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ANNUAL REPORT

OF THE

BOARD OF REGENTS

OF THE

SMITHSONIAN INSTITUTION,

SHOWING

THE OPERATIONS, EXPENDITURES, AND CONDITION OF THE INSTITUTION

FOR

THE YEAR 1879.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1880.

PRELIMINARY EXPLORATIONS AMONG THE INDIAN MOUNDS IN SOUTHERN FLORIDA.

By S. T. Walker. *of Clear Water, Florida.*

INTRODUCTORY REMARKS.

Much of the work reported in the following pages was done during the spring and summer of 1879, at intervals snatched from business engagements, and whatever was obtained in the way of relics at once transmitted to the Smithsonian Institution, together with letters fully explanatory, written while the whole affair was fresh in my mind.

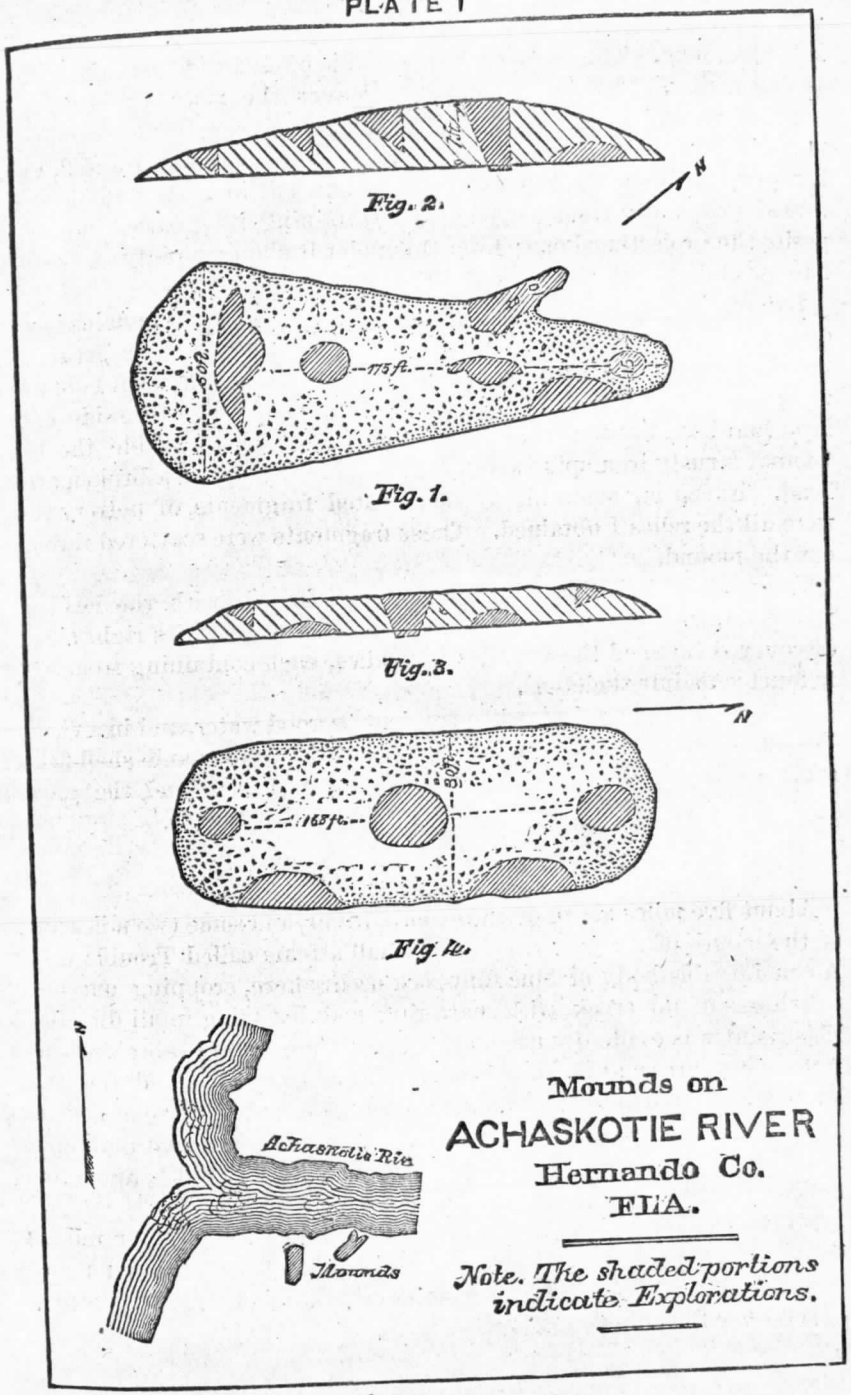
I have endeavored to keep my imagination in subjection to reason, and whatever is offered in the way of theory is the result of much thought, and supported by many facts.

It is also necessary, perhaps, to state that the mounds were not examined in the order adopted in this report, as the first on the list were among the last examined. I have pursued the present plan in order that the reader may follow them in regular order along the coast as they occur, going south, into and around the shores of Tampa Bay. I have purposely omitted any descriptions of mounds composed entirely of shell, as I believe them to belong to an entirely different class. These will be described in a separate paper devoted especially to their consideration.

1. MOUNDS AT THE MOUTH OF KOOTIE RIVER.

This little stream is known by various names. The older maps designate it as the Achaskotie, others as the Pith-le-ches-kotie, but it is commonly known among the people as the Kootie. It empties into the Gulf of Mexico about ten miles north of Anclote River, in Hernando County. Its mouth is filled with oyster bars, which extend up the river some distance, making navigation difficult for the smallest craft. On the south bank of this stream, one-fourth of a mile above its mouth, are two mounds of considerable size. The one nearest the sea is oblong in shape, 168 feet in length, 55 feet in breadth, and 5 feet high. It lies with its longest diameter nearly due north, and is composed of alternate layers of sand and shell, each layer being from 8 to 12 inches in thickness. The superincumbent soil was 8 inches thick. The shells used in its construction are those of the common oyster principally, with a slight admixture of small conchs and scallops. Figs. 3 and 4, Plate I, will give a good idea of this mound in ground plan and in section. The dotted portions show where excavations were made by me. No relics whatever were obtained from this mound, and, from its level top and general construction, I class it as a mound for residence. About 300 feet east of this lies another mound, somewhat longer and higher than the preceding, remarkable for its singular shape, which is somewhat like a club,

PLATE I



with a projecting branch or horn near the smaller end. The structure is 175 feet long. The larger or wider end is 50 feet wide and the smaller 15 feet across. The horn or branch leaves the main structure at an angle of about 45 degrees, 58 feet from the smaller end, and extends due north 20 feet, having an average width of 10 feet. Figs. 1 and 2, Plate I, represent this mound in ground plan and section. The whole structure slopes gently from the wide end, attaining its greatest height opposite the projecting horn; from this point it slopes rapidly away to the narrow end of both the horn and main mound.

Excavations systematically conducted revealed human remains in vast quantities in every part of the mound, but, owing to their great age, they crumbled at a touch, and it was with great difficulty that I obtained one perfect cranium. This skull was that of an adult. One side of the head had been broken in, and imbedded in the sand. Inside the head I found a rusty iron spike about 3 inches in length, and a broken arrow head. Excepting some highly ornamented fragments of pottery these were all the relics I obtained. These fragments were scattered throughout the mound.

The mode of burial was interment at full length, with the heads directed toward a common center, the body reclining on its right side; I discovered three of these circles of bodies, each containing from seven to fourteen adult skeletons.

These mounds are situated convenient to good water, and in a vicinity that afforded their builders easy access to oyster bars and shell-fish of every variety. No large trees grow on or near them, and the growth upon them consists of scrubby bushes and saw-palmetto.

2. ANCIENT ARROW-HEAD FACTORY.

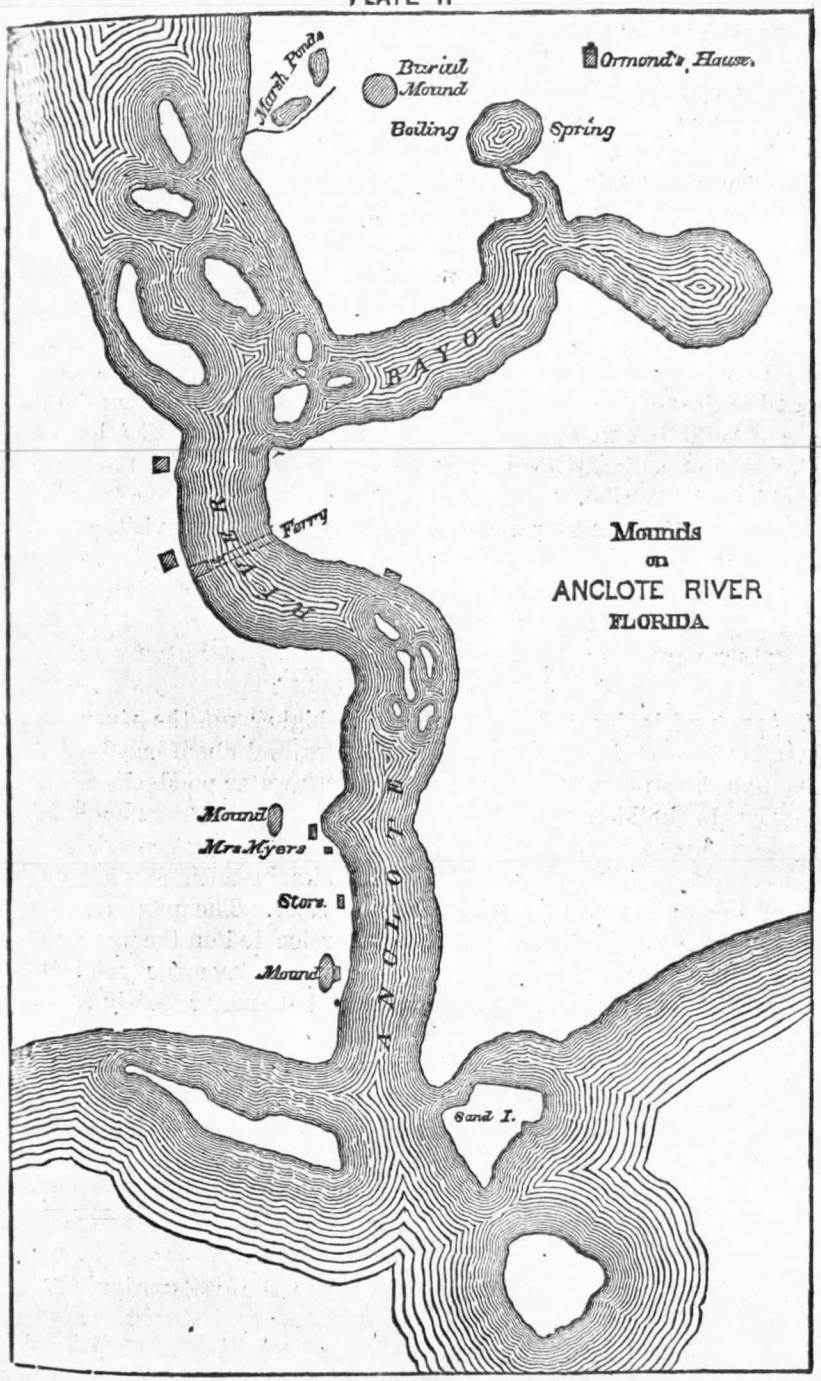
About five miles south of the Kootie River, and some two miles north of the mouth of Anclote River, is a small stream called Trouble Creek. A considerable body of blue flint-rock occurs here, cropping out along the shores of the creek, with scattering nodules lying in all directions. This point was evidently used for a long time by the aborigines as a factory for arrow and spear heads. Bushels of chips and fragments strew the ground, and large quantities have been washed from the banks of the creek and cover its bottom. A long search revealed nothing except a few arrow points and spear heads spoiled in making, and a lot of broken pottery.

