

**SPANISH-LUCAYAN INTERACTION: CONTINUITY OF NATIVE ECONOMIES IN  
EARLY HISTORIC TIMES**

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*The native population living in the Bahamian archipelago is generally thought to have disappeared by A.D. 1513. However, more recent radiocarbon dates from several different archaeological sites indicate that native peoples lived in the region long after this date. This article summarizes the available data, arguing that native populations continued to exploit certain economic resources, especially focusing on salt, fish and cotton. The absence of Spanish settlements in the Bahama archipelago is a result of natural and social boundaries, preventing the colonists from staying for longer periods of time in the islands and establishing villages. It is argued that Spanish-Lucayan interactions continued long after A.D. 1513 and were based upon the exchange of products between the Lucayans and the new colonists.*

*La población nativa del archipiélago de las Bahamas generalmente está pensado haber desaparecido por 1513. Sin embargo, unas recientes edades radiológicas de varios contextos arqueológicos evidencian que las poblaciones nativas vivían en la región mucho después de esta fecha. Este artículo resume los datos disponibles para proponer que las poblaciones nativas siguieran aprovechando ciertos recursos económicos, especialmente enfocándose en sal, pescado y algodón. La ausencia de asentamientos españoles en las islas Bahamas resulta de fronteras naturales y sociales que impidieran estancias largas de los colonos y la posibilidad de establecer pueblos. Interacciones entre los españoles y Lucayanos siguieron mucho después de 1513 y se basaban en el intercambio de productos entre las islas Lucayas y Hispaniola.*

*Les Lucayans, population indigène vivant dans l'archipel des Bahamas, sont supposés avoir disparu en 1513 après J.C. Cependant, les dates les plus récentes de radiocarbone obtenues d'après différents sites archéologiques indiquent que les peuples indigènes ont vécu longtemps dans la région après cette date. Cet article résume les données disponibles et soutient la thèse que les populations indigènes ont continué à exploiter certaines ressources économiques; spécifiquement: le sel, le poisson et le coton. Les frontières naturelles et sociales dans l'archipel des Bahamas empêchaient les colons Espagnoles de rester pendant de longues périodes et d'établir des villages dans les îles. Dans cet article, il est soutenu que les interactions entre les Espagnoles et Lucayans ont continué longtemps après 1513 après J.C., basées sur l'échange de produits entre les Lucayans et les nouveaux colons."*

## Introduction

In 1513, Juan Ponce de Leon traveled from Puerto Rico north to find new riches along the south coast of Florida. Along his journey, he visited many islands in the Bahama archipelago, including the Caicos Islands, Rum Cay, San Salvador, Cat Island, Eleuthera, and Grand Bahama. One observation made by Juan Ponce de Leon, namely that he only saw one old man in the entire Bahamian archipelago, has been used frequently as evidence for the extinction of the Lucayans, the indigenous people who inhabited the islands in the Bahamian archipelago at the time of European contact (Sauer 1966). Juan Ponce de Leon's comment is consistent with other ethnohistoric sources [(Anghiera 1970; Las Casas 1951), but see Gnivecki (1995) for a list of later accounts of Europeans and Lucayans in the Bahama archipelago], suggesting that people indeed vanished from these islands in the decades after initial contact.

Slave raiding expeditions are partially at fault for the rapid depopulation of the Bahamian archipelago. On Hispaniola, initial economic efforts were focused on agriculture and cattle husbandry (i.e. Crumley 1994; Deagan 1996), requiring a significant input of labor. As Europeans granted themselves access to land on Hispaniola, economic production was halted by a lack of labor rather than land. Labor shortages on Hispaniola increased the colonists' interest in regions such as the Lucayan islands. Peter Martyr reported that as many as 40,000 Lucayan people were captured and brought to Hispaniola; a number likely reflecting a working population, excluding elderly and children (Anghiera 1970; Cook and Borah 1971).

The import of Lucayans into Hispaniola is also supported by population

statistics in early colonial times from Hispaniola. Cook and Borah (1971) calculated a population increase in Hispaniola between A.D. 1510 and 1520. With the introduction of new diseases from Europe and considering the way the Spanish treated the natives, high mortality rates are expected for this time period. An increase in population must be explained by external input of people. Cook and Borah (1971) suggest that the import of slaves from adjacent regions, mainly the Lucayans from the Bahama archipelago, was the cause of this increase.

Besides the spatial proximity to Hispaniola, another factor played a role in the depopulation. Lucayans were found to be excellent divers, probably because of their experience in conch diving. On the north coast of Venezuela, pearl diving was a lucrative business and Las Casas mentioned that Lucayans were sold for 25 to 40 times as much as 'regular' prices for slaves to be worked in this industry (Las Casas 1951 in Keegan 1992). High prices for Lucayan slaves must have attracted slave raiders to the Bahamian archipelago and contributed to the rapid decline of the native population on the islands.

