Impressions of a Lost Technology: A Study of Lucayan-Taíno Basketry

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A sample of 260 basketry-impressed Palmettan Ostionoid sherds were analyzed from the Pigeon Creek Site, a 15th-century Lucayan-Taíno site located on San Salvador, Commonwealth of the Bahamas. The study is part of a larger project examining the geographic distribution of basketry technology and design from sites of varying time periods and islands throughout the Bahama archipelago and northern Greater Antilles. Three subclasses of basket weaves were recognized from the impressions recorded in molds and casts. Several complex designs were identified. A four-row sequence we term the "A" pattern was used to create varying patterns. The roles of baskets as trade, tribute, or gift exchange in 15th-century Lucayan-Taíno society and the potential for using variability in basket weaves to infer social boundaries are discussed. Basketry may also have played a role in the expression and authority of shamans.

Introduction

Basketry, like ceramics, is a means by which archaeologists can examine chronology, symbolic behavior, economy, technology, cultural identity, social boundaries, interaction, and gendered relationships (Adovasio 1974, 1977; Geib 2000; McGregor 1992; Petersen 1996; Soffer, Adovasio, and Hyland 2000; Weltfish 1932). Adovasio (1974, 1977, 1986), Croes (1989), and Pryor and Carr (1995) have observed that the spatial distributions of different basketry types are sensitive indicators of archaeological traditions and social or ethnic groups. Adovasio (1974, 1977) argues that basketry is a powerful measure of regional interaction. Adovasio (1986) and Adovasio and Pedler (1994) have used basketry attributes to chart prehistoric population movement and expansion in the Great Basin. Because of its fragility and perishability, however, basketry, like other organic technologies, infrequently survives in the archaeological record. Yet perishable technologies constitute substantial bodies of prehistoric material culture. Soffer, Adovasio, and Hyland (2000: 512) point out, for example, that there are 20 more times as many fiber remains as there are lithic artifacts in early Holocene contexts where excellent preservation exists.

This study looks at the role of basketry traditions in the lifeways of the indigenous peoples of the Caribbean, where little is known about prehistoric fiber industries. There are numerous references in ethnohistorical accounts to perishable technologies, although few details are provided. Such remains have been recovered archaeologically from waterlogged deposits in the Bahamas, Cuba, and the Dominican Republic, but object descriptions from these investigations have not been published. Because the sites that provide ideal preservation environments for organic artifacts are not investigated as frequently as open-air sites, such remains are rarely found. Consequently, cultural reconstruction of Caribbean prehistory, as elsewhere, has been based on longer-lasting remains such as lithics and ceramics.

The Spanish chroniclers speak sparingly about the manufacture and use of baskets among the Taíno, Island Carib, and other indigenous Caribbean peoples. In his compilation, *Historia General y Natural de las Indias,* Oviedo describes, with few details, at least one basket type and mentions a handful in passing. This work, based on his years (1532–1546) in Santo Domingo, was written after many aboriginal practices had disappeared or gone into decline due to the mass enslavement, death, and population displacement that occurred under Spanish rule (Sauer 1966: 38). His data were based on observations of contemporary conditions or information gathered from elderly survivors suggesting, therefore, that other basket traditions may have existed.

In spite of the circumstances in which the work was written, Oviedo provides some insights into aboriginal basket function and weave materials (Lovén 1935:

461–462). The Taíno apparently carried their clothing and stored miscellaneous items in a tightly woven, double-walled basket rendered waterproof by the double weave. The basket was carried by a pole, but Lovén (1935: 461) believes that the Spanish introduced this practice. Fibers for baskets were obtained from three different plants: bihao (palm), maguey (*Agave* sp.), and maranta that were processed by splitting the leaf, frond, or stalk down the middle or stripping the outer surface. Finally, Oviedo tells us that the Taíno did not possess as well-developed a basketry tradition as the Island Caribs or the people of mainland South America (Lovén 1935: 461).

Las Casas, Martyr, and Cuneo also briefly note Taíno basket use. In *Historia de las Indias,* Las Casas mentions that the Taíno carried salt in baskets woven from palm fronds (Lovén 1935: 461). In *De Orbe Novo,* Peter Martyr reports that Taíno women presented manioc cakes on artistically-crafted baskets during the autumn festival (Lovén 1935: 461). Cuneo observed that the Indians of south-central Cuba used baskets to gather pearl-bearing mussels (Lovén 1935: 461).

In many parts of the world, even those with the potential for good preservation, evidence for basketry often survives only as impressions on pottery, clay floors, daub packing, or fragments of pitch (Adovasio 1977: 2,10). These impressions are often from basketry forms used in house construction (e.g., roofs, walls). William H. Holmes (1903) noted basket impressions on pottery from the eastern United States. Basketry-impressed pottery has also been reported from the Yang-shao culture of China (Chang 1986: 122, 128), the Northwest Coast (Pettigrew and Lebow 1987 in Fowler 1996), the Diaguita culture of Argentina (O'Neale 1949: 74), and Neolithic sites in Yugoslavia (Adovasio 1977: 13). It is also found on Early Formative pottery from Oaxaca (Flannery and Marcus 1994: 249–250). Basketry impressions are present on clay strips from the Deh Luran site of Chagha Sefid (Hole 1977: 234–235). In all cases, the basketry-impressions represent a minor form or an accidentally-induced form of surface treatment within an assemblage. Such impressions, however, hold great potential for understanding prehistoric fiber technologies.

