell and blackened debris. During the excavation, human remains were met with at seventeen points and in other places while eaving the sides of the excavation at the end. No remains lay at a depth greater than 4 feet, while the majority were just beneath the surface. With three exceptions the burials consisted of parts of disarranged skeletons. Two skeletons lay much flexed, on the side; the other, face down and partly flexed. No artifacts were with the remains.

At one end of this mound lay numbers of small shells (*Strombus pugilis*) with two perforations for a handle, in the body whorl below the periphery and much chipped and worn at the beak. These and similar shells, lying here and there over the entire deposit, had doubtless served as hammers, probably to open shell-fish for food.

In a southerly direction, along the east shore of Tampa Bay, is Terraceia Island, Manatee Co. On this island (see map), on the property of Mr. L. W. Johnson, is a low irregular mound, in which were found a few flexed burials without artifacts.

About 150 yards N. N. W from this mound is a shell deposit, with the usual ridge leading to it.

On property of Dr. L. R. Warren, of Bräidentown, Florida, not far from the other remains on Terraceia Island, is a large oblong mound running north and south, with the usual graded way leading to it.

Up the Manatee river, Manatee Co., near Erie P. O., are three small mounds, on properties belonging to Messrs. L. P. Foy and Louis Brubacher, in which were found only a few scattered bones.

On the southern extremity of Cow Point Island, Sarasota Bay, Manatee Co., on property of Mr. C. W. Thigpen, are an aboriginal shell deposit and two low burial mounds, in which were present closely flexed burials without artifacts.





FIG. 4.—Principal shell heaps, Indian Hill, Tampa Bay.



Near the shore of Sarasota Bay, on property of Mr. J. H. Gillespie, of Sarasota, are three low sand mounds, much dug into previous to our visit, in which we found practically nothing.

Near Snell's Bayou, Manatee Co., in sight of the water, is a mound on property of Mrs. F. E. Brooks, of Birmingham, Michigan, whose winter home is near the mound. The mound, of brown sand, is 109 feet across the base and 10 feet in height. A central trench was without result.

About one-half mile in a southerly direction from Sarasota, Manatee Co., a few yards from the water, in oak and palmetto scrub, is a mound on the property of Mr. Adolph Zakezewski, of Philadelphia, Pa. The mound is 20 feet high with somewhat irregular basal outline, and about 130 feet across. Considerable digging done previous to our visit showed no trace of human remains along the sections, nor were our excavations more successful. The mound, which is probably of a domiciliary character, seems to be of gray sand without shell.

#### MOUND ON PINE ISLAND, LEE COUNTY.

Southward from Charlotte Harbor is Pine Island Sound in which is Pine Island. About three miles down, on the eastern side of the island, is a small key supposed to be about three acres in extent. This island rises in places to a considerable height owing to an aboriginal deposit of shells, whence its name,—Indian Old Field.

About three-quarters of a mile in a W. N. W. direction from Indian Old Field, on Pine Island, is a mound a trifle over 5 feet in height and 60 feet across the base. It is situate away from the mainland proper, on what is known as a sandspit,—territory not usually covered by tides but subject to overflow during unusually high ones. It seems curious for aborigines to have chosen such a spot for a place of interment when solid ground in abundance was so near at hand.

The mound, on property of the late J. H. Kreamer, Esq., of Philadelphia, Pa., was but partly investigated by us. A trench, 28 feet across at the beginning, was started at the northeast side of the mound where wash of tides had carried away a portion, leaving an abrupt section. The trench, converging to 24 feet at the end, was carried in a distance of 20 feet. The mound, unstratified, was of gray sand. At the base and below, where were a number of burials, the sand was black from admixture of loam. At the beginning of the excavation were numbers of fragments of pottery, belonging to different vessels, placed thickly together. Nearby were several shell drinking cups and a number of conch-shells.

Interments met with at thirty-eight points, consisted of burials loosely flexed and others closely drawn together like those we have described from the mound on Little Manatee river. There were also several masses of disconnected bones and skeletons disturbed by burials made afterward, though probably by the same tribe.

With the burials were three "celts" of iron or steel; glass beads, on three occasions; two tubular sheet silver beads with overlapping edges; one kite-shaped pendant of thin sheet silver, decorated with a repoussé cross (Fig. 5); a handsome



lance-head of hornstone, 4 inches long; a lance-head of chert; two arrowheads of chalcedony; a tooth of a fossil shark, perforated for use as a pendant. With the basal burials and with the sub-basal ones, some of which were 6.5 feet beneath the



FIG. 5.—Pendant of silver. Mound on Pine Island. (Full size.)

surface, were no artifacts. The burials on and below the base, in every case but three, were closely flexed, while the flexion in the body of the mound was loose in character. The burials with European objects, however, were not intrusive, but belonged to the period when the part of the mound in which they were was made.

At the northern end of Pine Island Sound are several islands, among which Mondongo and Joseffa were visited by us. These islands, though thickly covered with aboriginal deposits of shell, are not of the pile-dweller type, since the islands are of sand, a number of feet in height, on which the debris of aboriginal meals has been thrown. Though Mr. F. P. Roach, owner of Joseffa Island, placed it at our disposition, we had by this time done so much fruitless digging into the shell of the west coast that we did not feel justified in taking time from what we believed to be a richer district farther south.

#### JOSSelyn KEY, LEE COUNTY.

Josselyn Key, in Pine Island Sound, off the northwestern end of Pine Island, has been described by Mr. Cushing. There is a large shell deposit on the island with courts, canals, mounds and platforms. We made a number of excavations in the muck of various courts and canals, finding absolutely nothing.

#### DEMOREY KEY, LEE COUNTY.

This island lies about two and one-third miles S. S. E. from Josselyn Key. Here our men made numerous excavations in the muck, finding it from 1 to 3 feet in depth. Nothing was obtained beyond several bits of coarse earthenware.

Mr. Cushing has described Demorey Key with considerable detail, and it was there he found the "truncated pyramid" with the wall of conch-shells described by him,<sup>1</sup> and shown in Plate XXIX and, in elevation with the rest of the key, in Plate XXVIII. Mr. Cushing says: "The most remarkable feature of this key was a flat, elongated bench, or truncated pyramid, that crowned the middle elevation. I discovered this merely by accident. In order to gain a general idea of the key, which was almost as much overgrown with luxuriant and forbidding vegetation as had been the wilder key first explored, I climbed high up among the skinny and crooked limbs of a gigantic gumbo limbo that grew directly from the inner edge of

<sup>1</sup> *Op. cit.*, pp. 10 and 11.

this elevation. Luckily, great festoons of tough vines hung to the lower limbs of this tree, for in shifting my position, I slipped and fell, and was caught by these vines, to the salvation of my bones, probably, since by the force of the fall some of the vines were torn away, revealing the inner side of this platform and the fact that it was almost vertically faced up with conch-shells; their larger, truncated and spiral ends, laid outward and in courses so regular, that the effect was of a mural mosaic of volutes. I hastily tore away more of the vines, and found that this faced-up edge of the platform extended many feet in either direction from the old gumbo limbo. I may say here, that on occasion of two later visits I cleared the façade of this primitive example of shell architecture still more; was enabled, indeed, when I last visited the place—since I was then accompanied by a considerable force of workmen—to entirely expose its inner side and its southern end. Thus was revealed—even more completely than is shown in Plate XXIX—a parallelogramic and level platform, some three and a half feet high and twelve yards in width, by nearly thrice as many in length. It was approached from the inner side by a graded way that led obliquely along the curved ascent up from the mangrove swamp, to a little step-like, subsidiary platform half as high and some twelve feet square, which joined it at right-angles, just beyond the point shown at the extreme right of the picture here given. The top of this lesser step, and the approaches to either side of it, were paved with very large, uniform-sized clam-shells, laid convex sides upward, and as closely and regularly as tiles. The lower or southern end of the main platform was rounded at the corners, and rounded also on either side of the sunken ascent midway, in which the longer of the graded ways I have described terminated. Contemplating the regularity of this work, its central position and its evident importance, as indicated by the several graded ways leading to it from distant points, I could not doubt that it had formed the foundation of an imposing temple-structure, and this idea was further carried out by the presence at its northern end of two small, but quite prominent altar-like mounds.”

Although Mr. Cushing seems carefully to have looked into this matter, we believe him to be mistaken in attributing an aboriginal origin to this wall of conch-shells.

We four times visited Demorey Key with a force of men to dig.

The elongated bench described by Mr. Cushing is a portion of an ordinary aboriginal shell ridge, which seemed to us to have been somewhat flattened to serve as a site for a modern house and garden. In fact, we are informed by “Johnny” Smith, Mr. Cushing’s guide, that at the time of his visit to Demorey Key, a house, partly in ruins, occupied a portion of this level space just by the little platform. When we first visited the key (March, 1900), we saw a frame house which must have occupied the site of the older one. This house also had been removed when last we stopped at the key.