No doubt excavations along the banks would bring other relics to light, as the Indians must have resorted to this place in large numbers, and have worked here for a long series of years, judging from the depth of soil over the chips.

3. MOUNDS ON ANCLOTE RIVER.

In ascending Anclote River one of the most prominent objects that attract the eye is a large oblong mound on the northern shore, which,

PLATE II.



rising abruptly from the level coast, looks both larger and higher than it really is. (Plate II.) It is situated about half a mile from the mouth of the river, and about the same distance from Mr. Hope's dwelling and store, very near a well-known spring of water called the "Old Spanish Well."

The length of this mound is 235 feet, its breadth 166 feet, and its height 10 feet, and it is composed of alternate layers of sand and shell. The surface soil is 18 inches in depth, followed by a layer of shell one foot thick; below this is a stratum of sand two feet in thickness, followed by shell. This is as deep as I penetrated, but long experience convinces me that this order is maintained to the base, which begins with a foundation of shell. The shell used in the construction of the mound is that of the common oyster, doubtless obtained from the river close at hand. A well-defined roadway on the southern side led to the top, which is perfectly level, and no doubt contained the residence of the chief of the tribe.

No explorations had been attempted previously to my visit, and I obtained no relics of any sort. The growth upon the mound was similar to that of the surrounding country, consisting of small stunted pines 10 or 12 inches in diameter, and saw-palmetto.

4. THE MYERS MOUND.

This mound is situated about one mile higher up the river, on the north bank, near the residence of Mrs. Myers, and about one-fourth of a mile from the stream. (Plate II.) Some fresh-water ponds close at hand supplied the builders with fresh water, and the numerous shell heaps in the vicinity attest the productiveness of the fishing grounds.

The length of this structure is 168 feet, its breadth 88 feet, and its height 5 feet; it is composed entirely of sand. The pits from which this sand was obtained are three in number, located on the western end, and it is probable that a portion was excavated from the pond on the north side. The mound lies with its longest diameter nearly east and west.

No explorations had been made previously. I sunk a shaft in the center quite to the bottom; also one in each end below the foundation. The soil on top was 8 inches deep, and the timber upon it similar to that on the mound near the mouth of the river. This also will have to be classed with those enumerated before as having contained a residence.

5. THE ORMOND MOUND.

Following the course of Anclote River to the eastward, above the ferry a large bayou breaks off to the south and southwest. Near the head or end of this bayou is a deep round pond called the "Boiling Spring." This spring is known for miles around, and is said to be of unfathomable depth. The water is deep blue, intensely salt, and before storms the spring boils in the center like a caldron. I saw sharks, tar-

PLATE III

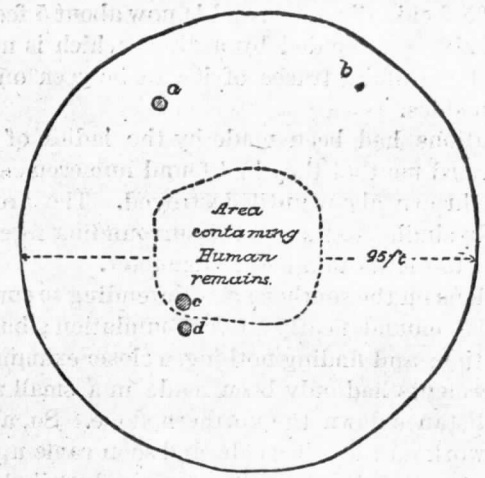


Fig. 1.

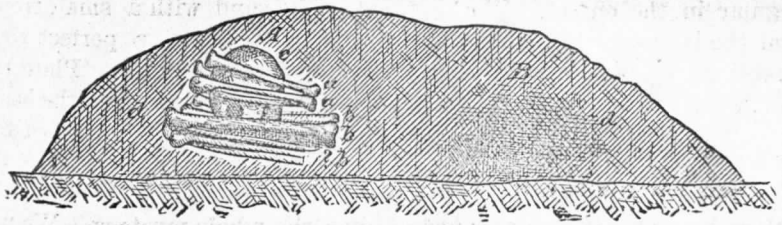


Fig. 2.

Mound at Ormond's,
ANCLOTE RIVER.
FLORIDA.

pum, and other large fish in it. Half a mile northeast of this spring is a circular sand mound, built at the foot of a low sand ridge. (Plate II. Close at hand on the northeast is a series of shallow ponds, surrounded by marshes.

The mound is 95 feet in diameter, and is now about 5 feet high. Originally it was probably surrounded by a ditch, which is nearly filled up and obliterated, though faint traces of it can be seen on the southern and southwestern sides.

Partial explorations had been made by the ladies of Mr. Ormond's family, who informed me that they had found numerous skulls, pottery, &c., which were thrown about until destroyed. The growth upon the mound is precisely similar to that of the surrounding forests, consisting of tall pines from 18 inches to 2 feet in diameter.

I began operations on the southern side, intending to cut a wide trench entirely across the mound nearly to the foundation; but, after spending considerable time and finding nothing, a closer examination revealed the fact that interments had only been made in a small area about the top and a short distance down the northern slope. So, abandoning my ditch, I went to work on the other side, and soon came upon large numbers of bones, fragments of pottery, &c., seemingly mingled in heartless confusion and disorder; arm, leg, and thigh bones being piled on top of skulls or wedged beneath them. As the work progressed, however, I began to see order arise out of the apparent confusion, and at length I found a skeleton in pretty good preservation, entirely separated from the others. I set to work to solve the problem in earnest. The entire absence of vertebræ, ribs, shoulder-blades, &c., had struck me as very singular in the outset. Working away the sand with a small trowel from the bones imbedded in the wall before me, I got a perfect view, in section, of the mode of burial pursued by the aborigines. Plate III, Fig. 2, will give a correct idea of the method—A representing the bones as they lay in the earth; B, a mass of ashes, cinders, partly burned vertebræ, and calcined sand; *a*, *a*, the position of the arm bones; *b*, *b*, the bones of the leg and thigh; and *c*, the cranium.

Now, let us see if this does not unravel the whole mystery. We will suppose the mound-builders are about to perform the burial ceremony. First, a shallow grave is dug long enough to accommodate the body at full length, as at *c*, *d*, Fig. 2. A fire is kindled at B, and the body laid upon it, the legs, arms, and head projecting beyond it. The fire is confined entirely to the trunk of the body and kept burning fiercely until it is completely destroyed. This being accomplished, the legs are doubled as represented at A, the head placed face downward between the thighs, and the arms laid on or by the side of the head. Cooking vessels, cups, dishes, &c., are now broken and thrown into the grave, which is filled with sand, and the ceremony is completed.

As to the age of the interments in this mound, I can only state that it is extremely probable that they were made previously to European

settlement, and before the growth of the present forest. In Plate III, Fig. 1, *c* and *d* represent the relative position of two large pine trees growing about two feet apart; near the roots the distance is reduced to one foot or less, making it impossible for an interment to have been made between them at any time. I made a careful examination between and beneath these trees, and at a depth of about 3 feet I found fragments of pottery and bones. A portion of a human cranium lay rather under the roots of the tree marked *d*, and I also obtained quite a large piece of the inferior maxillary, all of which were sent properly labeled to the Smithsonian Institution, together with ten crania and other objects of interest obtained from this mound.

6. MOUND NEAR DUNEDIN.

Leaving Anclote River and proceeding south into Saint Joseph's Bay, we come to the little village of Dunedin. Half a mile north of this village, and about 300 yards from the beach, is a large mound, with a wide roadway leading to the top, evidently built for a residence. It is situated near some fresh-water ponds, and in the immediate vicinity are several springs of good water. The face of the country is low and flat, and the growth is the usual saw-palmetto and pine, though at no great distance is a small hummock of good land, containing live-oak, &c. It lies with its longest diameter to the northwest, and is 156 feet in length, 80 feet wide, exclusive of the roadway, and is 9 feet high. The roadway commences 50 feet from the mound on the southwest side, and makes a gentle rise to the top of the main structure. It is composed entirely of sand. Explorations to a small extent had been made previously to my visit, but nothing valuable was found.

I sunk a shaft in the center 6 feet in diameter, quite to the foundation, and many smaller ones at various points along the crest, but found no relics whatever. Several large trees grow upon the mound of similar appearance to those in the surrounding forest. Plate IV gives a good idea of the shape of this mound and the ditches from which the sand of which it was built was obtained.