Following these sources, the Bahamian islands were empty when Juan Ponce de Leon sailed for Florida. As Carl Sauer (1966:160) noted: "The Lucayan Islands were the first part of the New World to become wholly depopulated, for which the date 1513 seems acceptable. The 'discovery' of Florida by Ponce de Leon in 1513 was, in fact, an extension of slave hunting beyond the "empty islands." Besides the removal for slavery, it is very likely that the European diseases that affected populations elsewhere in the region also decimated local Lucayan population. Sauer's observation is, therefore, often taken

for granted by archaeologists. According to accepted knowledge, the year A.D. 1513 marks the end of Lucayan people and culture in the Bahamian archipelago.

#### After 1513

Recent radiocarbon dates from Lucayan sites, however, suggest a different picture, yielding 16<sup>th</sup> and even 17<sup>th</sup> century dates at the two sigma range (Table 1). One date reported by Morsink (2012:231, Table 7.1) and two dates reported by O'Day (2002:4, Table 1) for MC-6, a site located on Middle Caicos, provide a basis for the argument that people inhabited the Turks & Caicos after A.D. 1513. These three dates (cal AD 1473-1636, cal A.D. 1430-1530/1560-1630 and cal A.D. 1460-1660) extend beyond the A.D. 1513 mark. The first two dates are

obtained from charcoal, the other two dates are from bone samples and all are calibrated at 2 $\sigma$  using CALIB 4.3 (Reimer, et al. 2009; Stuiver and Reimer 1993). The consistency of three dates in reference to other dates found at the site confirm that continuous habitation occurred at the site from approximately the beginning of the 14<sup>th</sup> century until the end of the 16<sup>th</sup> and maybe even the beginning of the 17<sup>th</sup> century. In reference to 'chronometric hygiene' and the use of radiocarbon dates to interpret habitation histories (see Fitzpatrick 2006), the large (and growing) number of late calibrated dates from other Lucayan settlements provide a good indication that local populations existed after A.D. 1513.

Table 1. List with radiocarbon dates from Lucayan sites that postdate 1513. First five dates are retrieved from duhos and the sixth date is from a paddle. Other dates were retrieved from excavated materials.

Site	Reference	Radiocarbon date
Cartwright Duho Cave, Mortimer's, Long Island	Ostapkowicz et al. 2012	cal. AD 1430-1491 and 1602-1610
Cat Island (San Salvador)	Ostapkowicz et al. 2012	cal. AD 1435-1515 and 1600-1618
Cat Island (San Salvador)	Ostapkowicz et al. 2012	cal. AD 1454-1529 and 1544-1634
Spring Point Cave, Acklins	Ostapkowicz et al. 2012	cal. AD 1437-1516 and 1598-1618
Caicos Islands (?)	Ostapkowicz et al. 2012	cal. AD 1440-1522 and 1578-1581 and 1591-1620
Cave, Mores Island, Abacos	Ostapkowicz et al. 2012	cal. AD 1436-1511 and 1601-1616
Palmetto Grove, San Salvador	Berman and Gnivecki 1995:429	cal. A.D. 1430-1654 (cal. A.D. 1483 intercept)
North Storr's Lake, San Salvador	Delvaux 2009 in Berman 2011: table 7.4, 124-125	cal. A.D. 1400-1515 AND cal. A.D. 1585-1625 (cal. A.D. 1435 intercept)
North Storr's Lake, San Salvador	Delvaux 2009 in Berman 2011: table 7.4, 124-125	cal. A.D. 1430-1670 (cal. A.D. 1515, 1585, 1625 intercept)
Pigeon Creek, San Salvador	Berman & Hutchinson 2000: Table 3, 422	cal. A.D. 1435-1635 (cal. A.D. 1480 intercept)
Gibbs Cay, Grand Turk	Sinelli 2010:161	cal. A.D. 1490-1680 (1620 intercept)
MC-6, Middle Caicos	O'Day 2002: Table 1, 4	cal. 1430-1530 and 1560-1630
MC-6, Middle Caicos	O'Day 2002: Table 1, 4	cal. A.D. 1460-1660
MC-6, Middle Caicos	Morsink 2012: Table 7.1, 231	cal. AD 1473-1636

Native populations in the Bahamian archipelago are identified primarily by the presence of Palmetto Ware (also known as Palmettan Ostionoid pottery) in archaeological sites. This pottery is characterized by a red color, shell temper, and poor structural integrity (Hoffman 1967, 1970; Granberry and Winter 1995; see Gerace and Winter, this volume). Although imported wares, such as Meillacan Ostionoid and Chican Ostionoid from Hispaniola are also present at MC-6 in deposits yielding these early colonial (post-European contact) dates (Keegan 2007; Morsink 2012; Sullivan 1981), the abundance of Palmetto Ware (more than 30,000 sherds (Sullivan 1981)) at the site argues for a strong presence of local groups at this village. MC-6 was inhabited year-round by people that were physically connected to the Caicos islands, despite strong exchange relations with Hispaniola.