The wall of conch-shells, shown in our plan (Fig. 6) by the solid line A to B, does not surround a parallelogram, but extends about 100 feet only on the inner, or



eastern side, where it distinctly leaves the straight line to go around a gumbo limbo tree, as shown at C. This alone we think sufficient to prove the comparatively modern origin of the wall. At the southeastern corner it circles about a lemon tree at D and comes to an end. There is no sign of a wall in the southwestern corner, there being there only a loose heap of large shells, mostly conchs. Such

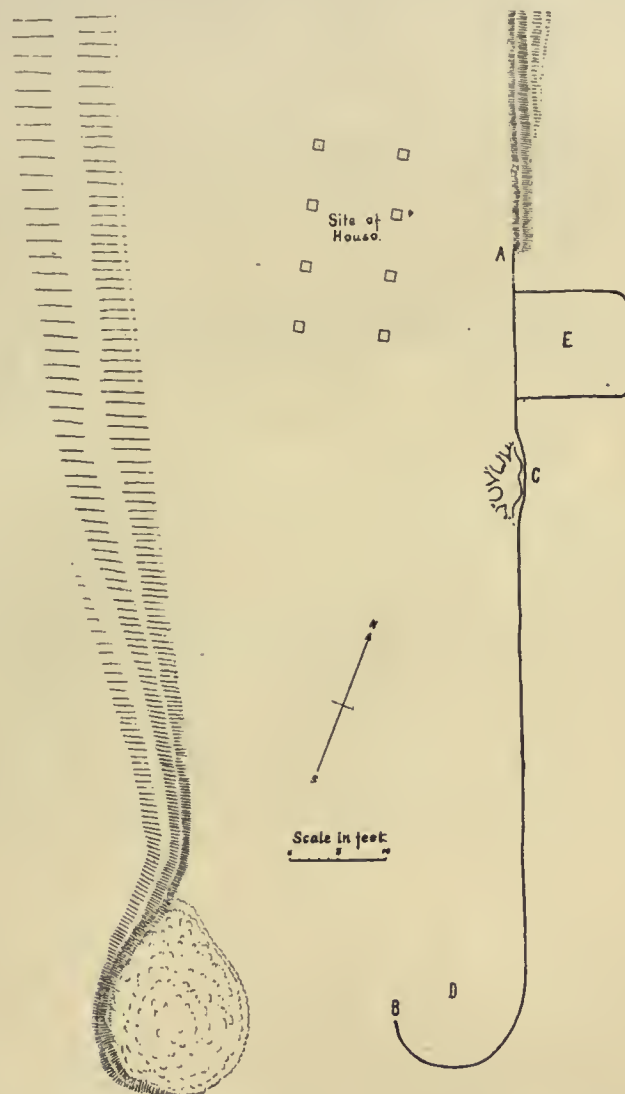


FIG. 6.—Plan of shell ridge and wall of conch-shells, Demorey Key.

heaps are very frequently met with on the shell islands which have been cultivated, since the large shells interfere with the hoe and the plow. At Chokoloskee, in the Ten Thousand Islands, great piles and ridges of these shells, collected within the last few years, are to be seen. At Josselyn Key are similar heaps of shells thrown loosely together, which Robert Allen, the captain of our steamer, informed us he

had seen in process of collection by Josselyn, the former owner of the key. Several such piles are in close proximity to the leveled space at Demorey Key.

There is no defined outline of a parallelogram save along the wall, the other portions being the simple, gradual slope of an ordinary shell ridge.

The wall itself seemed to us to have been built by some settler in the present century, primarily to serve as a sort of retaining wall to keep in place great numbers of conchs which lie loosely behind the wall, and thus when loam was superimposed, to broaden his vegetable garden. The slope of the shell heap on the inner side is much steeper than on the outer side where it was not necessary to build a wall.

We removed portions of the shell wall at various places and dug into the mass of material beyond at the level of the base, finding glass, iron and earthenware, one bit with a glaze.

We examined also the subsidiary platform referred to by Mr. Cushing and shown on our plan at E. The pavement of large clam shells, the convex side upward, described by him, no longer remained, though here and there were clam shells mostly with the convex side upturned. Young Smith, a brother of Mr. Cushing's guide, informed us that he had lived upon Demorey Key after Mr. Cushing's visit, and had displaced many of these shells. Digging into the platform we discovered it to be made of loose conchs with a certain amount of undisturbed, black loam on top, in all a little over one foot in thickness. Just below this loam, and over the conch-shells, was a large fireplace leading us to suppose that the platform had been built for use as a kitchen. Beneath was the black surface loam of the shell heap. One foot down, among the conch-shells of the platform, and just above the black loam of the original surface, under the fireplace, we found a number of large pieces of glass showing marks of fire.

#### MOUND ISLAND, LEE COUNTY.

Mound Island, or Johnson's Key, as it is also called, is in Estero Bay, about seven miles in a straight line in a southeasterly direction from Punta Rassa, and may be reached by a sheltered way behind islands, or from the Gulf through Carlos Pass.<sup>1</sup> Mound Island, where we were courteously received by Mrs. F. M. Johnson in the absence of her husband, the owner, is, in our opinion, the most typical of all the Key-dwellers islands. We were informed by Mrs. Johnson that its area is about 140 acres. A survey we have seen makes it about 128 acres in extent. In addition to a general shell deposit over most of the island, and numerous graded ways, courts, small canals and at least one hooked-shaped breakwater at the mouth of a canal, a great canal, still admitting water in the highest tides, running nearly N. E. and S. W., bisects the island. Beginning in the northeastern portion of the island, this highway for canoes, a little farther on, passes the burial mound of the island, and at about two-thirds of its length goes between embankments of shell,

<sup>1</sup> Government Chart, No. 174, shows Little and Big Carlos Pass. They are now united. Mound Island lies nearly two miles in an easterly direction from the Pass.



at places over 20 feet in height, having on its left the great precipitous shell-heap which gives the island its name. In Fig. 7 we show a representation of this mound with part of the main, or dividing, canal, sketched from an elevation to the north.

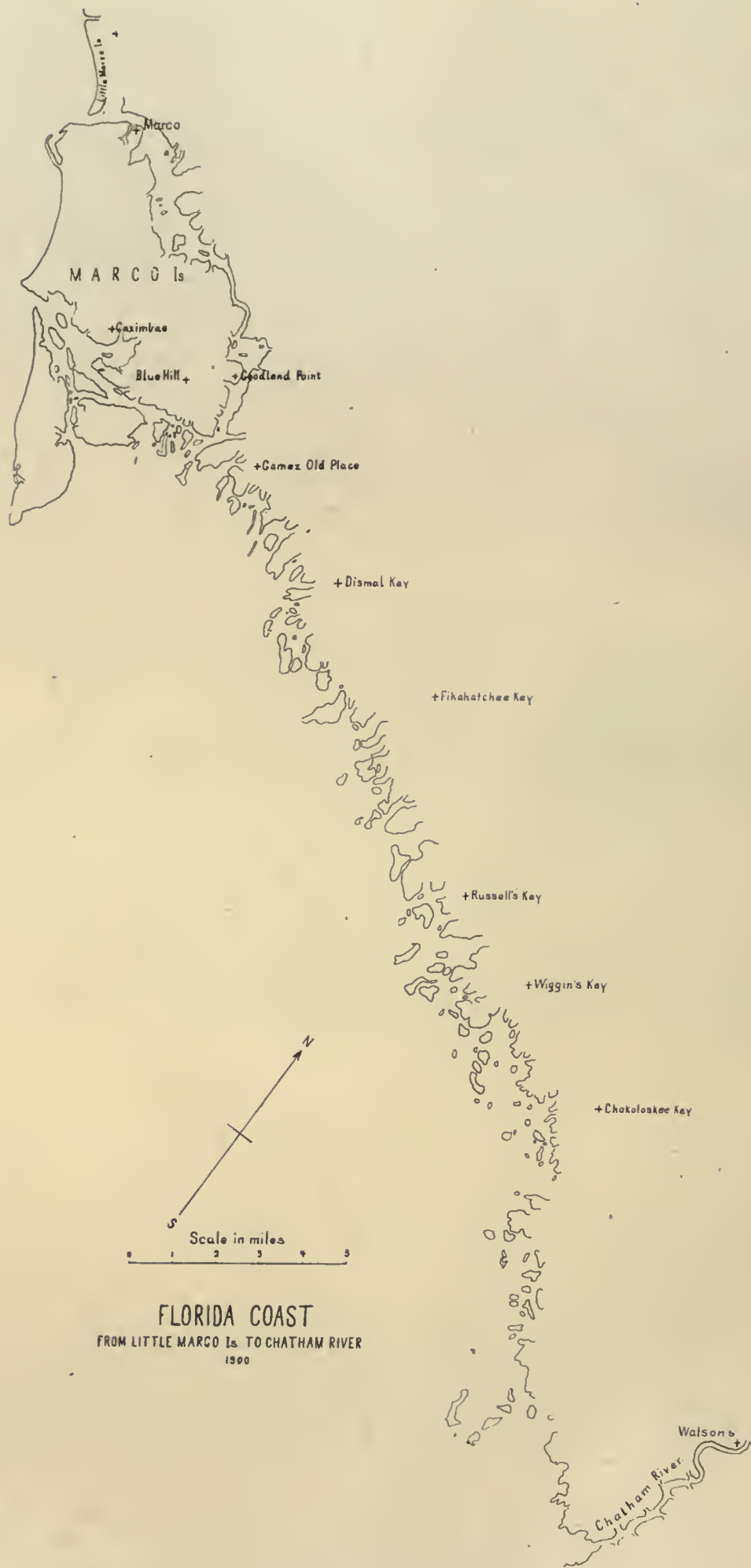
Mr. Cushing, in his brilliant preliminary report (page 19 *et seq.*), speaks of Mound Island at some length. At the foot of page 19 he says, "It consisted of a long series of enormous elevations crowned by imposing mounds that reached an average altitude of over 60 feet." Mr. Cushing here has given an estimate as the actual height, and we feel impelled to call attention to this since we have repeatedly gone on record that no shell deposit of Florida reaches a height of 40 feet. In point of fact the principal mound of Mound Island is 31 feet above sea level at half tide, and 30 feet, 2.5 inches in height if measured from the general level at the base. These measurements were made and repeated with a theodolite, and we believe them to be accurate. Different stages of tide might modify the first measurement by a foot or two either way.



