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THE SMITHSONIAN
INSTITUTION

SHOWING THE
OPERATIONS, EXPENDITURES, AND
CONDITION OF THE INSTITUTION
FOR THE YEAR ENDING JUNE 30

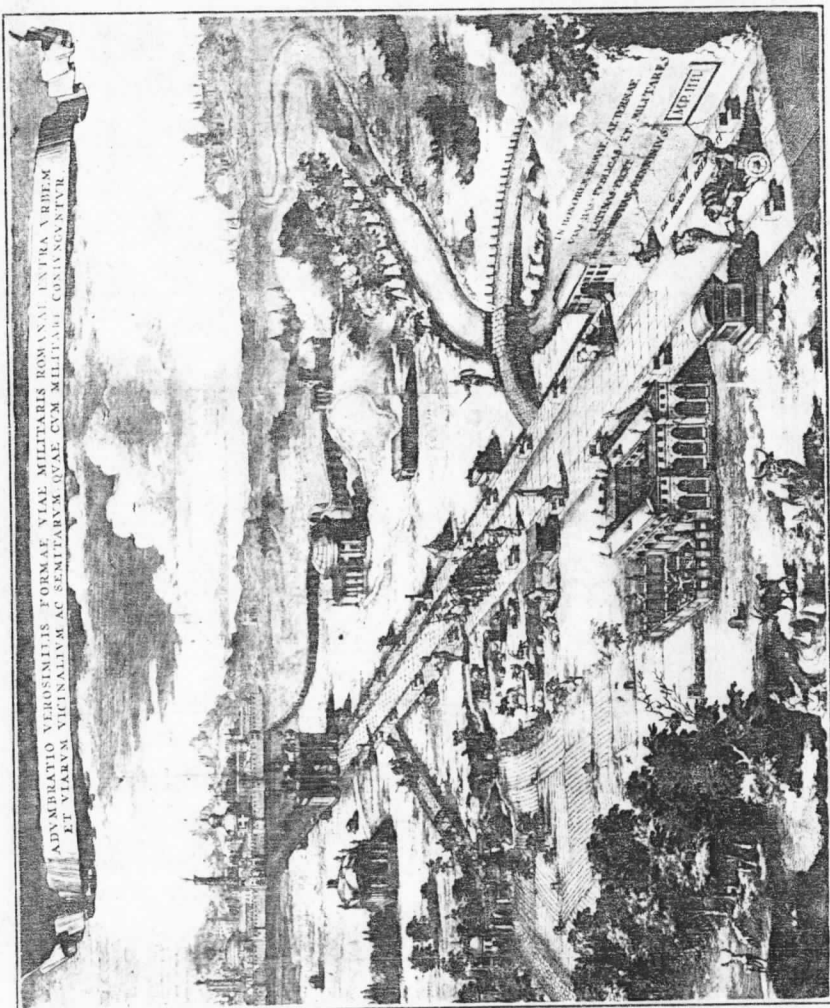
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A TYPICAL ROMAN MILITARY ROAD OR PUBLIC WAY.
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SMITHSONIAN ARCHEOLOGICAL PROJECTS CONDUCTED UNDER THE FEDERAL EMER- GENCY RELIEF ADMINISTRATION, 1933-34

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Chief, Bureau of American Ethnology

[With 10 plates]

When the President's Civil Works Administration program was inaugurated for the winter of 1933-34, under the Federal Emergency Relief, archeological projects were proposed by the Smithsonian Institution for the States of Florida, Georgia, North Carolina, Tennessee, and California, and quotas of relief labor were allotted for each of these States. Inasmuch as proper supervision was essential for successful scientific results on these projects, provision was made for the salaries of trained archeologists. Excavations were begun during the latter half of December 1933, and this work continued throughout the winter, giving employment to approximately 1,500 men.

Because of the opportunity to make use of large laboring crews, sites were selected which ordinarily would not have been practicable to work because of the unusual amount of excavation necessary to work them successfully. The final results proved to be more than satisfactory. A great fund of archeological information has been accumulated regarding some of the hitherto little-known sections of the country. These results were due to the fine cooperation of both Federal and State relief officials, who did all in their power to assist during trying times, and also to the excellent staff of trained supervisors who willingly gave their time, in some instances at a considerable personal sacrifice, to the completion of the projects to which they were assigned. The crews of men engaged on the various excavations exhibited real interest in the work, and without exception excellent morale was maintained.

