Florida Historical Quarterly

Volume 34
Number 2 *Florida Historical Quarterly, Vol 34, Issue 2*

Article 4

1955

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ARCHEOLOGICAL EXCAVATIONS IN THE COURTYARD OF CASTILLO DE SAN MARCOS, ST. AUGUSTINE, FLORIDA

by J. C. HARRINGTON, ALBERT C. MANUCY *and* JOHN M. GOGGIN

The recorded history of the fortifications at St. Augustine, Florida, begins on the day the Spaniards, under Don Pedro Menendez de Aviles, landed at the Timucua Indian village of Seloy in the late summer of 1565. A large Indian communal house was turned over to the newcomers, who immediately set to work throwing up earthworks around the aboriginal structure.

In the years that followed, that first makeshift fort was replaced by a succession of earth-and-wood defenses. Each was in a different location, and each in turn was destroyed, by age or attack, flood or fire-arrows. More than a hundred years went by before the Spanish built a permanent fort of stone, called Castillo de San Marcos. Begun in 1672, the Castillo was extensively modernized and enlarged in 1738-1739. Today the well-preserved remains of this 17th and 18th century landmark are part of Castillo de San Marcos National Monument.

For the past twenty years the National Monument has been under the administration of the U. S. Interior Department's National Park Service. The policy of the Service in regard to the physical care of the fort has been principally that of preservation and stabilization. But along with this, it has been possible to restore certain features of the fort to their earlier appearance.

For most of two centuries Castillo de San Marcos was the center - the pinpoint center - of Florida's history. If DeLuna's early attempted settlement on Pensacola Bay, or the later struggle there with France, or the expanding missions of Apalachee, claimed the attention at times of Mexico, Havana, and faraway Spain, ere long in each case their interest came back to St. Augustine and its fort. And now San Marcos is the most important relic of Spanish Florida. This article adds much to its history. *(Ed.)*

The *Quarterly* expresses appreciation of the generous aid in the publication of this article and its illustrations given us by the St. Augustine Historical Society.

One of these projects is the restoration of the doorways leading from the courtyard into the rooms. Most of the doorways had been altered through the years, some quite extensively. Before they could be restored correctly it was necessary that the grade of the courtyard during the period of Spanish construction and occupancy be established, so that the door sills could be set at the proper level. Historical records did not provide the necessary data, so a small archeological project was initiated early in 1953 for the express purpose of establishing the original courtyard grade.

This was the primary justification for the project. The aims, however, were three-fold:

1. To determine the colonial grades of the courtyard and the surfacing materials used during each significant period, particularly after the modernization of 1738-1739.
2. To confirm the existence of foundations of early structures.
3. To ascertain whether more extensive excavation might reveal the size, method of construction, and use of the "lost" structures of the 17th century period.

It is important to understand clearly that Castillo de San Marcos has two major periods of construction: 1672-1696, when the main walls were erected, and wooden-roofed rooms were built; and 1738-1739, when the old rooms were replaced by the existing ones.

The first step in the study was the assembling of available documentary material relating to the courtyard. This research was carried on by Albert C. Manucy, and the results are covered in the first section of the present report. The principal materials pertinent to this subject were old plans of the fort. Six such plans apply, specifically to the early period. These have been interpreted by Manucy and reproductions of the more illuminating ones are shown in Figures 1-4. The archeological explorations were directed by J. C. Harrington, whose report follows Manucy's account. John Goggin of the University of Florida has studied the ceramic materials found, and his report follows the archeological discussion.

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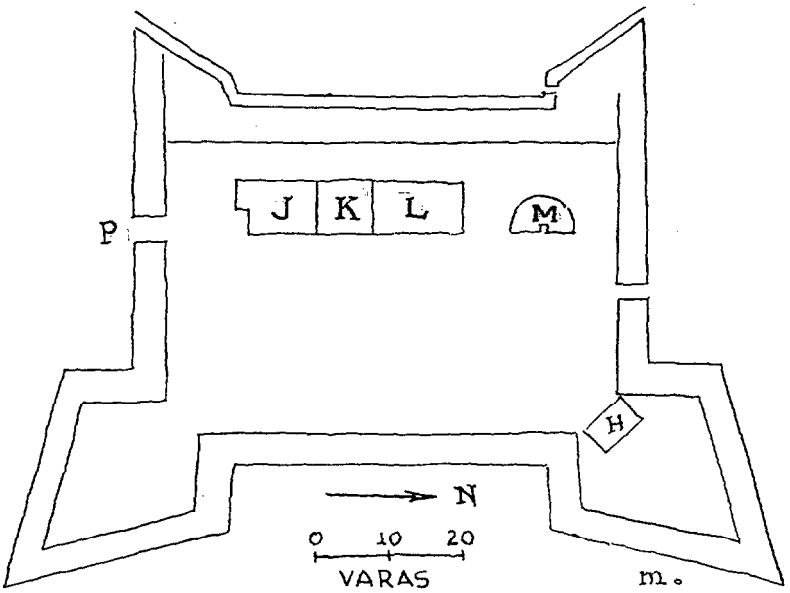


FIGURE 1. *Plan 1675b shows three sides of the Castillo almost complete, and a temporary barrier across the west side. This is the earliest plan showing the courtyard buildings. Features identified by the plan key include: H - arch built for powder. J - Guardroom already built. K - Armory already built. L - Provision magazine already built. M - Powder magazine already built. P - Main gate already built.*

HISTORY OF THE CASTILLO COURTYARD 1672-1740

The construction of Castillo de San Marcos began formally with a ground-breaking ceremony on October 2, 1672. Three walls of the four-sided fort were nearing completion when a new man, Don Pablo de Hita Salazar, arrived in May 1675 to assume the governorship of Florida (Plan, 1675a; Royal Officials, 1675).

Salazar quickly brought the three walls to full height. Along the fourth or landward side, he built a temporary scarp, which effectively closed in the area of defense. These developments show in the August 1675 plan of the Castillo, illustrated in Figure 1 (Plan, 1675b).

On this plan also appear two buildings in the courtyard. Since they were not indicated on earlier plans (Plan Key, 1674; Plan, 1675a), the obvious conclusion is that they were built by Salazar's direction in 1675, between his arrival in May and the transmittal of the August plan.

One building is a semicircular (in plan) powder magazine with a diameter of about 24 feet. The other is a long, rectangular structure about 24 by 90 feet, partitioned into three rooms: guardroom, armory, and provision magazine. The fronts of the buildings were almost in a north-south line with the sally port, which means they were not centered on, but were slightly west of the courtyard axis. The magazine was perhaps 18 feet south of the north curtain wall of the fort. The north end of the

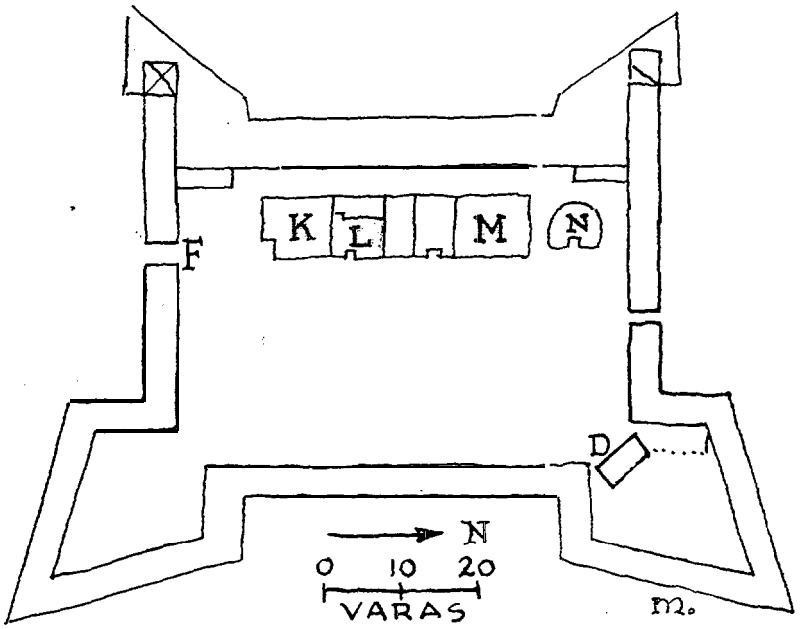


FIGURE 2. *Plan 1675c shows a further partitioning of the courtyard building. D -Arch for powder. F - Main gate. K - Temporary guardroom built. L - Temporary armory and lieutenant's quarters. M - Temporary provision magazine. N - Temporary powder magazine.*

rectangular building was about 60 feet south of this wall. There was a space of some 30 feet between the south end of the latter building and the south curtain of the fort. With the exception of a newly-built powder magazine in the gorge of the northeast bastion, there were no other rooms in the fort enclosure at this date.

The next plan (Fig. 2) showing the buildings is also dated 1675 and appears to have been drafted toward the end of the year (Plan, 1675c). It is refined by the addition of doorways, plus several more partitions. Two doors were on the east side, and one was at the southeast corner - or, more likely, on the south side near the east corner. (No window openings are shown on any plans.)

According to this plan, the north and south rooms of the rectangular building continued in use as provision magazine and guardroom, although an east-west partition was added to the provision magazine. In the center room, or armory, two partitions were set in, which converted part of the armory into lieutenant's quarters.

After 1675, the semicircular powder magazine is not shown on constructional plans.

Three other 17th century plans (Plans, 1676 and 1677; Salazar, 1680) bear on the question by representing the rectangular building in pseudo-perspective, with gable roof, two doorways on the east, and one on the south near the east corner. Figure 3, which reproduces the 1680 plan, is representative. Although the drawing indicates a division of the building into only two, rather than three sections, and the key likewise states only that the south section was a guardroom and the north section a storeroom, it seems that the exterior of the building was unchanged.

