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## ***The Distribution of Nonlocal Pottery in Lucayan Archaeological Sites, Bahama Archipelago***

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*Locally made and imported pottery recovered at archaeological sites in the Lucayan Islands (Bahama archipelago) are readily distinguished from one another based on volcanic versus shell inclusions. No analytical method, only visual inspection, is needed to tell them apart. This limestone archipelago entirely lacks noncarbonate rocks, so pottery with noncarbonate tempers must have been imported from volcanic islands. Import pottery provides novel information on pre-Columbian connections with the Greater Antilles, particularly Hispaniola and Cuba. For the first time, we enumerate import-herd percentages from recent and prior excavations in the Northern, Central, and Southern zones of the archipelago. Excavations of the Wemyss site (Long Island) affords the first calculation of import frequencies from house floor and midden contexts, and the first evidence for temporal differences over 400 years of repeated occupations. Because the Lucayan Islands were the last archipelago in the Caribbean culture area to be settled, the patterns observed here should reflect cultural practices that developed earlier in the Antilles. In this regard, the gifting of artifacts, including pottery vessels, with unique and recognized histories could explain the low-frequency, down-the-line movement of imported vessels from Hispaniola through Lucayan communities. Although the sample size is small, these new data provide a baseline for further investigation of Lucayan networks.*

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*La poterie récupérée sur des sites archéologiques des îles Lucayes (archipel de Bahamas) est de deux types principaux : un fabriqué localement et un importé des Grandes Antilles. Ils se distinguent l'un de l'autre facilement, selon la présence d'inclusions coquillières ou volcaniques. Aucune méthode analytique est nécessaire pour les distinguer, seulement une inspection visuelle. Cet archipel calcaire manque entièrement de roches non carbonatées, donc la poterie aux inclusions de roches non carbonatées ont dû être importée d'îles volcaniques. La poterie d'origine non-locale fournit de nouvelles informations sur les liens précolombiens avec les Grandes Antilles, en particulier ceux entre Hispaniola et Cuba. Pour la première fois, nous dénombrons les pourcentages de la poterie importée, récupéré de fouilles récentes et antérieures à travers les zones nord, centrale et méridionale de l'archipel. Les fouilles du site de Wemyss (Long Island) offre le premier calcul des fréquences d'importations résultant de contextes des sols d'habitations et leurs dépôts de déchets associés. C'est la première preuve des différences temporelles en fréquence pendant 400 ans d'occupations répétées. Étant donné que les îles Lucayes ont été le dernier archipel colonisé dans la zone culturelle des Antilles, les modèles observés ici devraient refléter les pratiques culturelles qui se sont développées à une époque antérieure dans les Antilles. À cet égard, l'échange de cadeaux ayant des histoires uniques et reconnues, y compris de poterie, pourrait expliquer le mouvement des objets importés d'Hispaniola à travers les communautés Lucayes, à basse fréquence. Bien que le base de données soit petit, ces nouvelles données fournissent une base de référence pour une étude plus approfondie des réseaux Lucayes.*

*La cerámica recuperada en sitios arqueológicos en las islas Lucayas (archipiélago de Bahamas) se distingue fácilmente entre lo que se hizo localmente de lo que se importó, basado en la presencia de inclusiones de concha o de roca volcánica. No se necesita ningún método analítico para distinguirlos, solo una inspección visual. Este archipiélago de piedra caliza carece por completo de rocas no carbonato, por lo que la cerámica con ese tipo de inclusión debe haber sido importada de islas volcánicas. La cerámica importada proporciona información novedosa sobre las conexiones precolombinas con las Antillas Mayores, particularmente La Española y Cuba. Por primera vez, enumeramos los porcentajes de cerámica importada recuperada de excavaciones recientes y anteriores en las zonas norte, centro y sur del archipiélago. Las excavaciones del sitio de Wemyss (Long Island) ofrecen el primer cálculo de las frecuencias de cerámica importada, encontrado en contextos de pisos habitacionales y basureros, y la primera evidencia de diferencias temporales durante 400 años de ocupaciones repetidas. Debido a que las islas Lucayas fueron el último archipiélago en el área cultural del Caribe en establecerse, los patrones observados aquí deben reflejar las prácticas culturales que se desarrollaron anteriormente en las Antillas. En este sentido, el regalo de artefactos con historias únicas y reconocidas, incluidos las vasijas de cerámica, podría explicar el movimiento de las vasijas importados desde La Española a través de las comunidades Lucayas, de baja frecuencia. Aunque el tamaño de la muestra es pequeño, estos nuevos datos proporcionan una línea de base para una mayor investigación de las redes Lucayas.*

## Introduction

Pottery is the most common material of human manufacture at Ceramic Age<sup>3</sup> archeological sites in the Caribbean (Rouse 1992). One issue, addressed in numerous compositional studies (e.g., papers in Descantes et al. 2008), is the movement of pottery vessels among islands and among communities on the same island (Casale et al. 2022). Within the region, the most apparent distinction is seen in temper type, given the difference in available rock and other aplastics on islands of volcanic