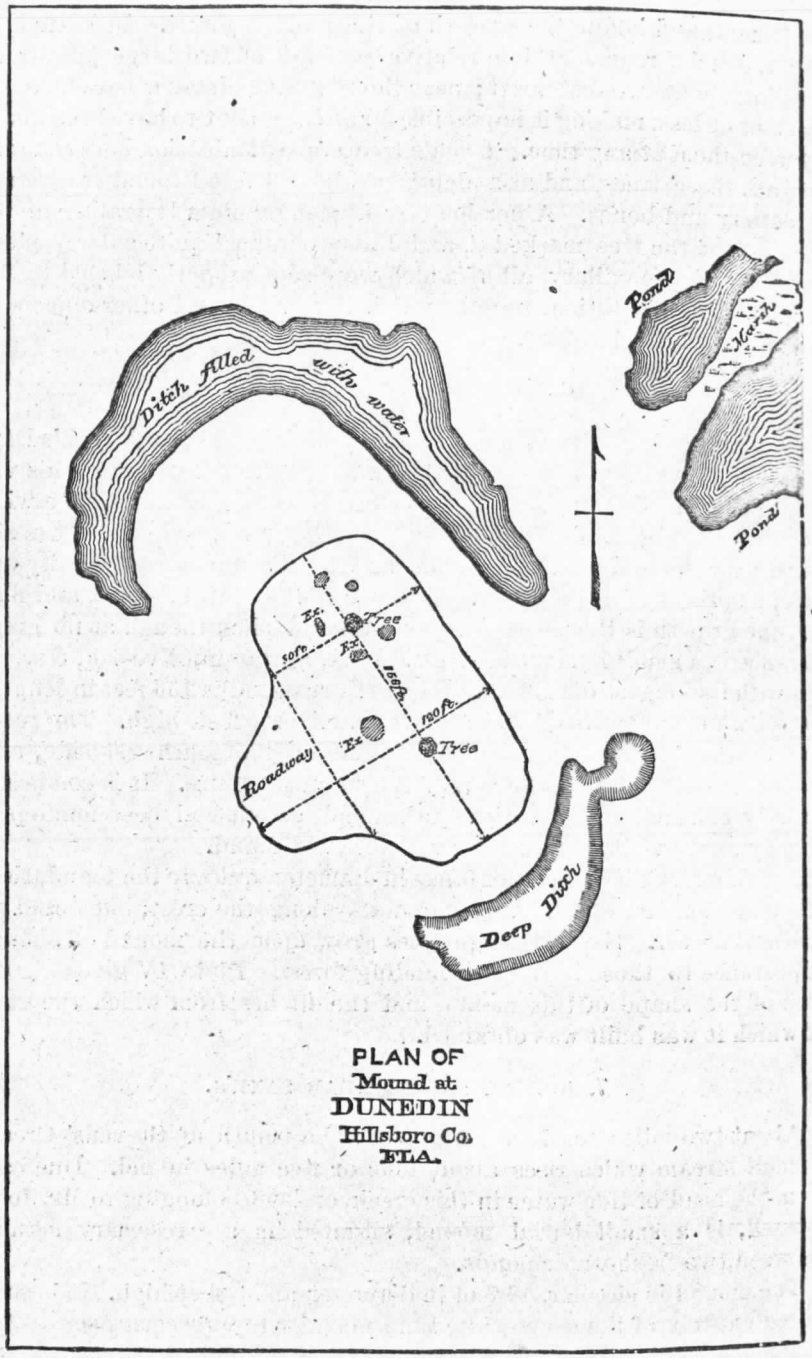
7. BURIAL MOUND NEAR SAXE'S.

About two miles south of Dunedin is the mouth of Stevens' Creek, a small stream which rises about four or five miles inland. Due east from the head of tide-water in this creek, on land belonging to Mr. John Russell, is a small burial mound, situated in a "rosemary scrub," between two fresh-water ponds.

The mound is circular, 46 feet in diameter and 3 feet high. It is composed entirely of the snow-white sand peculiar to "rosemary scrubs."

Explorations had been made previously to mine, and the few human remains it contained thrown out upon the surface, where they had crumbled into fragments. The remains found, I was told, consisted of four or five human skeletons in a pretty [illegible]

PLATE IV



PLAN OF
Mound at
DUNEDIN
Hillsboro Co.
FLA.

After digging up the entire surface, I found nothing worthy of note. My predecessor left little excepting a few fragments of crania, teeth, and broken bones. Signs of fires were visible in several places, and as I saw no fragments of vertebræ, I suppose that partial cremation was practiced here as it was on the Anclote River.

8. BURIAL MOUND AT JOHN'S PASS.

No other mounds occur, that I am aware of, until we reach John's Pass, 18 miles south of Clear Water. Here, on a low mangrove island just inside the pass, lying nearly east and west, is a small burial mound. The situation of this mound is peculiar in several respects, as the island contains very little habitable land and no fresh water whatever. The larger portion of the island is covered daily by tide-water, leaving only two low narrow ridges of dry land parallel with the northern and southern shores. These ridges are not over 25 yards in width in their broadest parts, and in most places they are not more than that number of feet in width.

The ridge running parallel with the southern shore is very low and narrow, and at its eastern termination is not more than 2 feet above tide-water. At this point is situated the burial mound under consideration, covered by a dense growth of sea-grape and Spanish bayonet.

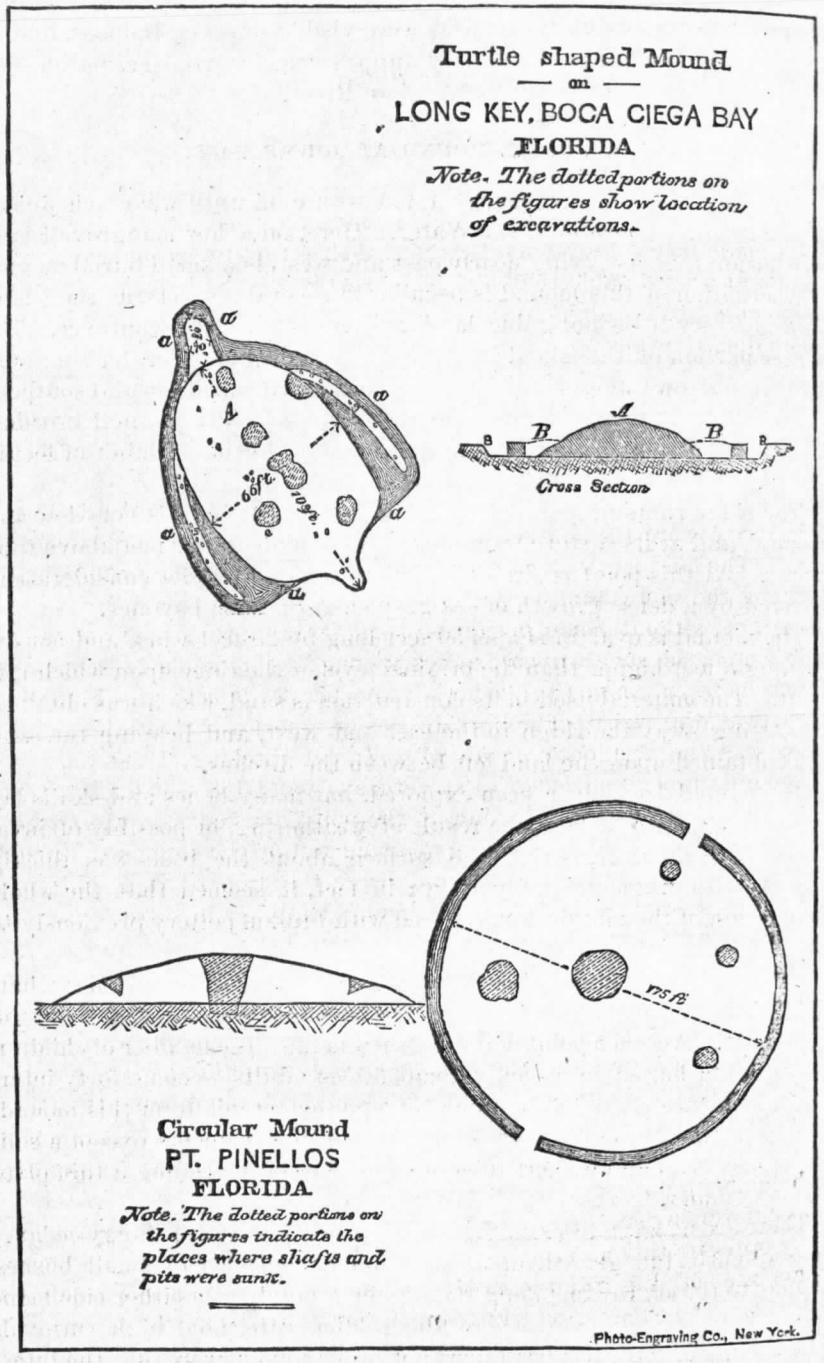
The mound is oval in shape, 50 feet long by 25 feet wide, and not exceeding 3 feet higher than the original level of the ridge upon which it is built. The material used in its construction is sand, which was obtained by cutting away the ridge to the east and west, and heaping the sand thus obtained upon the land left between the ditches.

The mound had never been explored, but many bones and skulls lay exposed upon its surface, the result of weathering, or possibly of invasions of the sea, or both. The surface about the base was thickly strewn with fragments of pottery; in fact, it seemed that the whole foundation of the mound was covered with broken pottery previously to the interment of any of the bodies.

Here the mode of burial changed. There were no signs of fire whatever, and the skeletons reposed at full length, generally resting on the right side. Another point of difference was the large number of children and infants buried here—only about fifteen adults to some forty interments. I succeeded in obtaining nine perfect crania from this mound, among them those of several children, but no ornaments except a solitary glass bead and a short tube of silver formed by rolling a thin plate into a cylinder.

There are no large trees on the island, excepting a few scraggy cedars; consequently, the growth upon the mound consisted of small bushes similar to those growing along the higher ground. On either side mangrove flats stretch away, where the soldier-crabs hold high carnival. The finding of the glass bead does not prove conclusively that the interments do not antedate the period of European emigration, as it lay upon

PLATE V



the surface and may not have constituted a part of the interments. It is possible, as it was alone, that it might have been lost there long after the burials were made.

9. MOUNDS ON FOUR-MILE BAYOU.

Nearly opposite John's Pass, upon the mainland, on the south side of Boca Ciega, or Four-Mile Bayou, at or near the mouth of a small creek which empties into the bayou, are two large mounds, one of shell and the other of sand. As the owner of the land required pay for the privilege, I made no examination either into their structure or contents. As it is not at all probable that any person will pay the required tribute, the mounds will no doubt remain intact until they fall into the hands of a more liberal owner.

10. TURTLE-SHAPED MOUND, LONG KEY.

Long Key is a narrow island, about five miles in length, lying between Boca Ciega, or Blind Pass, on the north, and Pass A'grille, on the south. About midway between the passes a tongue of land makes out into Boca Ciega Bay toward the southeast, covered by a dense forest of cabbage-palms. The land is good and there is an abundance of oysters and shell-fish along the shores and on the adjacent flats.