Basketry-impressed pottery has been reported from a number of sites in the Caribbean and surrounding region (FIG. 1) (Petersen et al. 1999). The impressions occur typically on the bottoms of griddles and occasionally on flat-based vessels. The earliest Caribbean evidence is from the Saladoid period (500 B.C.–A.C. 600). Basketry impressions are found on the bottom of a few griddles excavated from the Diamant site in Martinique (Petersen et al. 1999). Chanlatte Baik (1984: 31–32) reports examples from La Hueca Phase on Vieques. Basketry-impressed sherds have been recovered from sites on Antigua (Olsen 1974; Petersen et al. 1999); the Golden Rock site on St. Eustatius (Petersen et al. 1999); the Hope Estate site in French St. Martin, Grenada; sites in the Grenadines (Petersen et al. 1999); sites on Cuba (Dacal Moure and Rivero de la Calle 1984: 127–128); and Haiti (Rouse 1948: 527). In British Guyana, Evans and Meggers (1960) found basketry-impressed pottery on Rupunui phase griddle bottoms and Lathrap (1970: 62) notes basketry and mat impressions on the bottoms of pots and griddles throughout the Amazon basin. In South America, as in the Caribbean, basketry-impressed pottery does not occur in high frequencies within assemblages.

Basketry-impressed pottery is also present at Lucayan sites located in the Bahama archipelago, a chain of low-lying carbonate limestone islands and shallow banks lying between 21°N and 27°30′N latitude and 69°W to 80°30′W longitude that comprise the Turks and Caicos, British West Indies, and the Commonwealth of the Bahamas (Sealey 1985). The Lucayan were the indigenous people of the Bahama archipelago. The Spanish referred to them as the "Lucayo," a designation derived from the Taíno word, *Lukku-Cairi* meaning "island men" (Keegan 1992: 11; 1997: 13). The earliest evidence of the peopling of the Bahama islands dates to the A.C. 700s and is known from the Coralie site on Grand Turk (Keegan 1997: 21). By the A.C. 800s, sites such as the Three Dog site and Dune #2 on Pigeon Creek had been established on San Salvador in the north-central Bahamas (Berman and Gnivecki 1995; Berman and Pearsall 2000) and by the A.C. 900s, the Pink Wall site on New Providence in the northern Bahamas was settled (Bohon 1999: 33, 45). Columbus landed on Guanahaní, believed to be the island of San Salvador (Keegan 1992, 1997). By the time of Spanish exploration, the Lucayans inhabited each of the major islands. Sites that have been chronometrically dated to the 15th-century have been found throughout the archipelago on Middle Caicos (Keegan 1997: 49, 83), San Salvador (Rose 1987; Berman and Gnivecki 1995: 430), and Grand Bahama (Berman and Pearsall 2000).

Within a short period of European notice of the islands, Spanish slavers removed the Lucayans and brought them to Hispaniola and the Pearl Islands off the coast of Venezuela, where they worked (and died) in the mines and the pearl fisheries (Gnivecki 1995; Granberry 1979, 1980, 1981; Keegan 1992, 1997; Sauer 1966). By the first third of the 16th century, the archipelago was completely depopulated of its native inhabitants.

During the 700–800 years of occupation of the Bahama archipelago, Lucayan subsistence economy was based pri-