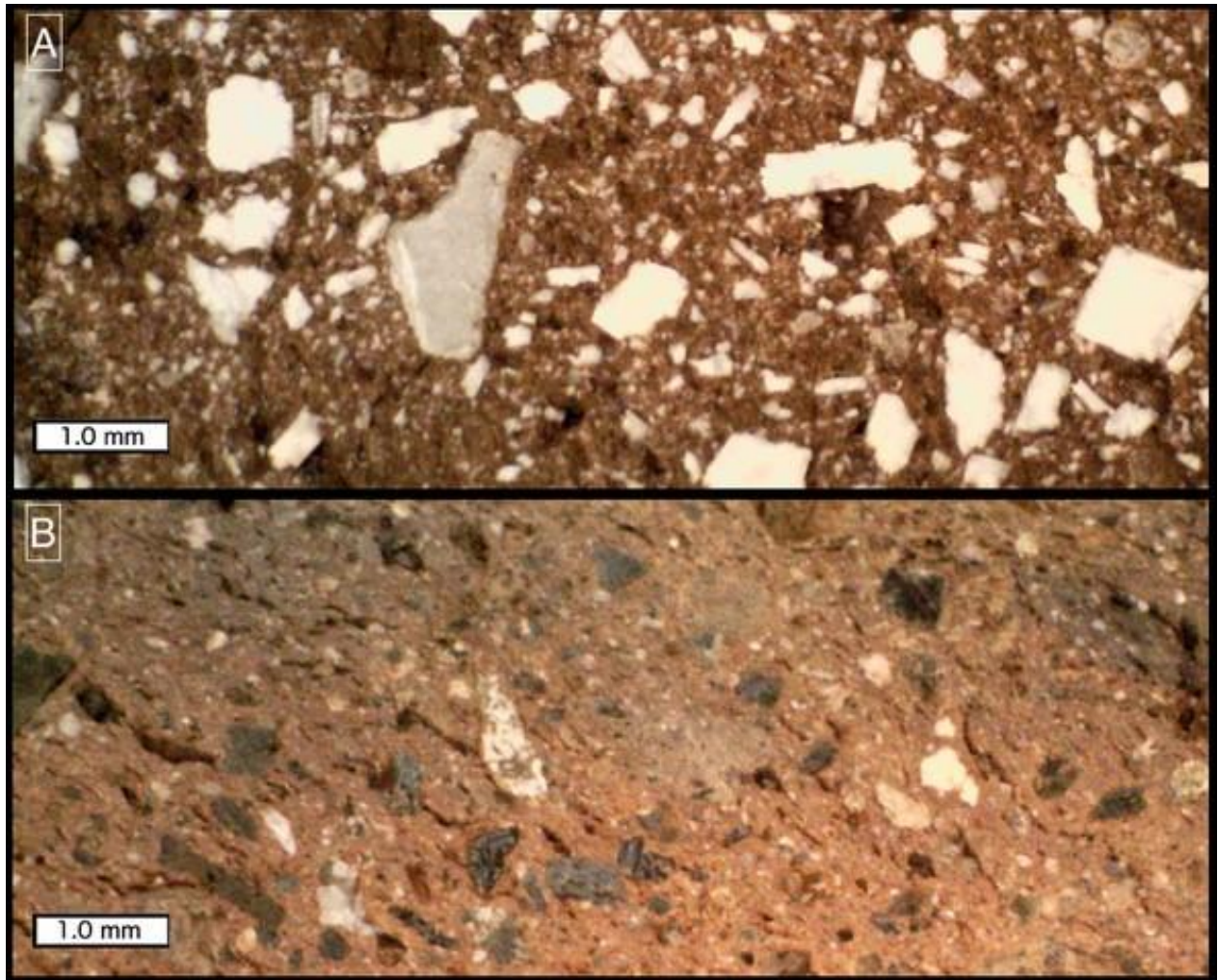
origin versus those on islands of carbonate origin (Crock 2000; Kracht et al. 2022). Based on temper type, pottery representing both volcanic and carbonate production sources is recovered at archaeological sites in the Lucayan Islands (Bahama archipelago).<sup>4</sup> There are no known carbonate tempers (e.g., limestone) from any of the neighboring Greater Antilles. In contrast to other studies, *no specialized analytical methods were needed or used* in this study. The differences between nonlocal (“imports”) and local pottery are unequivocally observed with the naked eye.

<sup>3</sup> The “Ceramic Age” is defined as a genetically homogeneous migration that began from northeastern South America around 400 BC and over time resulted in the complete replacement of indigenous Archaic Age populations on most Caribbean Islands, including the Bahama archipelago. The Ceramic Age is distinguished from the Archaic Age by the abundant use of ceramics and settled agriculture (Keegan and Hofman 2017).

<sup>4</sup>The Bahama archipelago is comprised of the Commonwealth of the Bahamas and the Turks & Caicos Islands (British Overseas Territory). We refer to them as the Lucayan Islands in recognition of the Indigenous ancestry.

They are as clear as black (i.e., volcanic inclusions) and white (i.e., shell temper) (**Figure 1**). In addition, local and nonlocal sherds easily

are distinguished by feel due to differences paste quality and surface treatment.



**Figure 1. Comparison of typical Palmetto Ware (A) and imported pottery (B) inclusions at 30X magnification, showing stark inclusion differences. Samples were recovered from Middle Caicos, site MC-32. (Photo: Lindsay Bloch).**

We begin with a brief introduction to the cultural context, then describe the distinctive characteristics of Lucayan Palmetto Ware. Next, we describe the characteristics of imported pottery and enumerate the occurrence of nonlocal pottery at excavated sites. The distribution of imports reflects a south-to-north density drop-off. This pattern is associated with down-the line exchange (Renfrew 1977). We conclude this section with new data on the probable sources of imports at Lucayan sites, which identified Hispaniola as the predominant source (Kracht et

al. 2022). We then discuss pottery data from the Wemyss site on Long Island in the central Bahamas. The Wemyss excavation provides the opportunity to examine differences in the frequency of imports over a 400 year period within a clear stratigraphic sequence of radiocarbon dated house floors (or living surfaces). In addition, distinct activity areas facilitate the intra-site comparison of pottery disposal in house and midden contexts. We conclude with some initial observations and generalizations, but recognize the limits of a

small sample size. Nevertheless, these data provide a baseline for further investigation of Lucayan networks.