It is not without some hesitation that I attribute to this mound a turtle shape, as such an occurrence among the mounds in this part of Florida is an anomaly. Whether the shape depicted in Plate V, Fig. 1, was the result of deliberate design on the part of the builders, or was the accidental result of irregular ditching, I cannot say. The mound proper consists of a structure of sand 108 feet long and 66 feet wide. It is about 5 feet high at the point marked A in the figure. This constitutes the body, or carapace, and tail of the supposed turtle. The ditches, *a*, *a*, *a*, are distinct and leave the flippers, B, B, and the head, C, at the natural level of the land. The view in section, Fig. 2, will convey an idea of what I mean, A being the mound and B, B, the ditches, leaving the flippers as before stated. In other words, the flippers are not the result of heaping up sand, their shape being given by the ditches. Whether the design was to give the form of a turtle or not, the result was precisely the same, the whole structure having a wonderful resemblance to that animal. It is not at all improbable that the ancient architects had that form in view in the construction of this mound, as the beaches of this island are still the resort of hundreds of turtle, which come up to lay their eggs in the sand during the summer; and successful turtle fisheries are now carried on in Boca Ciega Bay, immediately opposite this point.

Some one had dug into the mound before me, but with what result I know not. The excavation was about 6 feet in diameter and 3 feet in depth. I explored it thoroughly in every portion, finding all parts of the human skeleton except the skull. The bodies were buried at full

length, and no signs of fire were to be seen. I found several lower jaw-bones and many teeth, but fragments of crania were not discovered.

One large cedar grew upon the mound, and many tall palm trees, the positions of which are indicated by small circles in the figure. A few oyster-shells were scattered through the sand, but no utensils or ornaments of any kind were found. Pottery was also wanting, and the whole structure and contents indicated a different race, or, at least, different customs, mode of burial, and building, from any of the mounds hitherto described.

11. MOUNDS ON PINE KEY.

About three miles further south, below Pass A'grille, are two islands, divided by a narrow bayou, which are known as Pine Key. On the older maps the northern key is named Cabbage Island and the other Pine Key. On the southern key, below the bayou, is a long lagoon called the Duck Pond. At the southern extremity of this pond, in a dense wilderness of cabbage-palms and saw-palmetto, is a mound of imposing height and considerable size. The view from the top is quite extensive, and looking thence one would suppose that the mound could be seen for a long distance, but such is not the case; in a search of two days I frequently passed within 100 yards of it without finding it.

Explorations had been made previously along the top by persons who professed to have found numerous arrow-heads and ornaments of bone, human skeletons, &c. In my own work I was not so fortunate, as it was with great difficulty that I obtained four crania and one bone ornament inlaid with copper. The bone of this ornament decomposed rapidly upon exposure to the air, but before this happened I was successful in obtaining a pretty correct drawing of it, which was sent to the Smithsonian Institution along with the other relics obtained.

This mound is 135 feet in diameter, and is about 15 feet above the level of the island. However, it is built upon a natural elevation, and the actual structure is not above 5 or 6 feet high. The material was obtained close at hand, and the outlet of the pond appears to have been artificially enlarged by ditching. The evidence is positive that the aborigines visited this island in vast numbers, as the eastern side is strewed with shells, which in many places lie in masses many feet in thickness. Several large palms and a large live-oak grow upon the mound.

12. MOUND AT MAXIMO POINT.

At Maximo Point, on the mainland, is an immense mound, entirely hidden from view by the rank growth of the hummock in which it is situated, surrounded by embankments of shell, winding in all directions like modern fortifications. On the eastern side there is a deep excavation, perhaps 200 feet in diameter, which contains water. The situation for obtaining food was excellent, as the land is fertile and the fishing grounds good.

I did not attempt to make any drawings of this complicated affair, as the growth upon and around it is so dense that a person is obliged to crawl through it, and after following the winding banks for half an hour one is about as likely to come out exactly where he goes in as anywhere else. Cabbage-palms of all sizes, intermingled with thorny bushes, prickly pear, and Spanish bayonet, make progress slow, painful, and unsatisfactory, at the same time obstructing the vision totally.

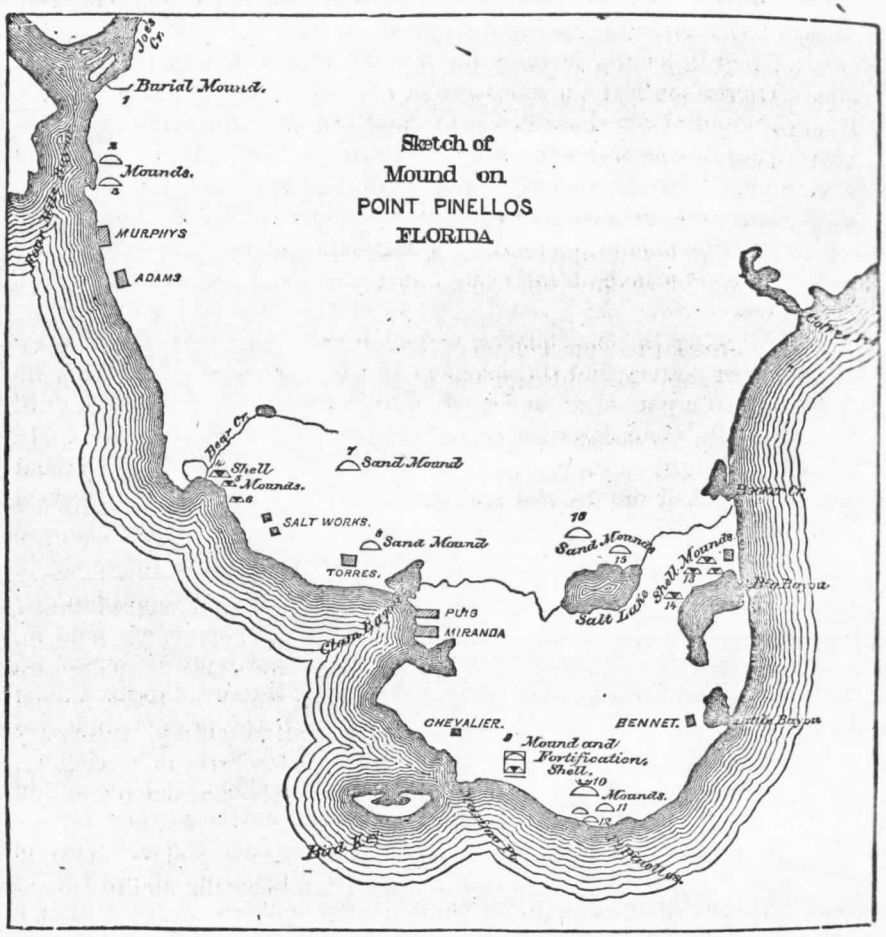
After three or four hours of hard labor, I arrived at the following conclusions: the mound proper is a structure 15 feet in height and several hundred feet in length, level on the top, with three sides almost precipitous. On the south the usual roadway reaches the top by a gentle slope. It is composed of alternate layers of sand and shell, the sand being obtained from the beforementioned excavation on the eastern side, which is surrounded, except in one place, by an embankment, the break in which constitutes an outlet for the water. Along the beach, and extending back to the mound, there are winding banks of shell from 3 to 5 feet high. These continue at intervals along the coast to Point Pinellos, three miles below.

After digging in many places, and finding nothing excepting a few fragments of pottery and the sharpened end of a cedar post, which no doubt formed a part of an ancient building, I gave up the search until fortune should favor me with more leisure and fewer mosquitoes. In the bluffs along the beach, half a mile below, I picked up a skull that had been washed out by the sea, but diligent search failed to reveal anything more.

13. MOUND AT BETHEL'S CAMP.

One mile south of Maximo Point is the most beautiful mound that I have seen in South Florida. It stands about one-fourth of a mile inland, immediately opposite a place known as Bethel's Camp. There are good springs of water along the beach, between which and the mound is a narrow strip of hummock. The mound is situated in a "rosemary scrub," and rises to an imposing height above the low trees in its vicinity. Its outlines are beautifully regular, and all its angles are sharp and well defined.

Its length (estimated) is about 200 feet along the top, and its height 20 feet. It is about 30 feet wide on the top, with a beautiful inclined roadway leading up its western side. Figs. 3 and 4, Plate VI, will give an idea of its ground plan and end elevation. At A, Fig. 3, an excavation was made many years ago, consisting of a ditch 25 feet long. No one could tell me who dug it. On a pine tree at *a*, Fig. 3, the date "1840" is cut in the bark; the tree is about twelve inches in diameter, and is about as large as any of the trees in the vicinity. At the point B, same figure, another pit had been dug, and I was informed by reliable parties that the skeleton of a man had been taken from it—also an Indian pipe. The bones had long since fallen into dust and the pipe been lost. I extended this pit in all directions, but found nothing excepting a few pieces



of pottery. I also opened other points, as at *c* and *d*, with a like result. This mound is probably more modern than any of the domiciliary mounds, and may be considered typical of its class.

14. MOUNDS OF POINT PINELLOS.

Nos. 1, 2, 3 are large mounds composed of shell and sand.

Nos. 4, 5, 6 are low shell-heaps (very ancient) on sand flats.

Nos. 7 and 8 are sand mounds, one 2 feet the other 5 feet high.

No. 9 is an immense mound over 20 feet high, built of alternate layers of shell and sand, surrounded by an irregular wall from 5 to 10 feet high, partly shell and partly sand. The dense growth prevented an accurate plan during my short visit, but this is the most stupendous work I have seen anywhere in Florida, slightly explored.

No. 10 is a large oblong mound 25 feet high, built of sand and shell, with a graded way on west side sloping to the top. The sides are precipitous. A pine tree on the summit bears date 1840.

Nos. 11 and 12 are low sand mounds 5 or 6 feet high and 100 feet in diameter.

No. 13 three large shell mounds 25 feet high.

Nos. 14, 15, and 16 sand mounds about the height and dimensions of 11 and 12.