FIG. 7.—Principal mound with portion of main canal. Mound Island.

Persistent excavations were made by us in the muck of the canals and courts at Mound Island, which was sometimes 3 or 4 feet in depth, resulting in the discovery of a few bits of earthenware only and a handsome implement wrought from a conch-shell, unfortunately without a handle. The result of our work was a bitter disappointment to us, as we had gone to Mound Island fully prepared with a band of diggers and with a portable pump to keep down the water while engaged in the muck.

The burial mound in the northeastern part of the island, to which we have referred, lies in a mangrove swamp. It is 65 feet across the base and about 11 feet in height. It is composed of sand and loamy material with a certain admixture of shell. We dug into this mound to a certain extent, finding nothing of particular interest. Many relics, however, mostly of European origin, have come from it.



FLORIDA COAST  
FROM LITTLE MARCO Is. TO CHATHAM RIVER  
1900



Some of these, we believe, have been presented to the Museum of Science and Art of the University of Pennsylvania by Mr. Joseph Willcox.

#### LITTLE MARCO ISLAND, LEE COUNTY.

The Ten Thousand Islands, whose name is not conferred in a poetical way, but probably falls short in describing the number, beginning with Little Marco Island in the north, thickly fringe the coast line of part of the counties of Lee and Monroe to the Northwest Cape, a distance of about seventy miles, in a straight line.

These keys, formed by oyster bars, sand and the roots of the mangrove tree, are from a few feet to a number of miles in area, and are, as a rule, just above the level of the sea. But an insignificant proportion of these islands have been utilized by the Key-dwellers.

All published maps of this part of Florida are grossly inaccurate in respect to the Ten Thousand Islands, locating key settlements on the mainland, reversing their positions and the like, while Government charts skip most of the islands, the task being too difficult to cope with.

The map given by us, mainly taken from the Government chart, shows, as it does, below Key Marco, only the outlines of the outer tier of islands, and, in addition, indicates the location of the shell islands visited by us. These islands do not lie in open water, but are enclosed in a labyrinth of other keys.

On the eastern side of Little Marco Island is a shell settlement with the usual ridges and mounds of moderate size.

#### MARCO, LEE COUNTY.

Marco, on the northernmost end of Key Marco, by far the most important of the Ten Thousand Islands (see map), is where Mr. Cushing made his marvelous collection of objects of wood and of shell in the muck at the bottom of a small triangular court, enclosed between ridges of shell.

All the territory in and around Marco, including its canals, its courts and its mounds of shell, was cordially placed at our disposition by W. D. Collier, Esq., of Marco, the owner, and investigation was made by us in the muck of courts in the immediate vicinity of the one so advantageously explored by Mr. Cushing. Absolutely nothing rewarded our efforts.

From Mr. G. E. Cuthbert, of Marco, we obtained a collection of objects ploughed up during cultivation, among which were many rather rude "sinkers" of shell and others somewhat resembling them, but too carefully made to have served for other than ornamental purposes. In Fig. 8 are shown selected specimens of this kind from the Ten Thousand Islands, including Marco; Goodland Point, Key Marco; and Chokoloskee Key.

In the Marco collection are four shell discs. One, with two perforations, is evidently a gorget; one is imperforate; one has a small central perforation, while the remaining one has a much larger hole in the middle. All these are shown in Fig. 9.



FIG. 8.—Ornaments of shell. Ten Thousand Islands. (Full size.)



There were also a number of rude sinkers of coralline limestone and one, globular in shape, of coral.

A curious type found among the Florida keys, consisting of oblong strips of shell, is represented by four specimens in the Marco collection. These objects

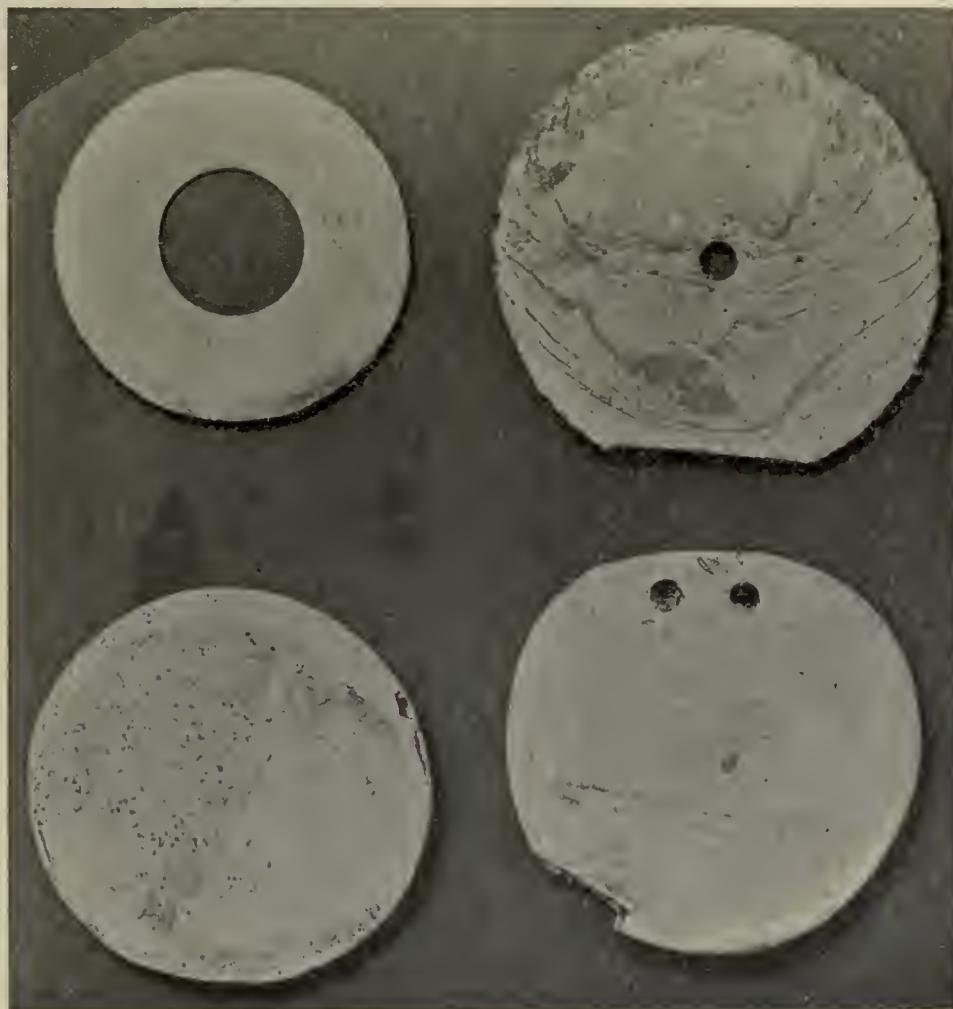


FIG. 9.—Discs of shell, Key Marco. (Full size.)

might seem to be unfinished were it not that the margins are carefully worked, and some show a high polish as from use.

A neatly-made chisel, probably of argillyte, 3.4 inches in length, is polished and has a circular section. On one end is a bevelled cutting edge; on the other, a blunt point.