At the present writing, it has, of course, not been possible to make complete studies of the notes and collections obtained from the various sites. The present brief article pretends only to give a general

be populated by the Indians, and that this migration was so late that no marked cultural changes had time to develop. The excavations herein discussed tend to strengthen this general viewpoint.

BELLE GLADE SITE, PALM BEACH COUNTY

The Belle Glade site consists of a refuse mound approximately 100 by 150 yards in extent and an adjoining sand burial mound. The site is located in the Everglades a mile and a half west of the town of Belle Glade, an area formerly occupied by the Calusa Indians.

A section 70 by 20 feet was excavated near the northwest part of the shell mound, which yielded a quantity of potsherds and artifacts of bone, shell, stone, and wood. The shell mound reached a maximum height of 7 feet from its base in the area explored. The base of the mound now rests 2 feet or more below the surface of the surrounding land, and on its outer margin shows an accumulation of a foot or more of muck on top of the shell and debris. On the south part of the mound there is a slight elevation about 2 feet higher than the general level of the mound that may represent a platform upon which a structure was built. The site was located between the forks of the Democrat River, a stream that has now been largely obliterated as a result of drainage operations. The burial mound was on the opposite side of the minor fork from the habitation site.

Preliminary investigations seem to show a rather static culture at this site, the same type of objects occurring at all levels. The bone implements consisted in the main of arrow and spear points, awls, and long pins. Deer-horn artifacts were plentiful and included awls, flaking implements, and adz holders. An interesting object recovered is what seems to have been a deer headdress consisting of a small portion of the skull with the antlers attached. The antlers have been polished and hollowed out so as to make them light in weight.

Marine shells were used extensively in the manufacture of implements and utensils. Conch shell "hoes", adzes, cups, spoons, pendants, plummets, and other ornaments were abundant at the site. Shell, as a raw material, largely replaced stone in this region, which is virtually devoid of any suitable rock for use in the fabrication of artifacts. Some stone artifacts, however, were found. These included elbow-shaped sandstone pipes, rubbing stones, and chipped points or knives.

A great number of houseposts were uncovered during the excavation. The position of these in the ground gave little information about the house plans beyond showing a rectilinear type of construction.

Two dumbbell-shaped wooden pestles were excavated from the shell mound. The pottery is mainly undecorated. Whenever decoration occurs, it consists of check stamp with some incising. A few sherds show use of a fugitive red slip. The prevailing forms seem to have been bowls.

No sterile layers occurred in the refuse mound, indicating a continuous occupation, although probably seasonal, as this area would have been flooded in the rainy season. A large collection of animal, bird, and fish bones, and shells was made. These remains indicate a diet of deer, alligators, turtles, raccoons, opossums, turkeys, waterfowl, fish, and shellfish, including many marine forms.

The burial mound, in contrast with the habitation mound, showed two or three different periods of use. The first period was a short occupancy of the site as a place of habitation. The second was the construction of a low burial mound of muck. Following this, a sand mound was built over the old muck burial mound. In front of this new sand mound and facing the habitation site, across the stream, a pavement of limestone rock was constructed, resting in part on the old burial ground. This first sand mound seems to have been destroyed by a hurricane, as the area around it has been covered by water-washed sand containing many complete and broken human bones. Two small but distinct habitation strata occur in this water-deposited material. Following this period the second sand mound was constructed, that is, the present visible one. This latter mound extended into the historic period, as a few of the burials near the surface were accompanied by glass beads.

In all, there were 6 distinguishable periods of use of this site, 3 as a place of habitation and 3 as a burial mound. During its history there was no apparent radical change in culture, the material from all strata closely resembling that from the adjacent shell mound.

Carved wooden objects were recovered from the water-deposited sand from the first sand mound. These included several carved bird heads, a seat in the form of an otter, and parts of two plaques (pl. 1, figs. 1 and 2), similar to those found at Key Marco. In the muck near the river bank and unassociated with any stratum of the mound, a four-legged wooden stool, a wooden canoe paddle, and two stirring paddles were uncovered. Also from the muck near these, three intricately decorated bone pins were found.

The early muck burial mound contained a tangled mass of burials. Each new interment seems to have disturbed several former burials, resulting in an almost solid mass of skeletal material. Artifacts rarely accompanied the burials. The few found may have dropped in by accident and may not have been funeral offerings. The artifacts from this stratum consist mostly of bone pins that may have been

in the hair when the burials were made. Among these bones was found the remains of a cup or bowl made from a human skull. The undisturbed burials were nearly all extended on the back with no regard for direction.