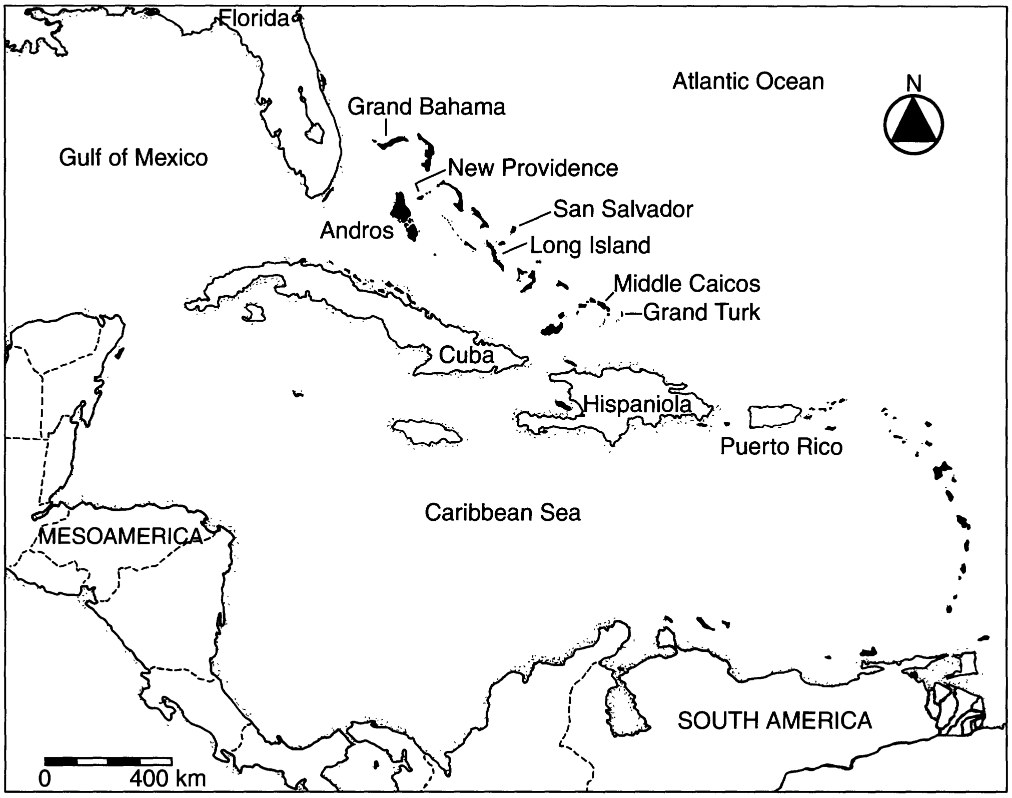

Figure 1. Map of the Caribbean basin. Illustration by Perry L. Gnivecki.

marily on fishing, harvesting of in-shore tidal molluscs, root-crop agriculture, and arboriculture (Berman, Sievert, and Whyte 1999; Berman and Pearsall 2000; Keegan 1992, 1997). Non-local pottery and stone artifacts found in varying frequencies reflect contact with the Greater Antilles. At first these objects and raw materials were brought by early migrants from their homelands. During later occupations they were most likely obtained through trade, tribute, and gift exchange. No permanent, naturally-occurring siliceous cryptocrystalline materials suitable for chipped stone tool manufacture occur on the islands and the Lucayans responded by manufacturing tools from numerous species of marine shells, different kinds of limestone (Berman, Sievert, and Whyte 1999), and various species of wood (Berman and Pearsall 2000). The Lucayans made their pottery from the local clays and tempered it with crushed shell (Hoffman 1970; Sears and Sullivan 1978) or carbonate beach sand. Little data have been recovered on intra-site settlement structure, house size, and domestic organization, but several projects addressing these lacunae are now in progress (Keegan 1997). After the A.C. 1100–1200s, aspects of Lucayan culture resemble the Taíno, so they are referred to as the Lucayan-Taíno from this period until their demise.

The basketry impressions occur on a variant of Palmettan Ostionoid ware, a shell-tempered, partially oxidized, unpainted, largely undecorated ceramic consisting primarily of round, carinated, and boat-shaped bowls and mass-molded griddles. Palmettan Ostionoid ware (Palmetto ware) (Hoffman 1967, 1970; MacLaury 1970; Sears and Sullivan 1978) was the locally-made pottery manufactured by the Lucayans. The greatest occurrence of basketry-impressions exists on the undersides of griddles. They are also occasionally present on the lower third of bowl exteriors (Sears and Sullivan 1978: 12; Sullivan 1974: 33) and, as we have observed in a few instances at the Pigeon Creek site on San Salvador island (FIG. 2), on the upper sides of vessels. The site and island-wide frequency of griddle-impressed sherds varies (TABLE 1).

Basketry-impressed pottery appears to be a temporal marker, showing up in the record during the mid to late 11th century A.C. (TABLES 2, 3). None is present in the earlier Three Dog site (San Salvador) assemblage (A.C. 800–900) or from the slightly later sites on San Salvador and New Providence. The most securely dated appearance occurs at sites dating to the A.C. 1200s. Basketry-impressed pottery was produced at least up until the 1500s, as it has been recovered from the Palmetto Grove site on San Sal-