#### GOODLAND POINT, MARCO ISLAND, LEE COUNTY.

Goodland Point, about six miles farther down the east side of Marco Island, on its southeastern extremity, has a great expanse of shell deposit which was put at

our service by Mr. Samuel Pettit, the owner. In the mangroves, about one-half mile from the landing, are a number of low, irregular undulations, which seem to have served as places of burial for the aboriginal settlement. Considerable previous digging had been attempted. An imperfect examination indicated that parts of disjointed skeletons had been buried just below a shell deposit, and subsequently about one foot of loam had been piled above.



FIG. 10.—Disc and "sinkers" of limestone. Goodland Point. (Full size.)

With a femur, a tibia, fragments of a fibula, parts of a radius, were four arrow-heads, or knives, of chert.

One small mound had twelve shell drinking cups just beneath the surface. Though the mound was less than half demolished by us, over twenty of these cups were met with.

From the sons of Mr. Pettit we got a considerable collection of objects found during cultivation of the place, including several beautiful shell pendants; many



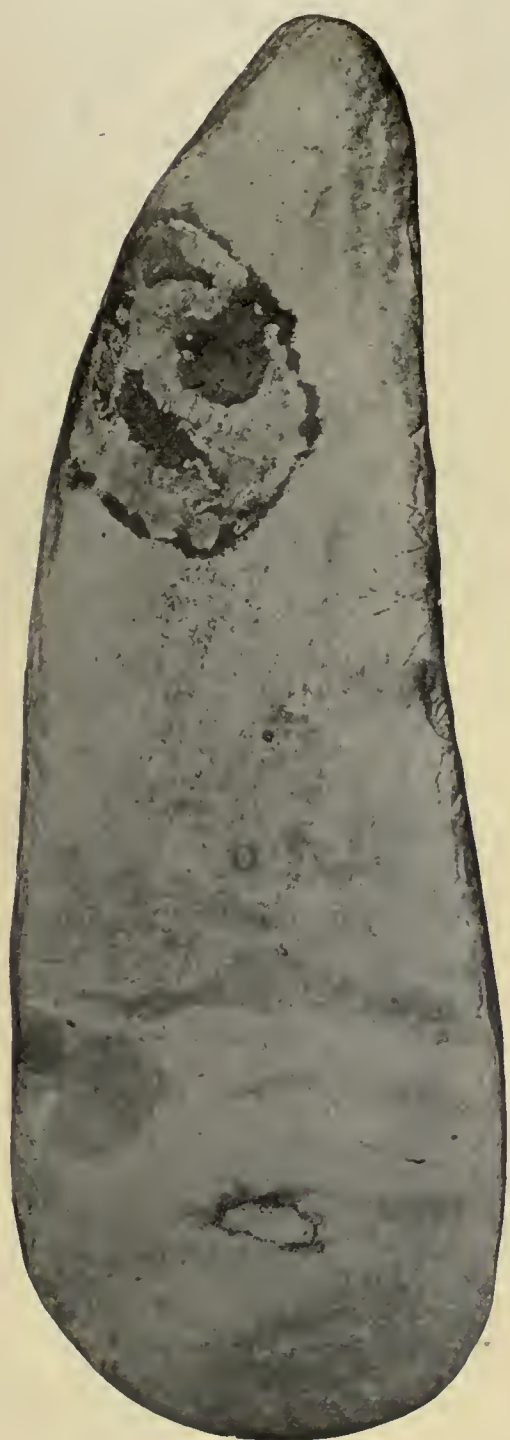


FIG. 11.—“Celt” of shell. Goodland Point. (Full size.)



FIGS. 12, 13.—Objects of shell. Goodland Point.  
(Full size.)

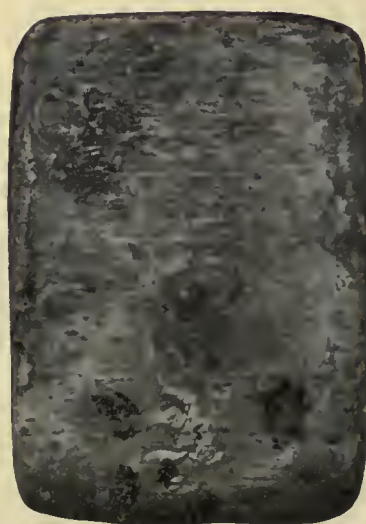
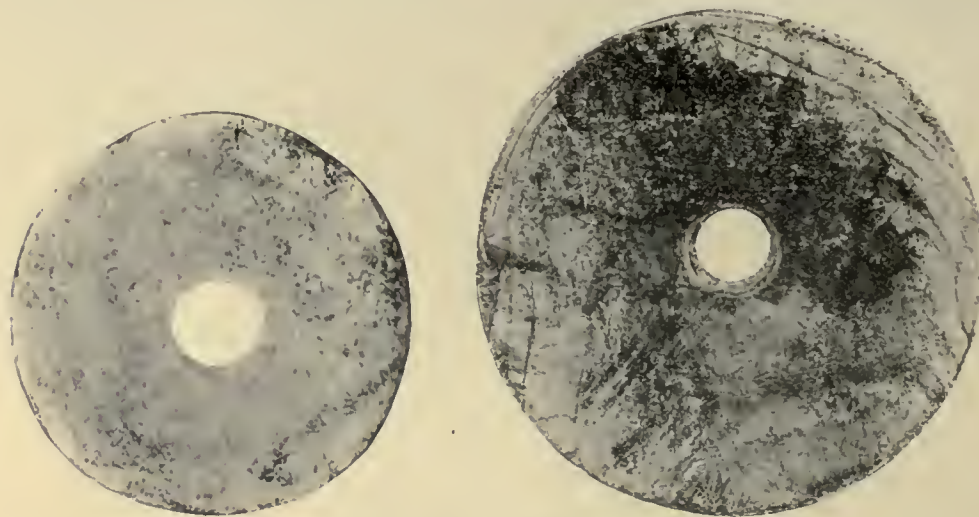


FIG. 14.—Object of shell. Goodland Point.  
(Full size.)

rude "sinkers" of shell and of coralline limestone; a perforated disc of soft limestone which, with some typical stone "sinkers," is shown in Fig. 10; a beautiful and perfect "celt" of shell, wrought from the lip of *Strombus gigas*, about 7.5 inches long, of a type not found out of Florida in the United States, but present in certain West India islands (Fig. 11); two smaller "celts" of shell; three narrow, oblong strips carefully cut from the body whorl of a large marine univalve, of the type we have referred to as found at Marco, two of which are shown in Figs. 12, 13; a shorter and wider oblong section of shell, much polished (Fig. 14); two centrally perforated discs of shell shown in Figs. 15, 16; a scoop-shaped object of shell with rough incised decoration (Fig. 17); another, spoon-shaped, also of shell (Fig. 18); a chisel of igneous rock, with bevelled cutting edge, similar in type to the one from Marco, though somewhat larger.



FIGS. 15, 16.—Discs of shell. Goodland Point. (Full size.)

One of the most interesting features of this collection is a beautifully wrought implement, probably of elaystone, of a type not found in the National Museum, we are informed by Professor Holmes. At one end is a carefully made bevelled cutting edge; the other end originally tapered to a fine point. This specimen, Mr. Pettit's son informed us, was found intact by him, but having been allowed to fall, it broke into a number of pieces. These pieces, with the exception of a small fragment from the pointed end, which he had lost, have been put together by us. The present length is 13.12 inches, though the reproduction makes it a little greater; the maximum diameter is .56 of an inch (Fig. 19).

With the objects of shell and of stone obtained by us at Goodland Point were two earthenware heads of birds, one probably representing a turkey head (Fig. 20); the other, the head of a predatory bird, perhaps an eagle (Fig. 21).

These heads, which doubtless served as handles of vessels, are interesting, owing to the section whence they came, since no such heads were met with by us else-





FIG. 17.—Object of shell. Goodland Point.  
(Full size.)



FIG. 19.—Rare implement of claystone.  
Goodland Point. (Full size.)

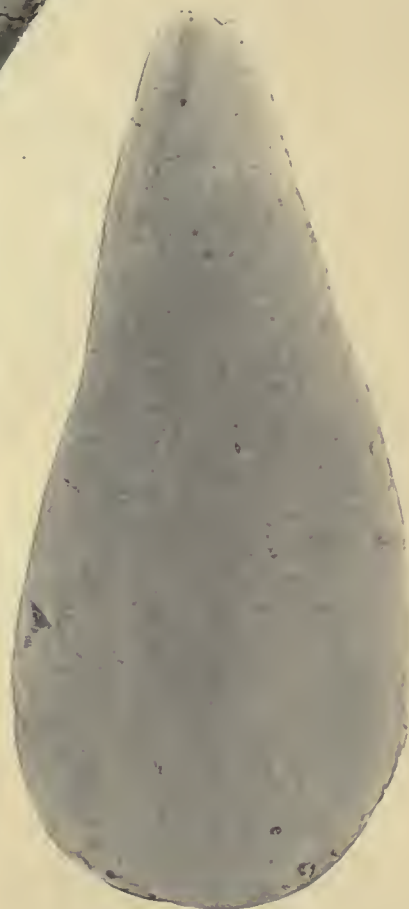


FIG. 18.—Object of shell. Goodland Point.  
(Full size.)

where on the southwestern coast of Florida, or, we think, have been described by others as coming from there.

