

Middle Caicos Earthwatch Report, 2000

William F. Keegan, PI

Curator of Caribbean Archaeology

Florida Museum of Natural History

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Bambarra, Middle Caicos, Turks and Caicos Islands, B.W.I.

10 Earthwatch Volunteers

Assistants: Dennis Kendrick, Sharyn Jones O'Day, Lee Roth, Pete Sinelli, Rubén Torres, and Brian Riggs

Highlights

I have always prided myself on being able to teach inexperienced volunteers the proper techniques of archaeological excavation. Although learning the theories, strategies, and means for answering questions about the past requires years of study, the techniques that we employ to address these issues are actually quite straightforward. Every dig requires different techniques, and even during the course of a single dig the strategies and methods can change abruptly. Working at MC-6, we had fairly quickly excavated a large area adjacent to what Shaun Sullivan had concluded was the "Chief's House." We had been working quickly and in relatively large 2 by 2 meter units, when I realized that we were excavating an undisturbed deposit and that we needed to slow down and more carefully plot the artifacts that were being recovered. Team 2 rose to the occasion. With great excitement, at least on my part, Eve Horner carefully removed a centimeter of soil to expose a small worked piece of conch shell. At less than an inch in length it was remarkable that such a piece was exposed during the excavation and was not simply found in the screen. This small piece of cone-shaped conch shell with a concave base and groove near the bottom may be the first three-pointer found in the Turks and Caicos. Three-pointers were made of stone, coral, and shell. They are triangular in shape and represent the chief Taino diety, Yocahu. Yocahu is the "giver of manioc" (cassava) which was the staple crop of the Tainos.

A wide variety of other important artifacts were also recovered.



Earthwatch Team 2 in the afterglow of dinner at our field station.
Photo by Eve Horner.

Adornos, clay faces that were affixed to the side of pots; imported pottery that can be studied to determine where it originated in the Greater Antilles; a substantial quantity of bones (mostly fishes) that will allow us to reconstruct diet and resource use at the sites; and a workshop area at MC-32 at which olive shell pendants were apparently being manufactured. All of these provide important clues to the lifeways of the people who lived on Middle Caicos between 500 and 1000 years ago. Yet one of the most important finds of the entire dig was nothing. Team 1, especially Judith Jeffcoat and Jill Paley, excavated in the area that Sullivan thought was the place where the commoners lived. For two days they hiked the 3.5 miles to MC-6 and then found nothing. There were virtually no artifacts in the extensive area that was carefully excavated with the soil passed through $\frac{1}{4}$ mesh sieves. And while the work was at times hot and boring, the fact that so little was found tells us more about the site than would 100 pounds of potsherds. It now appears that the so-called "commoner" area was never settled and may have actually been a garden. Here is a case where we truly encountered "Much Ado About Nothing" (apologies to Shakespeare).

Our four weeks on Middle Caicos provided important new insights into Lucayan and Taino culture, while at the same time raising as many questions as we answered. As a result of the work our interpretations are more sophisticated and new directions of research have been opened. Objectives The major objective of this project was to study how three contemporaneous prehistoric Lucayan Taino villages interacted with each other. The plan was to excavate two of these village sites (MC-6 and MC-32). The third site, MC-12, has been destroyed by road and house construction. New excavations at MC-12 are not planned, and field notes and artifacts from previous excavations at MC-12 will allow us to make comparisons with this site.

This research has developed out of the PI's interests in social organization and the development of complex societies. In 1989, Morgan Machlachlan (a social anthropologist at the University of South Carolina) and I proposed that the Tainos practiced matrilineal kinship and avunculocal residence. We concluded that the pairing of settlements in the Bahamas and Turks and Caicos, and the two plaza sites on Middle Caicos (MC-6 and MC-12), reflected the development of chiefdoms as constrained by avunculocal residence patterns. Their paper was awarded the Morton H. Fried Prize by the American Anthropological Society for the best paper on general anthropology published in the *American Anthropologist* that year. The research being conducted on Middle Caicos reflects the PI's efforts to refine and further develop these arguments, especially as they relate to the question of what happens as a community grows too large and then fissions into smaller units?