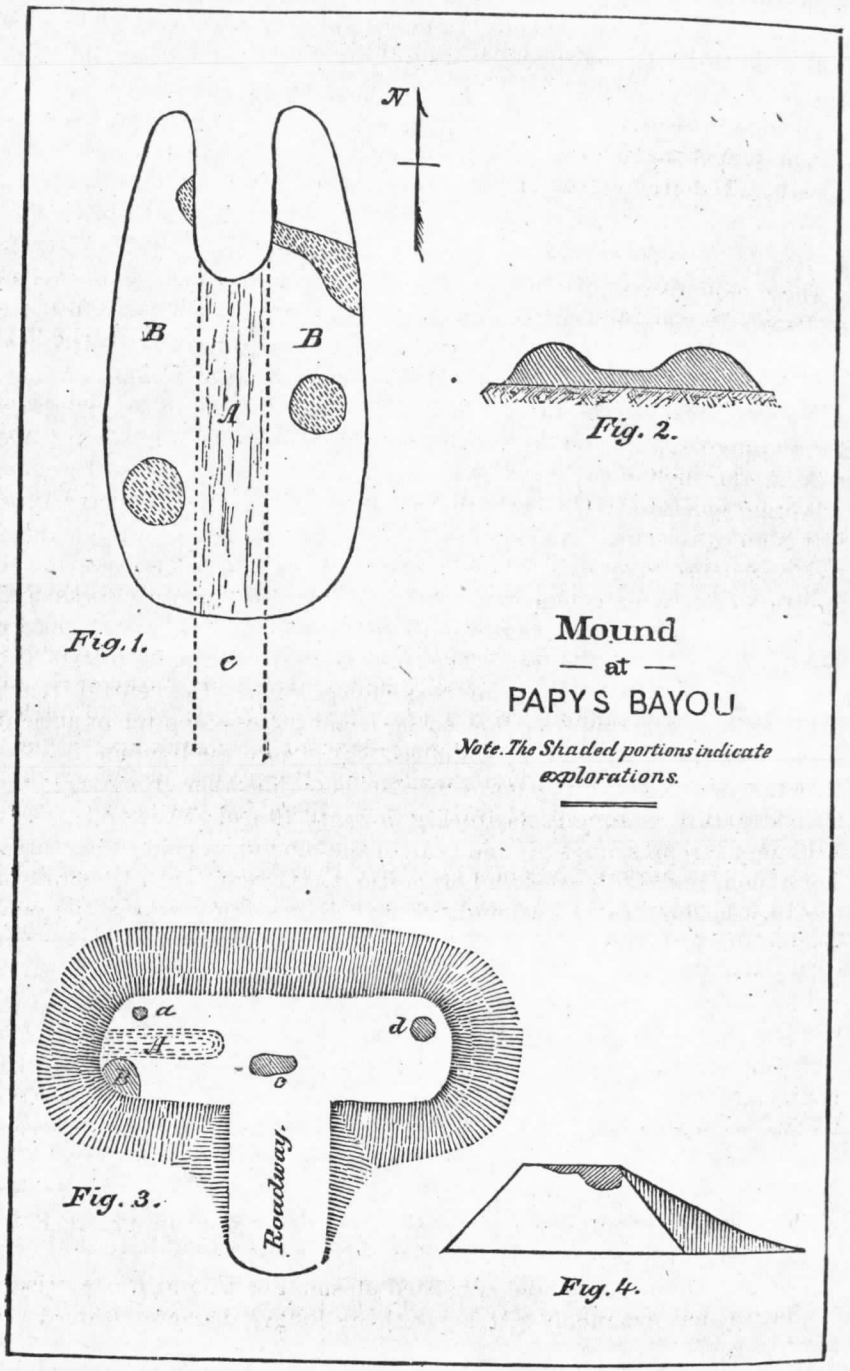
No. 10 is very interesting from the fact that it contained skeletons. An old excavation is visible, probably made in 1840, and one quite recent. One skeleton was obtained a few years ago. I dug in the old ditches extending them in all directions, and obtained numerous specimens of pottery, arrow-heads, and implements, but all were lost in the wreck of our boat. I also explored slightly Nos. 9, 11, and 12, but found nothing valuable.

As the circular sand mounds on Point Pinellos are precisely similar, except in dimensions, I have selected one out of the seven located there for description, that one being in the best state of preservation and combining all the peculiar characteristics of the class.

This mound is situated at the foot of a gentle slope, near a series of shallow ponds, on the northwest quarter of the northeast quarter section 28, township 12, range 31 east, half a mile from the residence of John H. McLauchlin. The structure (Plate V, Figs. 2 and 3) is a perfect circle, 175 feet in diameter and 5 feet high, surrounded by a ditch 6 feet wide and 3 feet deep, except at two points exactly opposite, where the ditch is discontinued and a pathway 6 feet wide left to the interior. The mound is built of sand, and contains no pottery or relics whatever; no signs of fire could be seen, nor any clue, however small, to lead even to a guess as to the uses to which these structures were applied. I have examined four out of the seven mentioned here, with a like result. The growth upon all these mounds consists of large pines, similar in size and age to those in the surrounding forests.

The locations of the remaining six are as follows:

PLATE VI



One in section 33, same township; one in section 26, ditto; two on the land of Mr. Vincent Leonardi, near Pinellos Post Office, and half a mile from the Salt Lake; and two on the extreme point one mile south of the large mound at Bethel's Camp.

The one in section 26 is the largest and highest, being perhaps 250 feet in diameter and 7 feet high. The neighborhood school-house stands upon it. The others are similar in dimensions to the one described.

15. MOUNDS AT PAPY'S BAYOU.

These mounds are situated on a narrow peninsula on the north side of Papy's Bayou, on Old Tampa Bay. The place is known as Pillan's Hummock, and had been settled at some time in the past, but I presume the settlers fled before invading hosts of mosquitoes and sand-flies. A few tumble-down houses in a small clearing, surrounded by straggling orange and lemon trees will serve as a starting point to any one seeking the mound. From these "improvements" a due north course will bring one into the neighborhood of this rather singular structure.

It is an oval-shaped mound, about 5 feet high, situated on a low ridge in a very dense hummock. For 100 feet a ditch 2 feet deep runs in the direction of its longer diameter. At this point the structure forks, and two embankments 5 feet high continue for 50 feet, making the entire length of the mound 150 feet. The shorter diameter is 75 feet in the center, and at the southern end it is 60 feet wide. The central trench is 15 feet in width, and from the southern end traces of a ditch or ancient road may be followed several hundred yards into the hummock. The embankments forming the forks are 20 feet wide where they leave the main structure, gradually narrowing down to 10 feet at the ends. Fig. 1, Plate VI, represents a ground plan of the mound, A being the central depression, and B, B, the higher portions. C represents the trail or roadway leading to the mound. Fig. 2 is a section across the end, looking down the ditch.

Excavations revealed human bones in every portion of the mound, but by far the larger part occupied the central trench. They were in a bad state of preservation, and I succeeded in getting out only three sufficiently sound to bear transportation, after thorough saturation with boiled oil. I also found one whole bowl, but on my taking it out the bottom crumbled into powder, and the rim broke into several pieces; enough was preserved, however, to make restoration possible.

The mode of burial was precisely the same as that described minutely in the history of the Ormond mound, and represented in Fig. 2, Plate III, which renders repetition unnecessary.

The growth on the mound consisted of small oaks, and was precisely similar to that around it. It lay with its longer diameter toward the north.

Three or four hundred yards west of this is another mound, composed of alternate layers of sand and shell, 150 feet in length, by 45 in width,

lying in the same direction as the other. It differs from other mounds of this class in sloping gradually from the southern to the northern end. No doubt the northern end was once level and contained a dwelling. At the highest point it is about 4½ feet above the level of the earth. Excavations here brought nothing to light worthy of note.

MOUND AT BAYVIEW.

We now have arrived at a mound which, though of insignificant size, yielded a rich and valuable collection of Indian relics. It is situated on the south side of Alligator Creek, which empties into Old Tampa Bay, one mile north of Bayview Post Office. It is located in a dense spruce-pine scrub, on the northeast quarter of the southeast quarter section 8, township 29, range 16 east, half a mile north of the residence of Mr. Rufus McMullen. So low and flat was this mound previously to the excavation that one might have walked over it without noticing it. I am indebted to the courtesy of Mr. McMullen for my knowledge of this mound, for without his assistance I should never have been able to find it.

The mound was circular in shape, 46 feet in diameter, and not above 3 feet above the level of the ground in its highest part. It was a mass of human bones, disposed in three strata or layers, the mode of burial differing very slightly from that figured in Plate III.

In the lower stratum I found no ornaments and but little pottery, but in the middle and top layers, especially the latter, nearly every cranium was encircled by strings of colored beads, brass and copper ornaments, trinkets, &c. Among other curious objects were a pair of scissors and a fragment of looking-glass. By using patience and care I obtained many strings of beads in the order they were worn by their owners. In two cases fragments of string remained in the beads, preserved by the copper. The beads, many of them being of cut glass and of various colors, were very beautiful.

The latest interments in this place evidently took place after the invasion of the peninsula by the Spaniards, and cannot possibly be older than three hundred and forty years—probably much less. The peculiar pattern of the scissors may throw some light on the subject when examined by persons competent to judge. It is possible that many of the beads and trinkets may have been obtained from De Soto's expedition, for tradition points out Phillippi's Point, eight miles north of this, as the place of his landing. I also obtained thirty-four skulls, carefully selecting the best specimens from each layer, together with numerous fragments of ornamental pottery. These, all carefully labeled, were sent to the Smithsonian Institution at the time.

MOUND AT PHILLIPPI'S POINT.

This is one of the largest mounds on Tampa Bay, and it is unfortunate that there are impediments in the way of exploration. The structure is nearly half an acre in extent, and four different men claim an interest in it, a land corner being located on it; besides this it supports an orange grove. The location is beautiful, the land fertile, and fresh water abundant.