The heads show considerable excellence of design and workmanship, and far exceed, in these respects, any bird-head handles met with by us in other parts of Florida, with one exception.

Mr. S. T. Walker, in the Smithsonian Report for the year 1883, describes and figures certain earthenware bird-heads from Florida, but these came from the extreme northwestern coast of that State, not far from the Alabama line, and, moreover, are of little artistic excellence.

In the mound at Ginn's Grove, St. Johns river, Orange County, we found a beautifully painted and incised head of a predatory bird,<sup>1</sup> which Professor Holmes describes in his "Earthenware of Florida."<sup>2</sup>



FIG. 20.—Earthenware head of turkey.  
Goodland Point. (Full size.)



FIG. 21.—Earthenware head of predatory bird.  
Goodland Point. (Full size.)

Elsewhere on the St. Johns we have found bird-head handles of vessels, but these others were rude in character.

It is interesting to note a groove cut around the base of the neck of the predatory bird, showing that, after the separation from the vessel, the head was used as a pendant.

Blue Hill, on Horr's Island, about one mile S. W. from Goodland Point, has a

<sup>1</sup> "Certain Sand Mounds of the St. Johns river, Florida." Part I, p. 87. Plate XV, Fig. 4.

<sup>2</sup> Page 124, Journ. Acad. Nat. Sci. Phila., Vol. X.



considerable aboriginal shell deposit and a sand mound about 6 feet in height, which has been thoroughly dug through.

Caximbas Hill is a wind formation on the southwestern part of Marco Island. Nearby is a considerable shell deposit.

Proceeding in a southerly direction among the Ten Thousand Islands, we visited Gomez' Old Place on a small nameless key reached from the Gulf through a pass about two miles east of Coon Key, and continuing in about one mile in a northerly direction. The key, at present writing (1900), is uninhabited. It covers probably about 30 acres of interesting shell deposit, partly surrounding a basin that fills with the rising tide.

Dismal Key, Lee County, lies about 2 miles north of Horse Key, an outside island about 5 miles E. S. E. from Coon Key Pass, which is the southern entrance to Marco. This unsurveyed key has a great shell deposit with the usual mounds and the like.

Fikahatchee Key, Lee County, unsurveyed, perhaps 150 acres in extent, can be reached by an inland passage at high tide, or from the Gulf through a nameless pass and continuing in among the islands for from three to four miles. In any event, a pilot is requisite. On this island is an extensive shell deposit. A family living on the key occupies a house partly built upon piles.

Russell's Key may be reached from the Gulf by entering the islands about three miles above Sandfly Pass and continuing in among the keys another three miles. This key, which has large aboriginal shell deposits, perhaps 60 acres in extent, is occupied by Mr. J. W. Russell and Mr. M. M. Gaston with their families.

Wiggins' Key on Sandfly Pass,<sup>1</sup> about one mile from the Gulf, on the right-hand side going out, has extensive shell deposits and two small burial mounds of sand and shell which have been much dug into. Our excavations, made with permission of Mr. J. Wiggins, the owner, were unrewarded.

This place is shown on maps as in the northern limits of the county of Monroe, but at the present time this territory, extending south below Chokoloskee Key, is claimed by Lee County, and, it is said, probably will be obtained by it.

#### CHOKOLOSKEE KEY, MONROE COUNTY.

This island lies in the lower part of Chokoloskee Bay, a sheet of water back of the maze of islands bordering the Gulf.

The island is unsurveyed. It is roughly circular and is said to be somewhat

<sup>1</sup> See Government Chart, No. 173.



FIG. 22.—Unidentified object of limestone. Chokoloskee Key. (Full size.)



FIGS. 23, 24.—“Sinkers” of coral. Chokoloskee Key. (Full size.)

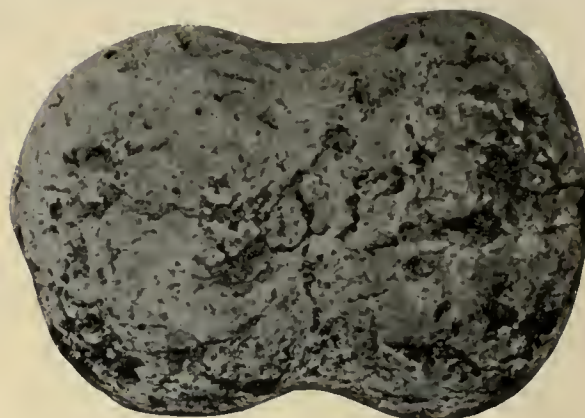


FIG. 27.—“Sinker” of limestone. Chokoloskee Key. (Full size.)



FIG. 25.—Canine of bear, used as pendant. Chokoloskee Key. (Full size.)



FIG. 26.—Implement of argillite. Chokoloskee Key. (Full size.)

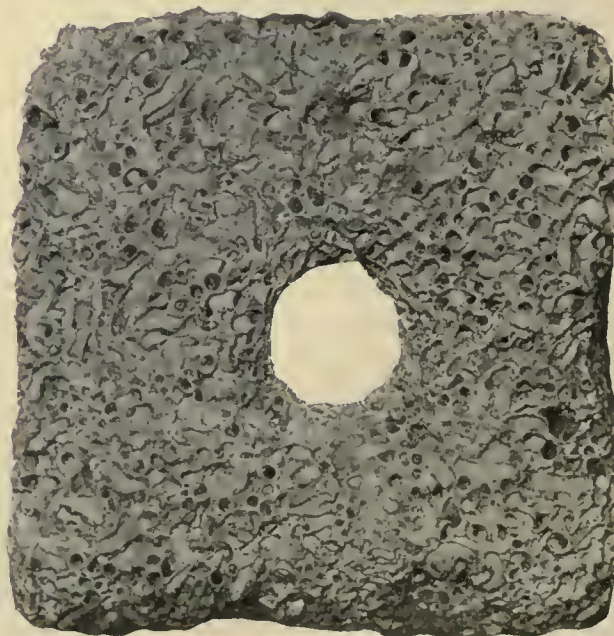


FIG. 28.—Net “sinker” of shell. Chokoloskee Key. (Full size.)



over one-half mile in diameter. It is almost entirely covered with great shell deposits, including lofty peaks, graded ways, canals and the like. Rising from the mangrove swamp at the edge of the northern part of the island, is a mound of shell of abrupt ascent, a fraction over 27 feet in height, if measured from the level of low water. Running in from the southern section of the island are two graded ways enclosing a canal. These ways terminate in mounds facing each other. The easternmost mound, slightly the higher, on its western side, where it rises from the canal, has a slope of thirty-three degrees. Its height above the level of the bottom of the canal is 18 feet 4 inches, and 22 feet 4 inches above low water level. From Mr. McKinney, postmaster at Chokoloskee, and from others, we obtained an interesting collection of artifacts, including shell pendants; shell "sinkers;" two shell "celts;" a shell disc; a small "celt" of decomposed rock; a handsomely made heart-shaped object of limestone, with perforation, which seems too carefully wrought for use as a "sinker" and too large for a pendant (Fig. 22); two "sinkers" of coral (Figs. 23, 24); a pendant made from a canine tooth of a large bear, probably

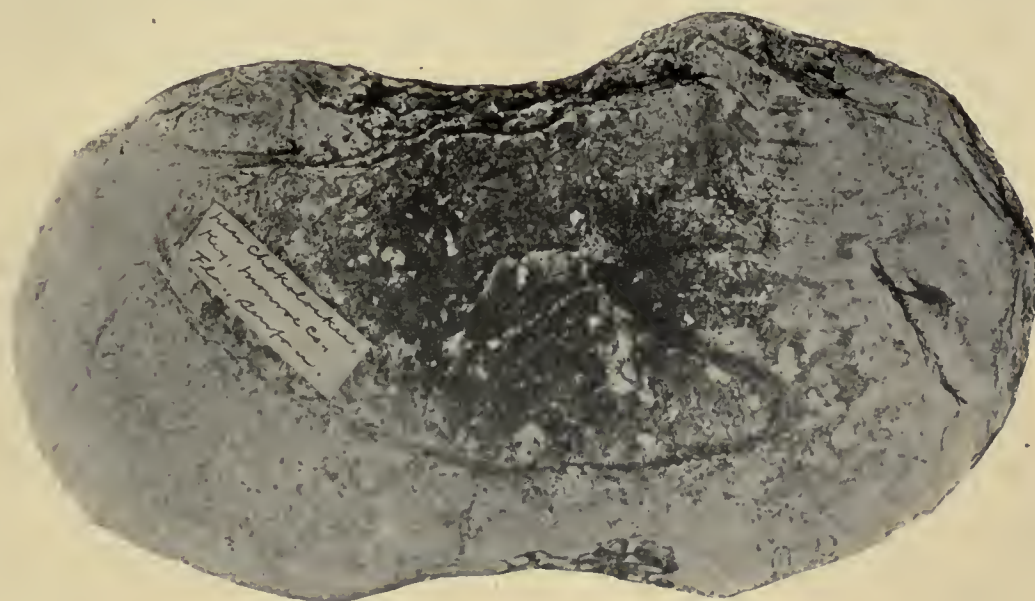


FIG. 29.—Net "sinker" of clam shell. Turner's river. (Full size.)