In brief, the 17th century plans show a rectangular, gable-roofed, one-story building about 24 feet by 90 feet, with three doors leading to sections used as guardroom, armory and pro-

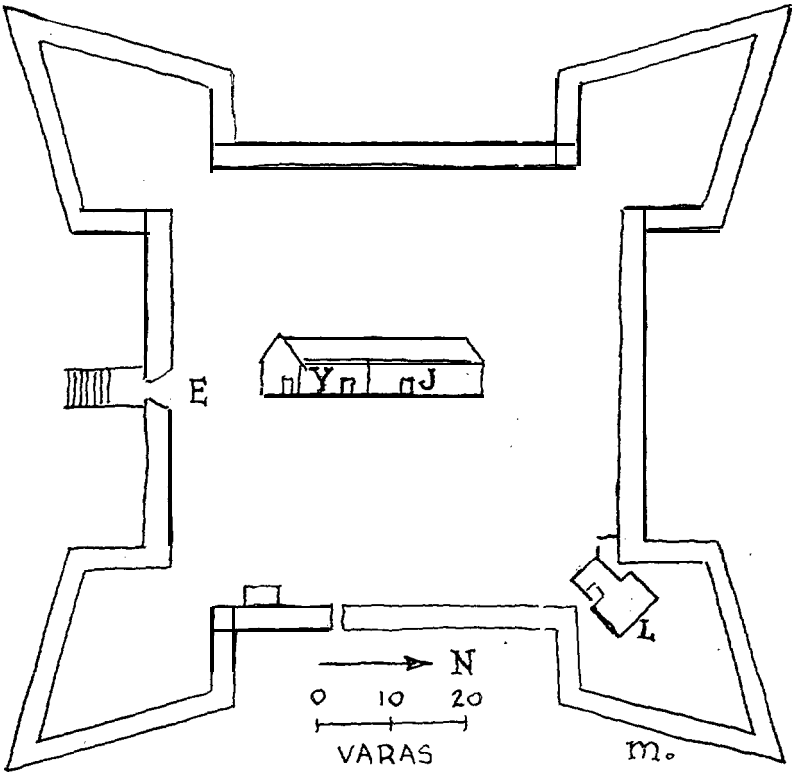


FIGURE. 3. *Plan 1680. This untitled plan was enclosed with Salazar's letter of December 15, 1680, and is typical of several plans of the period which show the courtyard building in pseudo-perspective. E - Gate. Y - Guardroom. J - Storeroom made of stone and wood. L - Powder magazine.*

vision magazine. This structure was built by August 1675. Before the end of 1675, the center or armory section was repartitioned to add quarters for the lieutenant, and a partition was also added in the provision storeroom. By December 1677 the building was used only for guardroom and provision storage, and this usage continued at least through 1680. In addition, the plans show a semicircular powder magazine, built by 1675 and evidently razed before May 1676, by which time the magazine in the northeast bastion was no doubt in use.

The main part of the fort was essentially finished by 1686. A document of that year (Plan Key, 1686) does not mention the courtyard buildings; in fact, no further mention of them has been found until 1737. A plan of the latter year (Plan, 1737) shows the outline of an L-shaped structure identified as the ruins of the governor's house and armory (Fig. 4). This building may or may not have incorporated elements of the earlier one.

Its overall length is 54 feet (compared with 90 for the 17th century building); the north wing is about 20 feet wide (the early structure was about 24 feet), while the east wing is 27

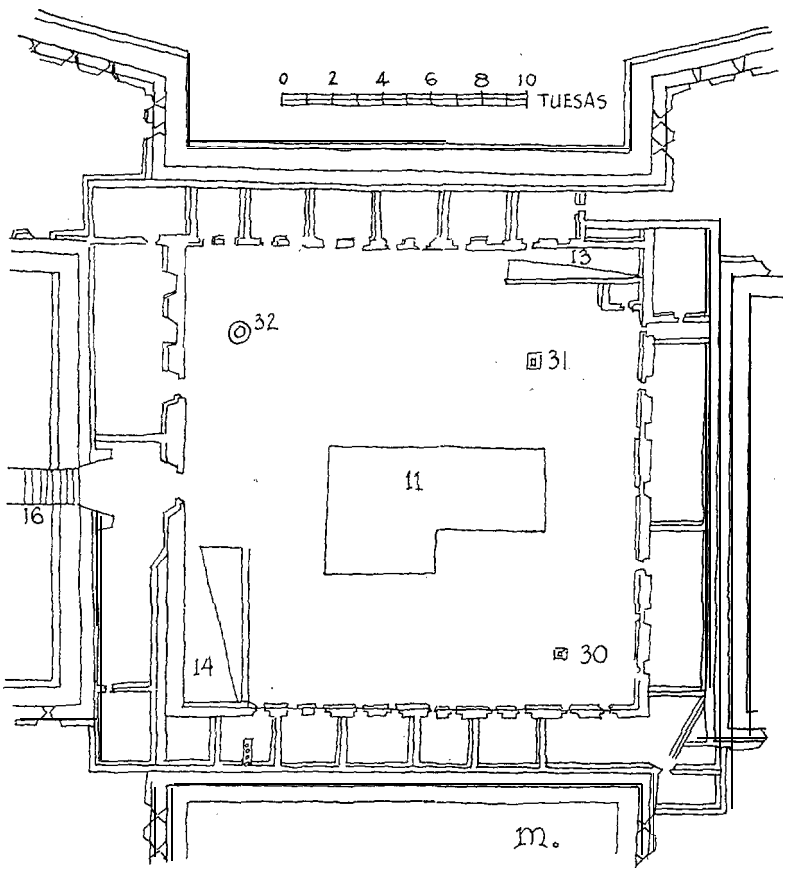


FIGURE 4. *Plan 1737 represents the fort interior prior to the 1738-1739 modernization. 11 - House of the governor and armory; fallen. 13-14 - Ramps. 16 - Drawbridge. 30-31-32 - Wells of fresh water.*

feet north-south and 32 east-west. No additional information is available on the building, except that it was a "ruined house" ordered razed in March 1737 (Justis, 1737). The demolition was part of the 1738-1739 period of modernization, when the 17th century rooms around the courtyard were replaced by the present bombproof arches.

IDENTIFICATION OF EXCAVATED RUINS

The structure represented by the foundation walls uncovered during the excavations is doubtless the same block of buildings shown on the various 17th century plans (Figures 1-4). The archeological evidence, which alone is sufficiently convincing, is corroborated by the conformity of these ruins to the design of the structures indicated on the old plans. These plans have been adjusted to a common scale, and the result shown in Figure 5. In so doing, the scales shown on the various plans were used, but they had to be checked against measurements of other structural features, such as overall dimensions, and adjusted accordingly.

The scales shown on each of the five 17th century plans are in *varas* and that for the 1737 plans is in *tuesas.* Since these units of measure varied considerably from one country to another, and since there is no way to tell which was followed, in any instance the use of the scales is limited. * Even more of a problem than the scales, is the fact that none of the plans is consistent within itself. The discrepancies are probably due to the draftsmen, who were recording constructional progress rather

* Values of the *vara* for each of the five 17th century plans, as adjusted against known dimensions of the fort, are shown below. These, of course, are estimates only, and should be used accordingly.

	Estimated *vara* equivalent
1675b (Fig. 1)	35.0 inches
1675c (Fig. 2)	35.5 inches
1676	33.75 inches
1677	34.25 inches
1680 (Fig. 3)	34.25 inches

It is probable that the value of the *vara* for each of these five plans was intended to be the same, and that the variation is due entirely to inaccuracies in the drawings.