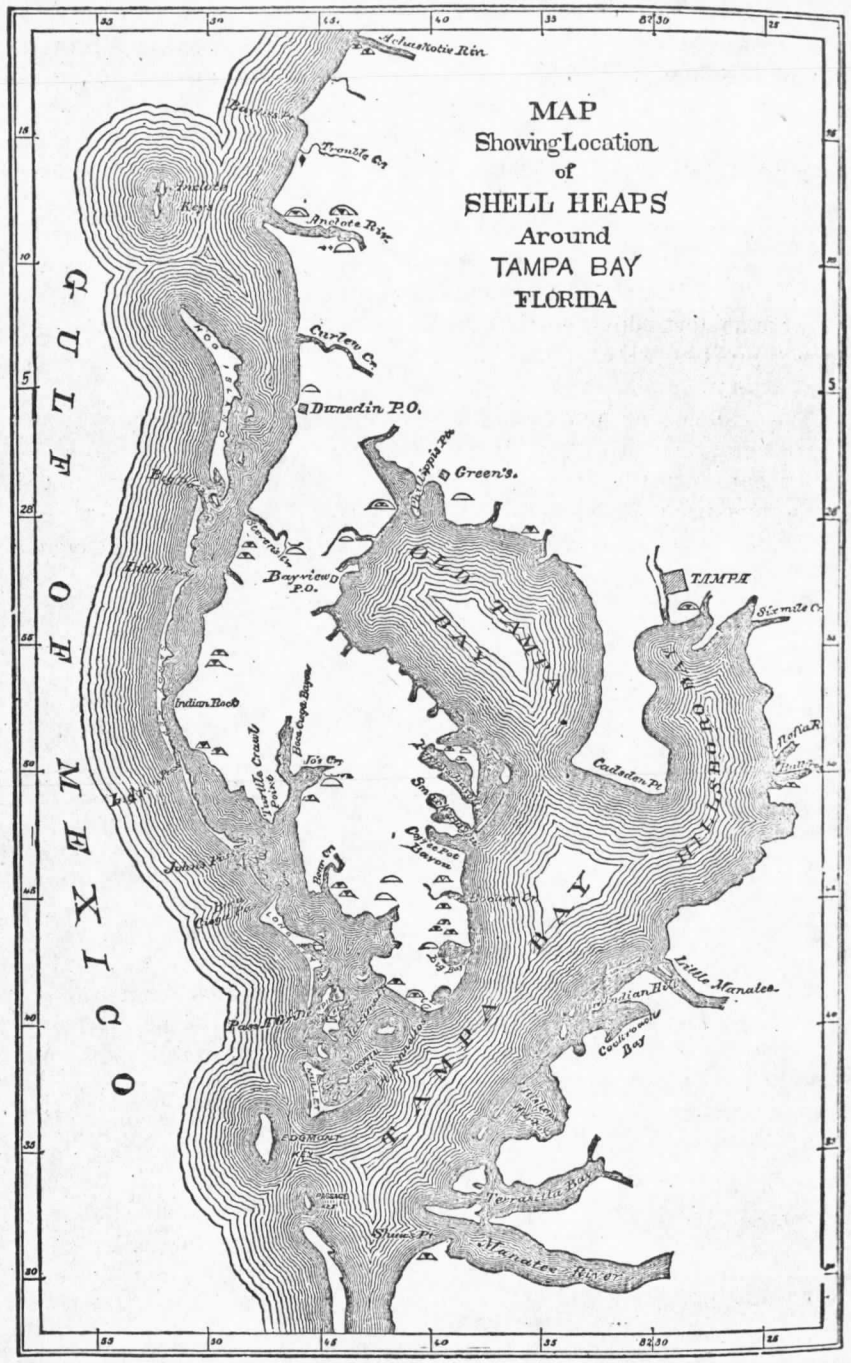
Some years ago a storm drove the waters of the bay against it, carrying away a portion of the eastern base and exposing its internal structure. It is built of sand and shell in alternate layers. It is said that many bones were washed out of it at the time; but its structure and general appearance indicate that it was designed as a domiciliary mound, like others of its class. As the permission of the owners was necessary before anything could be done, I did not take any measurements or make any explorations.

VOGDES' MOUND AT TAMPA.

I will conclude the present report with a description of this mound, copied from the Tampa Sunland and Tribune of November 18, 1876, written by Lieut. A. W. Vogdes, of the Fifth Artillery, U. S. A., not that I agree with any of his deductions or conclusions, but simply because it contains a very minute description of what he found in the mound. I will further state that it is *not* a shell mound proper, but is built of alternate layers of sand and shell, like all the domiciliary mounds hitherto described. The measurements, which he neglects to give, are: Length, 108 feet; width, 100 feet; height, 7 to 9 feet. The sand was obtained close at hand from excavations along the western base. I examined the shells taken from several layers, and found none that are not common and abundant in the bay to-day, and I see no good reason for attributing to this mound a greater age than any described in this report because some of the shells are found fossil in the Pliocene. Partial cremation, which I have shown to have been common in this region, will account satisfactorily for the charred bones, and relieve the aborigines of the unnecessary charge of cannibalism.

"On the military reservation of Fort Brooke, near the sea-shore, there are several shell mounds, the largest of which the writer has spent many spare moments investigating. After carefully measuring this mound we dug into its center, and at a depth of 5 feet struck a layer of oyster shells (*Ostrea virginianum*) about one foot in depth. Below this heap we found the remains of a mound-builder, a male, giving us the following measurements: The greatest longitudinal diameter [of the cranium], 7¼ inches; breadth between the points of parietal bones, 4½ inches; internal capacity, measured with No. 8 shot, 21 pounds, avoirdupois; circumference, taken by tape measure on a plane, including glabella, occiput, and lateral points, 21 inches. The body lay at an angle of about 10°, the head lowest and towards the east. No ornaments were found deposited with or near the remains.

"During other visits to this mound, and after making many excava-



tions on the crest and at its base, we were enabled to find the position of former fires, which give some evidence of the former cannibalism of the ancient people of Florida. We found near this fire but few remains of implements, consisting of one arrow-head, very primitive, broken pieces of pottery, a few ornamented with very rude stamped figures, which generally consisted of raised lines drawn at equal distances from each other.

"The animal remains consisted of the bones of the dog, a claw of the common crab, and a human tibia burned and split, which discovery almost directly points to the cannibalistic habits of the mound-builder. We were so fortunate as to procure several specimens, one having the anterior process, which shows some tendency to flatten above the nutrient artery.

"The evidence we have to offer regarding the age of the mound is very unsatisfactory, consisting of rude pottery which would point to a greater age, or parallel with the mounds on Saint John's River; but we find this pottery in another place on the same mound. (Plate I, *a*, *b*.)

"The shells point more or less to the Pliocene age, although the mound gives us a limited genera. We find the *Busycon carica*, a common shell on the Atlantic coast, but occurring as a fossil in the Miocene of Maryland, South Carolina, and North Carolina; *B. perversum*, fossil in the Pliocene of South Carolina; *Ostrea virginianum*, common to the coast, but fossil in the Pliocene; *Pyrula pyrum*, fossil in the Pliocene of South Carolina. The larger specimens are still common (according to Holmes and Toumey) to the Atlantic coast. We find in this mound the larger and smaller specimens mixed."

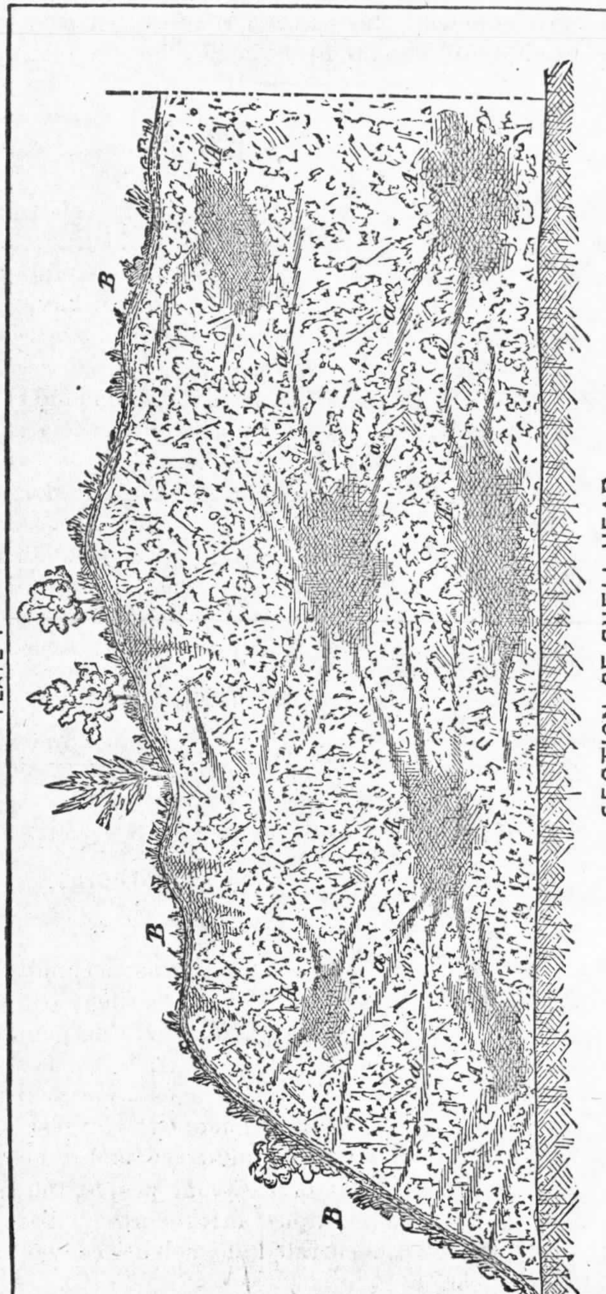
REPORT ON THE SHELL HEAPS OF TAMPA BAY, FLORIDA.

By S. T. Walker, *of Clear Water, Florida.*

No little speculation has been expended upon those vast accumulations of shells which line the coasts of Florida, and stand as silent witnesses of the labors of an ancient people that once inhabited this peninsula. These immense mounds strike the mind of the beholder with amazement when he considers the limited resources of the savages who constructed them; for in the presence of these great monuments the largest domiciliary mounds of sand sink into utter insignificance, and it becomes hard to realize how the united efforts of a savage people, the larger part of whose time must have been occupied in procuring a bare sufficiency of food, could have been concentrated on such useless works for a sufficient time to erect them.

It was thoughts like these which first led me to examine them critically, in order to discover the object of their erection and the method of their construction. Mound after mound was explored with pick and shovel, and every object that presented itself, however minute, was ex-

PLATE I



SECTION OF SHELL HEAP
AT
SHAW'S POINT. MOUTH OF MANATU RIV. FLORIDA.