### Cultural Background

The Lucayans were the only permanent pre-Columbian inhabitants of the Bahama archipelago. Whether the Lucayans originated in Hispaniola, Cuba, or both is a longstanding question (Berman et al. 2013). Recent genome-wide and mitochondrial DNA data trace their homeland to northwestern Hispaniola (Fernandes et al. 2021), with the possible late arrival of individuals from Cuba (Forbes-Pateman et al. 2022). Moreover, The Bahamas and Ceramic Age Cuba form a common subclade; and genetic “cousins” link individual Lucayans to Hispaniola (n=7) and Cuba (n=1) (Fernandes et al. 2021). The movement of pots made in the Greater Antilles provides a complementary perspective on the movements of people, and the networks through which they interacted.

Beginning around AD 700, seasonal visitors from Hispaniola initiated the first forays into the southern Lucayan islands. Such episodic visits into the southern islands continued until at least AD 1300. These archaeological sites are distinguished by pottery assemblages reflecting a complete reliance on pottery made in Hispaniola (Carlson 1999; Keegan 2007). A distinct Lucayan identity is associated with locally produced pottery, called Palmetto Ware (Hoffman 1967), which first appears around AD 800-900 (Berman et al. 2013). All of the larger islands and many smaller cays in the archipelago have evidence of a Lucayan presence by AD 1000 (Schulting et al. 2021).

Like their Antillean forebearers, the Lucayans were tropical horticulturalists who harvested zamia and cultivated a variety of crops, including manioc and maize (Ciofalo et al. 2018, 2019). They obtained the majority of their animal

protein from fishes, mollusks, and sea turtles; with a minor terrestrial contribution from hutia, iguanas, and birds (Berman et al. 2013; Newsom and Wing 2004). Foods were cooked in pottery vessels, on flat clay griddles; and by methods that did not involve clay pots, including earth ovens and the carapace of sea turtles (*Chelonia mydas*) (Keegan et al. 2020). Unlike their Antillean neighbors, whose sometimes large villages had shifted to more interior hilltops and river valleys, the Lucayans maintained a strong preference for coastal settings and lived in small villages and hamlets (Blick et al. 2011; Keegan and Hofman 2017). The Lucayans were the first Indigenous society encountered, and the first to be extinguished, during the Spanish invasion of the Americas.

### Local Pottery – Palmetto Ware

The Lucayans produced a distinctive type of pottery known as Palmetto Ware (Hoffman 1967) (Figure 2). This low-fired earthenware was made from locally collected clays mixed with burned and crushed conch shell (*Aliger gigas*, formerly *Strombus gigas*) temper (Gerace and Winter 2015; Mann 1986).<sup>5</sup> Typically it was fired in an oxidizing environment resulting in a red paste with abundant blocky white shell fragments. Forms likely included bowls, jars, and griddles; though due to its friable nature a complete or reconstructable Palmetto Ware vessel has never been found. Palmetto Ware is mostly plain but when decorated has design motifs that can be classified with the contemporaneous Meillacoid series pottery produced in both Hispaniola and Cuba. The origins of Palmetto Ware are as yet unclear. Based on radiocarbon dates from sites in the Turks & Caicos Islands, it likely was first made in the Caicos Islands by AD 900 (Sinelli 2013), and then replicated with local clays by the Lucayans who expanded northward.

<sup>5</sup> It was reported that tiger lucine (*Codakia orbicularis*) shell was used as temper for Palmetto Ware (Sears and Sullivan 1978). However, Keegan and Mitchell (field notes) found that tiger lucine shell decomposes to powder when heated in a fire. More recent pottery

analyses and experiments in shell tempering have demonstrated that burned and crushed conch shell most closely matches the blocky structure and other characteristics of Palmetto Ware temper (Bloch et al. n.d.).



**Figure 2. Palmetto Ware pottery recovered at Wemyss site (LN8). Top row: punctate rim, incised rim with mend hole, and mat-impressed. Bottom row: undecorated. (Photo: Lindsay Bloch).**

### **Nonlocal Pottery**

Artifacts made from materials that are not locally available provide important evidence of inter-island relationships (e.g., Crock 2000; Hoffman et al. 2008; Knippenberg 2006). Because the Lucayan Islands formed through the accumulation of marine sediments in a shallow sea (Sealey 2006), any artifacts made from noncarbonate materials must have been transported from the volcanic islands of the

Greater Antilles. An ongoing study of imported stone tools is looking at the movement of nonlocal materials into the Lucayan Islands (Ostapkowicz 2022). The main category of nonlocal artifacts is pottery manufactured from clays with igneous and metamorphic tempers. Pottery made in the Greater Antilles has distinctive characteristics (e.g., color, thickness, hardness, temper; **Figure 3**) in comparison to Palmetto Ware.