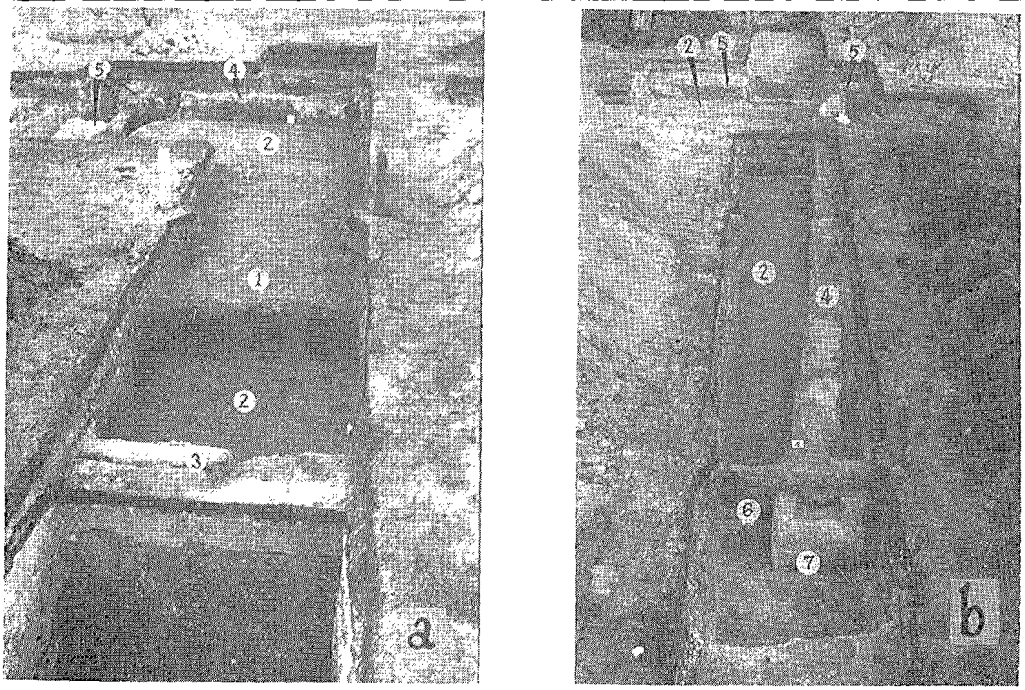
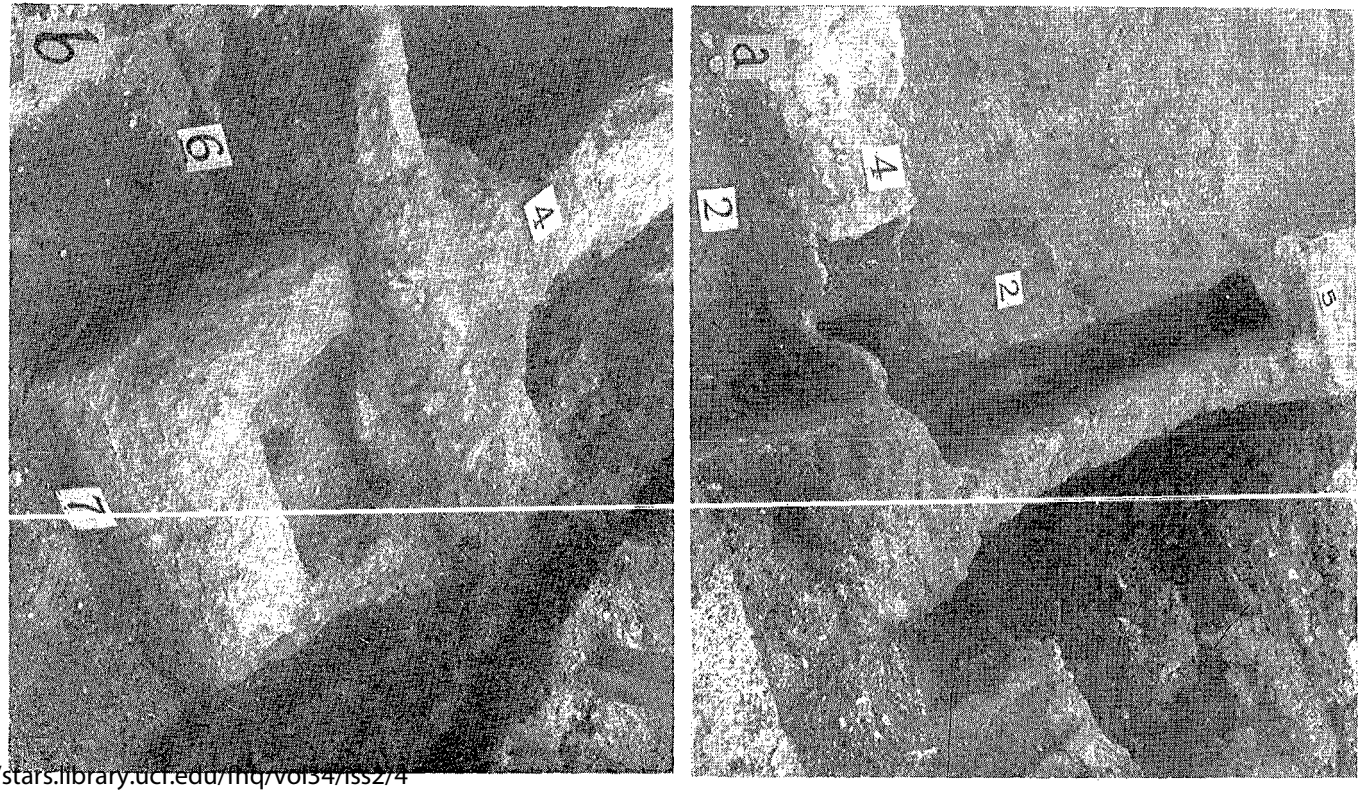


PLATE. 3. *a – Trench "A", looking south over the outside north wall (3) of the 1675 building. Parts of the east wall (5) and the partition (4) are also shown. The level areas at (2) are the tabby floor. The higher level (1) is the 18th century pavement.*

b – Lateral of Trench "A", looking east along the partition wall (4), at its junction with the outside west wall (6). Function of the mortised stone feature (7) is uncertain.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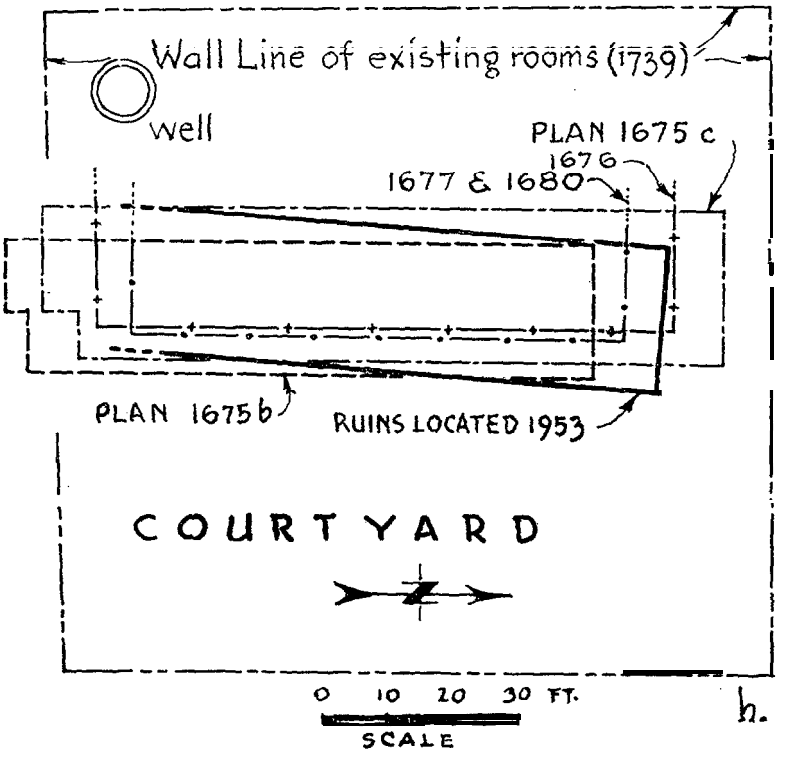

FIGURE 5. *Schematic plans of the courtyard structure of 1675 as indicated on four contemporary plans, to show relation to foundations excavated in 1953.*

PLATE 4. *a - East "doorway" in the outside east wall (5), at the junction with the partition wall (4). Tabby floor levels are shown at (2). The horizontal "channels" common to all the walls are clearly shown. A vertical "channel" or post hole is seen at the junction of the walls.*

b - Detail of the mortised stone (7), which is part of the masonry at the junction of the partition (4) with the outside west wall (6). This puzzling feature is similar to foundation stones found in the Castillo moat and used in early days to support bridge piling.

than preparing measured drawings. This explanation may also account for the fact that the rectangular building, when shown in perspective, is apparently shorter than the same edifice as represented in plan!

Actually, each plan undoubtedly shows the same building. Also, each plan shows this building as parallel with the sides of the fort, whereas the excavated ruins show the structure noticeably out of line. Obviously the contemporary plans, in spite of the prestige that the conspicuous graphic scales give them, cannot be taken at face value.

The greatest value in these contemporary plans lies in identifying the uses to which these courtyard units were put, and in showing that none of them remained in the courtyard after the fort was modernized and enlarged in 1738-1739. Apparently the north end of the block was used as a storeroom throughout the life of the building, with the armory and guardroom occupying the space to the south. Since the 15-foot room, formed by the partition found in the excavating, conforms to nothing shown on the plans, it is not possible to say whether the north room alone represents the "provision magazine."

Other inconsistencies in the various plans, such as number and location of entrances, make further speculation on this unit rather fruitless. It is clear that full excavation of the ruins must be completed before much more can be said about this structure.

Partitions, doorways, and other structural features will almost certainly be found when the entire structure is uncovered. It should then be feasible to make a fairly accurate "paper restoration" of the structure shown on the five 17th century plans. It should also throw light on the 1737 plan (Fig. 4), in which an "L" addition to the earlier rectangular structure is indicated. This addition, which could only have been put on after 1680, apparently was used, possibly along with some of the earlier building, as the Governor's house.

Any such large-scale exploration would also look for other courtyard structures, dating both from the early years of the

fort and from the post-modernization period. The semicircular powder magazine, presumably located immediately north of the main courtyard structure, may have been destroyed when the fort was enlarged; but enough of it may exist to permit its location and identification. Two wells, in addition to the one now showing, should be found without much trouble, and their excavation should yield some very interesting objects. There are also certain structural features belonging to the post-1738 period, such as a second ramp in the courtyard center, for which specific data are lacking. It is unlikely that archeological explorations could be extensive enough to permit thorough examination of the Indian deposits, since the masonry ruins above these deposits must be preserved. But in excavating outside the ruins it is possible that evidence might be found of structures antedating the Castillo itself.

* * * * *

ARCHEOLOGICAL EXPLORATIONS

LOCATION OF TRENCHES. Areas of tabby, which appeared to be remnants of an early pavement, had been observed near the existing courtyard surface, but it was uncertain whether these represented an old pavement, or remains of structures. Documentary evidence shows quite clearly that buildings stood in the courtyard prior to the period of modernization beginning in 1738, and that they were either razed or in ruins when this work was started. In view of this situation, it was decided that the most likely place to secure information would be at the ruins of these earlier buildings.