The second burial period, or the first sand mound, is represented only by disturbed burials. Some of the lower burials in the sand under the mound may belong to these, as no stratigraphy shows in the white sand and as sand extends down to the muck to an absolute level below that of some of the water-deposited material. These deeply deposited burials in the sand mound are also extended on the back.

The burials in the second sand mound show the same type of interment. Several near the surface were accompanied by glass beads. Two of the burials near the surface had tubular shell beads with them, and one had been buried with a dagger manufactured from a human femur. Only those burials that were near the surface were accompanied by cultural remains. As these were mostly articles of a post-European nature, a change in burial custom may be indicated.

Three logs 7 feet long and averaging 4 inches thick, which had apparently formed steps, were located deep in the mound near the northeast side.

The importance of the Belle Glade site lies in the wide range of the material collected. Here, for the first time in Florida, there is a representative collection of habitation shellmound artifacts, burial furniture, and skeletal material all from one site. The site will also give the opportunity to study any cultural or physical changes that may have taken place within this group. This is a unique opportunity, as definite stratigraphy is rare in Florida. Another important feature here is the correlation that is possible with the wooden material found by Cushing at Key Marco, which tends to link the two sites together culturally. There can be little doubt that both the Marco site and the Belle Glade site mark former villages of the Calusa Indians.

MOUNDS ON PERICO ISLAND, MANATEE COUNTY

On the western side of Perico Island near Bradenton is a group of three shell mounds extending in a north and south direction and approximately 100 yards distant from Sarasota Bay. The most conspicuous mound of the group is a large shell habitation mound about 900 feet in length by 120 feet in width. One thousand feet southwest of this mound is another similar smaller mound. From the southern edge of the large habitation mound a shell ridge extends in a southwesterly direction terminating in a circular shell burial mound, and northeast of this mound is a small burial area on the edge of a mangrove swamp.

A cross-section was made through the smaller habitation mound; the burial mound was completely excavated and as much of the burial area was cleared out as the high water table permitted. The material of which the burial mound was constructed was a mixture of sand and shell, into which a considerable quantity of potsherds, animal bone, and ash was mixed. Frequently, layers of pure shell were encountered, but none of these extended completely through the mound. The base, consisting of gray sand, was not more than a foot above the salt water table. A few burials beneath the base lay below the level of high water. During the course of excavations 185 skeletons were removed. The general structure and appearance of the mound indicated that it had been built up gradually from village refuse as the occasion for more burials required. All of the skeletons were tightly flexed and, with the exception of one group of five which had evidently been placed on the mound at the same time and oriented in the same manner, there was little plan or order to the placing of the bodies.

There was a difference in level of 6 feet between the highest and the lowest burials. No objects of any sort had been placed with the bodies. The few artifacts which were removed had evidently intruded accidentally as part of the village refuse from which it was constructed. For this reason there was a large quantity of small plain sherds of a rather crude type of pottery. Decorations occurred in the form of incised patterns with the exception of a single sherd which contained a stamped design of concentric diamond-shaped figures.

A trench 25 feet in width was carried into the center of the smaller habitation mound. From the few simple artifacts recovered it is presumed that this mound was contemporaneous with the burial mound and was probably constructed by the same group. This mound contained much less sand than the burial mound, and thick layers of shell extended completely through from side to side. There were extensive ash deposits at the base, but these were sterile except for a small quantity of burned animal bone and shell. From this excavation a large amount of plain sand-tempered potsherds were found, as well as a quantity of animal bones. A single human tooth was also discovered. Only half a dozen decorated sherds were unearthed. All of these were decorated with angular designs in incised lines. One well-made shell celt, a lump of kaolin presumably intended for pottery making, a piece of red ocher, a broken bone awl, two or three abrading stones, and a conch-shell bowl complete the list of artifacts recovered from the trench.