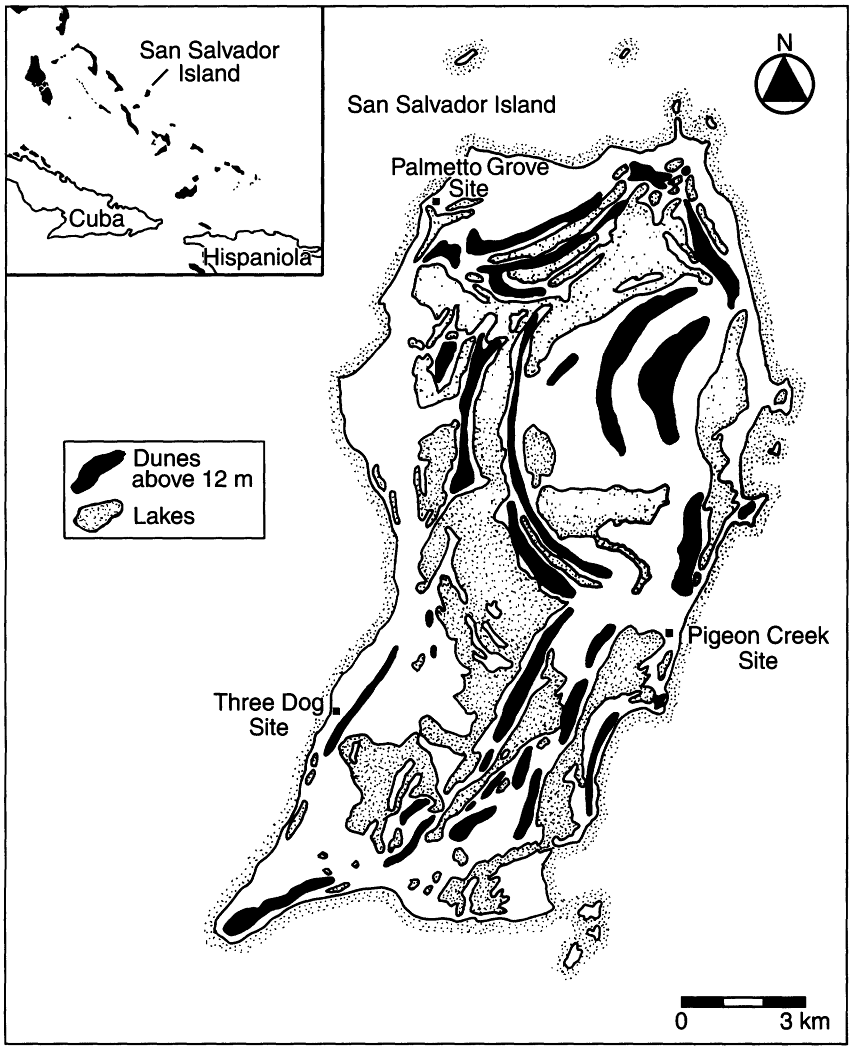

Figure 2. Map of San Salvador showing locations of sites mentioned in the text. Illustration by Perry L. Gnivecki.

vador, Dune #1 of the Pigeon Creek Site (San Salvador), and the Deadman's Reef site on Grand Bahama, sites whose occupation dates span the A.C. 1400s–1500s.

Research Design

This study is part of a larger project investigating the role of material culture in social relationships in the northern Greater Antilles and the Bahama archipelago from the period of earliest occupation of the Bahama islands to their depopulation in the early 16th-century. A lithic study (Berman, Sievert, and Whyte 1999) has already indicated inter-island variation in the organization of technology; it is possible that the distribution of other classes of material culture also reflects different kinds of inter-island relationships. This work is in its infancy because we do not fully know the spatial extent of various categories of material culture in the archipelago and other areas constituting the northern Antilles. We are particularly interested in examining the role that objects played as symbolic (Blanton et al. 1996: 2–3; Siegel 1999: 209) and economic sources and expressions of power and authority (Earle 1997).

During the 15th century the northern Antilles was a mosaic of varying linguistic and ethnic groups and societies at different levels of sociopolitical complexity (Wilson 1990). At European contact, the Classic Taíno of Hispaniola, eastern Cuba, and Puerto Rico were organized into complex, paramount chiefdoms or *cacicazgos* integrated politically, economically, and ideologically through marriage and trade (Keegan and Maclachlan 1989) and possibly war alliances (Wilson 1990). The Taíno political sphere included the Bahamas, Jamaica, central Cuba (Rouse 1992), and possibly the Leeward Islands (Keegan 1997: 76; Keegan,

Table 1. Distribution of Palmettan Ostionoid basketry-impressed sherds in the central Bahamas.

Island	Site	Palmettan Ostionoid sherds (No.)	Basketry-impressed sherds No.	%
San Salvador	Palmetto Grove (SS-2)*	3027	205	6.77
	Pigeon Creek (SS-1)†	3226	451	13.98
Cat Island‡	CI-3, 4, 9, 10, 12	5978	?	?
Eleuthera§	El-1 to El-15	1414	53	3.75
Totals		13,645	≥709	≥5.20**

* Hutcheson (2001). The first excavations at the Palmetto Grove site were undertaken by John Goggin in 1960; he referred to the site as SS-2 (Hoffman 1967: 29). The New World Museum on San Salvador lists the site as SAL-2, SAL-3, and SS-2 (Hoffman 1967).
† Rose 1982: 134.
‡ MacLaury 1970: 40–41 does not state that his 148 Palmettan griddle sherds are basketry-impressed.
§ Sullivan 1974: 19–28, 46–48.
** 5.20% reflects the percentage of basketry-impressed sherds (n ≥ 709) from 22 sites from three islands divided by the total number (13,645) of Palmettan Ostionoid sherds recovered from those sites.

Table 2. Radiocarbon dates for sites lacking basketry-impressed pottery.

Island	Site	Date cal. A.C. (intercept)
San Salvador	Three Dog (SS-21)*	600–950 (685) 650–1020 (812, 847, 852) 680–1010 (883) 790–1030 (972) 828–1157 (991)
New Providence	Pink Wall (NP-12)†	850–1145 (no intercept given)
San Salvador	Pigeon Creek (Dune #2, SS-1)‡	895–1170 (1015)
New Providence	Clifton Pier§	uncal. 1090–1200, 1145±55

* Berman and Gnivecki 1995: 430. Calibrated at two sigma (Stuiver and Pearson 1986).
† Bohon 1999: 33, 45. Calibrated at two sigma (Stuiver et al. 1993).
‡ Calibrated at two sigma (Stuiver et al. 1993; Talma and Vogel 1993).
§ Winter 1978b: 46.

Maclachlan, and Byrne 1998). Both the chronicles and archaeological evidence suggest that central Cuba and the Bahamas were organized into simple chiefdoms whose polities were smaller than the paramount chiefdoms of Hispaniola (Keegan 1992, 1997; Keegan, Maclachlan, and Byrne 1998). We suggest that various forms of leadership existed among the Lucayan-Taíno. Societies resembling the level of chieftain (big man; *sensu* Redmond 1998a) and emergent chiefdoms most likely existed and various individuals, such as shamans, occupied positions of power and authority. In this study we suggest that basketry both reflected and negotiated social relationships in Lucayan-Taíno society.