The best example of such growth and division comes from the north coast of Middle Caicos where three sites, MC-12 and MC-32 near the present-day community of Bambarra and site MC-36 near present-day Conch Bar, appear to reflect this process. MC-12 was occupied first. The oldest radiocarbon date for the site is cal AD 1040. Two other radiocarbon dates of cal AD 1230-1256 and 1282, and the presence of both Meillacan and Chican potteries, indicate that the site was occupied continuously for a long time. MC-32 is located about one mile to the east of MC-12 and contains only Chican pottery, including a bat-head adorno recovered from the deepest part of the deposit. A radiocarbon date from the deepest part of the site yielded a date of cal AD 1284. It is likely that MC-32 was a smaller sister village of MC-12 forming a settlement pair. In contrast, MC-36, which is radiocarbon dated to the same date as MC-32 (cal AD 1280) is about six miles away. One explanation for these circumstances is that following an extended period of population growth at MC-12 the community split three ways. Some members of the community remained at MC-12, a second group moved nearby to MC-32 where they maintained their alliance with MC-12, but a third group moved a considerable distance to the west where they established MC-36.

The excavations at MC-32 focused on recovering local and imported pottery, shell jewelry and tools, stone artifacts, and food remains. The analysis of these materials will reveal the degree to which these villages shared a material culture. By material culture I mean the objects that reflect their way of life. For example, was the locally made pottery all made in the same ways (e.g., same clay sources, same kinds and quantities of aplastic inclusions)? Were the same shaped vessels used? Were these decorated in similar ways? Is there evidence that the pots were exchanged between villages? The same questions can be asked of imported pottery and other materials (hard stone) as well. In what ways are the materials in these villages similar and in what ways are they different? We also hope to collect information on how the village was organized with regard to structures and open spaces.

Although we asked similar questions of the material remains excavated at MC-6, there were additional goals for this site. The site was the focus of Shaun Sullivan's (1981) doctoral dissertation. Sullivan developed a wide range of conclusions concerning the site's organization and the activities undertaken at the site. Most of his conclusions were based on surface collections, very few excavations were made. Our efforts were directed toward testing Sullivan's conclusions by excavating the deposits in critical parts of the site. The main interest concerned the structure and function of Plaza II. Was this, as Sullivan suggested, the place where the common people lived? What similarities or differences would we find between Plaza I (where the elites lived) and Plaza II? The second area of interest was the "Chief's house." We investigated the deposits in this area to try to determine what purpose(s) this structure served.

Finally, Lee Roth, a Master's student at the University of Calgary, joined the expedition for Team 2. Lee conducted soils analysis at MC-6 and MC-32 for the purpose of determining whether different activity areas in the site could be identified from differences in the soil. In addition to the regular components of the project. Pete Sinelli, a graduate student at the University of Florida, initiated his Master's research at this time. Pete is investigating two additional sites on Middle Caicos (MC-8 and MC-10) which are on the south coast near MC-6. Because these sites appear to have earlier materials than MC-6, the major objective here is to determine whether they do represent earlier settlements and whether they are related, perhaps as parent communities, to MC-6.

Overview of MC-6 (based on Shaun Sullivan's work)

MC-6 was first reported by Theodoor de Booy in 1912. It was the focus of Shaun Sullivan's research in the late 1970s and early 1980s (Sullivan 1981). I worked with Sullivan there in 1978 and 1982, and made a brief visit to the site in 1993. MC-6 is located on the south coast of Middle Caicos on the first permanently dry land above a 6-km wide salina. The salina, a seasonally flooded mud flat, is today only 25 cm above sea level. Recent geological studies indicate that sea level was up to 50 cm higher in 1492, which means that canoes could have been paddled right up to the site when it was occupied. The one radiocarbon date for the site is AD 1437 ± 70. Sullivan collected almost 30,000 potsherds from the surface of the site. About 90% of the sherds are locally made shell-tempered Palmetto ware. The remainder are predominantly in the Chican style, which post-date AD 1200 on the north coast of Hispaniola.

MC-6 has a two-plaza community plan that is typical of Classic Taino settlements in the Greater Antilles. The site measures 270 meters long by 70 meters wide, the margins of which are defined by midden ridges that are punctuated by pit features with low limerock walls. Sullivan interpreted these features as semi-pit houses. However, because these features are less than 5 meters in diameter I was always uncomfortable with this interpretation.



Earthwatch volunteers excavating the "Chief's House" at MC-6.
Photo by Eve Horner.