The burial area was revealed by excavations to be roughly circular and about 40 feet in diameter. There were no indications of a mound

having been erected above the burials, although cultivation over the site might easily have removed traces of a low sand mound. The burials were comparatively superficial, the deepest skeleton being only 27 inches below the surface, while the majority were encountered at a depth of not more than 12 inches. Most of the burials lay beneath the water table, and it was necessary to remove them from the salt water, a feature which made it impossible to clear and expose the skeletons in the usual manner. However, the action of the salt water evidently preserved the bones, as they were in excellent condition except where they had been broken up by previous diggers. Forty-three skeletons were taken from this area, the bones of which were of almost rocklike hardness. They were not, however, mineralized. All of the burials were flexed in the same manner as those in the shell burial mound. The nature of the soil made it impossible to tell whether the burials were intrusive, but from all indications they were. Burials occurred in groups of from 3 to 6 individuals, each group being packed into a small area as though a hole had been dug and the bodies laid in closely to conserve space. Usually a quantity of shells were placed around each burial as though the pit had been partially lined with shell. As in the case of the shell mound it was evident that no artifacts had been intentionally placed with the burials. With the exception of a few sherds of undecorated pottery the only artifact found was a stemmed flint scraper. The exact relation of this burial area to the surrounding mounds could not be determined because of the absence of cultural material.

LITTLE MANATEE RIVER, MANATEE COUNTY

Mound no. 1.—This small mound was located northeast of the south branch of the Little Manatee River in section 12, township 33 S., range 20 E., about 16 miles northeast of Parrish.

The mound, constructed of white sand, was erected on high ground among a scrub growth of pine, wild plum, and oak trees. The visible portion of the mound measured 44 feet along the north-south axis and 38 feet east and west. Excavations revealed that the mound had been constructed over a saucerlike depression in which the first burials had been placed. On the south edge was a sump or depression measuring 12 feet in width and 22 feet in length, running east and west. At various times in the past 6 holes had been dug near the center, none more than 3 feet in depth. The mound was about 5 feet in height at the center, although the original height had undoubtedly been much reduced by erosion.

During the excavations 27 skeletons were encountered. All represented secondary burials, the bones being disarticulated and in a very poor state of preservation. Pottery was of the Safety Harbor type,

muck and sand-tempered black ware with buff surface. Shapes varied from shallow circular bowls to deep jars. Stamped decorations included a small quantity of check stamped patterns and one coarse complicated stamp representing concentric circles, on a large cooking jar. One bowl was decorated with a deeply incised interlocking scroll design composed of negative bands set off with coarse punctate areas. A characteristic feature is a notched lip, the notching being carried out sometimes directly on the top of the lip, sometimes on the outer edge of the rim and sometimes at the base of the neck band. One vessel with flat, vertical loop handles was recovered. No painted ware was found.

Six conch-shell bowls were found and two disk-shaped shell rings, each about $\frac{3}{4}$ inch in diameter. There were also two tortoise shell combs in a fair state of preservation and a circular object of copper 2 inches in diameter, probably an ear ornament, with a raised hemispherical boss in the center. Ten projectile points of white chert and brown flint were found. These were of 2 types, 5 with round bases and 5 with flat bases.

Objects of European manufacture were numerous. Three sherds of pottery retained portions of an olive-green glaze. Many thousands of small European glass beads of many different colors were recovered. In some instances they were found sufficiently undisturbed to indicate that they had been used as neck ornaments, bracelets, and bags. Unique types were one emerald green pentagonal drilled glass bead and a home-made bottle-green glass pendant, formed by melting a lump of glass and looping the tapered end so as to form a hole for suspension. This may have been the work of the Indians themselves. Two large drilled beads of quartz crystal were found, one about one-half inch in diameter with plane-cut facets and the other in the shape of an oblate spheroid with long spiral facets running from the two openings of the drilled hole. In addition to the copper ear ornament, which may have been of trade copper, metal objects included a conical bangle of sheet gold about $1\frac{1}{2}$ inches in length and 3 tubular silver beads $\frac{3}{4}$ to $1\frac{1}{4}$ inches in length. The absence of any indication of iron is worthy of comment.

Because of the abundance of glass beads the impression is created that this mound is rather late historic in period. The presence of a relatively abundant quantity of native pottery, shell bowls, and stone arrowheads together with the absence of iron would seem to offer evidence in the other direction. Tentative estimates place the building of the mound about the middle of the seventeenth century.

Mound no. 2.—This mound is located one-half mile south of the south fork of the Little Manatee River, on the property of T. W.

Parrish, who kindly consented to the work of excavation. As in the case of mound no. 1, the situation is on a high sand flat covered with a growth of short-leaf pines, ground oaks, and rosemary bushes. The circular mound measured 63 feet along the north-south axis and 65 feet along the east-west axis, with a height of approximately 6 feet. The highest section of the mound was toward the north, so that the north side sloped more steeply than the other sides.