We believe that baskets played an important role in Lucayan-Taíno political economy, serving as means of trade, tribute, and gift exchange in these societies. While the records do not indicate what kinds of trade and tribute items circulated within Lucayan-Taíno society or were presented to the paramount chiefs of Hispaniola and eastern Cuba, we (and others) suspect they consisted of parrots, feathers, fish, shellfish, cotton, woven textiles, and some crop surplus (Keegan 1997). Archaeological evidence suggests that as early as the A.C. 1100s, the inhabitants of the Governor's Beach site on Grand Turk may have supplied manufactured goods, such as shell beads, to the Taíno elite (Carlson 1995; Keegan 1997). Dried conch and salt are believed to also have been exported from the Caicos to Hispaniola (Keegan 1997; Sullivan 1981) and were possibly a form of tribute. The Bahama islands lack materials suitable for the production of chipped, ground, or polished stone objects, items that were circulated widely among elites in the Greater Antilles (Curet 1996) and Bahama archipelago during this and earlier time periods (Keegan 1992, 1997). Thus, other means of supplying tribute most likely had to be developed. The Lucayan-Taíno offered Columbus skeins of cotton at his numerous stops throughout the archipelago (Dunn and Kelley 1989). Rose (1987) suggests that these were exported to areas supplying non-locally available goods to the Bahamas. Unspun or nonwoven cotton and perhaps woven textiles could have served as a form of gift exchange or tribute. We suggest that in the Bahamas, various kinds of baskets were manufactured and served as gifts, trade, and tribute in chiefly and chieftain economies. Moreover, they were used in the presentation of food and goods associated with chiefly activities and, therefore, may have been the conveyors of goods offered in gift and tribute.

In the lowland Amazon, groups communicate their social relationships, or what DeBoer (1990: 87) calls the "geopolitical landscape" through their material culture (Chernela 1992; Newton 1974; Rivière 1984). For some Amazonian groups, basketry is a more expressive medium than ceramics (Rivière 1992: 147). We suggest that in addition to fulfilling tribute or ceremonial gift exchange obligations, baskets were one of several forms of material culture that framed social interactions in the Bahama archipelago and northern Antilles (*sensu* Miller 1985; Pfaffenberger 1992). Because the ceramics from the central Bahamas lack distinctive or highly visible stylistic variation during the time period under consideration, they are a poor means of inferring social process. Social groups may have used various kinds of baskets and specific basket designs as emblems of identity and intention.

While meaning is often conveyed through decorative means, it is also embedded in production and technology (Lemonnier 1986). In ceramic production, differences ex-

Table 3. Radiocarbon dates for sites with basketry-impressed pottery. All dates from Pigeon Creek are from Dune #1.

Island	*Site*	*Date cal.* A.C. *(intercept)*
San Salvador	Pigeon Creek (SS-1)*	uncal. 1050–1170, 1110 ± 60
		uncal. 1090–1230, 1160 ± 70
Middle Caicos	MC-12†	1040
		1230–1256
		1282
Crooked Island	McKay Site‡	uncal. 1175–1305, 1240 ± 65
		uncal. 1185–1335, 1260 ± 75
Middle Caicos	MC-36†	1280
	MC-32†	1284
San Salvador	Pigeon Creek (SS-1)*	uncal. 1260–1400, 1330 ± 70
		uncal. 1280–1460, 1370 ± 90
	Palmetto Grove (SS-2)§	1280–1460** (1410)
	Pigeon Creek (SS-1)*	uncal. 1350–1470, 1410 ± 60
		uncal. 1400–1540, 1470 ± 70
Grand Bahama	Deadman's Reef (GB-4)	1400–1485** (1435)
Middle Caicos	MC-6†	1437 ± 70
San Salvador	Pigeon Creek (SS-1)	1435–1635** (1480)
	Palmetto Grove (SS-2)§	1430–1654** (1483)
	Pigeon Creek (SS-1)*	uncal. 1500–1620, 1560 ± 60

* Rose 1987: 331.
† Keegan 1997: 49, 56, 83.
‡ Winter 1978c: 238–239.
§ Berman and Gnivecki 1995: 429.
** Calibrated at two sigma (Stuiver et al. 1993; Talma and Vogel 1993).

ist in production stages that might not be apparent in the finished artifact. Variability in manufacturing choices is often the basis of how people differentiate themselves from one another and how social boundaries are established and maintained (Dietler and Herbich 1989, 1998). In basketry, however, because of the finite number of technical possibilities that exist in the making of the basket, production stages are physically present in the final product (Baumhoff 1957: 2; Adovasio and Pedler 1994: 115; Weltfish 1932: 108). Furthermore, these manufacturing alternatives are culturally determined. According to Adovasio and Pedler (1994: 115):

> "...*no* class of artifacts normally available to the archaeologist for analysis possesses a greater number of culturally bound yet still visible attributes than does basketry."

We have, therefore, chosen basketry weaves and designs (as reconstructed from ceramic impressions) as one of several ways of identifying and defining social boundaries (Stark 1998) that will assist in the formulation of models for understanding the political and economic relations of the prehistoric cultures of the Greater Antilles and Bahama islands. We believe that the study of basketry, like other perishable forms of material culture, holds great potential for understanding social relationships and cultural change in other areas of the world where ceramics and other kinds of material culture lack highly observable, decorative characteristics. In the case we present here, basketry is accessible from impressions left on the undersides and sides of ceramic forms.