During our 1999 Earthwatch expedition to the site I proposed that a more likely interpretation is that they were storage structures and that houses were located nearby. We excavated near structure 2 in the hopes of finding evidence for a larger structure made of perishable materials. Although we did not find evidence for such structures, a third interpretation came to mind. If Plaza 1 is indeed the precinct of a cacique and other elites, then the small structures may be houses that were occupied by the wives and children of the cacique. Taino caciques had many wives from arranged marriages that served to cement alliances between the cacique's lineage and those of his allies. It was just this situation that made it possible for Caonabo to move from Middle Caicos into a leadership role in Hispaniola. The midden deposits (which are trash accumulations) are arranged around the two plazas. The western plaza, called Plaza 1, is larger and contains the pit features, while the eastern plaza, Plaza 2, is smaller and less distinctive. A road that leads to Armstrong Pond originates from the edge of Plaza 1 at the center of which is a level court (more about the court in a moment).

The quality of the artifacts found on the two plazas varies in ways that reflect the hierarchical organization of Taino society. Plaza 1 has far more imported potsherds and jewelry than does Plaza 2. A further distinction can be made between the north and south sides of Plaza 1. There is a structure located at the end of the court at the conjunction of the two plazas. This structure has been interpreted as the cacique's house due to its larger size and two-chamber floor plan. Moreover, despite its central location, an embankment of materials physically connects the house to the south side of the plaza. Artifacts from the south side are superior in quality to those on the north. The community plan and distribution of artifacts apparently reflects the division of the community into elite and commoner lineages.

Sullivan concluded that M-6 was a gateway community through which goods from the Bahamas were exported to the Greater Antilles. It is possible that the site was founded by entrepreneurs from Hispaniola who sought to control trade through the southern Bahamas. Among the items exported were cotton balls, parrot feathers, and marine animals (e.g., fishes, conchs, turtles, etc.). The main contribution from MC-6 was solar-distilled salt. MC-6 is situated to control access to Armstrong Pond. The site is connected to the pond by an aboriginal road, along which there is a two-chambered structure. Armstrong Pond is important because it produces substantial quantities of crystalline salt during the summer months. To gain a sense of how much salt could be harvested, Sullivan had his 16-person crew collect salt for 15 minutes during the height of the dry season in July 1977. Their labors produced 120 gallons of salt, weighing more than half of a ton (542 kg). Crystalline salt is an important nutritional supplement in tropical agrarian diets, and for the Tainos it must have been of crucial importance for preserving ("salting") fish and other meats for storage and transportation to inland communities in Hispaniola.

The stone-lined court is a remarkable piece of engineering. The court is virtually flat exhibiting only 10 cm of grade despite 500 years of weathering. The northern and southern margins of the court are flanked by double rows of undressed limestone that are incorporated into earthen ridges. These ridges appear to be the by-product of leveling the court. The long east-west axis measures about 31 meters. Where the stones stop at the eastern and western ends, the court is about 15 meters wide. Those edge markers, combined with the discovery of a stone at the center of the court with a ball-size depression, led Sullivan to propose initially that this was a ball court. A ball game, more akin to soccer than the Mesoamerican game, was played throughout the Classic Taino world as a means for divining the future and making important decisions. One Spaniard noted that his life hung in the balance over the outcome of a game played in Hispaniola shortly after contact. When first discovered it was assumed that the rows of single stones were parallel, but a detailed topographic map showed that the double rows of stones bow proportionately along their course. At its widest the court measures 19 meters; at either end it is about 15 meters wide.

The rest of the settlement is organized around the structure of the court. Sullivan found that when a transit was centered over the central stone and then pointed at a house mound on the periphery of the plaza, by turning the transit in the exact opposite direction (180 degrees) the line usually intersected a complimentary house mound on the other side of the plaza. Two structures were precisely reciprocal in a special sense. Both have prominent high points on the side toward the plaza. When the transit was centered on the mid-point of one of the structural prominences and flipped it precisely bisected the prominence of the reciprocal structure. The prominences are composed primarily of stone and were not structurally integral to the houses to which they are attached. Their

original function is not clear, but they seem to have been used for some manner of sight alignments.

Although rituals, games, and dances were likely played out on this court, the court also served as a direct link to the supernatural both as a calendar that recorded the passage of seasons and as an observatory that identified the location of important astrological events. The main alignment through the center of the court conforms to the rising and setting sun on the summer solstice, an event that Sullivan observed firsthand in 1981. Sullivan also discovered a number of other alignments with the rising and setting of stars that are significant in Native American astronomical calendars. Of special note are alignments with the rising and setting positions of Betelgeuse, one of the principal stars in the constellation Orion, which according to Professor Antonio Stevens-Arroyo (1989) has a central place in Taino mythology. Sullivan also identified alignments with the rising positions of Altair, Procyon, and Vega, and the setting position of Formalhaut. Although the significance of these stars has not been investigated, they are components of other pre-Columbian observatories.