This mound proved exceptionally interesting, as it contained the lower portions of the walls of what had evidently once been a mortuary temple (pl. 3, fig. 1). The posts comprising the supports were from 5 to 10 inches in diameter and owed their partial preservation to the fact that they had been intentionally charred before being planted in the sand (pl. 3, fig. 1). The charcoal shell of each post remained. The posts were planted 4 to 4½ feet deep and set about 5 inches apart. Since the posts followed the contour of the mound, they indicated that the mound had been completed before the structure was erected. The bottoms of some of the posts were pointed, and others had been squared off. The plan was in the shape of a trapezium, the sides averaging slightly more than 25 feet in length. The southeast corner of the structure had been reinforced with an extra row of posts placed between and just inside of the primary posts. This reinforced angle extended 7 feet on one side and 6 feet on the other. Within was a thick deposit of charcoal, ashes, and burned human bone. Inside the enclosure were found 32 secondary cremated burials and 2 uncremated burials of small children. These bodies had apparently been cremated in the reinforced angle of the structure and the remains buried while still hot in the sand floor of the building. In the center of the floor was a large, deep charcoal pit containing numerous burials and most of the burnt offerings that were recovered. Outside the walls of the structure were 5 secondary and 2 direct cremations. In the case of the latter, pits had been dug and small wood placed on the bottom of the graves. The body in each case had then been placed on the back with the head to the south, the knees slightly flexed. The body was then covered with logs and sticks placed lengthwise in the grave and fired. When the pyre had been reduced to glowing embers, the graves had been filled in, as the logs, completely reduced to charcoal, were all in place.

Pottery was not abundant. A very interesting owl-effigy water bottle of a familiar lower Mississippi type was taken from the central part of the mound during a previous excavation. One fragmentary muck ware cooking bowl, fiber-tempered, with an incised interlocking spiral design, was found, and also a few scattered fragments of undecorated ware. One small shell hoe and three conch-shell bowls

were found. With one burial were found two perforated shell rings ¾ inch in diameter. Three small white arrowheads with flat bases, one polished white chalcedony pendant, and a drilled cylinder about 1¾ inches long by ⅓ inch in diameter of a gray fine-grained stone were recovered. At one place was found a deposit of six ropes of rosin which had probably been used as torches or were possibly for use in connection with the cremations. With one of the direct cremations was a charred piece of wood with a carved spiral design on it, and in the central pit were found some very interesting charred fragments of braided and woven hair. A tortoise-shell comb was recovered with one of the burials. Objects of European origin consisted of a small brass ornament shaped somewhat like a fleur-de-lis and 3 small glass beads, 2 blue and 1 white.

This mound is very puzzling. It is the first mound in Florida to produce definitely cremated bodies. The presence of a few objects of European origin show it to be post-Columbian.

Mound no. 3.—This mound is located in the northwest quarter of section 27, township 33 S., range 19 E., on the north bank of Gamble Creek.

The mound proper is circular in shape, 68 feet in diameter, and 7 feet in height. A horseshoe-shaped depression 17 feet in width and 2 feet in depth encircles the mound about its southern periphery, the two arms then converging slightly to the north for 100 yards, tapering off into the flat before converging. Exactly adjoining this depression, and hence of the same shape, is a sand ridge 30 feet wide and 3 feet high. Seventy-five yards in a southeasterly direction lie two smaller circular mounds.

During the course of excavations 212 recognizable burials were encountered. These were all secondary bundle burials with the exception of one intrusive cremated burial, all in a very poor state of preservation. The long bones were placed parallel in a neat bundle almost all pointing east and west, although a very few pointed north and south. In every instance the skull was placed a little above the bundle, at the west end when the bundle lay east and west and at the south end when it lay north and south. Frequently, charcoal was found above the burials as though a fire had been made over the grave.