*Ursus floridanus*, grooved for suspension (Fig. 25); a very rare type of implement, probably of argillyte, perhaps used as a piercer (Fig. 26); a net "sinker" of coralline limestone (Fig. 27); a net "sinker" of the shells of the reef-building mollusc, *Vermicularia nigricans*, Dall<sup>1</sup> (Fig. 28).

We have found on the keys a number of perforated "sinkers" of this material, but all others were of irregular outline, unworked as to the margin.

Near the mouth of Turner's river, which enters Chokoloskee Bay in an easterly direction from the key and not far from it, is a considerable shell deposit

<sup>1</sup> Identified by Professor Pilsbry of the Academy of Natural Sciences.

where we found, among other objects, a sinker made from a clam-shell (Fig. 29). It is interesting to recall that Mr. Cushing found in the muck at Marco "chipped and notched fragments of heavy clam shells" in place on fishing nets.

#### WATSON'S, MONROE COUNTY.

About four miles up Chatham river is a series of shell fields owned by Mr. Watson who resides on the place.

#### CONCLUSIONS.

It is our belief, judging from the results of our work along the Florida west-coast, that archaeological opportunities offered there are more for the surveyor than for the excavator. And the surveyor must have a care, while introducing into his plans all visible remains of the aborigines, not to idealize, and thus on his plans show more than is present on the various sites.

We believe Mr. Cushing's discoveries at Marco were an isolated case, and in fact, Mr. Cushing has so expressed himself to us. Perhaps a hurricane crushed in, at that particular spot, a group of dwellings, including a temple or sacerdotal house. Continuous digging in the muck of keys might reveal scattered objects, accidental losses, whose specific gravity caused them to sink when falling into the water. This would not be the case with objects wholly of wood as were the majority of those found by Mr. Cushing at Marco.

We are not prepared to believe that aboriginal objects of wood, some artistically carved, were confined, as to their use in Florida, to the keys of the southwest coast. The kitchen-middens of Europe show the preservative quality of mud for wood, and we, therefore, think that wooden objects were found at Marco, because they lay in a better medium for preservation, and not because they were in use only along the southwest coast. We know the Florida Indians of other parts of the State used wood. Ribault's French Huguenots (1564) saw in use "a little vessel of wood"<sup>1</sup> near the mouth of the St. Johns, where we opened two great Indian mounds. In the famous mound at Mt. Royal, farther up the river, which we believe to be the place near the lake visited by some of the Frenchmen, where lived a great king, we found a long pin, or skewer, of wood, parts of which, preserved by a coating of sheet copper, were beautifully carved.<sup>2</sup>

We think, therefore, it not unlikely that the sand mounds of Florida contained a store of objects carved in wood, which have long since disappeared through decay.

#### CERTAIN SHELL IMPLEMENTS OF THE SOUTHWEST COAST OF FLORIDA.

Florida may be called the home of the shell implement in this country, for no other State has such an extent of sub-tropical sea coast where shells abound, and in no other State is such a need created through absence of stone.

<sup>1</sup> "Historical Collections of Louisiana and Florida," p. 229.

<sup>2</sup> "Certain Sand Mounds of the St. Johns river." Part II, Fig. 15, p. 142, Journ. Acad. Nat. Sci. Phila., Vol. X.



While implements of shell are fairly numerous throughout the State, they are in most profuse abundance along the southwest coast, especially the keys of the Ten Thousand Islands. The great majority of these implements are marine univalves perforated to receive a handle. Many have beaks ground down almost to a cutting edge, while other shells, in use as hammers, have blunter beaks. It is of this form of implement, that is to say, a shell used with a handle, as a hammer, a chisel, a hoe, a gouge, an adze or the like, that we propose to speak. On Key Marco, Chokoloskee Key and other places the great abundance of conchs (*Fulgur*) and "horse conchs" (*Fasciolaria*) is a positive detriment to cultivation and great heaps of these shells, as we have previously stated, are often collected by the inhabitants before agricultural work is attempted. Among these shells a fair percentage had been used as implements, broken and thrown aside in aboriginal times, while a few, presumably lost, are still fairly perfect.

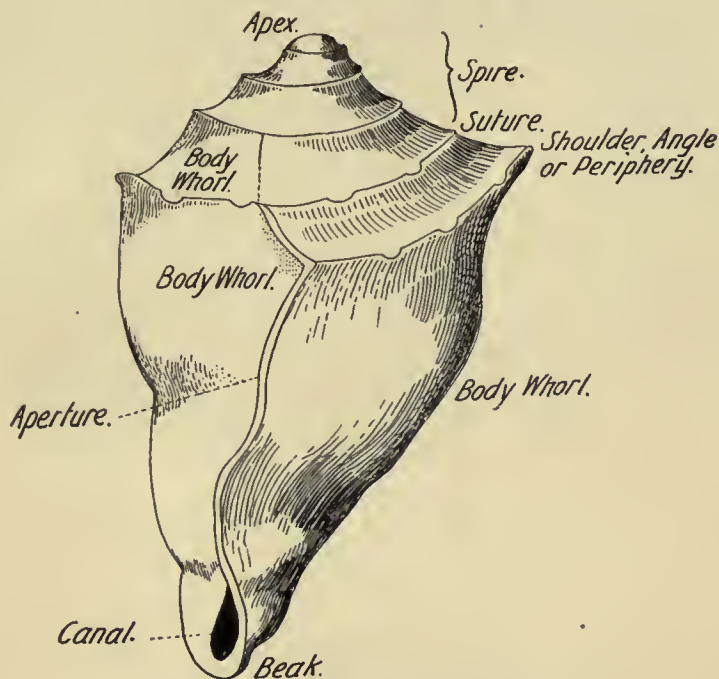


FIG. 30.—Nomenclature of parts of marine univalve.

Before going into the matter of these shell implements, it may be well to show a representation of a marine univalve with the names applied to its various parts (Fig. 30), which we have borrowed from a book by Professor Pilsbry, of the Academy of Natural Sciences of Philadelphia, to whom, with Mr. Joseph Willcox, also of the Academy, we are indebted for much information as to Florida shells.

We shall now describe a representative selection from the shell implements collected by us from the surface of the keys of the southwest coast of Florida. All are shown full size in the illustrations.



FIG. 31.—Shell implement. Goodland Point. (Full size.)



Fig. 31 is a massive conch (*Fulgur perversum*), with two round, carefully made holes to allow the handle to run diagonally to the right of the columella.<sup>1</sup> The beak is carefully ground almost to a straight edge which would be at an acute angle with a handle. The body whorl has been cut off several inches back. A



FIG. 32.—Shell implement. Chokoloskee Key. (Full size.)

small rudely made hole above the periphery, not shown in the reproduction, probably has no connection with the tool as such, as great numbers of conch shells not used as implements have similar holes presumably made to sever the muscle of the fish and facilitate its removal from the shell. This specimen came from Goodland Point.

<sup>1</sup> The column or axis of the shell.

Fig. 32 shows a stout *Fulgur perversum* from Chokoloskee Key. It is beautifully wrought, the two holes being round<sup>1</sup> and carefully cut to allow a handle to pass to the right of the columella in a way that would bring the sharp cutting edge



FIG. 33.—Shell implement. Chokoloskee Key. (Full size.)

at the beak at right angles to a handle. The body whorl has been cut several inches back. There is a small rude hole above the periphery of the kind we have referred to. This implement would serve admirably as a gouge.

<sup>1</sup> A part of the axis showing to the left of the farther hole takes away from the circular appearance in the reproduction.



Fig. 33 is of a lighter *Fulgur perversum*, also from Chokoloskee Key. Two round holes would allow a handle to pass through the shell to the right of the axis,



FIG. 34.—Shell implement. Goodland Point. (Full size.)

at an angle to the ground beak. A large round additional opening is present, perhaps made to allow a firmer lashing of the handle to the axis. A considerable portion of the body whorl has been removed.