Furthermore, the presence of Spanish artifacts at several sites in the archipelago (Gnivecki 1995, 2013; Keegan 1992) including the Long Bay site on San Salvador (Hoffman 1987) and MC-6 on Middle Caicos (Morsink 2012; Sullivan 1981) and the recovery of Old World rats (*Rattus rattus*) from MC-32 (Keegan 2007:168) confirm that Lucayan settlements were present after Europeans arrived in the region. The presence of these European artifacts and ecofacts must have been deposited after A.D. 1492 at the earliest, but later interactions and exchanges are more likely. All archaeological evidence suggests that archaeologists in the region need to conceive of a longer presence of native groups in the Lucayan islands (cf. Gnivecki 1995, 2013; Sinelli 2010).

As the historical record indicates, the Spanish were active in the Bahama archipelago for several decades after A.D. 1492 (Gnivecki 1995), and, as I propose in

this study, Lucayan-Spanish interaction may have lasted as long as a century. I suggest that not all Lucayan islands were raided nor depopulated, but a significant working force remained, at least the Turks & Caicos Islands. Prolonged contact between Spanish and Lucayan groups, as evidenced by the late radiocarbon dates, were intentional and conscious. I propose here that certain communities prevailed in these islands after A.D. 1513, resulting from a formal relationship between local communities and the Spanish. How this formal relation was created and maintained will be explored here.

Prolonged Lucayan-Spanish interaction was driven by some (or several) incentive(s); otherwise the Lucayans would have been enslaved. Based on the Spanish interests in the Americas, this incentive must have had an economic basis and likely focused on the exploitation of local resources and the exchange and transportation of these materials to Europe. The new colonists were either reluctant or incapable of exploiting these resources themselves and left local populations on the islands intact to ensure production. Through exchange, a formal relationship was created and maintained as long as the exchange continued. The colonist relied on the Lucayan production of resources, whereas the Lucayans relied on the exchange of Spanish goods that were in demand.

In addition, the prolonged interaction between Lucayans and colonists after A.D. 1513 also suggests that the transition to a European economy took longer than previously believed (cf. Gnivecki 1995; Gnivecki 2012). Especially in the early years after A.D. 1492, exchanges between the Lucayans and Spanish must have involved products that were in demand for a local non-European, rather than a European market (cf. Deagan 1996). The products that

Lucayans exchanged with the colonists must have been for a large part similar to the products they exchanged with people on Hispaniola before the Europeans arrived. Early colonial economic production practices and exchanges were based on previously known social structures; structures that were in place before the Spanish arrived in the region (cf. Keegan 2004). These earlier interactions, economic practices, and exchanges provide a new avenue to explore late precolonial interactions and practices before the European colonists arrived in the region.

### **MC-6 and Armstrong Pond**

MC-6 is an archaeological site located on the southern coast of Middle Caicos, Turks & Caicos Islands (Figure 1). This site provides a possible explanation for why and how native groups in these islands were interacting with the Spanish and how these formal relationships were created and maintained. The site was first recognized in the early 20<sup>th</sup> century by Theodoor de Booy (1912; 1913), but archaeological research began in earnest in the 1970s by Sullivan (1981) who found it during a regional survey focused on settlement patterns. Because of the high density of artifacts and extraordinary layout of the site, Sullivan (1981) invested a significant amount of attention to it. He surveyed most of the surface, produced a detailed map of all structural features using a transit, and excavated small test units.

The most significant find was related to the site's spatial layout (Figure 2), which contained features that had not been encountered elsewhere in the Caribbean region. First, two midden areas are arranged in an oval shape around a flat central plaza. On top of these middens, conical stone structures were built into the midden deposits. Further, multiple stone alignments were placed in the middle of the plaza. Sullivan (1981) first interpreted these as part

of a ball court, but soon realized the two alignments were not parallel to each other. After further analysis, he found that these alignments pointed to the rising and setting locations of important stars and constellations on the horizon, including Sirius, Orion, and the sun. People at MC-6 used these alignments to observe the movements of these celestial bodies. The special stone structures and high density of artifacts strongly suggest that MC-6 was an important regional settlement.

Sullivan (1981) related MC-6's importance to its proximity to Armstrong Pond. Armstrong Pond is 1.6 km long and located 600 m northeast of MC-6. A road made of two stone lines connected MC-6 to this pond, strengthening this hypothesis. Armstrong Pond's water is salty and during the hot and dry months of late spring and summer, evaporation is so high that salt crystals are formed and salt can be collected. The physical connection between the pond and the site by a road underlines how important the pond was for MC-6.