Pottery in this mound was fairly abundant and appeared to be of a somewhat degenerate Weedon Island type. Shapes varied from pear-shaped bottles to shallow bowls, with large deep jars having slightly constricted necks and flaring rims (pl. 2, figs. 1 and 2). One large globular bowl, with a fugitive red slip, was found. All pots had a small circular hole in the bottom. Some of the vessels had evidently been broken intentionally. Stamped ware included both

a check and complicated stamp. Incised designs were usually combined with tattooing, and interlocking scrolls were the most typical pattern. Notched lips were common on the deep vessels as were flat lips on the shallow bowls. One large sherd of typical Weedon Island ware was discovered. One pear-shaped vessel was decorated with an incised eagle feather design. All the ware is untempered and is of two types, muck ware and clay ware. The first is made of black muck which ranges from buff to brick red in color when fired. Upon being broken the inner part of the ware can be seen to retain its black color. This ware has a hardness of 2.5 and is smooth and velvety in texture, being free from grit, and is very light in weight. Microscopic examination discloses the substance of the ware to be a mass of carbonized organic material.

The clay pottery is made of a white clay which contains naturally a certain amount of grit. Two large lumps of this clay were found in the mound, still retaining the finger marks of the hands that had moulded them. This ware also has a hardness of 2.5 but is considerably heavier than the muck ware.

Fourteen conch shell bowls were recovered in the mound. Most of these had a hole in the bottom as did the pottery.

Six stemmed knives and arrowheads were recovered, and two with concave bases. One large triangular chipped blade may have been either an axe or a knife. There were about a dozen turtle-back scrapers and one small triangular arrowhead. Throughout the mound were scattered many flint spalls. With one burial were three chipped spherical flint cores, each about the size of a baseball. Four sandstone abrading stones complete the list of stone material.

Three lumps of red ochre mixed with sand were found with burials, while frequently the sand around the skulls of the bundle burials would be reddened with ochre.

European material consisted of a few small glass beads, mostly blue or white in color, and a short blunt iron chisel.

With the cremated burial previously mentioned, were found five small glass beads, one of which was melted, two calcined stemmed flint arrowheads and several unidentified pieces of iron which are probably parts of a gun. These iron pieces were clustered around a sandstone abrading stone, to which they adhered.

This mound appears to be older than mounds nos. 1 and 2. European material was scarce, and that which occurred was superficial, except for the articles accompanying the cremated burial. The sherd of Weedon Island pottery is of a type heretofore found only in pre-Columbian mounds. The rest of the pottery, although related to this ware, is not typical Weedon Island. My impression is that this mound is very early post-Spanish.

Mound No. 4.—This mound is located in the northwest quarter of section 23, township 33 S., range 21 E., about 400 yards north of the south fork of the Little Manatee River. The mound is composed of a rather fine buff-colored sand, and is 80 feet in diameter and 7 feet high.

The burials throughout the mound were so badly decomposed that many were no longer recognizable. However, 89 burials were definitely identified. The form of burial was difficult to ascertain, but it is certain that the interments were secondary. In some instances the bones were burned, but none appeared to be true cremations. The sand around the burials was stained with red ochre.

Artifacts were very scarce. Pottery consisted of not more than a dozen sherds, including one nearly complete small check stamped bowl. Another small bowl of good quality ware was decorated with closely spaced vertical parallel incised lines. Two large fragments of a very thick and heavy vessel of crude cooking ware were found; these are the thickest pottery fragments I have ever seen in Florida. The ware is of the usual two types of this region, untempered muck ware and clay ware.

Stone objects consisted of a highly polished plummet of a fine-grained gray stone and arrowheads. Fragments of conch shell, probably parts of shell bowls, were found occasionally throughout the mound. One shark tooth was found with a burial.

This mound appears to be the oldest of the group excavated on the south fork of the Little Manatee River. There were no objects of European manufacture present, and although the state of preservation of skeletal material is not a certain criterion of age, it is worthy of mention that the skeletal material here was so disintegrated as to have almost disappeared.

Because of the scarcity of pottery, it is difficult to establish the cultural relationship of the site. However, I should estimate that the mound was erected during the late fifteenth century.

ENGLEWOOD MOUND, SARASOTA COUNTY

This mound is located on the mainland about 150 yards from the east shore of Lemon Bay and about one-half mile south of the town of Englewood. It was constructed entirely of sand and was 110 feet in diameter and 13 feet high. Considerable pitting had been done on the top, so that the original height was probably somewhat greater.

Near the site are two deep depressions from which the sand comprising it had been obtained. One of these lies just to the north of the mound and the other near its eastern margin. Complete excavation of the site revealed that the visible portion had been super-

building material, and the sand mounds erected nearby for the burial of their dead are also being molested.