While other investigators have noted that the Lucayan-Taíno produced several sub-classes of basketry (Rose 1982, 1987; Sears and Sullivan 1978; Winter 1978a), no systematic study of technique or design has been previously undertaken. Thus, this work represents the first attempt to describe and quantify the technical details and patterns present in a Lucayan-Taíno assemblage. Our goal is to establish a standard by which basketry-weaves from other sites can be used for comparative and interpretive work elsewhere in the Caribbean.

Basketry as a Cultural and Social Identifier

The term basketry refers to woven textiles created manually without a frame or loom (Adovasio 1977). Rigid and semi-rigid containers, matting, bags, fish traps, hats, and cradles manufactured in this manner are considered forms of basketry (Adovasio 1977). For taxonomic purposes, basketry is divided into groups or sub-classes of weaves (twined, plaited, and coiled) based on the manner of construction (Adovasio 1974, 1977: 1). Twined basketry is a sub-class of weaves in which active horizontal elements or wefts are moved around passive vertical elements known as warps (Adovasio 1977: 15). Typically, the wefts are paired or tripled. Elements differ in size and material type. In plaiting, both vertical and horizontal elements are active, passing over and under each other at a more or less fixed angle (Adovasio 1977: 99). Elements are usually the same materials. Coiled basketry refers to a sub-class of weaves in which the active element or stitch is vertical, while the horizontal element or foundation is stationary (Adovasio 1977: 15, 53). Although each sub-class consists of different technological types characterized by varying technical conventions, we will concentrate on those found in plaited basketry since it refers to our findings.

There are two main varieties of plaited basketry: simple and twill (Adovasio 1977: 99). In simple plaiting, the elements move over each other in single intervals, e.g., one over/one under (1/1). One or more elements act as a unit. Each unit (set of elements) alternates with its contiguous unit in passing over and under the opposing set of elements. Twill plaiting is a type of plaiting in which the elements in one set cross over two or more elements in the other set at staggered intervals. Wickerware is a special case of simple plaiting that maintains the single intervals of interlacing (1/1), but utilizes rigid or semi-rigid elements in one or both sets (Adovasio 1974, 1977: 99). Adovasio does not encourage the use of the term wicker for rigid simple plaiting, as it is also applied to some forms of rigid twining. We use the term because previous investigators who have written about Palmettan Ostionoid basketry-impressed pottery have employed it (e.g., Hoffman 1967, 1970; Sears and Sullivan 1978) and we prefer to stay consistent with those studies.

Because close similarities exist between the cosmology of indigenous lowland South American cultures and the ethnohistorically-documented Taíno of the Greater Antilles (Siegel 1996: 320), we draw on the traditions of the former to develop two other models of Lucayan-Taíno basketry production and use. One pertains to the use of basketry as cultural markers.

In the NW Amazon and Guiana Shield areas, various groups use basketry to convey their social identities. Technology and design convey social and cultural information and conform to cultural rules governing choice of materials, production, and use. For example, the Panare deem basketry as "an exclusively Panare skill" (Henley and Mattéi-Muller 1978: 46–47). Baskets created by other people are regarded as less well-made and viewed as evidence of other cultures' stupidity (Henley and Mattéi-Muller 1978: 47). The Panare create graphic patterns by manipulating the weave interval of the colored elements (e.g., horizontal elements), while keeping the weave pattern created by the other set of elements (e.g., vertical elements) constant (Henley and Mattéi-Muller 1978: 67, 76). The neighboring Ye'kuana and other groups from the surrounding area manipulate the weave pattern, but do not vary the chromatic sequence. Because different graphic designs are produced through the manner in which the colored and uncolored elements are used, the graphic designs between the two groups vary. The Ye'kuana, Panare, and others further set themselves apart from each other by the number of horizontal and vertical elements each used to create a weave pattern. Each group observes a grammar or set of rules that determines how many intervals can be passed over and under. In Ye'kuana 3/3 twilling, graphic patterns are created typically by passing one element over three spans, varying it with intervals of one to five spans (Guss 1989: 88; Hames and Hames 1976; Henley and Mattéi-Muller 1978: 77).

Methods

In this study, we have compiled an inventory of Lucayan-Taíno technical and graphic conventions by examining basketry impressions from an assemblage of ceramics from the Pigeon Creek site. In addition to investigating technology, we are interested in defining the designs and in understanding the rules by which the elements were manipulated to create them. We would also like to understand the patterning associated with their occurrence. For example, are specific designs found on baskets of a particular element size and element preparation type? Are they restricted to some technological types but not others? Ethnographic evidence indicates that specific patterns occur on particular basketry types. We are also investigating rules of design symmetry that vary by artifact type and can be culture specific (Washburn and Crowe 1988). Thus, design symmetry can be a good indicator of cultural or social boundaries.