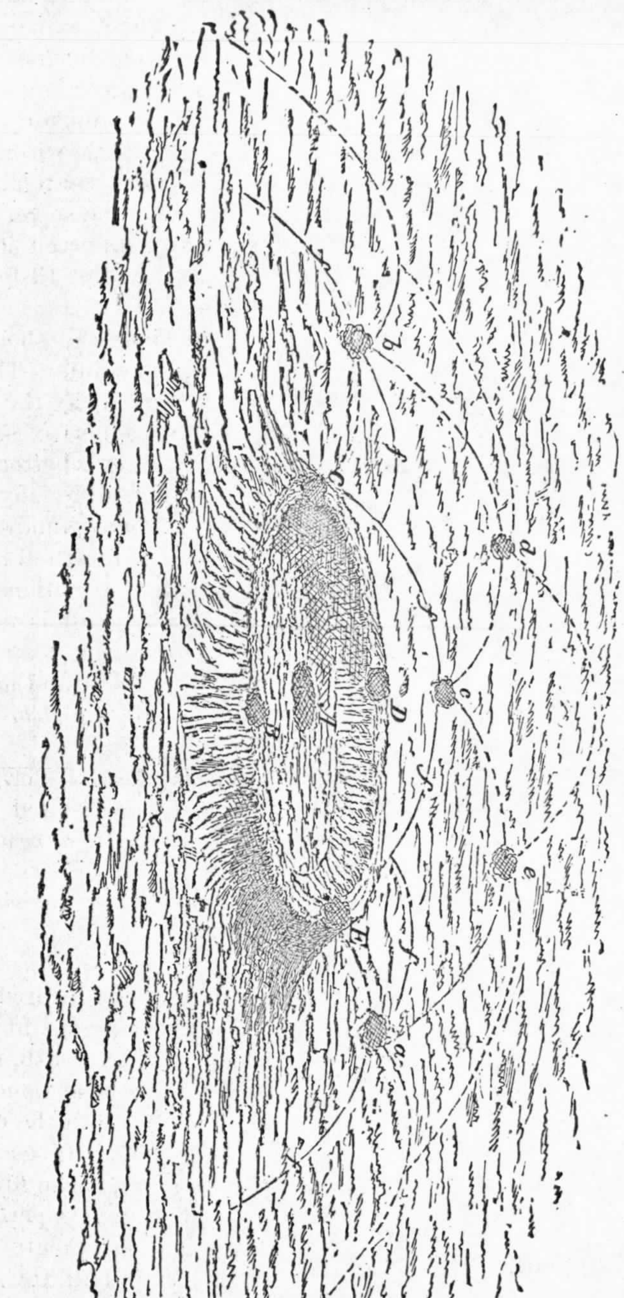


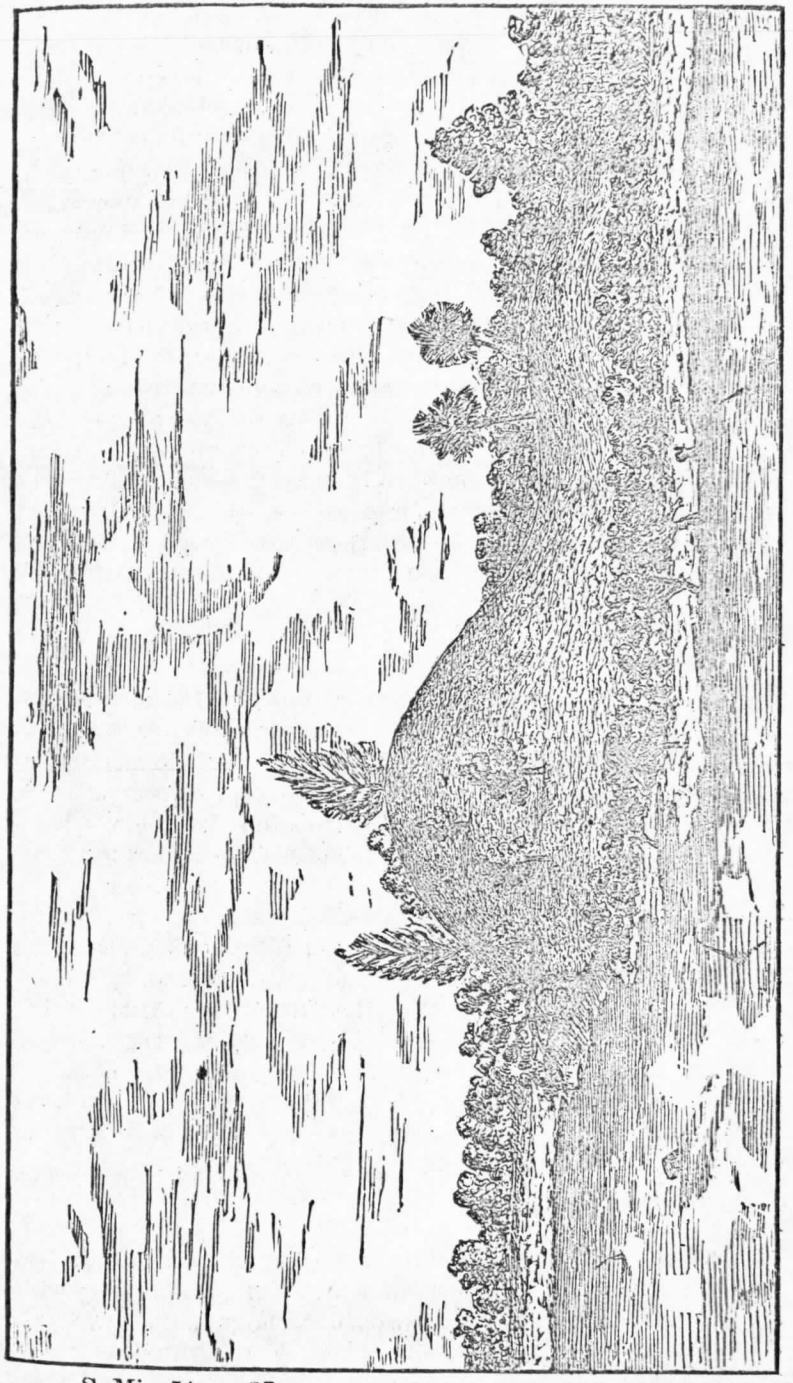
PLATE II.

amined with care and interest; but the mystery remained, and its solution seemed as difficult as at the beginning. These explorations were continued for two years, at intervals snatched from business, and during that time I examined many mounds of various sizes; but, owing to their great dimensions, and the extreme difficulty of opening them with the limited means at my command, I was very little wiser than when I began, except that I became familiar with their contents, and was prepared by some experience and thought to grasp the secret when opportunity threw it in my way. This opportunity occurred in November, 1879, while I was connected with the United States Fish Commission, at Shaw's Point, mouth of Manatee River.

The shell heaps or mounds at this place extend along the shore 564 feet, and are from 15 to 20 feet in altitude at the highest points. The encroachment of the sea upon the northern front has cut away the slope and left a perpendicular wall 15 feet high, presenting a perfect section of the mound through its greater diameter, and affording a better view of its internal structure than could possibly be obtained by anything short of many months' labor and the expenditure of many hundreds of dollars. Here the archæologist may read the history of the shell heaps, as the geologist reads the history of the earth, in the sections presented by bluffs or land-slides, and on that crumbling wall is written the prosy, practical fact that, far from being witnesses of industry and of patient labor, they are the mighty monuments that want and hunger have erected to appetite! The shell heaps are simply the *débris*, the fragments, of former feasts.

In order to understand what is to follow, the reader is referred to Plate I, where a rude sketch of a portion of the wall is presented. The shaded points A A, represent the position of former fires; *a*, *a*, *a*, thin strata of soil in which are scattered bones of the turtle, crabs' claws, spines of the sea-urchin, &c.; and B B, the surface soil on the top and sides of the mound.

Referring now to Plate II, let us suppose a company of savages to encamp and build fires at A. They feast upon the shell-fish procured upon the adjacent flats, throwing the shells around the encampment at some distance from the fires. The fishermen bring shark, drum-fish, crabs, &c., and the hunting parties bring deer, birds, &c., whose bones are added to the ever-increasing circle around the camp, until in the course of time the wall has grown in height and thickness so as to encroach upon the central fires, and removal becomes necessary. The fires are now removed to the top of the encircling heap, and occupy its periphery at many points, as B, C, D, and E. The shells and fragments again being thrown on all sides, but the center, A, receiving half the shells from all the fires along the crest, it naturally grows to be the highest, the dotted lines *f*, *f*, *f* showing the outline of the mound at this stage. The shells having again encroached upon the fires, another removal becomes necessary to higher points, and so the structures ascend, always



Mound at Bullfrog Florida

growing highest in the center, until in the course of long ages they attain their present imposing altitudes and dimensions. Whenever a fire-place was abandoned for any considerable time, a thin stratum of soil accumulated, in which we find occasional bones, shell, &c. These strata, which are quite thin, are represented by shaded lines as *a*, *a*, Plate I.

In confirmation of this view, I refer to the circles of shell E E, in the ground plans of the mounds at Shaw's Point and Indian Hill, Plates III and IV, which are the beginnings of new mounds.

I do not wish to be understood as affirming that the plan I have described was pursued in the regular order I have indicated. Far from it. The irregularity of their shapes proves rather that their erection was due to chance rather than design, and the long irregular walls running parallel with the beach show that in many cases the fires were scattered along the shores, and that it was only when forced by the accumulating mass that the fires were removed to the top of the heap. Indeed, where room was afforded we generally find walls or banks, and in most cases the largest shell-heaps occur where the savages were crowded together on the higher grounds nearly or quite surrounded by water, as at the mouth of Bullfrog, and notably at Indian Hill, but there are, of course, exceptions to this rule.

The materials of which the shell heaps are composed are indicated by the name applied to them, shells constituting by far the larger portion of the mass, differing only in the species composing them; and here I will state that, after diligent search, I have never discovered a shell in these heaps belonging to a species that is not common in Tampa Bay to-day. The kinds of shell that predominate are those which are most abundant in the immediate vicinity. Thus, if the mound be located near oyster-bars, as on bayous, or near the mouths of creeks or rivers, we find that shell constituting the mass of the structure. If on or near sand-flats, we find conchs, clams, scollops, &c., predominating. Intermingled with the shell, but forming only a small part of the mass, are crabs' claws, and the bones of the turtle, shark, drum-fish, deer, and sea-birds, occurring as named, the bones of the turtle being most plentiful. Broken pottery of a very thick, heavy pattern, without ornament, is scattered about the sites of former fires. Stone ornaments and arrow-heads are sometimes found on the surface, but never, to my knowledge, in the interior of these mounds.

In one instance only I discovered human bones in a shell-heap, viz, in the small detached mound marked E, Plate IV, Fig. 2, where a ground-plan of the shell-heaps at Indian Hill is given. The bones were those of women and children buried in a doubled position face downward. The bones were all crushed and broken by the weight of the superincumbent mass, and I obtained but one partially perfect skull. The short time at my disposal here did not permit me to make the work at all thorough. At every point opened on this mound I found human bones, even along

the sides and near the base, and in such close proximity to ancient fires that the advocates of the "cannibalistic propensities of the ancient inhabitants" would need no further proof. I admit that the finding of human bones in the fragments of a feast looks, to say the least, a little suspicious, especially as they occur in company with those of the turtle and deer, but I think we can account for it satisfactorily without resorting to the repulsive theory of cannibalism.