Two sites were excavated: The first, consisting of five small sand mounds, was 1 mile south of Artesia; the second, a single sand mound, was 4 miles north of this town. The excavation of the largest mound at site no. 1 (mound A) revealed a small, low heap of sand on the natural surface of the ground. Upon this had been placed a thin but uniform layer of oyster shells. On top of this had been spread another layer of sand which contained burials.

The burials were on the whole in a good state of preservation, although none had been buried more than a foot below the surface. They had been oriented with some care, for the majority were placed with the head toward the apex of the mound, like the spokes on a wheel. Although oriented similarly, the skeletons were not always lying in the same position. The majority were fully extended, lying on the back. Others were slightly flexed and had been buried on either the right or the left side. A few were placed in other positions but these were exceptions. The burials may be classified under three headings: Complete undisturbed skeletons; incomplete skeletons (part of the body missing), and disassociated bones. The complete skeletons form an excellent series of 96 specimens, 35 adult males, 42 adult females, 7 adults whose sex could not be determined in the field, and 12 infants. There were as many more individuals represented by disturbed and fragmentary skeletons. These were most prevalent near the apex of the mound where tree roots had disturbed them. From field observations it would appear that the Surruque were a tall people of robust physique. The skulls were large, undeformed, and uncommonly thick, and the long bones were heavy and massive.

Either the Surruque were limited in material possessions or they were not accustomed to bury many mortuary objects with their dead, for very little material was found in their burial mounds. No whole pieces of pottery were found. The sherds showed that two varieties of ware were common, one a heavy black plain variety, the other similar but decorated with a crude check stamped design. The artifacts consisted of plummets of stone or conch shell, long bone hairpins decorated with curvilinear and rectilinear designs, a bone whistle, bone and shell beads, and small bone pendants. In this mound objects of brass and iron as well as glass beads indicated contact with the Europeans and dated the mound as post-Columbian.

The fauna, like the potsherds, was similar in all the mounds excavated. Shellfish were abundant and appear to have formed the principal article of diet. They included the common Coquina clam, the oyster, and several varieties of conch and scollop. The animal bones

represented deer, bear, raccoon, and opossum. Fish bones representing many varieties, as well as the loggerhead and box turtle, showed that these were common articles of diet.

Mound B was located 130 feet north of A and was covered with a dense growth of small trees (pl. 3, fig. 3). This mound was similar in construction, although all levels proved sterile until the apex of the mound had been reached. In a radius of $6\frac{1}{2}$ feet at the very apex of the mound was a sort of burial pit in which the skeletons had been placed without any apparent plan. Many of them had been completely disarticulated prior to interment. It is estimated that they represented about 20 individuals. Only two burials were found outside of this restricted area; they were located 1 foot 8 inches to the north of the pit. Both had been buried tightly flexed lying on the side and oriented with the feet toward the center of the mound. All the bones found in this mound were in a poor state of preservation. The potsherds, artifacts, and fauna were in every way similar to those found in mound A, but there were no metals or other evidences of European contact.

Mound C was 130 feet west of mound B. A few potsherds of the same general type as previously described were found, but otherwise the mound proved sterile.

Mound D was 41 feet 6 inches west of mound A in an abandoned orange grove. When this was opened its construction proved to be of the simplest kind. It was merely a low mound of clear sand covered over with a thick layer of clam and oyster shells. All burials were found placed a few inches from the surface in the southern and western periphery of the mound. The remainder of the mound was entirely sterile. Of the 16 burials recovered in a good state of preservation, 6 were adult males, 3 adult females, 2 adults of doubtful sex, and 5 were infants. The skeletons were in the same positions as in mound A and were oriented according to the same general plan. The potsherds, artifacts, and fauna were the same as have been already noted, but the presence of glass beads with some of the infant burials indicated that the mound was of post-Columbian origin.