**Figure 3. Imported pottery sherds recovered at Wemyss site (LN8). (Photo: Lindsay Bloch).**

Potsherds from vessels made in the Greater Antilles have been observed during walkover surveys at archaeological sites throughout the Lucayan Islands (e.g., Keegan 1988; Keegan and Mitchell 1984; Sullivan 1981). Sherds from imported vessels recovered during excavations typically occur as small, isolated finds. The remains of entire vessels or even very large fragments are rarely found. Recently, the only complete imported vessel was recovered from underwater in a cave on Middle Caicos (Keegan et al. 2021a). This suggests there may have been special disposal practices for broken imported vessels. However, it is difficult to determine whether the lack of protected depositional environments, the overall scarcity of imported pottery, or specialized treatment of nonlocal vessels are driving this pattern.

Unlike Anguilla (British Virgin Islands), a similarly small limestone island, where imported vessels comprise at least 80% of the pottery assemblage (Crock 2000), imports never supplanted the domestic functions of locally made Palmetto Ware. Vessels imported to the

Lucayan Islands probably were valued for their rarity and foreign origin (as reflected in exchanges with Columbus; Keegan 2015), and as such could have been curated and reserved for special occasions (e.g., Fitzpatrick et al. 2009). This raises the possibility that certain ceramic objects were imbued with a biographical legacy (Weiner 1992). The ubiquity but low frequency of imports reflects a specific purpose, for which, perhaps, every family had a small number of imported vessels.

The widespread distribution of imported pottery raises two questions. First, with what frequency did these vessels reach different Lucayan communities? One approach to characterizing material differences across this 1,000 km long linear archipelago involves dividing the islands into three distinct environmental zones based on differences in temperature and rainfall regimes (Schulting 2021; see **Figure 3**). Sears and Sullivan (1978) used these Northern, Central, and Southern zones in the only archipelago-wide accounting of imported pottery percentages to date. Based

mostly on surface collections, they reported that imports comprised 10% of pottery from the Turks & Caicos Islands (Southern zone), and 1.8% for the Central zone. At the time, there was insufficient data to determine a percentage for the Northern zone.

Since then, site excavations have been conducted throughout the Lucayan Islands providing a more complete view. However, because these data most frequently appear in unpublished reports and MA theses, they have not been readily available or previously compared systematically. We address that situation here. The percentages for sites on Great Abaco and

New Providence Islands (Northern zone); on Acklins Island, Long Island, and San Salvador (Central zone); and on Middle Caicos and Grand Turk (Southern zone) are assembled for the first time in **Table 1**. With regard to timing, chronology remains problematic. The Lucayan occupation of the archipelago dates from about AD 800-900 to post-contact (Berman et al. 2013; Schulting et al. 2021). Unfortunately, very few Lucayan sites are adequately radiocarbon dated. Even when radiocarbon dates are available, the dates for a site often span the entire period of Lucayan habitation.

**Table 1. Percentage of imports from sites on islands in the Northern (N), Central (C), and Southern (S) zones.**

Island	Site	Total <sup>1</sup>	Imports	%Imports	Dates AD <sup>3</sup>	Reference
Abaco (N)	Big Lake Cay	664	1	0.15	ca. 1000	Keegan et al. 2021b
New Providence (N)	Pink Wall	133	1	0.75	ca. 900	Bohon 1999
New Providence (N)	Clifton	174	1	0.57	1115-1400	Vernon 2007
San Salvador (C)	Palmetto Grove	5,250	~63	1.2	1280-1654	Hoffman 1967
San Salvador (C)	Pigeon Creek	3,226	~61	1.9	1050-1620	Rose 1982
San Salvador (C)	Storr's Lake	1,376	21	1.5	855-1650	Shaklee et al. 2007
Long Island (C)	Wemyss	748	37	4.9	1180-1600	Table 2, below
Long Island (C)	Rolling Heads	182	16	8.8	1020-1400	Hanna et al. 2021
Acklins Island (S)	AC-14	204	37	18	na	Keegan 1988
Middle Caicos (S)	MC-6, surface	~30,000	~2,000	7	ca. 1437	Sullivan 1981
Middle Caicos (S)	MC-6, structure VIII	1,535	219	14	1350-1620	Keegan 2007
Middle Caicos (S)	MC-8 & MC-10 <sup>2</sup>	2,127	39	98	1020-1240	Sinelli 2001
Middle Caicos (S)	MC-12	927	233	25	1142-1422	Keegan lab notes
Middle Caicos (S)	MC-32, surface/test	547	81	14	na	Sullivan 1981
Middle Caicos (S)	MC-32, midden	2,483	470	19	1250-1520	Keegan 2007
Grand Turk (S)	GT-2	86	86	100	ca. 1300	Carlson 1993
Grand Turk (S)	GT-3	1,423	1,423	100	700-1100	Gubrium 1998
Grand Turk (S)	GT-4	19	19	100	1280-1380	Carlson 2010

<sup>1</sup>Only sherds larger than 2 cm are included. <sup>2</sup>MC-8 and MC-10 are components of one site (Sinelli 2001). <sup>3</sup>The chronology is problematic because most Lucayan sites are not well dated and those that are tend to have radiocarbon dates that span the entire period of Lucayan habitation. We use *circa* (ca.) for sites where only one or two radiocarbon dates are available, and na (not available) for sites with no radiocarbon dates.