Fig. 34 is a representation of a heavy *Fulgur perversum* from Goodland Point. Part of the body whorl has been removed, as in other specimens, perhaps to facilitate balance, certainly to obviate the necessity of making a second hole through the overlapping whorl. A small rude hole is above the periphery. Two round



FIG. 35.—Shell implement. Goodland Point. (Full size.)

perforations have permitted a handle to pass through to the right of the axis, bringing the cutting edge, which is carefully ground from the inside, at an angle to the handle. A third hole to the left of the axis was probably for additional attachment of the handle. This implement was presumably a gouge.

In Fig. 35 we have a *Fulgur perversum* from Goodland Point, showing a modification of the two preceding types. Round and carefully made holes would bring a handle to the right of the column, at an angle to the gouge-shaped cutting edge, but, in place of an additional hole for thongs to pass through to lash the handle to the axis, the upper part of the shell, including the spire, has been removed. This is a common type along the west coast.





FIG. 36.—Shell implement. Mound Island. (Full Size.)

A massive *Fulgur perversum* is shown in Fig. 36, which, unlike the other shells described, did not come from the surface but lay, one foot down, in the muck in the main canal at Mound Island, Estero Bay. In this specimen are present the small hole above the shoulder and the partial removal of the body whorl from the edge back. A deep notch allowed a handle to pass to the left of the axis through a round hole in the back of the shell. The massive beak is ground to a straight cutting edge, which would be at a slight angle to a handle.



FIG. 37.—Shell implement. Mound Island. (Full size.)

Fig. 37 shows a *Fulgur perversum*, also from Mound Island, with considerable portions removed and in all respects similar to a specimen previously described save that, in place of the double perforation allowing a handle to pass to the right of the axis, the handle, resting in a notch; would pass to the left of the axis through a circular hole on the farther side.



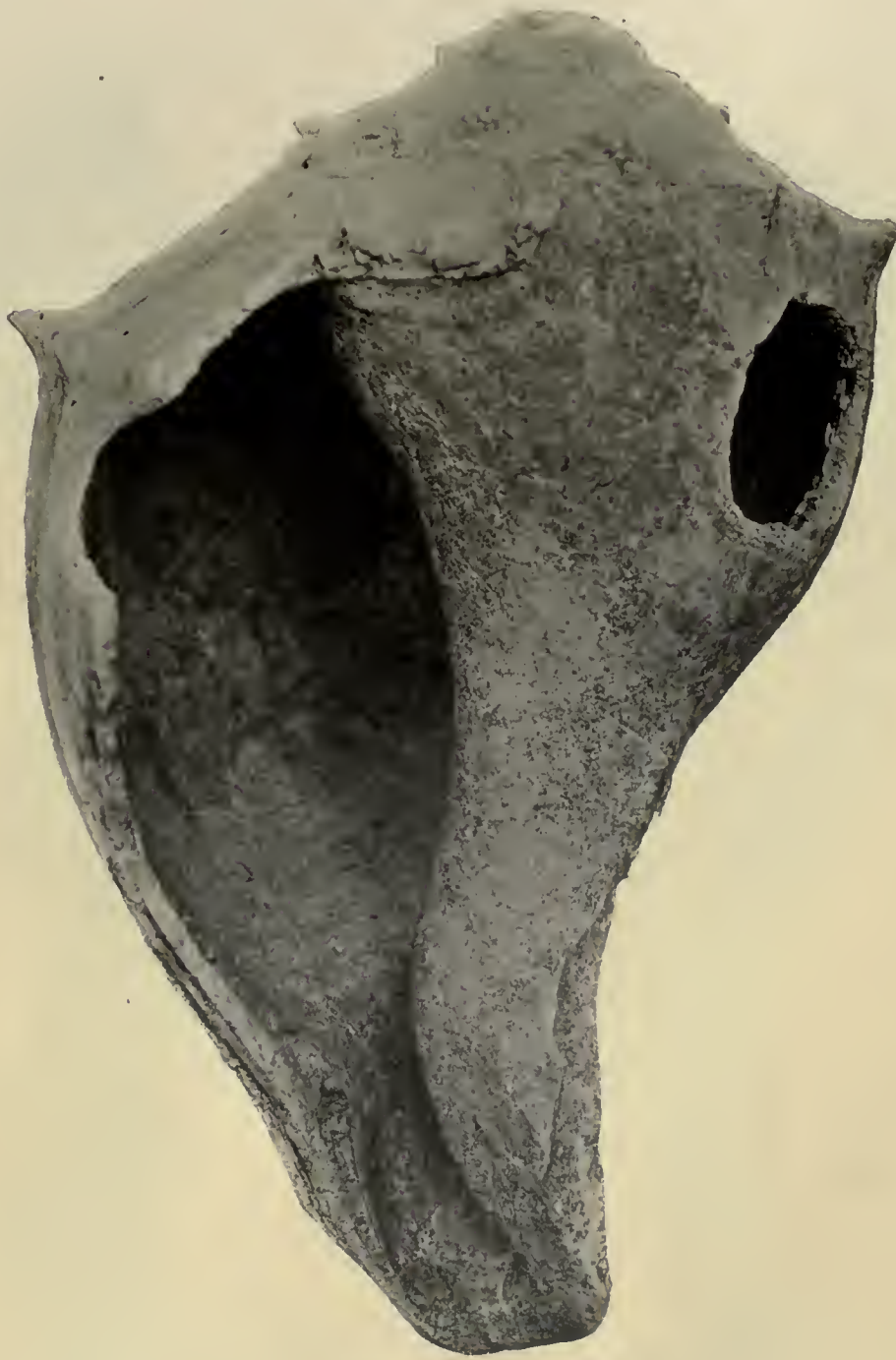


FIG. 38.—Shell implement. Chokoloskee Key. (Full size.)

The implement shown in Fig. 38, a *Fulgur perversum* from Chokoloskee Key, is a variant in that, though deeply notched at the edge of the whorl, the hole at the other side of the shell is not in line to permit the passage of a handle. It is possible the handle abutted against the interior of the shell and was lashed to the axis through the perforation.



FIG. 39.—Shell implement. Chokoloskee Key.  
(Full size.)



FIG. 40.—Shell implement. Goodland Point.  
(Full size.)



Fig. 39 shows a *Fulgur perversum* with notch and single perforation. So much of the shell has been removed that the columella is exposed. The beak is rounded. This implement, which is from Chokoloskee Key, was probably used as a hammer.

Fig. 40 gives a type frequently met with on the west coast, namely, the upper portion of a *Fasciolaria gigantea* containing two holes for a handle, with the long axis extending from it, rounded at the beak by use as a hammer. This specimen comes from Goodland Point.



FIG. 41.—Shell implement. Chokoloskee Key.  
(Full size.)



FIG. 42.—Shell implement.  
Fikahatchee Key. (Full size.)

Fig. 41, from Chokoloskee Key, shows a *Fasciolaria gigantea* with somewhat more of the shell, containing two perforations for a handle and a third to allow a firmer attachment to the axis. Much of the beak has disappeared, probably through use as a hammer. This type also is frequently met with on the west coast.

Fig. 42 represents a small and light *Fulgur perversum* from Fikahatchee Key, with notch opposite the perforation. The beak is ground for use. A series of small round holes encircles the shell above the shoulder. This specimen, which is slightly foreshortened in the reproduction, is unique in our experience.



FIG. 43.—Shell implement. Fikahatchee Key.  
(Full size.)



FIG. 44.—Shell implement. Goodland Point. (Full size.)



FIG. 45.—Shell implement.  
Russell's Key. (Full size.)

Fig. 43, a *Fulgur perversum* from Fikahatchee Key, with much of the shell removed, is greatly worn and rounded at the beak. Presumably in its use a handle was dispensed with.

Fig. 44, a *Strombus gigas*, is the same type of implement as the preceding. It came from Goodland Point.

Fig. 45 is a *Strombus pugilis* from Russell's Key, with two holes to permit a handle to pass through to the left of the axis. The beak is much chipped. In all probability, this little shell was used as a hammer to open shell-fish, and is of the kind we found in such quantities at Indian Hill.



It will be noted that the type of implement of which we write, on the west coast of Florida was almost universally made from *Fulgur perversum*<sup>1</sup> or *Fasciolaria gigantea*.

*Fulgur carica*, on the average, is a much stouter shell than *Fulgur perversum*, and was very generally in use on the east coast and on the St. Johns river for the helved implements under consideration. On the west coast *Fulgur carica* is not found, so that the aborigines of these parts were compelled to look to *Fasciolaria* and heaviest forms of *Fulgur perversum*, which, however, as our illustrations show, were often amply sufficient. *Fasciolaria gigantea* is of rare occurrence on the east coast, and we have never seen these implements made from it there.

Irrespective of the shell in use, there are other points of divergence between these implements from the west coast on one hand and from the east coast and from the St. Johns river on the other.

On the east coast and on the St. Johns the shells, practically without exception, have holes for the handles rudely made,—knocked out, apparently. On the other hand, openings for the helves in the shells of the west coast are frequently round and carefully made, as may be seen by reference to the illustrations, though at times, perforations on the west coast are rude also.