Salt is an important economic resource in the precolonial and colonial Caribbean (Morsink 2012). People need a daily intake of salt to survive, especially in the hot and humid climates. Further, salt provides one of the few ways to preserve foods in the Caribbean. In contrast to the high demand, supply is limited. Conditions necessary for excessive evaporation of water to produce salinity levels high enough for the formation of salt crystals are relatively rare and natural production of salt occurs only in a few places. Especially locations inland, such as central Hispaniola, are removed from salty sea water and often lack local resources of salt. These locations must have accessed salt through exchange with other people.

Sullivan (1981) perceives the dietary need for salt to be an important factor why salt was exploited at MC-6. Keegan (2007), however, argues that the preservative

qualities of salt are more important. People living at MC-6 also had direct access to the Caicos Bank and a steady supply of protein from marine resources. Data from the north coast of Haiti shows that local fishes on the north coast of Hispaniola decreased in size due to overfishing in the last centuries before contact (Keegan 2007). With the paucity of other large terrestrial fauna for proteins on Hispaniola, a steady supply of fish was necessary to maintain large populations on the island. Keegan (2007) argues that the combined export of salt and fish as salted fish to these inland locations on Hispaniola elevated MC-6's status in regional exchange networks.

Keegan (2007) assumed that Armstrong Pond was producing salt when people inhabited MC-6, just as it does today, but these salt ponds are dynamic environments and can change rapidly. Current conditions cannot be taken for granted. Recent investigations determined the availability of salt when people were living at MC-6 (Morsink 2012). Cores and radiocarbon dates from the salt pond were compared with the site's occupation history. This research indicated that a significant change in environment of Armstrong Pond took place and salt was not always available. Around A.D. 1300, the pond became disconnected from a direct influx of water from the Caicos Bank to the south. Previously, the constant influx of water prohibited salt production, but a barrier between the pond and the sea allowed rates of evaporation to exceed influx, increasing salinity levels to the point where salt crystals form. This natural change in the environment of the pond coincides with the earliest habitation at MC-6, suggesting that people only settled the site after salt became available (Morsink 2012). This data shows that salt played an essential role in the decision to settle MC-6.

Three radiocarbon dates, mentioned previously, are of particular interest for the

argument. These dates from secure Lucayan contexts overlap with the early European period of occupation and suggest that European colonists and inhabitants of MC-6 interacted, possibly as long as a century. Economic production at MC-6, therefore, might have been focused on a European market. The case-study of MC-6 can be used to understand why and how local native groups remained in the Bahamian archipelago long after the Spanish secured a strong presence in the Caribbean region.

### **Salt, Fish, and Cotton**

Besides salt, people of MC-6 also exploited fish and likely cotton (Keegan 2007; Morsink 2012). In colonial times, salt production was a major economic endeavor in the Turks & Caicos Islands, the Bahama Islands, and elsewhere in the circum-Caribbean region (Andrews and Mock 2002; Carlson, et al. 2009; Dever 2007; Kepecs 2004; Kurlansky 2003; McKillop 1995; McKillop 2002; Mitchell 2009; Morsink 2012; Sealey 2006). Fishing is still a significant part of local economies, especially on the large fertile banks that are plentiful in the region. Finally, the Bahamian archipelago became known for its Sea Island cotton, a high quality cotton product that was renowned for its color, softness and strength (Cotton Counts 2012; Mitchell 2009; Torres and Carlson 2011; Yafa 2005). The combination of salt, fish and cotton is, therefore, not necessarily restricted to MC-6 alone and other settlements in the Bahamian archipelago might have been involved in similar economies.

Salt was collected at Armstrong Pond during times of the year that salt was available, namely late spring and summer. Sullivan (1981) collected the salt where the crystals formed along the western shore of Armstrong Pond. He suggested that small V- and C-shaped stone alignments on the edge of the pond were used to collect brine, a

thick solution of salt. At these locations, the salt could drain and dry further. Recent observations on the Yucatan coast in Mexico also indicate that brine can also be collected from the center of salt ponds because the crystals settle on the shallow bottom of the ponds (personal observation). Here, the brine was collected in larger heaps on the shore where it was left to dry. Both practices are possible ways to exploit the salt from Armstrong Pond.

Fish was exploited on the Caicos Bank. This large and shallow marine bank of almost 3,000 km<sup>2</sup> is full of marine resources. Fish and conch were a significant part of the Caribbean diet, especially for protein requirements (Keegan 1992b, 1997, 2007). As animal protein from land animals is almost negligible in the Bahamian archipelago, marine resources were vital. The faunal material from different field projects at MC-6 yielded a vast array of marine species (Table 2), but *Albula vulpes*, or bonefish, is especially apparent in the archaeological record based on MNI and NISP (Keegan 2007; Morsink 2012). The faunal remains also showed a very distinctive pattern, as cranial elements of fish were more abundant than post-cranial elements (Keegan 2007). A possible explanation is that this pattern is a product of the export of salted fish, where fish were decapitated locally before they were salted. The cranial elements were left at MC-6, while the remaining part of the fish was transported elsewhere (Keegan 2007; Morsink 2012).