MC-6 has the only known ball court/observatory in the Bahama archipelago. Combined with the large quantity of pottery and other materials imported from the Greater Antilles, the Classic Taino plan of the community, and the cacique's house at the end of the main plaza, MC-6 is a unique and extremely important location for the study of pre-Columbian cultural development in the northern West Indies. It also may be the site from which Caonabo, the most powerful of the Taino caciques at the time of European contact, launched his rise to power.

On Christmas morning 1492, the Santa María ran aground and sank in the vicinity of present-day Cap Haïtien, in the Taino province of Marien, which was ruled by a cacique named Guacanagarí. On learning of the wreck Guacanagarí wept openly and he sent weeping relations to console Columbus throughout the night. Afraid to risk the Niña in salvaging the Santa María, Columbus enlisted Guacanagarí's assistance. The Tainos recovered everything, including planks and nails, and assembled the materials on the beach. They were so thorough that not a single "agujeta" (lace-end or needle) was misplaced. Columbus took the sinking of the Santa María as a sign from God that he should build a fort in this location. Guacanagarí gave Columbus two large houses to use, and, with the assistance of his people, the Spaniards began construction of a fort, tower, and moat in the cacique's village using the timbers and other materials salvaged from the Santa María. Because the Niña could not accommodate all of the sailors, thirty-nine men were left at La Navidad with instructions to exchange and trade for gold. When Columbus returned to La Navidad with the Grand Fleet on November 28, 1493, he learned that all of the Christians were dead and that La Navidad had been burned to the ground. Recent evidence of the conflagration has come from the work of archaeologist Kathleen Deagan of the Florida Museum of Natural History. In addition to a

handful of objects of European origin and the bones of Old World rats and pigs, research at the archaeological site believed to be La Navidad has uncovered mineral-encrusted potsherds that could only have formed at temperatures greater than 1400°C. Thus, the inferno was so intense the wattle-and-daub structures acted like kilns.

History records that the Spaniards were killed because they abused the local people. Yet, if such local violations were the cause, then the local leader, Guacanagarí, should have ordered the killing. In the end, Columbus did not blame Guacanagarí. In fact, they remained close friends, and Guacanagarí contributed warriors to the army that Columbus fielded against the Taino villages in the Vega Real. Blame for the destruction of La Navidad fell instead upon Caonabo, the principal cacique (matunherí) for this region and the ruler to whom Guacanagarí owed fealty. It is clear from these events that Guacanagarí tried to use the Spanish to advance his status and position. Had Caonabo allowed Guacanagarí to harbor a well-armed garrison of Europeans his own survival would have been threatened. His only recourse was to eliminate the threat. Columbus's sons Ferdinand wrote that when Caonabo was captured he admitted to killing twenty of the men at La Navidad. Caonabo was sent to Spain to stand trial, and was never heard from again.

Caonabo is of special interest to us because Las Casas reported that he was a Lucayan, stating specifically that he came from an island in the Bahama archipelago. In 1492, Caonabo was viewed by the Spanish as the principal Taino cacique. Perhaps the only Taino leader worthy of the title *guamiquina*, which meant "lord, supreme ruler of all things, and chiefest of all divinities." He ruled the cacicazgo of Maguana in central Hispaniola, and was allied through marriage with Behechchio, the ruler of Jaraguá. Between them they controlled most of Hispaniola including the gold fields and richest agricultural lands. But how was it possible that a man from the Bahamas became the most important leader of the Tainos in Hispaniola? If Las Casas was correct, Caonabo could only have achieved such status if his mother was from a chiefly family in Hispaniola, who was married to a very powerful cacique in the Lucayan islands. Then, when Caonabo reached adolescence he left his parent's village in the Bahamas and went to live with his uncle, a cacique in the Maguana province. He must have had tremendous personal leadership qualities that made him the consummate entrepreneur and positioned him to succeed his uncle as cacique. Moreover, his reputation suggests that he successfully expanded the territory and power of his cacicazgo. Looking back to the Bahamas, the only settlement that is of sufficient size and importance to have launched such a career is MC-6, the ceremonial/trading center on Middle Caicos.