Study of the maps previously discussed by Manucy indicated the probable location of early structures within the courtyard. The first exploratory trench, 3 by 20 feet (Trench "A"), was staked out across the assumed location of the north wall of this group of buildings (Fig. 7). Fortunately, the foundation of an exterior building wall was encountered in the first trench. A second trench, actually an extension of the first, was then

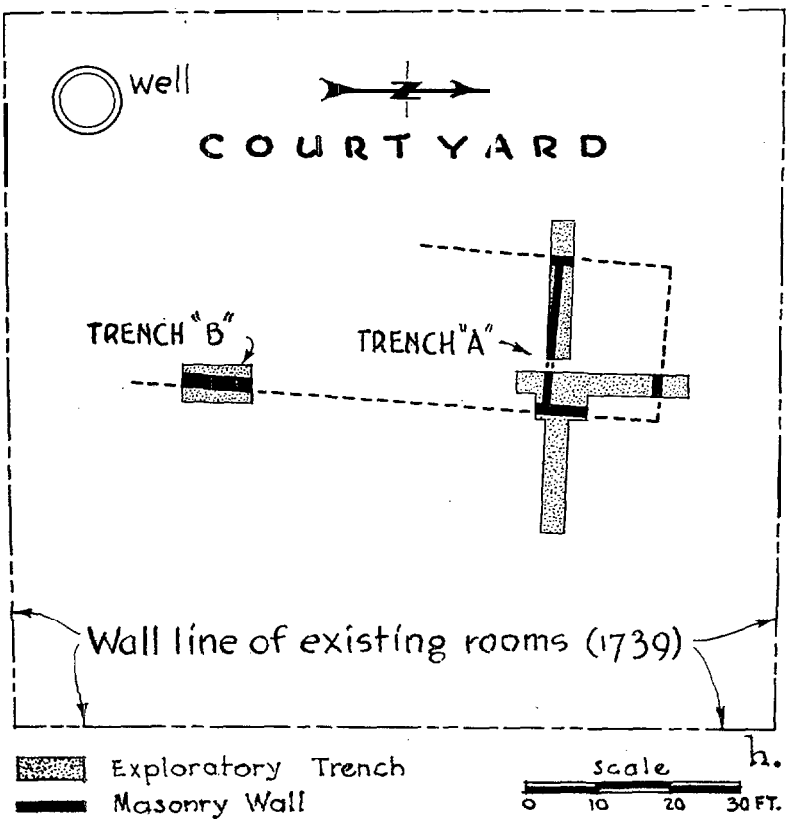

FIGURE 6. *Plan of courtyard, showing location of exploratory trenches and remains of masonry walls.*

excavated at right angles to the first, and extended until both the east and west walls of the structure were found.

After we determined the exact position of the building, another trench, 5 by 10 feet (Trench "B"), was excavated near the south side of the courtyard. Here was uncovered another foundation wall lying exactly in line with the east wall of the north unit discovered in Trench "A". Because of public walks, which could not very well be taken up at that time, Trench "B" was not extended farther to the south. Hence the possible discovery of the south wall of the original courtyard group is a

matter for future work. It was a great temptation to continue the excavating, especially to secure more information about these pre-1738 buildings, as well as other structures within the courtyard, such as the wells and the powder magazine. But funds were not available for a major excavation at the time.

* * * * *

RESULTS OF THE EXCAVATING

Briefly, the two test trenches furnished evidence concerning the type and level of the post-1738 courtyard pavement, the location of the principal courtyard structure and certain structural details relating to it, and information concerning the site prior to the earliest Spanish construction. All of these things are useful in historical interpretation of the Castillo.

The information on the pavement was put to immediate use in connection with restoration of the entrances to the courtyard rooms. It is also significant in proposed restoration of the sally port grade and the drawbridge. Obviously it is of supreme importance in planning restoration of the courtyard itself!

The data secured in this preliminary test as to depth of deposits, as well as condition and extent of early structures, will be of value in planning a major archeological exploration covering the entire courtyard.

Numerous historic objects were recovered, including a few specimens worthy of exhibit.

PRE-SPANISH PERIOD. The archeological explorations confirm the historical record, for they show that Indians had occupied the area before the Spanish came, and had left a deposit of oyster and clam shells and other refuse, typical of the shell middens found along the Florida coasts. See Plate 2 and Figure 8. Further excavating will need to be done before the extent of the Indian midden can be determined, but present evidence suggests that it was relatively shallow. The only places that the exploratory trenches were carried down through this midden deposit were just outside the walls of the courtyard structure,

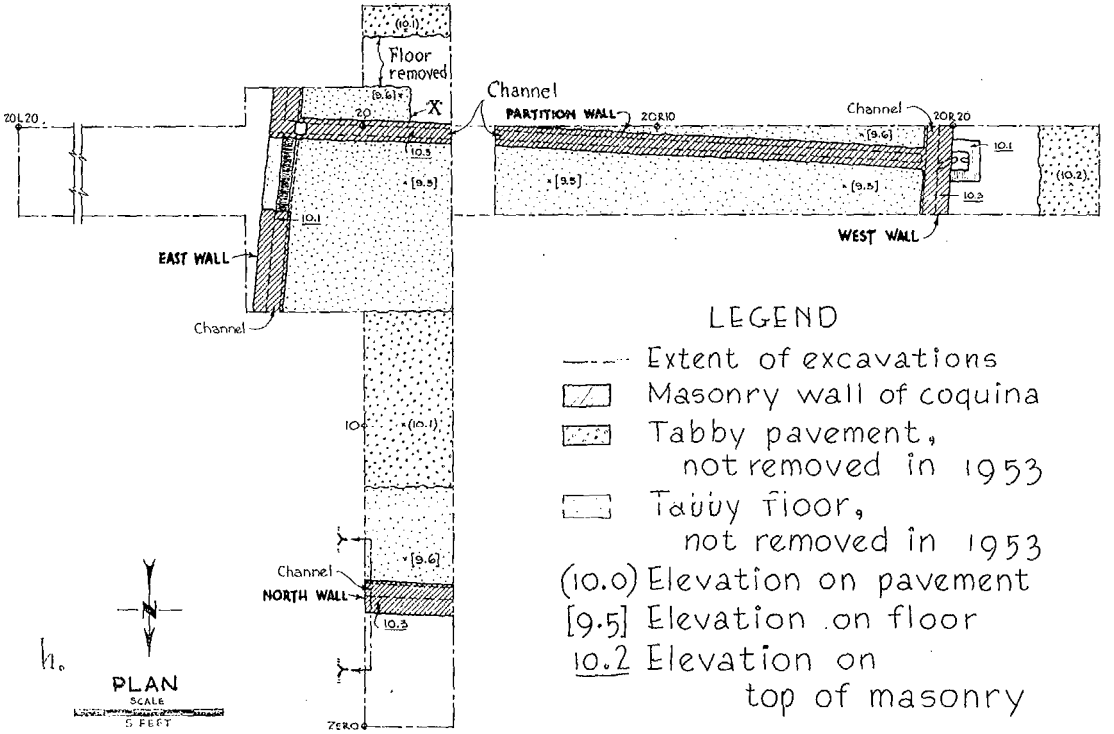

FIGURE 7. *Plan of Trench "A", showing principal features uncovered.*

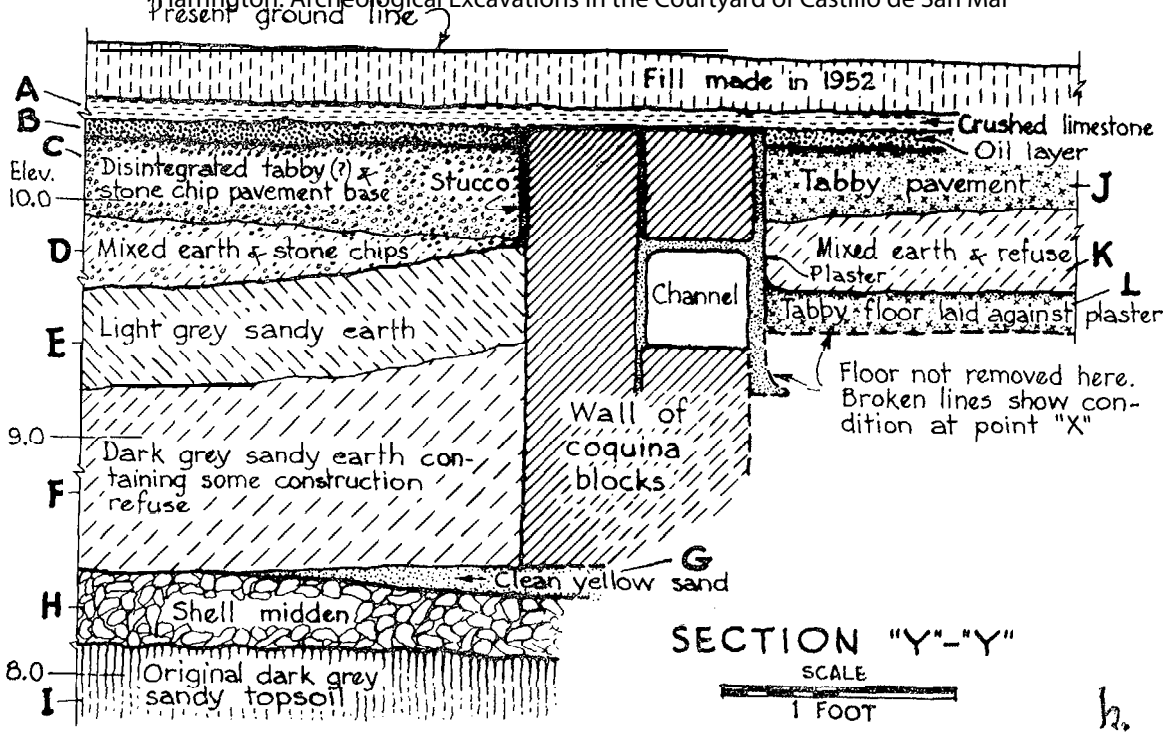

FIGURE 8. *Cross section of Trench "A" at north wall of courtyard structure.*

where the midden was found to be only 3 inches deep. It is possible, however, that some grading was done in connection with the construction of this building and hat the 3-inch deposit here does not represent the full depth of the original deposit. The shell layer lies on typical undisturbed ground, consisting of a dark sandy loam, grading into a natural sandy subsoil.