Cotton would have grown in fields or gardens surrounding the site (Keegan 2007; Morsink 2012). Feral cotton still grows at the site on the edge of the salina, in a location that Keegan (2007) argues to be the garden area of MC-6. Excavations from this area did not yield any evidence of habitation or midden deposits (Keegan 2007) and soil samples from this part of the site indicated that people introduced nutrient-rich red soils

to the soils, most likely to increase soil fertility and water retention (Morsink 2012). These red soils are found in small pockets in the environment and are locally known as high quality soils for gardens (Sealey 2006; Shattuck 1905). The movement of these soils into this area supports the interpretation of a garden. That feral cotton still grows at exactly this part of the site seems hardly to be a coincidence.

On a final note, it must be emphasized that these economic endeavors could only be successful if people possessed a strong corpus of indigenous knowledge concerning how to exploit these resources. The extraction of salt is very time sensitive and labor intensive. Also, certain stone structures at the edge of Armstrong Pond suggest that people were managing the influx of rain water that would decrease salinity levels (Morsink 2012). The success of fishing is tightly woven with knowledge how certain species behave, when they aggregate and which techniques are best for capturing them. For example, bonefish aggregate in large schools in spring (IIWINC 2013) and, with the use of fishing nets, are relatively easy to capture during these months. The exploitation of cotton involves knowledge of its growth requirements and maturation periods. Long-term experience in the exploitation of all three resources, salt, fish, and cotton, increased its potential revenue and local knowledge becomes an important asset in these economies.

### **Spanish Interest in Salt, Fish, and Cotton**

Although Columbus' first contact with native populations in the Americas was in the Bahamian archipelago, this region is largely neglected during initial colonization efforts in the Caribbean. Besides the aforementioned slave raiding (Craton 1986; Sauer 1966), the region was actually perceived 'useless' (Anghiera 1970). The islands' infertile soils and relative dry

climate made agriculture difficult and unprofitable and the Spanish did not establish any permanent residence in the islands during the initial stages of colonization.

In reference to the exchange of materials from these islands, the Spanish would only be interested in these three economic products (salt, fish and cotton), if these products also had value in Europe for two reasons. First, the Spanish economy was based on extraction of highly valued products that were transported back and integrated into the European market. Second, the value of products is interlinked with its known purposes and uses (i.e. Munn 1986). This means that products were considered to be of value by the colonist, if they were familiar with these products and knew their function. It is, therefore, reasonable to accept that the colonists exploited and exchanged resources with known uses, rather than focus on new and unfamiliar products which had no known function. If salt, fish and cotton were also known products to the colonists and used in Europe, then exchange with the Lucayans is more likely.

Salt, as a raw product, was considered a valuable by the Europeans. The human dietary need for salt was a problem in large parts of Europe that lacked good local sources and very few people had access to cheap and/or high quality salt (Kurlansky 2003). Further, salt was a major economic product on the European market for many millennia before 1492. Archaeological evidence shows that people mined salt as early as the Bronze Age in Hallstat (*Hall* means salt in Celtic) and other locations in Austria and Germany (Grabner, et al. 2007; Kurlansky 2003). Roman soldiers were paid in salt, which is also the origin of the word *salary* (Kurlansky 2003). Kurlansky (2003) also suggests that the Romans specifically targeted regions for conquest that had access to salt resources. In

other words, the use and value of salt was long established in Europe long before the Spanish arrived in the Caribbean islands.

The colonists' interest in salt is also documented in the Caribbean region and historical evidence is available from Puerto Rico. These documents also show that was part of the native Antillean economy before the Spanish arrived in the region. In southeastern Puerto Rico, the local chief Agüeybaná traded over 80,000 kg of salt over a 5 year period between 1516 and 1520. Other caciques from southern Puerto Rico traded vast amounts of salt as well, particularly from the area known as 'Salinas' (Tanodi 2009). Furthermore, administrative documents mention that Agüeybaná personally owned the salt and the salt works (Tanodi 2009). Second, the vast amount of salt that was traded must have been a surplus beyond local needs. It is unlikely that the Spanish were capable of establishing such a large economic endeavor with limited knowledge of the local environment and geography so soon after initial contact without indigenous help and know-how. The production of almost 16,000 kg of salt per year must have been based on years of experience before the Spanish arrived in the region.

Fish, the second economic resource, was a common source of protein in Europe. Especially in coastal regions, fisheries were common and fishing was a vast economic endeavor. Practices of salting fish and other sources of proteins were also long established. Salted fish and meats, such as hams from Italy, France, and Germany, salted herring from the North Sea, or salted cod caught and processed by the Basques of northern Spain (Kurlansky 2003), are only a few examples. The use of salt as a preservative for otherwise perishable items was not new to the Europeans. The colonists brought salted goods, including fish and meats, brined olives and other resources on their long-distance voyages to the Americas



to ensure food supplies during their weeks on the ocean.