Volunteer Tasks and Accomplishments

Volunteers were involved in all aspects of the research. They undertook most of the work at the sites carefully excavating the

buried deposits. Because the teams were small, volunteers worked mostly as excavators, although the option of helping on the screen was always available. The sites were excavated using trowels, finer digging tools (including dental picks and wooden ice cream spoons), and brushes to carefully expose artifacts for removal. All of the soil was sieved through ¼-inch mesh screens to ensure the recovery of very small artifacts, and a sample from each level was sieved through window-mesh screen to recover very small animal bones and other objects. Samples were taken for the analysis of plant and animal remains preserved in the site, as well as for the analysis of changes in soil due to human occupation. Volunteers also used a builder's level to accurately measure the depths of objects. Some also helped with the mapping of deposits. The equivalent of about three days per team were spent washing, sorting, weighing, and recording the shells, pottery, and other objects recovered. However, because Volunteers chose to do lab work in the afternoon and evening, and because several volunteers did not go to the site on particular days, we were able to spend most of our days excavating. Because Palmetto Ware pottery is so fragile, it was brushed to remove the dirt. Sherds (broken pieces of pottery) that could be glued back together were noted in the field and were crossmended in the lab. Photographs were taken of the better quality artifacts. Volunteers were involved with all aspects of the analysis. Some volunteers helped Pete Sinelli map and excavate sites MC-8 and MC-10 on the south coast near MC-6. It was an additional mile walk to these sites, after the already long 3.5 mile hike to MC-6. During Team 2, several volunteers helped Lee Roth with the collection of soils for analysis. This was extremely strenuous work as they first had to cut transects through the bush. In addition to fieldwork, many basic elements of daily life required special attention. Volunteers carried water from the cistern, filled solar showers, cleaned the schoolhouse, and helped clean-up after meals.

Results

MC-32

MC-32 is located on the north coast about 1 km northeast of Bambarra landing. The site is situated between the beach and Farm Creek Pond. The pond is today closed to the sea, but as recently as 50 years ago there was an outlet near the site. The pond afforded a protected area for beaching canoes and the large number of conchs on the margin of the pond indicates that the inhabitants of the site cleaned some of their catch in the pond. The site was discovered in 1976 by Dr. Shaun Sullivan. Sullivan conducted test excavations at the site and he described his finds in his Ph.D. dissertation (Sullivan 1981). A comparison of the animal remains in the site with those from MC-6 and the Pine Cay site was published by Wing and Scudder (1983).

In 1993, with funding from the National Geographic Society, Keegan undertook test excavations at the site. The results of those tests were used to locate the units that were excavated during this

project. We were fortunate this year in that the site had been burned over by Simon Forbes prior to planting a garden. This area has long been recognized as an excellent garden site due to the organic enrichment that was added to the sandy soils by nearly 300 years of Indian occupation. With the vegetation cleared, Lee Roth was able to make a topographic map of the site in conjunction with his soil analysis project. Our 1999 Earthwatch excavation had focused on a deep deposit near the middle of the site. In 2000, Team 1 excavated a shallower deposit near the southern edge of the site and then began excavation units on the east side which were completed by Team 2.

The most exciting find in the southern units was a workshop area in which olive shell pendants and beads were being made. Several complete pendants and beads were found along with other shells that had not been modified, a limestone abrader that had a groove ground into it, and three staghorn coral abraders that had only their top ends abraded. These finds confirmed previous hypotheses about how these kinds of jewelry were made. From historic accounts we know that olive pendants were worn as armbands and anklets where they would knock together like bells. The materials recovered by Team 2 in the eastern area were remarkable in that most of the pottery was imported from the Greater Antilles (as denoted by the quartz sand temper in the past - the TCI have only limestone rocks). These sherds will help us determine the degree to which MC-6 and MC-32 shared trading relations with the Greater Antilles. MC-32 appears to have been a large village that was first occupied in the 13th century (based on one radiocarbon date taken in 1993). Charcoal samples collected during this project will allow us to get additional radiocarbon dates for the site.

MC-6

The hardest part of working at MC-6 was getting to and from the site. The site is a 3.5 mile walk from Bambarra through the bush, along Armstrong Pond, and then back through the bush. Cactus, loose rocks, and saplings cut knee high made footing difficult along the narrow winding trail. Nevertheless, we managed to accomplish a great deal at this enormous site. Presently there is only one radiocarbon date for the site (AD 1430 +/- 70). Charcoal samples collected during this project will be used to get additional dates for the site.