The midden deposit was made up mostly of oyster and clam shells, mixed with very dark loam. Scattered throughout this deposit were animal and fish bones, with an occasional potsherd. No other Indian artifacts were found, which is not surprising considering the small amount of excavation done in the midden deposit. The Indian pottery from here dates from the St. Johns II period. It could be late prehistoric or early historic in date, but probably is no later than the end of the 16th century.

PRE-1738 STRUCTURE. Due to the very limited excavation and the relatively small portion of the structure uncovered (Plate 3), description of the building and details of its construction must necessarily be limited. Conjecture as to the original appearance of the building is tempting, but would be unsound until more excavating is done.

A small section of each of the three outside walls of the northernmost unit of the early block of buildings was uncovered in Trench "A" (Fig. 7), and a 10-foot section of one wall was exposed in Trench "B" (Fig. 6). The excavation shows the overall width of the structure to have been 23 feet, and except for the length of the building, provides sufficient data to locate it accurately within the courtyard.

PREPARATION OF GROUND PRIOR TO CONSTRUCTION. Apparently the first step in constructing the building, or buildings, within the courtyard was to prepare a level space for the walls on the existing shell midden. Then a 2-inch layer of clean sand (Fig. 8G) was placed on the ground, presumably to provide a well-drained, level surface on which to lay the first course of coquina blocks. This sand bed was found under each of the

walls, and extended out from the building about one foot in each case.

MASONRY WALLS. The outer masonry walls were laid directly on the prepared sand bed, with no special footing, and apparently without a mortar bed. The portions of the three walls of the north unit uncovered in Trench "A" measured from 0.90 to 0.95 of a foot in thickness, exclusive of stucco and plaster. Blocks of coquina, half the thickness of the wall, were used in constructing these walls. Not enough of any wall was uncovered to determine the size of these blocks, but there was some indication that they were around 6 inches high and possibly 2 feet long. Both the vertical and horizontal joints appeared to be quite thin, with typical shell mortar used in all joints. The wall found in the second exploratory trench at the south side of the courtyard was thicker than the walls of the north unit (1.50 feet), but otherwise similar and, like the others, laid on a bed of yellow sand.

The bottom of the north wall, where excavated, was found to be nearly half a foot lower than the bottom of the east wall. The test trench was not carried down to the bottom of the west wall. The bottom of the wall in Trench "B" was nearly half a foot lower than the north wall of the building, a difference which corresponds roughly with the original slope of the ground.

One partition wall (Plate 3b) was found in the first exploratory trench, forming a room at the north end of the structure with inside dimensions of 21.25 feet east to west by 14.67 feet north to south. This partition wall was formed of coquina blocks 0.60 to 0.65 of a foot thick, laid on a relatively thick mortar bed nearly half a foot below the floor of the building, or slightly higher than the bottom of the east wall. It was quite evident that this partition wall was constructed at the same time as the exterior walls, and, although the remains were quite fragmentary, there was no break in it, showing that there had been no communicating doorway between the north room and the next adjoining room to the south.

STUCCO AND PLASTER. Archeological evidence shows that after the outer walls and the partition were built, both the exterior and interior surfaces were stuccoed, or plastered. The interior plaster is around 1/2 inch thick, while the exterior stucco appears to be somewhat thinner. Some filling and grading apparently was completed inside the structure prior to the plastering, in preparation for the tabby floor (Fig. 8L), and the plaster was carried down to the top of this fill, or 4 to 5 inches below the finished floor. The exterior stucco on the north wall (Plate 2) stopped about 2 inches above the floor line, but on the east wall it was about on line with the floor.

It is not possible to say whether the exterior and interior plastering operations were carried on at the same time, but we can say with certainty that the interior plastering was done before the floor was laid. On the outside, some of the backfill along the foundation was placed before the stucco was put on, since building refuse was found in this fill (Fig. 8F), although there was little or no refuse in the final fill material (Fig. 8E) which brought the exterior grade up to the bottom of the stucco. Very likely some preliminary backfilling was done on both sides of the wall after it had been carried up about two or three courses. The final filling operation inside the building brought the grade up in preparation for the finished tabby floor. In the one small section of floor removed in the excavating, two iron nails were found in the fill immediately below the floor. One was clinched at right angles, and one inch from the head, indicating that it had been used in wood of that thickness. This suggests that the final grading under the floor was done relatively late in the course of constructing the building. The final grade on the outside sloped away from the building, and consisted of relatively clean and sandy loam, indicating that it probably was brought in for the purpose from some point outside the shell midden.

"Channels" in the Walls. A most interesting feature is the channel found in each of the walls uncovered in Trench "A"

(Figs. 7, 9-10). There was no channel observed in the section of wall exposed in Trench "B". Because of the limited amount of wall uncovered, and the very poor condition of the masonry, information on these channels is not complete.

There was a fairly thick layer of plaster, or mortar, on the sides and top of the channels, and possibly some mortar at the bottom, leaving a clear space approximately 0.40 of a foot square. The inner surface of this mortar is very smooth and uniform, suggesting that a wooden box, or duct, had originally occupied the space. This is confirmed by the discovery inside the channels of two iron nails with wood still attached along the entire length of the nail. Each of these nails had been driven into the cross grain of the wood at an angle of about 60 degrees with the grain. Examination of the mortar lining reveals no signs of wood grain, indicating that the lumber must have been quite smooth. If a wooden duct were used in these wall channels, as the evidence indicates, it could scarcely have been larger on the inside than 2 1/2 to 3 inches square.

The channel in the north exterior wall was located partly below the floor line, the top of the channel being about 2 inches above the floor. The channel actually occupies the space of one of the stone courses, so its position in relation to the floor may be only coincidental. No openings in the side of the wall along the channel could be detected, but careful examination of longer sections of the walls may reveal something of this sort. One opening was found leading from the channel to the outside, but, with the wood lining gone, we cannot be certain that this opening in the stone wall was an outlet from the duct.

In the partition wall, the bottom of the channel was about level with the floor. It did not open into the channel in the west exterior wall, and, although its relation to the east wall channel is somewhat confused, there is a possibility that it tied into a rather complicated drainage system.

Manucy suggests that the "channels" are evidence of solid wooden members laid into the masonry to facilitate construction.

The convenience of working to a line and level established by a timber, which also furnished the room dimension, would be considerable in those days when spirit levels and measuring tapes were uncommon - and when many apprentice masons had to be trained. Even more likely, Manucy believes, the timbers may have helped support the masonry wall while the mortar in the lower courses was setting properly. Below the ground line, lime mortar hardens very slowly. Similar use of timber framework occurs in Castillo fireplace hoods, which are, however, of much later construction than the building in question.

FLOOR OF BUILDING. A tabby floor (Fig. 8L) approximately 2 inches thick, was laid on the fill between the plastered walls, with its surface finished very smooth and hard. The floor in the north room is approximately level, and quite regular, sloping very slightly to the south. The floor in the second room is about at the same level, or very slightly higher. No floor was found in Trench "B" at the south side of the courtyard, but definite conclusions as to this part of the structure are not warranted in view of the meager evidence at hand.

DOORWAY. What appears to have been an outside entrance was found at the southeast corner of the north room (Plate 4A). The wall channel continues across this opening, but is set slightly lower here than it was in the north wall. There is inconclusive evidence of a wooden threshold in this opening, lying directly on the tabby floor and across the wall channel. If there had been a door here, it would have been quite narrow, for the masonry opening could not have been over 2.5 feet wide. The masonry was in too poor condition, at the joining of the partition and the east wall, to determine whether originally there had been a finished masonry jamb at this point. The most convincing evidence for a door in this location is the fact that the space between the open channel and the exterior face of the wall appears to be a continuation of the tabby floor of the building (See Fig. 9).