The incorporation of salted fish did not require a complete change in cuisine for the Europeans, facilitating the incorporation of resources from the Bahamas into their diet. Salted fish also became a common slave food and today it is highly desired by many Afro-Caribbean inhabitants (Kurlansky 1997). Both the colonizers and the native population were familiar with salted fish and its value as a reliable source of protein. A continuation of production and exchange of this product is, therefore, expected.

Cotton, the third product, caught the immediate attention of Europeans visiting the Bahamian islands. Columbus, during his first voyage, noted that cotton was a major industry in the Lucayan islands. He was intrigued by the quality and quantity of cotton grown here and reports gifts of 25 lbs. of raw cotton balls in the Bahamas and production capacities of 184,000 kg per field on Hispaniola (Dunn and Kelley 1989:71, 89). The attention he pays to cotton throughout his diary suggests that this item was of considerable value (Berman 2011a). Indeed, cotton was a major product on the European market in the fifteenth and sixteenth centuries. For example, fiber, including cotton from Turkey, accounted for 60-70 percent of the total value of products imported to Genoa, one of the major trade ports at that time (Mazzaoui 1981:47). Hence, salt, salted fish, and cotton were all resources that were known to and were in demand by the Europeans.

### **The Continuation of a Native Economy**

Why, then, did the colonists not have a more sustained and visible archaeological presence on islands in the Bahamian archipelago? The products, salt, salted fish, and cotton, were obviously valued by the Europeans. Cotton, salt, and salted fish fit right into the widespread European

extraction economy in the Americas. But European colonies were not established in the Turks & Caicos Islands until relatively late, namely after 1670s by Bermudians and by Loyalists in the 1780s (Kozy 1983). When colonists finally established permanent settlements on these islands, their economy focused on the extraction of salt and cotton. An explanation for this pattern is that for Spanish colonists that settled Hispaniola, it was more profitable to trade these products with the Lucayans that kept exploiting these resources on the islands, instead of establishing colonies in the Bahamian archipelago and producing and extracting these resources themselves.

There are good reasons why the Spanish never established local settlements. For example, Sinelli (2010) points out that the Spanish ships were incapable of navigating the shallow waters and dangerous reefs located near the islands of the Bahama archipelago. The banks and reefs were obvious threats to the large ships. Columbus mentions in his diary that these waters were unsafe and difficult to navigate (Dunn and Kelley 1989). The reefs and shallow water restricted the Spanish from exploring and exploiting these waters and, for example, one of Ponce de Leon's ships wrecked in the Bahamas in 1513 (Craton 1986:44). The problematic navigation would have also restricted communication between different Spanish settlements on different islands within the region, posing another difficulty after islands had been settled. The lack of fertile soils and low precipitation made agriculture, and therefore sustainable European settlements, difficult. These natural elements might have kept the Spanish from settling permanently on these islands.

In respect to navigation, the native canoes, on the other hand, were specifically developed for this environment. People in canoes could navigate these waters without serious problems. Further, canoes can make

landfall almost anywhere. In the case of MC-6, bordering the Caicos Bank on the south side of Middle Caicos, canoes had a definite advantage over Spanish vessels. In fact, the Caicos Bank acted a natural defense mechanism that protected MC-6 from large Spanish vessels.

There are several more factors that were problematic for the Spanish. These factors could have been perceived to be of such gravity, that colonization efforts were abandoned. First, the seasonality of salt, fish, and cotton formed a restriction as people would be disconnected from Hispaniola for a large part of year. Second, the Spanish lack of knowledge of local resources and how to exploit these resources posed another problem. These factors acted as strong limitations to the Spanish, but in a social rather than a natural sense. I will explain here how these limitations formed a social barrier for the Spanish, which in effect allowed native groups to persist in the Bahamian archipelago.

The exploitation of salt, fish, and cotton is seasonal. The high season for the production of salt is a four-week period in July and August, but salt can also be collected for a few weeks before the rains start in May (Morsink 2012; Sullivan 1981). In the Yucatan, salt is also harvested during the rainy season between May and July. During the weeks before the rains, a salt crystalizes and deposits at the bottom of the ponds. This crust of salt on the bottom does not disappear during the rainy season and extraction continues in these months (personal observation, 2012). The abundance of bonefish, the most commonly caught fish at MC-6, is also seasonal. Although bonefish are available year-round, they are more abundant and in larger groups on the flats during March, April and May. In the summer months, bonefish occupy the flats only in the morning, but seek deeper and cooler waters during the day (IIWINC 2013). The abundance of bonefish in

relation to these other fishes suggests that fishing practices were intensified during this high season. Finally, today, cotton is planted before the wet season starts in May. Cotton seeds need moisture to germinate, but after germination actually need very little water to grow. This means that gardens and fields were prepared, soils tilled and seeds planted in the last months of the dry season. Harvest takes place between the end of August and October (Cotton Counts 2012) (Figure 4). The local economic practices have, therefore, a very specific seasonality (Morsink 2012).