In the first place, it must be remembered that these heaps are composed of very loose materials liable to move and change position at the slightest touch, and it is not only possible but extremely probable that the bones found near the sites of former fires along the sides and base had been carried there by the sliding down of the shell along the crest where they were originally decently interred. All the bodies found upon the crest had been buried in the usual manner and none of them were on or near a fire-place; hence I argue that these were chance burials made long subsequently to the erection of the mound, and in no manner connected with the history of its erection.

Having now considered the origin and construction of the shell-heaps nothing remains but to give a list of the principal ones along the shores from Clear Water Harbor, on the Gulf coast, around Tampa Bay, to the mouth of Manatee River.

The first shell-heap of any consequence occurs at Dwight's orange grove, one mile north of Clear Water post-office. It consists of two long heaps lying nearly parallel with each other, and at right angles with the coast, and one rather small one between them. These heaps are 300 feet long and from 10 to 15 feet high. From these heaps a well beaten roadway extends 150 yards to a fresh-water pond. The roadway is still distinct, although the land has been in cultivation for ten years.

Two small heaps occur five miles south of this, near Indian Pass Church.

The next of importance is on Four-mile Bayou, near Murphy's.

Two more occur near the water's edge on the sand flats at the mouth of Bear Creek, Boca Ciega Bay.

Extended banks of shell wind along the shores in every direction at Maximo Point, Boca Ciega Bay, and continue at intervals all the way to Point Pinellos, occasional mounds occurring here and there at different points.

At Pinellos post-office, on Big Bayou there are three immense shell-heaps, 25 or 30 feet high, and from 300 to 400 feet in diameter, composed almost entirely of oyster-shells.

One mile north, on the land of Mr. Cox, is a large shell-heap nearly a mile inland. It is about 15 feet high and 200 feet in diameter.

On Booker Creek, one mile north of this, are several large shell-heaps on the premises of Mr. Williams. These heaps are from 25 to 30 feet high, and from 300 to 350 feet in diameter. The largest can be seen for several miles.

PLATE III

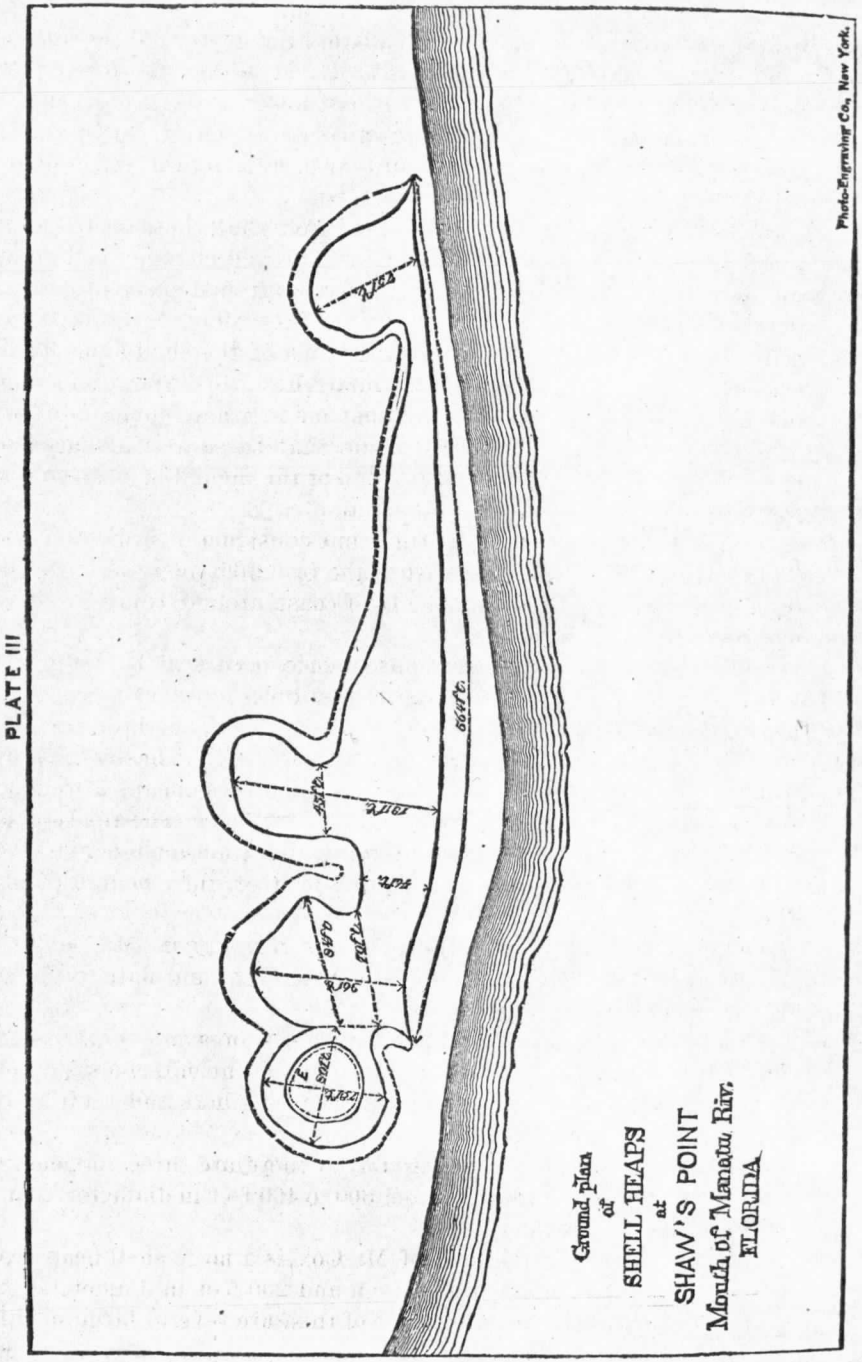
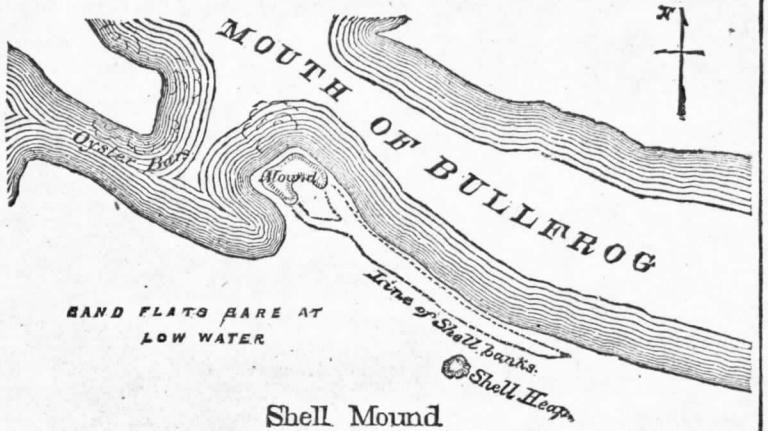
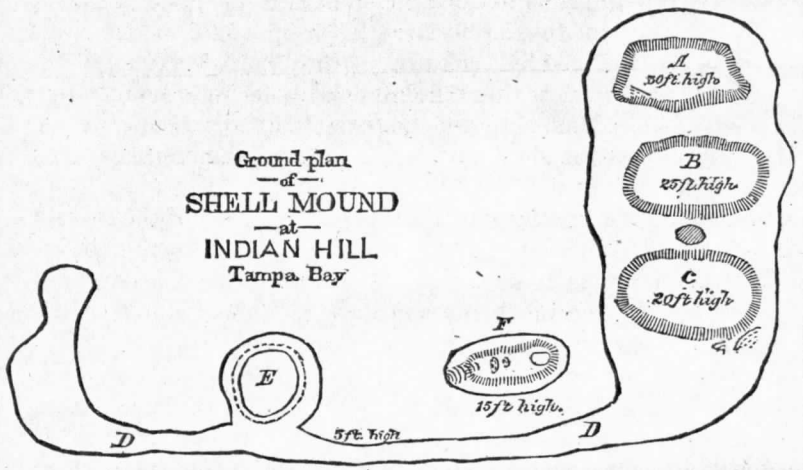


PLATE IV

Fig. 1.



Shell Mound
—at—
BULLFROG



Ground plan
—of—
SHELL MOUND
—at—
INDIAN HILL
Tampa Bay

Fig. 2

Passing over many small collections, we come to the great shell-heap at the mouth of Bullfrog Creek, 10 miles southeast of Tampa. This mound is 30 feet high and 200 feet in length by the same in breadth.

Next in order is the shell-heap at Indian Hill. This mound, with the shell banks connected, is 700 or 800 feet in length and from 20 to 30 feet high. The three highest pinnacles rise above the trees and may be seen four or five miles at sea.

The last of the great shell-heaps of Tampa Bay is the mound at Shaw's Point, mouth of Manatee River, which has been described at length in this report. The ground-plan, Plate IV, gives all the dimensions of the crest. Of course the base is much greater.

MOUNDS ON GIDEON'S FARM, NEAR EXCELSIOR, HENNEPIN COUNTY, MINN.

By Frank H. Nutter, *of West Roxbury, Mass.*

The accompanying plan shows one of the groups of Indian mounds on the shores of Lake Minnetonka, in Excelsior Township, Hennepin County, Minnesota.

Excelsior is in the same county as Minneapolis, and is, by road, eighteen miles west of that city. It lies in the edge of the "big woods," a belt of hard-wood timber extending nearly across the State. The country is very rolling, though the hills are not generally of much height, and, except where cleared by the farmers, or in the sloughs around the numerous lakes, are covered by a heavy growth of hard wood, mostly of the following varieties: white, burr, red and black oak, rock and rarely white maple, white and slippery elm, basswood, and ironwood, or hop hornbeam. Except on the shores of the lakes, rocks and stones, even of small size, are very scarce.

This lake was in former years the hunting-ground both of the Dakota and Chippewa Indians, and as they were deadly enemies, has doubtless been the scene of many battles. The last one was fought about twenty years ago at Shakopee, on the Minnesota River, about eight miles south of this point, in which several lives were lost.

The group of mounds shown on the plan is located about one and a half miles (by road about a mile farther) northwest of Excelsior Village, at the head of a branch of the lake, known as Gideon's Bay. In the map the location is marked by a cross. As shown on the plan, there can now be distinguished sixty-nine mounds (one was leveled to afford a site for the house), and two lines of embankment, one running nearly north, the other about west. The largest, together with the embankments, are found mostly in the grove and the orchards overlooking the lake, and on the height of ground, as shown by the figures on the plan, giving approximate heights above the present level of the water.

The trees of the grove are fine forest trees, left when the land was