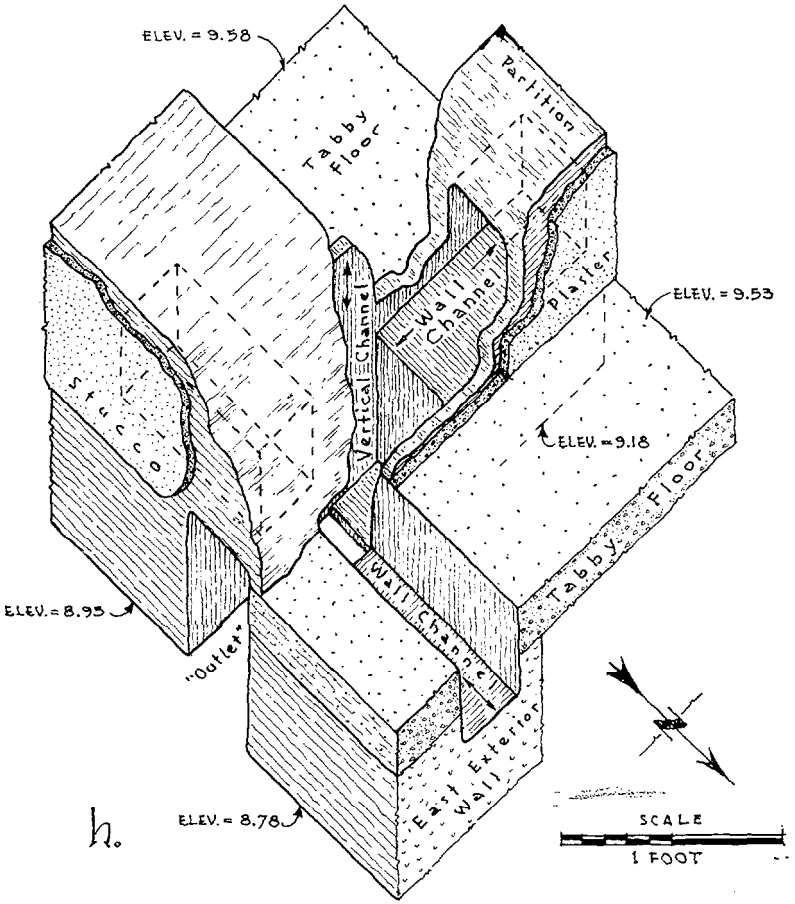

FIGURE 9. *Isometric drawing of "doorway" feature, east end of partition.*

A feature, first thought to be associated with the door, is likewise questionable. This was a vertical hole, 0.35 by 0.37 of a foot, at the east end of the partition wall, tentatively interpreted as the original location of a door post. A thick layer of mortar was found on the east side of this hole, and there may have been a thinner layer on each of the other sides. There was no mortar between this vertical channel and the horizontal wall channel in the exterior wall. The hole extended all the way to the bottom of the outside wall, and there was a layer of mortar at the bottom. If a wooden post had stood here, its purpose

would probably have been to hold the pintles for the door hinges. *

Manucy tends to regard the feature as evidence of a timber used as a plumb line, or as a structural member. On the other hand, the relation of this vertical channel to the horizontal wall channels, and to the opening from the wall channel to the outside (the "outlet" previously mentioned), may indicate a functional connection with a "drainage" system

In any case, there still may have been a door at the corner of the north room. That particular point can only be resolved by examination of the entire ruin. If no other doorway is found, then the present opening must represent the entrance to this room. Comparing this evidence with the contemporary plans helps very little, since, as Manucy points out, some of the early plans show no entrances, and, until the entire structure is uncovered, it will not be possible to relate the portion excavated in 1953 to these old plans.

INEXPLICABLE FEATURE. Probably the most puzzling feature uncovered was the stone block protruding from the outside of the west wall, opposite the end of the partition (Fig. 10 and Plate 4b). This block of coquina, which is bonded into the exterior wall, is 1.3 ft. wide and extends out from the wall roughly 1.0 ft. The finished top is 0.5 ft. above the estimated grade of the 17th century courtyard. In the top of the block is a depression 0.7 ft. square and 0.17 ft. deep; the bottom of the depression is flat. There is a short slot at one side of the bottom of the depression, which may have been used to anchor some sort of a structural member. Of more significance, however, is

* Door posts were common features of 1738-1739 construction at the Castillo. Like a conventional frame, the door posts were set into jamb recesses at each side of the stone doorway. The two vertical jambs were tied together with a lintel at the top. There was evidently no sill. The foot of each post was grouted into a deep mortise in the masonry. Later replacement of the door posts with the conventional frame and sill may indicate trouble with rot or insects, particularly at the foot. However, the feature under discussion is but a single post hole and there is no certain relation between it and door posts of the type described.

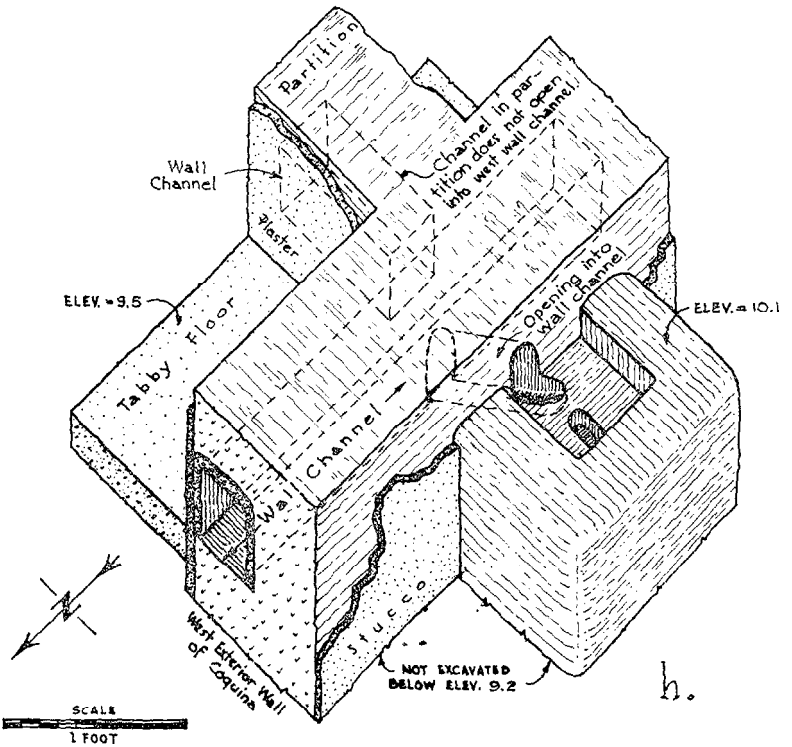

FIGURE 10. *Isometric drawing of masonry features at west end of partition.*

a slot extending from the square depression down to the channel in the exterior wall.

One possible interpretation of this feature is that a rainwater downspout was set in it, although the outlet into the wall channel seems much too small to handle the water that would have come down a downspout of the size indicated by the square depression. Perhaps it is more likely that a structural timber rested in the block. Here again, complete excavation of the entire structure may throw some light on this feature, especially if others of similar design are found.

MORE OF EAST WALL FOUND IN TRENCH "B". The wall found in this test trench, although in line with the east wall of the north unit, shows some structural differences. The coquina masonry is in very poor condition, but the wall, which is 1.50

ft. thick, appears to have been built of blocks cut the full thickness of the wall. The wall in this trench has been demolished to a lower level than those in Trench "A", leaving no trace of the original floor or plastered wall surface. Soil conditions outside the wall, however, are similar to those at the north unit, with the same thin layer of clean sand used under the wall. This suggests that the wall here very likely was built at the same time as the north part of the structure.

An interesting feature in this wall is an 8-inch square hole. This hole is skewed out of line with the wall, although the hole appears to have been built at the same time as the wall. The most plausible explanation is that it represents the original position of a structural timber.

1737 AND AFTER. As mentioned by Manucy, in 1737 the early structure in the courtyard was in ruins, and was probably razed completely when the fort was modernized during the 1738-1739 period. Little is known about the physical history of the courtyard itself during the next two centuries. "Outcroppings" of tabby suggested that at one time there may have been a tabby paving over most of the courtyard. A modern surfacing of crushed and oiled limestone had been laid over the area in the 1920's when the fort was under the jurisdiction of the United States Army. A layer of topsoil and a series of cement-block walks were added by the National Park Service late in 1952. The above inferences and facts were clearly confirmed by the archeological findings.

A thin layer of oiled, road base limestone, roughly 1/2 inch thick, was found in each of the exploratory trenches (Fig. 8B). This stratum lay directly on top of, and discolored the wall ruins in Trench "A". Over the oiled layer was a thin and irregular layer of finely crushed limestone (Fig. 8A), explicable as part of the 1952 construction of the north walk. Surplus limestone, removed from the 1920 surface in grading the walk area, was spread thinly over the northern part of the courtyard.

Next was added the topsoil which brought the grade to the proper elevation for drainage.

Both inside and outside the early structure, a thick tabby paving (Fig. 8C, J) was found directly under the oil layer. This tabby paving was quite irregular, both in thickness and hardness, but on the whole was found to be from 2 to 4 inches thick. Where the original surface was still intact, it was very hard, but did not seem to be as smooth as the earlier building floor. The condition was undoubtedly due to wear over nearly 200 years. In places, where the dense finished surface of the pavement had been removed or had worn away, the remaining tabby had decomposed to the extent that it was little more than loose shells. Near some of the old building walls, for example, the harder coquina stone was found to be actually higher than the eroded tabby paving.

Outside the exterior walls of the original structure, the space between the ground line corresponding with the period of active use of this building, and the later tabby paving, was filled with layers both of pure coquina chips (Fig. 8C) and of mixed chips and grey loam (Fig. 8D). These chips quite obviously came from the working of stone during a major building operation, presumably the modernization project of 1738-39.

Inside the structure, the space between the original floor and the paving was occupied by grey loam (Fig. 8K) containing a small amount of building refuse, including plaster, fragments of roofing tiles, and nails, with an occasional fragment of majolica. The building material found between these two tabby layers obviously came from the early structure, but furnishes very little additional information on the original appearance of this building.

In brief, although the explorations were limited, they showed quite clearly that there had been a tabby paving over most, if not all, of the courtyard. It is assumed that this pavement was laid when the fort was enlarged in 1738-1739, or very

shortly after. There is no documentary or archeological evidence to pinpoint the date of the pavement construction, but the exact date is not of significance. The important thing is that the paving was there when the present rooms of the Castillo were in use. Since any restoration work that might be undertaken at the Castillo courtyard must conform to the 18th century modernization, the tabby paving can properly be used as a basis for establishing levels for the thresholds of casemate entrances and other structural features. Although the present grade slopes down from the north side of the courtyard to the sally port, the tabby paving apparently was nearly level. *

CLASSIFICATION AND ANALYSIS OF ARTIFACTS

Artifacts found in the courtyard excavations were submitted to Dr. Goggin for study. They included a total of 177 potsherds, 1.3 *teja* fragments, and one shell bead. In addition, four fragments of burnt clay and a piece of shell were included. With few exceptions these objects comprised well-known forms typical of the region. For this reason detailed descriptions will not be given of each pottery type, as brief notes with references to more complete data should suffice.