Exchange of salt, fish and cotton took place in the off-season, between October and February. It is reasonable to assume that people focused on the exploitation of salt and did not participate in long-distance exchange voyages during the times that salt was available at the edges of Armstrong Pond. The same holds true for the times that cotton production required labor. As the production of salt, fish and cotton require labor between February and September, long-distance voyages were postponed during these periods if possible. The period when long-distance voyages took place coincided with the time of the year when hurricanes were not expected, October/November to January/February. The time that economic practices demanded less labor at MC-6 was also the perfect time to plan long-distance oversea trips when calmer weather patterns prevailed and storms posed little threat.

Spanish people interested in the colonizing the Bahamian archipelago in order to exploit these resources, had to conform to these specific seasonalities and were physically bounded by remaining in the islands during these labor intensive months. However, the seasonality of the European economy had a complete different focus. This economy centered on the extraction of resources in the Americas and their transport back to Europe. Hurricanes

and tropical storms had to be avoided at all costs during these long crossings. The safest period to travel for the Europeans was in the months before June and after October (Figure 5). This is important in relation to the economic practices at MC-6. During the times that one can sail back and forth between Europe and the Americas, economic practices involved in the exploitation of salt, fish and cotton at MC-6 demanded a significant investment of labor. The off-season at MC-6 did not coincide with the preferred time for trans-Atlantic voyages.

The presence of Spanish vessels in the Bahamian archipelago is also not expected during the hurricane season. The Turks & Caicos Islands have very few deep and protected harbors, which posed another serious threat to these vessels when hurricanes would hit these islands (Figure 3). Between the end of June and September, these islands were likely avoided. This meant that local salt could not be exploited, unless people were willing to physically and socially distance themselves from other colonies.

As a result, economic exploitation of resources at MC-6 would require colonists to permanently settle MC-6 (or other locations with similar access to salt, fish and cotton) and become partially alienated from Hispaniola and Europe. In order to exploit local resources, Europeans were bound to the island for a large part of the year. The lack of protected harbors forced the Spanish to move ships from the region during hurricane season, leaving colonists that remained in the islands without the possibility to travel. This might not have been a situation in which new colonists were willing to live, as they preferred the security of contact with other colonies. The incompatibility of seasonal labor requirements and the risk of losing a ship during a hurricane both functioned as a

social boundary for the Spanish to settle the Turks & Caicos Islands.

The second point has to do with the importance of local knowledge. Although the exploitation of salt, produced through natural evaporation, might have been relatively easy at certain places, many locations are at least partially managed to ensure production. In locations where salt did naturally produce, management of the salt pond might have significantly increased production. In both cases, experience and knowledge of the production process increased revenues. But local knowledge was not limited to salt production. The capture and harvesting of bonefish is a specialized activity and it is expected that people with experience were far better fishermen than new colonists who were unfamiliar with these new fishes and their behavior. Finally, cotton production depends on local knowledge as well, including techniques to increase soil fertility, time of planting and harvesting, and the practices involved in the manufacture of cotton products. Colonists were unfamiliar with at least some of these procedures, creating another social and technological limitation that inhibited them from engaging in these economies. The fact that most early colonists initiated economies that were familiar to them, including the raising of pigs, chicken and other live-stock that were not native to the islands, underlines this point that new colonists shied away from adapting local economic practices (i.e. Crumley 1994; Deagan 1996; Deagan 2004). I propose that some Lucayan villages, such as MC-6, were left alone during slave-raiding parties and treated differently. In fact, groups of Lucayans might have been instrumental in the raiding of slaves in the islands, by way of canoes, as Spanish vessels were unsuited for large scale raiding expeditions in these shallow waters (Sinelli 2010). The slave-raiding expeditions would have a positive effect on MC-6 as well, by

capturing local enemies in the region and selling them to the Spanish the competition could be eliminated. In this way, the slave trade reflected the African slave trade, where powerful local groups traded other native peoples with the colonists.