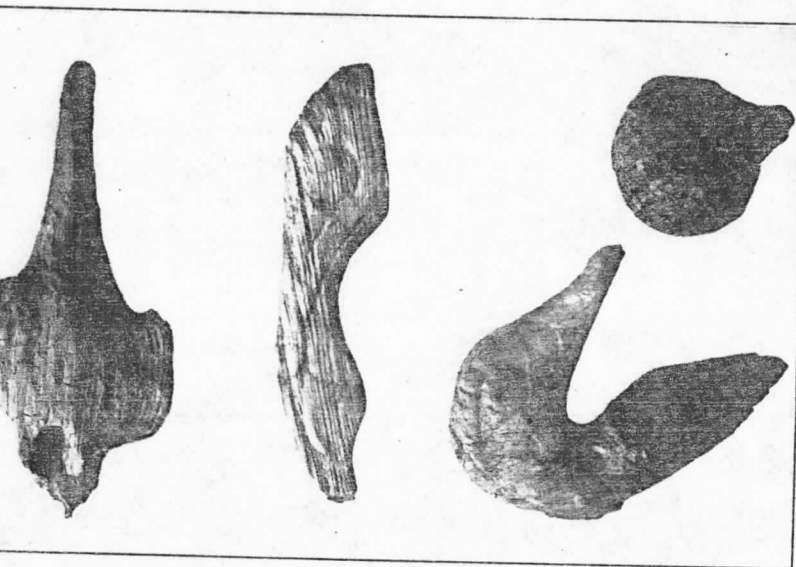
Site 2, mound A, was 80 feet in its greatest diameter and 13 feet high. It was covered with a heavy growth of scrub and large trees and lay adjacent to the remains of the shell heap. When it was trenched, its construction proved a matter of some complexity for it had apparently served a variety of purposes since its erection. The lowest level was a horizontal habitation stratum extending far beyond the limits of the mound proper, and in it were found charcoal, food bones, and shells, but no burials. Upon this had been erected a sand mound which contained burials. Above this was a

Minerals: Red, white, yellow paints. Clay objects in form of disks and balls with reed impressions. No pottery.

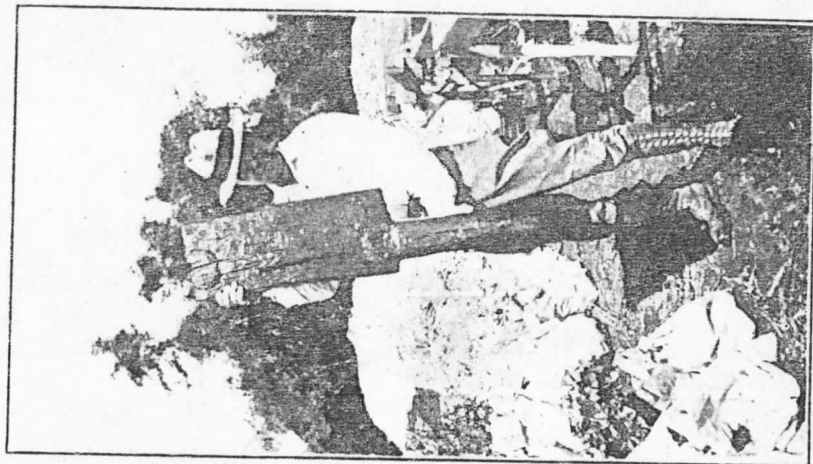
European objects: Glass and porcelain beads, bits of iron.

The culture in general is similar to that of the historic San Joaquin Valley tribes, showing a few outside contacts from the east, south and west. The general results of the work give us a good example of a simple hunting and fishing people who developed a distinctive culture in a marshy lake environment based principally upon varied uses of tule and other rushes for house material, rafts, textile fibers, burial shrouds, and even for fuel. A plentiful supply of shellfish, fish, fowl, and game made the food quest a relatively simple one. Evidently the camp sites were moved in accordance with the rise and fall of the lake level. Several wave-cut terraces high up on the mounds indicate more than one period of high water when the occupants of the site were probably forced to move.

It is probable that the site was occupied for several centuries and that the population diminished rapidly after contact with the whites. The mound shows marked cultural connections with the shell mounds of the San Francisco Bay region, and it is quite possible that the builders of Tulamniu migrated from that region. No evidence has yet been found in the San Joaquin Valley of any earlier people. Trade contacts with the Shoshoneans is seen in the use of obsidian, and with the coastal Chumash in marine shells. The steatite industry in the valley was evidently late; although the material was obtained locally, the use of steatite was probably learned from the coastal people. Basketry making and weaving of mats were well developed. Asphalt was used to make water-tight baskets. These sites, which bridge the period between the historic and the prehistoric, give us a picture of a long-continued simple and remarkably static culture.



1. CARVED WOODEN BIRD HEADS FROM MUCK STRATUM, BELLE GLADE MOUND



2. CARVED WOODEN PLAQUE FROM MUCK STRATUM, BELLE GLADE MOUND.