DATING OF ARTIFACT MATERIAL. Specific dates, or periods, can be assigned to each of the various strata in which artifact material was found. There has been some previous discussion of these deposits in reference to their chronology. They will be summarized here for reference in connection with further discussions of cultural material:

1. *Pre-1565 Period.* The material in he shell midden layer, all of which presumably is of Indian origin, would probably date from before 1565 when the Spanish first occupied the site. Some Indian material was also found in higher deposits, but

* The elevation of the top tabby pavement in Trench "A" at a point 10 feet south of the present walk is 10.06; its elevation at the north end at Trench "B'" is 10.00. Elevations are in reference to U.S.C.G.S. marker AEO (on the Castillo seawall), which was given an assumed elevation of 10.00. Actual elevation of this marker is 10.25 feet.

it probably got there in the course of grading and filling when the 1672 structure was being built.

2. *1565 to 1672 Period.* Any cultural material of European origin found directly on the midden would presumably date from this period.

3. *1672 to 1675 Period.* Since part, if not all, of the courtyard structure under consideration was probably built during this 3-year period, any objects of Spanish origin found in the outside fill deposited when the building was being built, and any objects from the inside fill below the building floor, can be assigned to this period, at least as to date of deposition.

4. *c. 1685 to 1738 Period.* Any material sealed between the building floor and the tabby paving must have been deposited there after the building was abandoned, which could have been as early as 1681. As Manucy points out, the courtyard buildings were in use in 1680, but were not mentioned in the 1686 document describing the fort in some detail. In 1737 the buildings were in ruins, and presumably the tabby pavement was laid during the 1738-39 remodelling period.

5. *1672 to 1738 Period.* Material of Spanish origin from the deposits lying above the 1672-75 grade outside of the walls of the building must be assigned to a longer period than that found on the building floor. Both the coquina chips and the tabby paving, however, set a terminal date for these deposits at 1738-39. Indian material in these layers could be earlier, but could not be later than this date.

6. *Post 1738-39 Period.* Since there was no fill of any consequence above the tabby pavement, no objects dating from after 1738-39 can be expected. As a matter of fact, only one object was found on the pavement during the 1953 excavating. This was an iron spike (C-11). When more extensive explorations are carried on, however, careful attention should be given to any features cutting through the tabby pavement as possible sources of material dating from the post-pavement period.

INDIAN MATERIAL. As previously stated, the few objects of Indian origin are all potsherds, mostly from the midden deposit, and are described later in this report. The appearance of "trade" material at this site is to be expected in view of the historical record. St. Augustine was a political center where various Indian delegations were received from time to time. More important in the present study, however, was the presence of Indian labor here from Apalache, Timucua and later from Guale, during the 1650-1680 period. Their tasks included work on the fortifications. Since the western wall of the Castillo overlapped the site of an older wooden fort, our site was definitely subject to the presence of these tribes during at least the period mentioned.

PRE-1738 MATERIAL. Material from the period before the major renovation is also relatively scarce but it does include a few fragments of majolica and of the typical olive jar earthenware. The majolica falls into two groups, one from the late 17th century and the other from the 18th century. Spanish olive jar sherds are dateable only in a broad range of late 16th to late 18th centuries, and the specimens are too small to indicate anything as to size or shape of the original vessels.

Other material of European origin found in the pre-1738 zones consists of building refuse, presumably from the courtyard structure. These include fragments of plaster and roofing tiles, and a few nails and spikes. They are too scarce and too fragmentary to tell us much about the original building. The tile fragments, 5/8-inch thick, are apparently from typical curved "pantiles". One measurable fragment has an outside radius of approximately 3 inches.

CERAMICS. Before considering the meaning of the excavated specimens we can briefly discuss the pottery and its implications. We will present accepted dates for this material, but subsequently analyze it in terms of data from this site.

St. Johns Series. This group of pottery is characterized by a soft, temperless, chalky paste. Types include St. Johns Plain, St. Johns Check Stamped (Goggin, 1952, 101-2), and St. Johns Scored (Griffin and Smith, 1949, 348). The first is of little temporal diagnostic value, ranging for perhaps some 2000 years until the 18th century A.D. The last two types are relatively late; that is, St. Johns II period and later, or from about 1150 A.D. well into historic times. The precise terminal date is uncertain but was apparently early in the 18th century.

San Marcos Series. This group comprises plain, painted, and stamped types of a coarse paste ware, variously tempered with quartz and/or limestone, which, when decorated, is marked with paddle stamping. Designs are most commonly simple stamping but include other motifs. Some temporal differences are apparently present in these stamped motifs (Smith, 1948).

The series apparently developed by or before 1600 A.D. on the Georgia coast, and occasional trade sherds may have reached the St. Augustine area soon after. However, it was not until about 1650 that this pottery appeared here in any quantity - from then until about 1725 it apparently gained in importance, becoming the dominant ware.

Sherd-tempered pottery. This distinctive ware, found here both plain and check-stamped, is apparently trade material from coastal Georgia. Its date is not precisely known. However, in the writer's experience it dates *circa* 1500-1625 in Florida, and perhaps a little earlier.

Grit-tempered pottery. This undistinguished ware is poorly known and as yet has no diagnostic value.

Mission Red Filmed. This is an historic type (Smith, 1948) widely but sparsely distributed in northern Florida and southern Georgia. It appears to date from the 17th century.

Spanish majolica. Majolica is a soft earthenware with an opaque enamel surface. All forms found here - San Luis Blue on White, Puebla Blue on White, Aranama Polychrome, and un-

classified green on white - were made in Mexico. The last three forms date from the 18th century, while the first was made in the middle to last half of the 17th century (Goggin MSa).

Spanish Olive Jar. These large shipping vessels for wine and oil are represented by a number of sherds. All that can be precisely identified are of the "middle variety" dating from *circa* 1575 to *circa* 1750 (Goggin MSb).

Miscellaneous Spanish Pottery. Two distinctive sherds, which are undoubtedly Spanish, are in the sample. One is a fine-textured cream-colored earthenware, the other a green-glazed earthenware. Neither can be dated.

Mexican Redware. Two sherds of well-polished redware were probably made in Mexico. They cannot be dated as the general form is found far back in prehistoric times and continues until the present.

Burnt sherds. These Indian sherds of several types exhibit evidences of great heat such as a bright terracotta color or overall surface glaze. They frequently have mortar adhering to them. They were apparently present in aboriginal shell deposits which were burnt for lime to make mortar. *

Tejas. The convex, tapered, roofing tile or *teja* was a favorite in Spanish construction. These were probably made locally, since there was a manufactory for brick and tile in St. Augustine *(Justis, 1737).*

ARTIFACTS ANALYSIS. For purposes of study, the material recovered by Harrington is considered in a series of analysis units from different parts of the excavations. These consist of one or more numbered groups as segregated in the excavation.

Unit 1. This stratified unit includes the northernmost section of Trench A (Figure 7). It lies just outside the building wall and is one of the deepest cross-sections made in the excavations. As can be seen (Figure 8) a series of 8 stratigraphic

* Apparently the best quality of lime was made by the Spaniards in the New World by burning coral. The second best, and most favored outside the natural range of coral, was made by burning shell.

levels (called A to I respectively) were distinguished. Pottery or other objects were found in four of these, E to H respectively (Table 1). The distribution of the pottery is striking and interesting. Layer H, comprising the Indian midden layer, includes only St. Johns Series pottery. It is certainly prehistoric or early historic, *i.e.*, 16th century in date. The chalky ware includes a single specimen with an undetermined decoration, apparently punctation, stamping, or roulleting.

The potsherds from layers E and F were deposited after the building was constructed and represent pottery types dating post-1650 for the St. Augustine area.

Unit 2. This comprises artifact groups 3, 5, 12, 16, and 19 from the sealed deposit within the structure, level K, between the original floor, level L, and the 1738 tabby paving, level J (Figure 8). Indian pottery includes San Marcos forms, which would date its deposition after 1650. The majolica probably dates both before 1700 (San Luis Blue on White) and after 1700 (Puebla Blue on White). Olive jar and Mexican Redware sherds cannot be as precisely dated. The burnt sherds and *teja* fragments represent building refuse from some stage of use or abandonment of the structure.

Unit 3. Artifact groups 7, 8, and 27 comprise this unit. They come from three levels in the eastern lateral of Trench A (Figure 7) which form the fill between the original Indian midden and the stone chips underlying the oiled paving. They correspond to levels D, E, and F in Unit 1. Although three stratigraphic levels are present, Harrington assumes they were deposited at one time, presumably soon after the building was constructed.

The artifacts support this supposition. No significant difference is seen between the three levels in terms of pottery (Table 3). Like the D-F level group in Unit 1, this unit is post-1650 in date. However, the quantity of *teja* fragments suggests roofing repairs which would presumably have taken place some time after the original building.

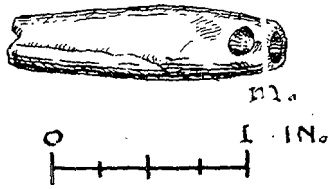

FIGURE 11. *Indian shell bead (Specimen C-22). Note the diagonal perforations.*

An unusual shell bead came from this lateral. It is tubular in form, slightly swelling in the middle and is 1 1/4 inches long by 3/8 inches in diameter. Instead of a longitudinal perforation it has diagonal corner perforations (Figure 11).

Unit 4. This includes three groups of artifacts from Trench B. Group 4 is from west of foundation wall and below paving, group 6 was in the shell-loam deposit along east side of wall, and group 9 was just below the 18th century tabby paving east of wall. Harrington felt there could be some slight differences between the date of these units, but they were substantially the same, post-dating the building construction but before the tabby pavement was laid down.