Sites in the Turks & Caicos Islands (Southern zone) exhibit substantial variability in the percentage of imports. The oldest site in the archipelago is GT-3 on Grand Turk, where 100% of the pottery originated in Greater Antilles (Carlson 1999). Somewhat later forays from Hispaniola to Grand Turk (GT-2, GT-4) were undertaken to manufacture small disc beads from cherry jewel box shells (*Chama sarda*). These also have 100% imports (Carlson 1993, 2010), which suggests pottery vessels were part of the material inventory brought on these short-term expeditions. They also reflect a lack of engagement with the contemporaneous Lucayan inhabitants of the Caicos Islands (Keegan 2007).

Although the chronology is not well established, pottery evidence reflects continued visits from Hispaniola to small cays on the Turks Bank and Caicos Bank from AD 950 up to AD 1300 (Sinelli 2010). At site MC-8/MC-10<sup>6</sup> on the south coast of Middle Caicos, Palmetto Ware is present, but 98% of the pottery is imports (Sinelli 2001). The site is radiocarbon dated to cal AD 1020-1240; roughly the same time there was a Lucayan village (MC-12) only 4 km away on the north coast (cal AD 1142-1422). Yet only 25% of the pottery at MC-12 was imported (Keegan lab notes). Import percentages continued to decline through time as reflected in data from two separate studies at MC-6 and MC-32. Both of these sites were first occupied after AD 1250 (see **Table 1**). Sullivan (1981) reported that imports comprised 7% of the surface collected pottery at the “ceremonial center” (MC-6), while Keegan’s (2007) excavation of “structure VIII” at MC-6 recovered 14%. At MC-32, imports comprised 14% of Sullivan’s (1981) surface collections and test units, and 19% of Keegan’s (2007) midden excavation. The relatively high percentages of imports in comparison to more northern Lucayan sites probably reflect their proximity to the Hispaniolan source, although it is surprising that MC-6 has so few imports given its depiction as a “ceremonial center” and “gateway community” (Sullivan 1981).

<sup>6</sup> Originally recorded as two sites (Sullivan 1981), recent research indicates that they are components of a single site separated by a narrow tidal creek (Sinelli 2001).

Import percentages decline steadily from south to north. Site AC-14 at Delectable Bay, Acklins Island, at the southern end of the Central zone, had 18% imports (Keegan 1988), while other sites in this zone range from 8.8% and 4.9% on Long Island (below) and from 1.2% to 1.9% on San Salvador<sup>7</sup> (Hoffman 1967; Rose 1982; Shaklee et al. 2007). The differences between Long Island and San Salvador likely reflect their geographical locations. Long Island is located on the main north-south axis of the archipelago, while San Salvador is the terminus of a branch. If the movement of pots from Hispaniola involved down-the line exchange (Renfrew 1977), then the Lucayans on San Salvador had less direct access.

An even greater decrease in imports is evident for the Northern zone. Excavations at the Big Lake Cay site on Great Abaco Island yielded 664 sherds of which only one was an import; and only three import sherds were surface collected from the completely deflated and eroded Green Turtle Cay Ferry site on the same island (Keegan et al. 2021). Similar small percentages are reported for New Providence Island (Nassau): 0.75% at the Pink Wall site (Bohon 1999) and 0.57% at Clifton (Vernon 2007). The combined quantity of imports for all Northern zone sites (n=6) is too small to calculate a meaningful percentage for the zone, but does indicate that imported vessels were extremely rare.

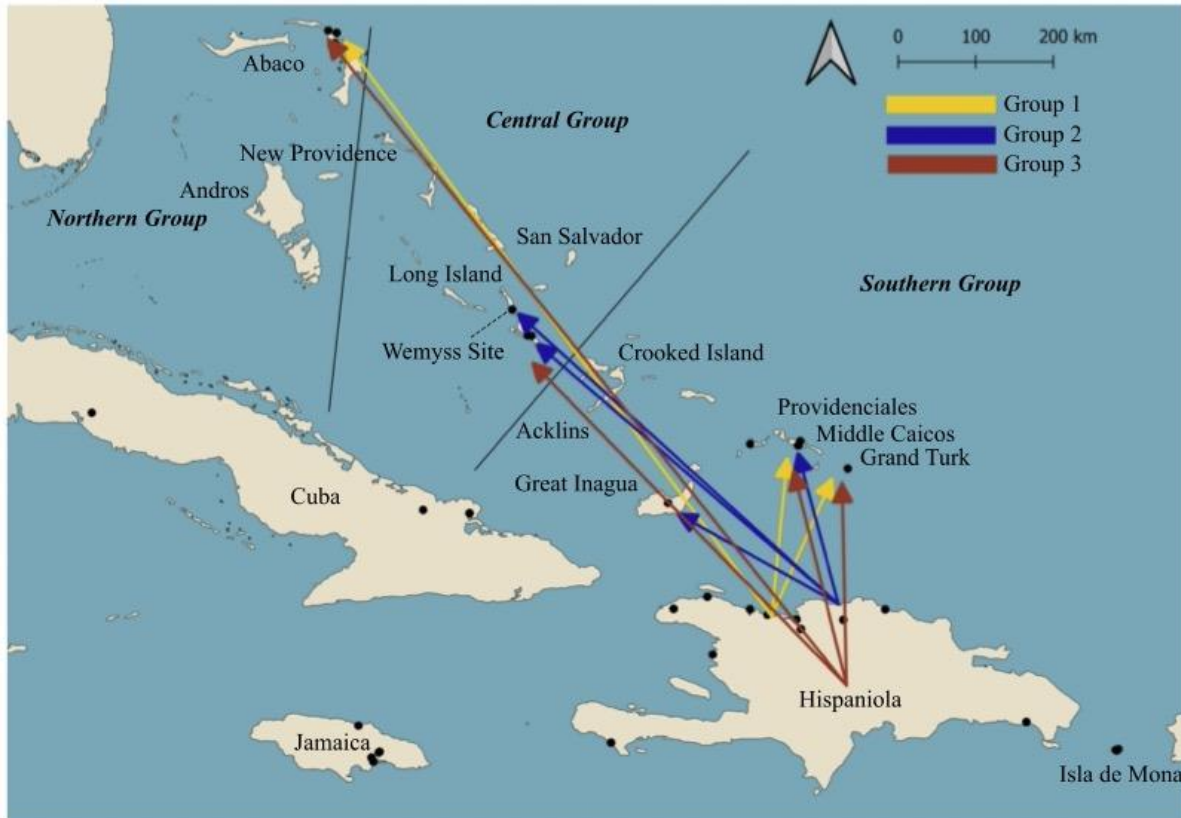
The second question is, where did imported vessels at Lucayan sites originate? This question was addressed in a recent compositional analysis using LA-ICP-MS to characterize 69 samples from five islands of the Greater Antilles and 25 samples of imported pottery recovered from six Lucayan Islands (Kracht et al. 2022). The results indicate that all of the imports that could be sourced to a specific island originated in Hispaniola (n=15; **Figure 4**). Only two of the 25 samples from Lucayan sites (specifically MC-10 and Green Turtle Cay Ferry site on Abaco), had a compositional signature that could possibly be attributed to Cuba. One additional sherd (from Wemyss) clustered with compositional Group 6 (see Kracht et al. 2022), which consists