The distribution of the various weave classes, technical conventions, and designs is being plotted to determine whether discrete or overlapping patterns exist locally or regionally throughout the Caribbean. As Adovasio and Gunn (1977: 138) note, minor technical attributes can be highly diagnostic of localized patterns and are exceptionally useful for identifying production zones and measuring the intensity of interaction and contact between areas. The uniqueness of the weave, graphic design, and materials of such baskets would have served as a visual referent symbolizing the source of the basket, its particular functional class, and the socio-political relationships of its producers (*sensu* DeBoer 1990). Such characteristics would have allowed the recipients to recognize that the gift or tribute obligations of particular groups had been met, especially in public settings such as feasts. We recognize, of course, that other means of interaction such as population movements, various kinds of gift exchange, antagonistic relations (Roe 1995), and specialized manufacture (Chernela 1992) contribute to patterned variation. Additionally, we recognize that some baskets were used strictly for domestic purposes and did not play a role in regional economies. Thus, we do not expect to find them present at every site we examine. Conversely, we may find that some weaves are ubiquitous and may represent a generalized, shared technology or style.

The Pigeon Creek Site

The Pigeon Creek site sits on the leeward slope of two NE-trending dunes at the head of Pigeon Creek, a tidal creek located on the SE coast of San Salvador Island, Commonwealth of the Bahamas (FIG. 2). Measuring approximately 12 acres in area (Rose 1982: 131, 1987: 325), it is one of the largest sites in the archipelago and the biggest site on San Salvador. Marjorie Pratt (1974a, 1974b) excavated parts of the dune crest (Dune #1) located at the site's northern boundary in 1973–1974. Richard Rose (1982, 1987) expanded excavations to the south. Since 1995, Mary Jane Berman and Perry L. Gnivecki have extended excavations to the east, west, and south of Pratt's and Rose's work. Although Pratt found a posthole, no other evidence of architecture has been recovered from Dune #1 and all excavations were confined to the midden.

Because of its large size, dense midden remains, and presence of exotic items, Rose (1987: 325) has suggested the site was the seat of a *cacique* (chief). The site's non-local materials, consisting of large-bodied, decorated ceramic vessels, small, polished greenstone petaloid axes, non-local stone fragments, and diorite beads suggest trade and exchange with the Greater Antilles and possibly Central America (Rose 1987: 328), as well as their economic and prestige value. According to Lovén (1935: 478–479), the Taíno elite and their families owned stone beads and gave them as gifts to one another. Evidence that a cacique occupied the site is supported further by the recovery of a carved shell mouthpiece from a *duho* (carved stool) and other unique items made from locally-available materials such as a fragment of an incised shell object. Because of the high frequency and density of large-bodied, decorated vessels (locally and non-locally produced), large griddles, and big-sized faunal remains characterized by high species diversity, the current investigators believe that the site was also the locus of competitive feasting where individuals staged ostentatious displays of generosity to promote themselves, accrue power, maintain their social position, expropriate surplus, and host foreign dignitaries and/or local elite.

Shamanic activity may have also occurred at the site. Several carved aragonite pestles and aragonite fragments have been recovered. The pestles may have been used in the preparation of hallucinogens. Due to its rarity, luminosity, and metallic color, aragonite may have been imbued with spiritual properties, much like the quartz crystals (which do not occur in the Bahamas) that make up a shaman's paraphernalia in the lowland Amazon (Reichel-Dolmatoff 1987, 1997) and elsewhere.

Figure 3. Excavation of basketry-impressed sherds at the Pigeon Creek site.

Ten radiocarbon dates have been obtained from Dune #1. Two are from the Loyalist (English occupation) period. Rose (1982: 133) regards a date of A.C. 596 as being too early for occupation. Seven other dates indicate occupation from A.C. 1100 to 1560 (Rose 1987: 325).

Analytical Methods

The studied sherds were chosen randomly from domestic middens excavated by Pratt and Rose. The sherds from the Wake Forest University excavations are from the continuation of the midden located south of the Pratt and Rose work (FIG. 3). Molds and casts were made in the field laboratory of the Bahamian Field Station on San Salvador Island. Because of its transportability and versatility in field conditions, we created the molds with Jeltrate, a stable, nontoxic, lightweight, dental alginate powder that does not leave an oily residue on artifacts. Molds and casts were brought back to the United States for further examination and a set of casts was deposited with the Bahamas Department of Archives.

We found Adovasio's classification system (1974, 1977) useful for our study. Since we did not observe real textiles, and thus could not measure all of Adovasio's suggested attributes, we adjusted the analysis (TABLE 4). Unfortunately, several of the key attributes could not be seen clearly owing to erosion of the impressed surface or the weakness of the impression. This is not unusual for this kind of analy-

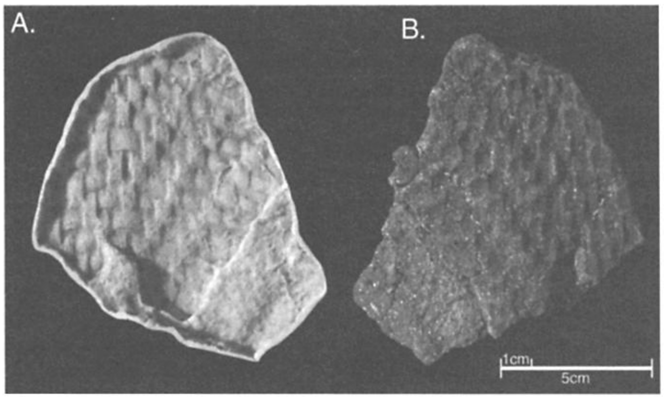

Figure 4. Basketry-impressed sherd showing high relief. A) The mold; B) The sherd.