Two of the samples, groups 4 and 6, are too small for statistical validity; however, they appear to be basically similar to the third and larger series, group 9 (Table 4).

Unit 5. This unit comprises a single small sample, group 31, which came from fill in a pit just east of the structure. It predates the tabby pavement. Included in the sample are 5 St. Johns Plain, 1 San Marcos Stamped, and 2 burnt sherds, as well as 2 *teja* fragments and an unworked columella of a *Fasciolaria gigantea* conch.

ANALYTICAL CONCLUSIONS. The potsherds from the courtyard excavations at the Castillo de San Marcos fall into two distinct complexes. The first, represented by a single group (number 18), comes from the Indian midden area, the lowest cultural remains in the excavations. It is characterized only by St. Johns Series pottery and is typical of the St. Johns II period.

From what division in that period it dates cannot be determined; it could be completely prehistoric, or possibly early historic. In such a small sample the lack of historic European sherds is not diagnostic in view of their relative scarcity in 16th century Florida sites.

The balance of the material forms a second complex, which dates from the St. Augustine period, or approximately 1650 to 1725. In addition to the same chalky ware pottery (St. Johns Series) of the earlier period, it includes, as a majority, types of the San Marcos Series as well as Spanish olive jar, Spanish

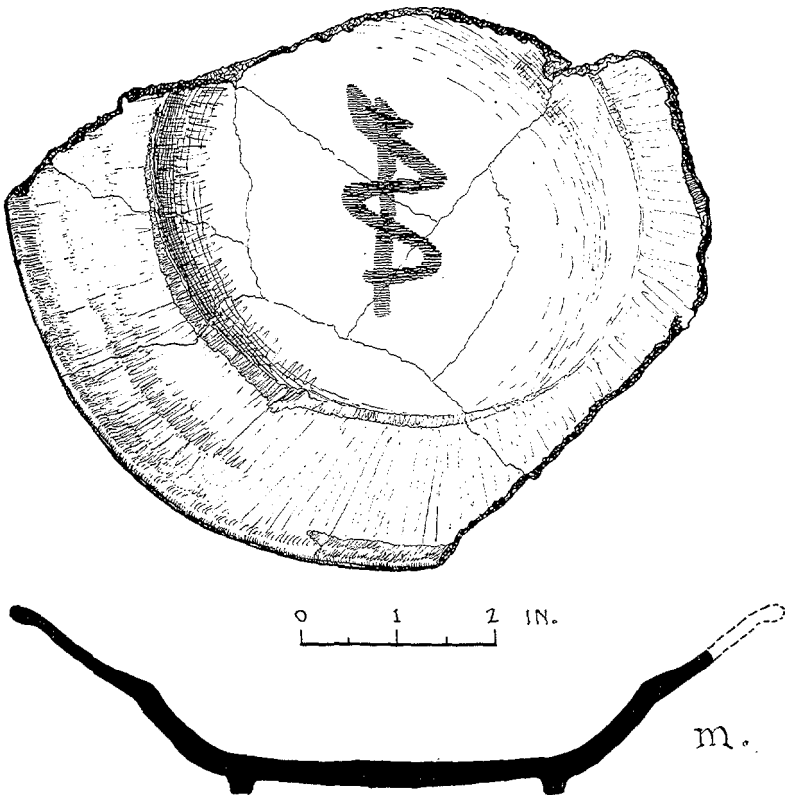

FIGURE 12. *Spanish Majolica dish (Specimen C-52). Significance of the green caducean-like symbol is not known.*

majolica and, less commonly, other Spanish forms. The general 1650-1725 date for the Indian pottery equates well with Harrington's dates for the areas from which the samples came; that is, 1672-1738 and 1685-1738.

The presence of Spanish majolica in several of the sherd groups enables us to be more precise in dating the deposition, as two of the named types, Puebla Blue on White and Aranama Polychrome, have 1700 or post-1700 dates. Thus group 5 (Unit 2), group 27 (Unit 3), and group 9 (Unit 4) were probably deposited in whole or part near or after 1700.

Previously Harrington suggested periods of artifact deposition for the courtyard area. Two of these we have just considered; the others can be noted. His first time period, pre-1565, is most likely represented by the St. Johns II material from the underlying midden. The second period, 1565 to 1672, could be in part represented by the same material, but it is not probable. The third period, 1672-1675, may be represented by the material from layers E and F (group 13, Unit 1). This is early St. Augustine period. The next two periods have a ready been considered and the final one, post-1738, is not represented.

SUMMARY

PURPOSE OF PROJECT. Major purpose of the exploration was to discover the elevation and character of the Castillo courtyard during Spanish occupation, especially about 1740, which is the high point in the fort story.

HISTORY. In 1675, while the Castillo was under construction, two temporary buildings were erected in the center of the courtyard: a semicircular powder magazine, and a rectangular structure of several rooms which became a provision depot, armory, guardroom and quarters. The latter building was in use until 1680 or later, and may be part of an L-shaped edifice designated as a "ruined house" and razed in 1737. In 1738-1739 major changes occurred. Seventeenth century rooms around

the perimeter of the courtyard were replaced with the large, massively-arched rooms standing today.

ARCHEOLOGY. Two small trenches were dug at the known site of central structures in the courtyard. Three significant levels of occupation were discovered. 1) prehistoric Indian midden, 2) 1675 building ruins, and 3) masonry pavement of the 1740 period.

The excavation revealed several masonry walls and floors which are part of the 1675 building. North, east and west walls were precisely located, but comprehensive excavation of the entire structure was not attempted. Numerous constructional details were revealed, a few of which were puzzling.

From the information available, including the contemporary plans, we can visualize a low, one-storied, white-stuccoed structure. It had a gabled roof of red tile, perhaps three doorways, but was void of windows. Inside, the walls were plastered. There were smooth tabby floors.

Stone chippings from the new work in 1738-1739 were used as a base for a new tabby pavement over the entire courtyard, raising the grade of the area about 6 inches above its previous elevation. The building ruins in the center of the courtyard were leveled to, and probably covered by, the new pavement. Beneath the present turf and walkways, this pavement still exists in fair to poor condition.

ARTIFACTS. Numerous historic objects, including exhibitable specimens, were recovered. They reveal two distinct complexes: 1) prehistoric Indian (-1565?), typical of the St. Johns II period; and 2) St. Augustine period (c. 1650-1725), which includes both aboriginal and European materials. Considerable stratigraphic data came from the trenches. Much of the occupational evidence from about 1672 to 1738 is separable into sharply dateable deposits.

USEFUL DATA. The excavation furnished data on 16th-18th century site levels, and on 17th and 18th century building con-

struction - data which are necessary for enlightened historical interpretation (including restorations) of the Castillo. The levels of occupation are specifically dateable and are therefore of unusual importance in the chronology of Florida archeology.

The project was a productive example of historical-archeological collaboration. Also, field experience gained will help to plan future work at this site.

A remarkable accumulation of information came from this small project. All objectives were achieved and considerable additional data were secured, such as normally would be expected only from a major excavation. Not the least of the profits from the project was the "show" put on for thousands of visitors who watched the work, asked countless questions, and went on their way possibly a little confused about the history of the fort, but certainly thrilled and impressed after a firsthand glimpse into the past.

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TABLE 1. ANALYSIS UNIT 1

Level	Group	St. Johns Plain	St. Johns Scored	St. Johns Check Stamped	Decorated Chalky Ware	San Marcos Plain	San Marcos Stamped	Burnt Clay Fragments
A–D								
E–F	C–13	2				1	5	
G	C–17		1	5	1			1
H	C–18	2						1
I								

TABLE 2. ANALYSIS UNIT 2

Group	St. Johns Check Stamped	St. Johns Scored	San Marcos Plain	San Marcos Stamped	Unclassified Grit-tempered Ware	Burnt Sherd	Pueblo Blue on White	San Luis Blue on White	Olive Jar	Mexican Redware	Tejas	Total
C–3	1			7	1						1	10
C–5							1		3	2	2	8
C–12		1	1	3		1			1			6
C–16				2		1						4
C–19	1		1	2		1		1	5	2	3	6
Total	2	1	2	14	1	2	1	1				34

TABLE 3. ANALYSIS UNIT 3

Group	St. Johns Plain	St. Johns Check Stamped	San Marcos Stamped	San Marcos Plain	Mission Red Filmed	Sherd-tempered, Plain	Sherd-tempered, Check Stamped	Grit-tempered, Notched Rim	Aranama Polychrome	Green-glazed Spanish Earthenware	Fine Paste Cream Spanish Earthenware	Olive Jar	Burnt Sherds	Total	Burnt Clay Fragments	Teja
C–27	2	...	4	2	1	...	...	1	1	1	...	3	...	15	...	5
C–8	2	6	7	...	...	1	1	...	...	...	1	2	2	22	...	5
C–7	3	6	9	...	...	...	...	...	...	...	...	2	2	22	1	3
Total	7	12	20	2	1	1	1	1	1	1	1	7	4	59	1	13

TABLE 4. ANALYSIS UNIT 4

Group	St. Johns Plain	St. Johns Check Stamped	San Marcos Plain	San Marcos Stamped	Unclassified Red on Buff	Mission Red Filmed	Grit-tempered Plain	Puebla Blue on White	Unclassified Green on White Majolica	Total	Teja
C–9	1	7	...	26	5	2	1	7	1	50	...
C–6	...	2	...	3	...	...	...	...	...	5	...
C–4	...	1	2	3	...	...	...	...	...	6	1
Total	1	0	2	32	5	2	1	7	1	61	1