<sup>7</sup> The only nonlocal ceramics reported for the Long Bay site on San Salvador are of European origin (Hoffman 1987a, 1987b), but this may be an oversight because a detailed report was never prepared.



predominantly of samples recovered from western Cuba, but also several other parts of Cuba, eastern Hispaniola, and Jamaica. This suggests an inter-island compositional group

based on shared geological features. The future analysis of clay samples, in addition to the pottery sherds used for this study, may refine the identification of source locations in Cuba.



**Figure 4.** Map of the Bahama archipelago divided into environmental zones showing the locations of islands with sites for which import percentages are reported. The Wemyss site (Long Island) and others with sherds attributed to the three Hispaniolan compositional groups are identified by arrows. Black dots identify all of the locations sampled for the compositional analysis (see Kracht et al. 2022).

Furthermore, the sample from Wemyss is a fragment from a mammiform or heart-shaped bottle (*potiza*); based on shape, thickness, and its unique white/beige slip (see Casale et al. 2022). Fragments of these vessels also are reported from CR-14 on Crooked Island (Keegan 1988:17), MC-6 on Middle Caicos (Sullivan 1981), and En Bas Saline (Kathleen Deagan, personal communication, 2022). The En Bas Saline site (near Cap Haïtien, Haiti) is in the area from which most of the imports at Lucayan sites originated (Kracht et al. 2022). Mammiform bottles are most common in the southeastern Dominican Republic (Casale et al. 2022; Beeker et al. 2002; Fundación Centro Cultural Altos de Chavón 1992), and there

is no evidence they were ever manufactured in Cuba (Roberto Valcárcel Rojas, personal communication, 2022). While Kracht and colleagues were not able to pinpoint a specific production region, the parsimonious explanation given the criterion of abundance (Bishop 1982) is the sherd from Long Island is from a vessel made in Hispaniola (and not Cuba). Chronologically earlier Saladoid bottles have been associated with the ritual consumption of fermented beverages (Harris 1998), a common practice in Indigenous South America (Harner 2020). The ritual use of intoxicants could explain the presence of imported bottle fragments at Lucayan sites.

Overall, these results emphasize the initial and enduring connections with Hispaniola.

### Pottery from the Wemyss site (LN-8), Long Island

To this point we have focused on the general geographical distribution, which exhibits a steady decline as one moves away from the Hispaniolan source. In addition, the percentage of imports at any site is influenced by a wide variety of factors, including site type, disposal practices, and the age of the deposit. We turn now to new data recovered during excavations at the Wemyss site to consider potential temporal or spatial patterns in the use and disposal of imported pottery.