Excavating at MC-6 is an exercise in rock removal. Dave Denton showed remarkable prowess at removing and hurling large rocks from our excavations at the "Chief's house." Progress was slowed by having to work around the rocks, but the results were definitely worth it. A wide variety of imported and Palmetto ware pottery was recovered, as were animal bones, conch shell tools, and jewelry. With regard to the pottery, an unusual tan-color paste Palmetto ware was again recovered from both MC-6 and MC-32. We are testing the pottery to determine whether it was made from the lighter color marl that is found on the salina. Fine-mesh bone

samples were also collected. Of special interest in the bone sample was the relatively high frequency of bird bones and the complete absence of any mammals except dogs. We also found a few large bones that may be from marine mammals. Sea turtles, and possibly tortoises, seem to have been a favored food. Of note in this area is clear evidence that the ridge surrounding Plaza 1 was purposely constructed and is not simply the product of refuse disposal. Large rocks were repeatedly brought to the ridge to augment its height, and sand from the nearby salina was brought in as fill. Lee Roth's soils analysis shows that the court in the middle of Plaza 1 was built from soils carried on to the site from the salina. MC-6 is also important for the large number of complete shell tools that were discarded in the middens. For the first time we have a clear picture of shell tool manufacture and use at a Lucayan site.

Team 1's efforts in the area that Sullivan believed to have been occupied by commoners was extremely important. The fact that we found almost no artifacts in this area below the surface suggests that it was never a habitation area. The more likely conclusion is that this area was used for house gardens in which plants that were used on a daily basis (e.g., spices), required special care, or were grown in small quantities were cultivated. This greatly reduces the habitation area of the site and has implications for efforts to reconstruct Taino social organization. Sometimes finding nothing is more important than finding lots of artifacts!

Teams 1 and 2 also excavated the area that Sullivan concluded was the "Chief's house." The results of these excavations are at this time inconclusive. I originally expected to find a substantial quantity of imported pottery and other "elite" goods near the house of the Chief (Cacique). In addition, it was expected that the Cacique would have a higher quality of food remains (or none at all if their meals were prepared elsewhere and then brought to them), than those found in other areas of the site. Surprisingly, the vast majority of the pottery was the locally produced Palmetto Ware. There were not substantial quantities of high status goods, and, at first glance, the food remains are similar to those found elsewhere at this site and at other sites in the area. We also found a variety of shell tools, which either reflect agricultural work or the construction of the midden on which the house was built. If this was indeed the Cacique's residence, then it appears that he was no better off than the other people who were living at the site. In sum, we have a substantial amount of new information on diet, pottery, tools, and ritual objects that need to be analyzed in terms of the political organization of this settlement. The contributions of the Earthwatch volunteers are contributing to what is likely a substantial revision of our understanding of this site.

MC-8 and MC-10

Shaun Sullivan discovered these two sites to the west of MC-6 during surveys conducted in the mid-1970s. Sullivan found no subsurface deposits and concluded on the basis of pottery styles

that the sites were occupied prior to MC-6. In Sullivan's scenario, these sites were occupied by the original immigrants and that MC-6 developed later as a result of Taino efforts to control trade with the southern Bahamas. Pete Sinelli re-examined these sites as part of MA research during the Earthwatch project. Several volunteers, including Sylvia Chappell, Dave Denton, and Chris Pearson helped him. Pete found that the two sites may actually be one large site, and that at least one part of MC-8 was used as a workshop for making disc beads from shell. This work will help us to understand how Middle Caicos was settled and the period leading up to the establishment of MC-6.

Discussion

The next step in the project is to complete the analysis of the materials collected and to compare our findings from the two main sites MC-32 and MC-6. Such comparisons will include pottery, animal bones, tools and other implements. A preliminary petrographic study of the constituents of pottery from the north coast of Hispaniola has already been completed by Ann Cordell of the Ceramic Technology Laboratory at the Florida Museum of Natural History. Using her study as a baseline it will be possible to determine where the imported pottery came from. We can also look at similarities and differences between imported pottery at MC-6 and MC-32 to determine the degree to which these sites shared similar sources. It is expected that MC-32 was getting its imported pots through MC-6 and that MC-6 was the main port of entry for exchange goods. These data should indicate whether this hypothesis is likely or not. In addition, we will begin looking at the locally made Palmetto ware to determine how similar the pottery at these two sites is. It is possible that local wares were made at MC-32 and were then traded to MC-6. Both studies will help to determine how close the ties between these settlements were. The pottery is also being studied to get information on vessel size and shape, which will help us to better understand culinary habits. In addition, many of the clay griddles and some of the larger bowls were made by molding the clay in baskets. These baskets were probably burned when the pots were fired, but they have left their imprints. By studying the imprints we garner information about weaving and basket making which otherwise would be unavailable because the baskets themselves do not survive.