A type found only on the west coast, we believe, shows the removal of a large portion of the shell on one side, as is shown in certain of the illustrations. Implements of this type were found by Mr. Cushing in the muck at Marco 'with wooden handles in place.'<sup>2</sup>

Another feature peculiar to the west coast is the cutting of a notch into the margin of the aperture opposite a perforation in the body whorl, as shown in certain of our illustrations, the notch taking the place of a second perforation. We have seen this notch on the St. Johns river but once or twice, where it was present on a *Fulgur perversum* with a carefully wrought hole. The shell was associated with columellæ of *Fasciolaria*, all probably an importation from the west coast.

It is but comparatively recently that the uses of these implements wrought from entire shells have been looked into with attention.

Professor Rau figured and described<sup>3</sup> them as war clubs.

In the *American Naturalist* (August, 1893, p. 720, *et seq.*) we combatted this view on the grounds that many of the shells were too small to be formidable; that the size of the holes often gave evidence of handles too slender to sustain a heavy shock; that the beaks of the shells frequently showed much chipping and wear, which would not be the case if kept for use in battle. We pointed out, also, that the acute angle at which the heavy shells themselves were sometimes placed on the handles on the east coast would indicate employment as hoes rather than use as war clubs.

<sup>1</sup> *Fulgur perversum*, if held facing the observer, has its opening to the left, while *Fulgur carica*, held in the same position, has its opening to the right.

<sup>2</sup> *Op. cit.*, p. 40.

<sup>3</sup> Smithsonian Report, 1879, p. 222.

As we have stated, Mr. Cushing found at Marco these shell tools with handles in place. On some were remains of thongs that bound them. Mr. Cushing mentions various uses for which these tools have served.

While a few of the heaviest varieties of these implements may have seen service as war clubs, it is evident that their use was widely diverse.

Dr. Thomas Wilson of the United States National Museum, Washington, D. C., is now engaged upon an investigation of righthandedness and lefthandedness among the aborigines, and to aid him in his research is examining aboriginal implements which may furnish indications bearing upon the question. In furtherance of this we have furnished Doctor Wilson with over seventy implements of the type we have just described, about thirty of which have been retained permanently by the National Museum. The remainder have been sent to the Museum of Natural History, New York, and to the Peabody Museum, Cambridge, Mass. The shells figured in this Report with others and with the collections made by us on the west coast of Florida, are at the Academy of Natural Sciences of Philadelphia, where may be seen the result of our labors in various southern States.

## INDEX.

- |   |  |   |
|---|--|---|
| Alafia River, mounds on, 356.                               | Four-mile Bayou, 352.                  | Pendant, bear's tooth, 379.                               |
| Bird-heads of earthenware, 374.                             | Gomez' Old Place, 377.                 | Pendant, fossil shark's tooth, 363.                       |
| Blue Hill, 376.   | Goodland Point, 371.                   | Pendants, bird-head, 359.                                 |
| Bullfrog Creek, 357.  | Heart-shaped object of limestone, 379. | Pendants of shell, 369, 372, 379.                         |
| Canal, aboriginal, 358.                                     | Hematite, sand dyed with, 359.         | Piercer of stone, 379.                                    |
| Caximbas Hill, 377.   | Implement, unique, of stone, 374.      | Pine Island, mound on, 362.                               |
| "Celt" of stone, 379.                                       | Implements of shell, 380.              | Pine Key, 355.  |
| "Celts" of shell, 374, 379.                                 | Indian Hill, 359.                      | Point Maximo, 353.  |
| Chisel of stone, 371, 374.                                  | Josselyn Key, 363.                     | Point Pinelos, 355.                                       |
| Chokoloskee Key, 377.                                       | Little Manatee River, mound near, 358. | Russell's Key, 377.                                       |
| Conclusions, 380.   | Little Marco Island, 369.              | Scoop-shaped object of shell, 374.                        |
| Cushing, Frank Hamilton, 351, 363, 364, 367, 369, 380, 393. | Marco, 351, 369.                       | Shark's tooth, fossil, 359.                               |
| Demorey Key, 363.   | Mill Point, 356.                       | Shell implements, 380.                                    |
| Dise of limestone, 374.                                     | Modern relics, 359, 362.               | Silver, pendant of, 362.                                  |
| Dises of shell, 369, 374, 379.                              | Mound Island, 366.                     | "Sinker," clam shell, 380.                                |
| Dismal Key, 377.  | Net "sinkers," 379.                    | "Sinkers," 371, 374, 379.                                 |
| Drinking cups of shell, 372.                                | Ortiz, Juan, 358.                      | Spoon-shaped object of shell, 374.                        |
| Extent of our investigations, 352.                          |  | Turner's River, 379.                                      |
| Fikahatchee Key, 377.                                       |  | Walker, S. T., his explorations, 351, 354, 355, 357, 376. |
| Flexed burials, 355, 356, 358, 360, 362.                    |  | Watson's, 380.  |
|   |  | Wiggin's Key, 377.  |









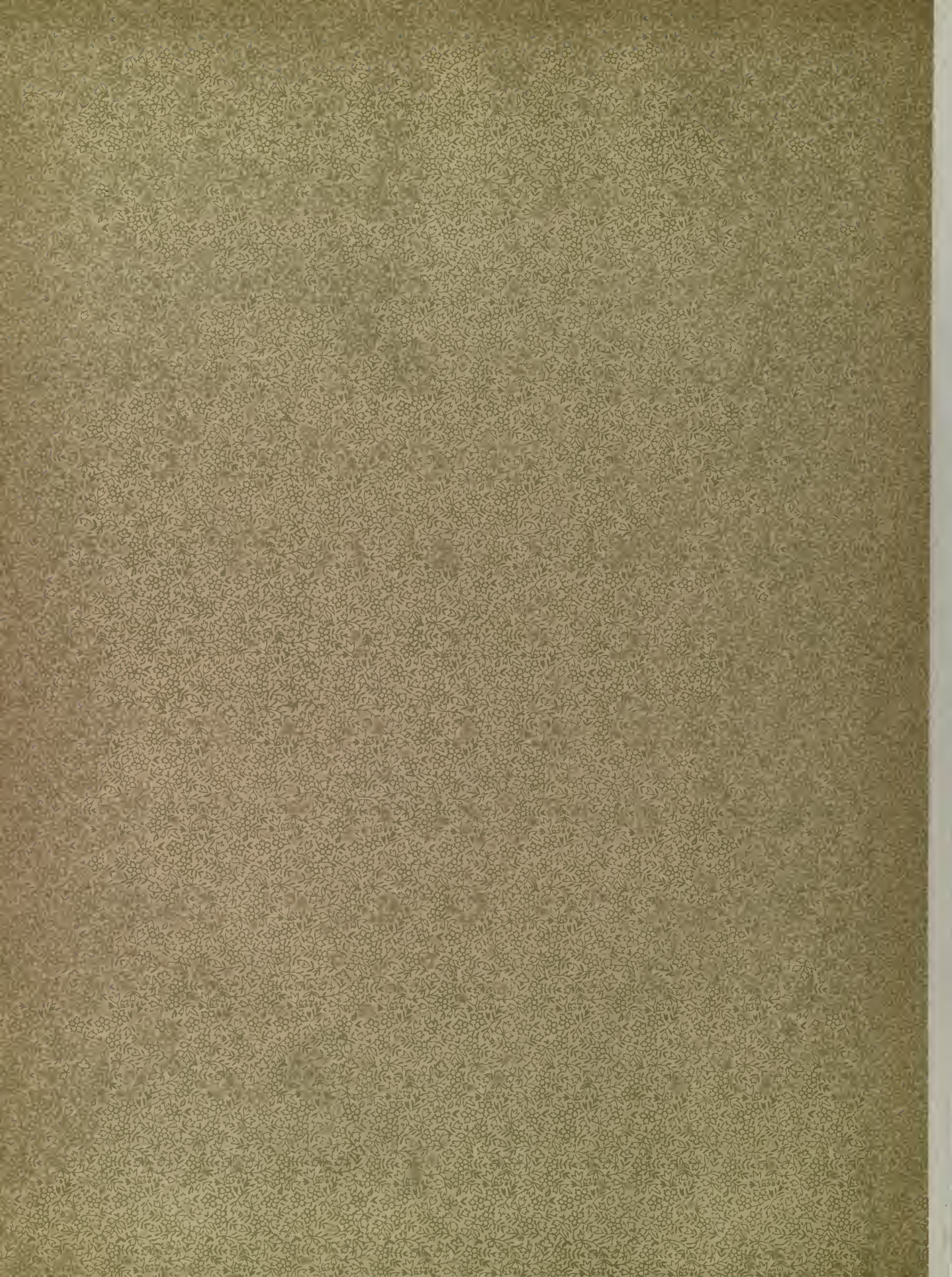














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