The archaeological record in the Bahama archipelago suggests that significant differences existed between people and settlements and Lucayan people cannot be perceived in one way. Settlements range from small to relatively large and from seasonal or short-term camps to permanent habitation sites (Berman 2011, 2013; Berman and Gnivecki 1995; Keegan 1985, 1992a, b, 1997, 2007; Keegan and Maclachlan 1989; Sinelli 2010; Sullivan 1981; Vernon 2007). Also, differences in artifact assemblages, including imported pottery from Hispaniola and high status Spanish artifacts, indicate differential access to material wealth (Berman 2000; Berman 2011; Berman 2012; Berman and Gnivecki 1991; Hoffman 1987; Keegan 1992; Keegan 1997; Keegan 2007; Morsink 2012; Sullivan 1981). It is, therefore, possible that important local centers, including but not limited to MC-6, made a profit, real and/or in the form of protection from being enslaved, from selling captives to the Spanish and simultaneously reduced the competition for the economic production of salt, fish, and cotton elsewhere in the region.

### **Spanish-Lucayan Interaction**

On a final note, the Spanish-Lucayan interaction was of a different sort than the interactions between native groups and Spaniards on Hispaniola. In both locations, social relations between natives and the Spanish were created through the exchanges that took place between them. Differences in exchange patterns would also create different social relations and interactions. In the Caicos Islands, the Spanish were dependent upon the local population for

production. Because social relations between Lucayans and Spaniards were essential to continue a healthy economic relation, products had to be exchanged between the two groups at relative equal value. If these products were not exchanged at approximately equal value, one group would discontinue exchange. Cooperation and mutual understanding was vital for the continuation of this exchange. In other words, the relationship between Lucayans and Spanish were relatively positive as long as the interaction continued.

On Hispaniola, however, European colonists settled relatively soon after Columbus' first voyage to the Americas. Columbus' second voyage in 1493 already included 17 ships and approximately 1500 colonists that intended to stay on Hispaniola (Sauer 1966). The economy of these true colonists relied mostly on imported goods, such as cattle and sugarcane. Strong social relations with the local population were unnecessary to maintain cattle and sugarcane production. Earlier peaceful relations are mentioned in the chronicles and the Spanish and natives exchanged products and interacted amicably. These relations quickly changed (Wilson 1990). One of the reasons why these relations changed quickly is the lack of an incentive to exchange locally, creating a tense social arena where native populations and Spaniards opposed each other.

The exchange pattern described above provides an explanation why Spanish-Lucayan interactions maintained positive, whereas native-colonist relations on Hispaniola deteriorated soon after 1492. Colonists were interested in the resources produced by inhabitants of MC-6, but did not participate in the production of these resources. This combination, the economic interest without the incentive to produce these products, required strong reciprocal relations and enabled some native groups in the Bahamian archipelago to maintain

friendly relations with the Europeans. This scenario also explains how certain groups of Lucayan people occupied the islands for a longer period of time than what we previously expected. Antagonistic feelings between natives and colonists were suppressed to ensure production and exchange and friendly relations were maintained, allowing people to remain on their lands.

### **Conclusion**

The common assumption that no Lucayan populations lived in the Bahama archipelago after 1513 must be dismissed, as the historic record and recently secured radiocarbon dates suggest the presence of a local population in the archipelago after this particular date. This article argues that the presence of local groups and the evidence of exchange can be explained by a continuation of precolonial economic practices, involving the exploitation of salt, fish, and cotton.

Archaeological evidence from MC-6, a large settlement on Middle Caicos, indicates that these three products were the main economic focus of this particular site. However, the environmental conditions throughout the islands favor the production of all three items, and other sites might have engaged in similar economies elsewhere in the region.

Salt, fish, and cotton were known to, valued and needed by the European colonists, but environmental and social limitations kept them from exploiting these resources themselves in the Lucayan region. Instead, local groups remained in the islands, continued their economy and exchanged with these new colonists. The archaeology of MC-6 provides an excellent example how Spanish-Lucayan interaction might have functioned. This article introduces new evidence and explores the way these

exchange patterns and social relations evolved in the early years after Spanish colonization of the Antilles. As these Spanish-Lucayan interactions were based on former economic, social and political structures present in the region before the arrival of the colonists, this research also emphasizes the role of salt, fish, and cotton in precolonial economies. The continued exchange of products from MC-6 to Spaniards on Hispaniola followed routes that were established before 1492. Keegan (2007) and Morsink (2012) argue that MC-6 was directly linked into a social network of exchange with chiefdoms on Hispaniola. Producing local materials and exchanging them with people on Hispaniola was already institutionalized long before the Spanish arrived in the region. People at MC-6 did not have to change their strategies or implement a new exchange network, but were only changing exchange partners. It was, therefore, relatively easy to adapt to this new situation.

This also shows that studies about this early colonial time period can provide valuable data on precolonial social structures. Rather than understanding the colonization as a strong and hard break with the previous period, an emphasis on continuation allows archaeologists to project social structures from this early colonial period back in time. In this case, archaeological and historical documents both informed how salt, salted fish, and cotton were a vital element in precolonial communities in the Bahamian archipelago. Studying this vital time period, the first decades after the Europeans arrive in the region, from historical and archaeological data will provide important perspectives that will increase our understanding of precolonial and colonial social structures.

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