The analysis of animal bones is part of our larger study of human impacts on islands. A traditional view has held that Native Americans are by nature more conservation oriented and were therefore better stewards of their environment. Our work, and that of others, suggests that they did not specifically practice conservation and that any apparent conservation efforts reflect the smaller size of their populations. It is clear that the biggest and best resources were heavily exploited when humans first arrived on an island and that a number of local species were driven to extinction (especially birds). The Tainos also had a huge impact on the availability of near shore resources. It was only because they did not venture into deeper waters that breeding stocks were

unaffected and that near-shore resources rebounded. Animal bones from both sites reflect intensive use of near-shore resources and a broad-spectrum use of fish species, including groupers, snappers, grunts, parrotfishes, wrasses, porcupine fish, barracuda, bonefish, etc. The presence of fishing net weights at MC-32 suggests that nets were being used for fishing. In addition, a variety of birds and iguanas were also consumed. Iguanas and some of the birds are today locally extinct. Also, a single dog's tooth attests to the presence of dogs at the site. We collected the first window-mesh faunal samples from MC-6 so we are now in a position to determine which very small fishes were taken. We can also look at the relative quality of the diets at MC-32 and MC-6.

Virtually all of the conch (*Strombus gigas*) shell pieces found at MC-6 had been used as tools. Most *Strombus* tools in the Bahamas are "expedient" tools. In other words, a tool shape was broken from the complete shell and then used with little or no additional modification. When the task was completed, the tool would be discarded. In other parts of the West Indies shell tools have ground work edges, and were likely used for longer periods of time. Thus, although we find pieces of conch that have the shape of the better-prepared tools, they lack the extra effort that would prove that they were tools. At MC-6 most of the *Strombus* pieces had been broken into about six shapes. These shapes have been named picks, tips, hammers, hoes, gouges, and nippers. Although they do not have prepared work edges, the fact that they conform to these shapes suggests that most were in fact tools. In addition, many of these showed evidence of having been used. This is a really exciting discovery because it will allow us to more accurately interpret *Strombus* shell objects from other sites. The reason that mostly tools were found is because conch shell is heavy relative to the weight of the meat. Thus, the shells would have been discarded on the beach, as is done today, and only the meat would be carried to the site. Only those shells that were to be used to make tools would have been carried to the village. In fact, the tools may even have been fashioned, or at least roughed out, on the beach.

The excavations at both MC-32 and MC-6 provided new and more detailed information about the organization of the sites, the diets of the people who lived there, and the periods during which they were occupied. It is clear from these data that we must now substantially revise Sullivan's conclusions concerning the use and organization of both sites.

Publications

This was the second phase of a planned, long-term project on Middle Caicos. The new information contributes greatly to our understanding of the prehistory in the area and will be used as a comparative data set in Pete Sinelli's Master's thesis. Previous Earthwatch support on Middle Caicos and Grand Turk helped make possible Betsy Carlson's Ph.D. dissertation, *First Contact: The Coralie Site, Grand Turk, Turks and Caicos Islands*,

Department of Anthropology, University of Florida, which was completed in Fall 1999. Also, the PI is writing a book about Caribbean Archaeology (under contract with the UF Press) in which the current research will figure prominently. A brief report on the project will be published in *Times of the Islands*, a magazine devoted to the Turks and Caicos Islands.

Other Accomplishments and Benefits

The project had an enormous impact on the local community. The project funds brought much needed employment to many of the island's residents. In addition, information about the prehistory of the islands and the importance of resource conservation was imparted. During the trip the PI met with representatives of the Turks and Caicos National Trust and the British Overseas Trust Assistance Program. They would like to add our trail to MC-6 to the existing Crossing Place Trail, and develop interpretive exhibits about archaeology and natural science as part of low-impact eco-tourism development being sponsored by Britain under the Darwin Initiative.

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