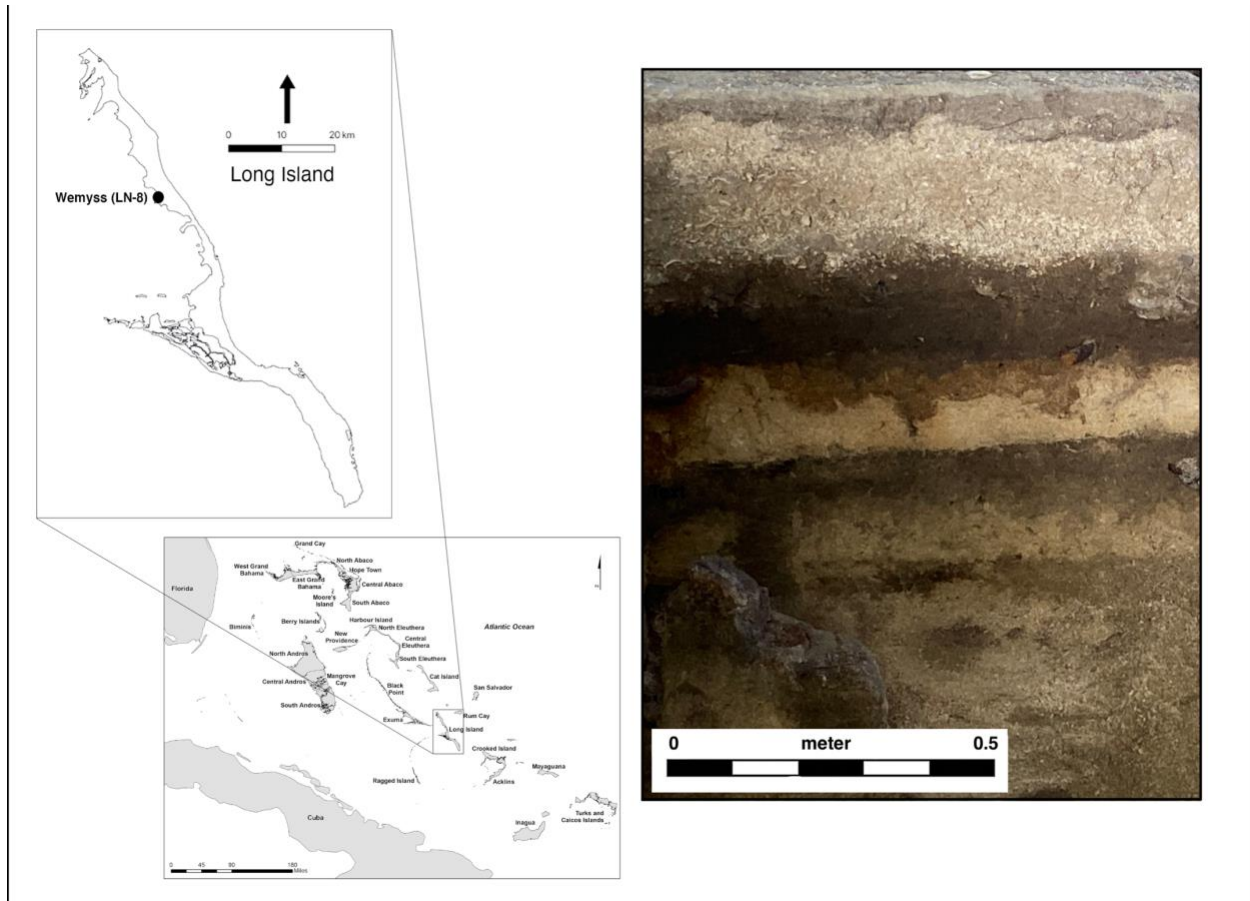
The Wemyss site is located on the western, lee shore of northern Long Island. Wemyss is a habitation site that was occupied, abandoned, and reoccupied for about 400 years (cal AD 1180-1450,  $2\sigma$ ) (see **Table 2**). The site presents a rare example of a clearly stratified pre-Columbian settlement in the Lucayan Islands with three distinct, hardpacked surfaces (“House Floors”) separated by sand and storm deposits, and at least two separate midden areas. The

deposits preserve long-term patterns of use and discard.

The Lucayan house floors are underneath a modern house (**Figure 5**). The excavation units were positioned to avoid disturbance from the placement of the pillars that support this structure. The deposits are capped by 6-cm-deep hardpan ground surface that has preserved stratigraphic integrity (**Figure 6**). The house area was excavated in 1 m<sup>2</sup> units within a 2 m by 8 m trench using trowels and finer tools. Levels were defined according to cultural strata and living surfaces, although these roughly correspond to 10 cm levels. Large post stains intrude from higher levels, but these were easily recognized by soil color and excavated as separate features. House deposits were screened through 0.5 cm<sup>2</sup> hardware cloth with 5-liter fine-screened (2 mm<sup>2</sup>) voucher samples collected from each level. The midden was hand excavated in 1 m<sup>2</sup> units with the denser marl-soil sediments water screened through window mesh (2 mm<sup>2</sup>). Radiocarbon AMS dates were obtained for each of the living surfaces and the deepest level of the midden (**Table 2**; additional dates are in progress).



**Figure 5.** Orthomosaic view of the Wemyss site with North to the left. The Indigenous living surfaces are under the large modern house (left of the pool) and the midden is identified with a red square. For scale, the pool enclosure is 6 meters long. (Photo: Michael Pateman).



**Figure 6.** (left) Location of Wemyss site on Long Island, The Bahamas; (right) excavation profile at Wemyss showing alternating strata of dark organic midden and light beach wash. (Photo: William F. Keegan; figure originally published in Bloch et al. 2021, CC BY 4.0).

The counts and percentages for Palmetto Ware and import sherds from the midden and individual house floors at Wemyss are presented in **Table 2**. Sherd counts are used because sample size, lack of decoration, and general fragmentation made calculations of minimum number of vessels impossible. A regional standard, 2 cm<sup>2</sup> size minimum was used to maintain comparability with other reports. Smaller sherds were counted and weighed, but were not included in the tabular percentage

calculations. This minimum size provides more equitable accounting given the larger size of most imports and the high friability of Palmetto ware (at Wemyss, sherds < 2 cm<sup>2</sup> comprise 69% of the total; n=2,172 of 3,168). It also facilitates comparison with surface collections. Sears and Sullivan (1978) noted that surface collections were subject to a ‘collector bias’ in which the largest and most unusual sherds (especially imports) were recovered in greater frequency than smaller, ordinary-looking sherds.

**Table 2. Percentage of Imports by count from different activity areas at the Wemyss site.**

Location	Palmetto Ware Count <sup>1</sup>	Import Count	Total count	% Import	<sup>14</sup> C Age BP	Date cal AD (2σ range)	δ <sup>13</sup> C	Lab Number
Midden	415	11	426	2.5	550 +/- 30	1300-1418	-26	Beta-491743
House Floor 1	64	8	72	11	490 +/-30	1404-1450	-25.1	Beta-514251
House Floor 2	149	2	151	1.3	580 +/-30	1300-1418	-25.3	Beta-514248
House Floor 3	83	6	89	6.7	800 +/-30	1180-1275	-24.4	Beta-514250
<i>Total House</i>	<i>296</i>	<i>16</i>	<i>312</i>	<i>5.1</i>				
<b>Grand Total</b>	<b>711</b>	<b>37</b>	<b>748</b>	<b>4.9</b>				

<sup>1</sup>Only sherds larger than 2 cm are included. All dates charcoal samples. Calibration: BetaCal3.21: HPD method: INTERCAL13.

Using the 2 cm<sup>2</sup> threshold, imports comprise 5.1% of the pottery from the Wemyss house floors, but only 2.5% of the midden. When sherds < 2 cm<sup>2</sup> are added to the total, the percentage of imports decreases to only 0.92%. Given the high friability of Palmetto Ware, we considered whether weight would provide a more accurate comparison. Palmetto Ware sherds tend to be thicker than import sherds (6-22 mm versus 5-9 mm), so one might expect Palmetto Ware to weigh more. However, we made a comparison of Palmetto Ware sherds from Wemyss (n=24) with similar size Meillacoid and Chicoid sherds from Hispaniola (n=20) in the collections of the Florida Museum of Natural History (lab notes on file). The results demonstrate that weight differences are not substantial. In fact, at 1.45 g/cc Palmetto Ware sherds were slightly lighter than sherds from Hispaniola (1.54 g/cc), probably because they are less compact and have a lighter tempering material. The thickest Palmetto Ware sherds (15-21 mm at Wemyss), which often are attributed to griddles, raise the potential for skewed comparisons based on weight. However, thick sherds were not common in the Wemyss deposits (N = 40: midden = 12; house = 28). Weight calculations yielded 1.8% imports (sherds > 2 cm<sup>2</sup>) and 1.4% (including sherds < 2 cm<sup>2</sup>). By any measure, imported pottery is not abundant at Wemyss, or on other Lucayan-occupied sites.

The distinct living surfaces at Wemyss also provide the opportunity to track changes in

the relative frequency of imports through time (Table 2). The results show a higher incidence of imports during the first (11%) and last (6.7%) occupations of the site, with smaller quantities associated with the middle house floor (1.3%). These differences may reflect stronger initial ties to the homeland, a late period increase in exchange, and/or site and vessel functions. However, the sample size is too small to support definitive conclusions.

### Conclusions

The late colonization date and unique characteristics of Lucayan sites provide the opportunity to observe cultural practices that are less visible elsewhere in the Caribbean culture area. These include, for example, the exploitation of pristine fauna (Carlson 1999), and specialized beadmaking workshops (Carlson 1993, 2010). The distribution of nonlocal pottery at Lucayan sites provides a novel perspective on the movement of artifacts through island networks (Hofman et al. 2008), the possible curation of rare and foreign objects (Fitzpatrick et al. 2009), and complements the region-wide sourcing study examining inter-island interactions (Kracht et al. 2022). To this end we addressed two questions: where did nonlocal pottery originate? With what frequency did these vessels reach different Lucayan communities?

With regards to origins, the LA-ICP-MS analysis identified Hispaniola as the dominant

source location, with the results for Cuba inconclusive (Kracht et al. 2022). The limited number of direct pottery connections with Cuba is surprising given long-established relations between the islands (Keegan 2015), including the possible late movement of individuals from Cuba to Andros Island (Forbes-Pateman et al. 2022). It is possible our sampling of imports from Lucayan sites was not large enough to include sherds from Cuban pots. Alternatively, the compositional isolation of Cuban sources from our sherd samples was not achieved due to common geological signatures found on different islands in the Greater Antilles.

With regard to distribution, the ubiquitous occurrence of imports at Lucayan sites reflects broad interest in nonlocal pottery, perhaps emphasizing the Hispaniola homeland identified through aDNA analysis (Fernandes et al. 2021). The highest percentages of imports are found in the Southern zone, initially reflecting the transport of vessels from Hispaniola in the absence of a locally available source (sites GT-2, GT-3, GT-4); and later, the failure to engage a potential local source (MC-8/MC-10 with MC-12). The percentage of imports markedly

decreases after a local source was available (MC-12, MC-32, MC-6). There is a steep decline in percentages of imports as one progresses through the archipelago to the north and to the east, as communities get farther away from a Hispaniolan source. This density drop-off may reflect down-the-line exchange. Furthermore, the midden at Wemyss had far fewer imports per excavation unit than did the total house, and the frequency of imports from the house floors changed through time. Thus, the recovery of imports was time and context sensitive, indicating that inter-site and inter-island comparisons must be based on like assemblages.

Finally, the broad distribution of imported pottery reflects a special role for imports in Lucayan cultural practices. Our study is based on potsherds, but these are just fragments of the whole pots that moved through Lucayan communities. Presently, most of the available reports simply quantify the numbers. Greater attention to the characteristics of complete vessels (in addition to source, quantity, and context) is needed to better understand the movement of these vessels through Lucayan networks.

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