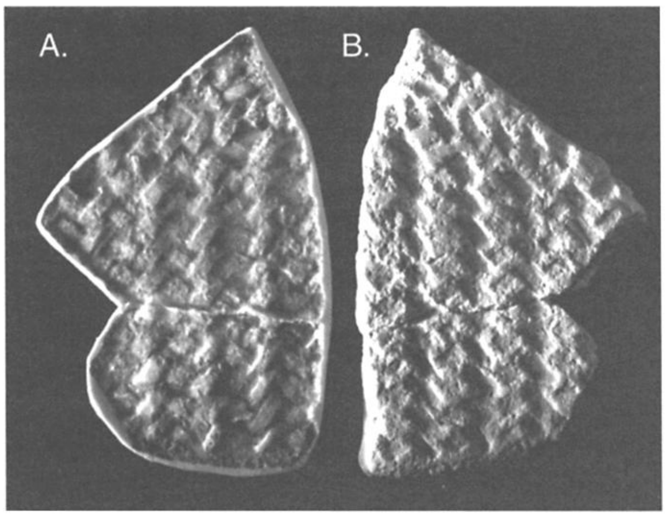

Figure 5. Basketry impression showing high relief. A) The mold; B) The cast.

sis; as Petersen (1996: 5) and others have noted, even with positive casts, it is typically difficult to fully identify and examine all the attributes present in a textile fragment.

Study of the assemblage by Hutcheson (2001) revealed that many 2/2 twilled pieces exhibited features that could not be accounted for in Adovasio's (1977) system. She observed that elements were often woven at varying planes, some higher than others, while others were level. In a category she calls "high relief," the impressed surface has regular intervals of deep and shallow markings. Low relief impressions lack these undulating surfaces. High relief is particularly evident in the sherds illustrated in Figures 4 and 5. Variation in relief may have been produced by the use of different materials or the manner in which they were processed. We have observed examples of high and low relief in ethnographic collections from NE South America

Table 4. Analyzed basketry attributes (after Adovasio 1977).

Body and selvage	*Body only*
Construction technique	Design
Interlacing interval	Design description
Number of elements/unit	
Angle of crossing	
Shifts	
Shift intervals	
Element shape	
Element width	
Element orientation	

Table 5. Weave types from the Pigeon Creek site.

Weave types	*No.*	*% of 258**	*% of 260*
Plaiting			
1/1 simple plaiting	68	26.36	26.15
Twilling	159	61.63	61.15
Wickerware	29	11.24	11.15
Possibly coiled	2	0.77	0.77
Subtotal	258	100.00	99.22
Selvage	2	–	0.77
Totals	260	100.00	99.99

* Excludes non-woven plant and selvage impressions.

(Roth 1924; Wilbert 1975: 41–51; Yde 1965) and archaeological specimens from the Montané Museum in Havana (Dacal Moure and Rivero de la Calle 1984).

Results

A total of 260 sherds from a sample of 3395 analyzed sherds exhibited basketry impressions. Of these, 258 are from the bodies of baskets, while two are selvages. Five examples possess impressions from non-woven plant material. Three sub-classes of weave were found (TABLE 5): plaited basketry (n=227), wickerware (n=29), and possibly coiled (n=2). Breaks and repairs are present in 17 examples. We also noted that the weaving elements varied by shape.

Plaited Basketry

SIMPLE PLAITING

Flat, semi-round, and flat-ribbed elements were used to create 1/1 simple weaves (TABLE 6). Flat elements (n=31) range in width from 2.8 to15 mm with a mean of 6.93 mm. Semi-round elements, present in 18 examples, range in width from 4 to 8 mm with a mean of 5.78 mm. Flat-ribbed elements (n=9) range from 8 to 17 mm in width, with a mean of 11.61 mm. The ribbing was particularly evident (FIG. 6) in two examples.

Several departures from the simple 1/1 pattern are present. For example, six specimens exhibit unintentional shifts characterized by a 1/2/1 interval. There are no indications that these are part of a larger design (and thus intentional), although it is difficult to tell because the impressions occur on small sherds. In two instances, the purposeful insertion of 2/2 twill weave created patterned variation. Finally, in one specimen, both horizontal and vertical elements are made up of two strands of fiber, creating a ribbed effect.

TWILLING

Twill plaiting (n = 159) is the most prevalent weave in this sample, making up 61.63% of the studied basketry weaves (TABLE 5). High and low relief twilling, with and without intentional shifts, were noted. Flat and semi-round elements were used in the construction in high and low-relief weaves. All twilled examples had a primary interlacing interval of 2/2.

2/2 HIGH-RELIEF TWILLING

There were 28 examples of 2/2 high-relief (HR) twilling (TABLE 6). We observed 9 examples of high-relief twilling without shifts woven out of flat elements that varied from 2.5 to 10 mm in width, with a mean of 4.69 mm; 11 examples without shifts that employed semi-round elements varying 5–9 mm in width, with a mean of 6.86 mm; 7 examples with shifts woven with flat elements that varied from 4.5 to 7 mm in width, with a mean of 5.5 mm; and 1 example with a 3/2 unintentional shift. The designs produced by the shifts will be discussed below.

2/2 LOW-RELIEF TWILLING

We observed 131 examples of 2/2 low-relief (LR) twilling: 25 examples exhibited intentional shifts, while 106 lacked shifts (TABLE 6). There were 56 examples of low-relief twilling without shifts woven out of flat elements that varied from 2.5 to 10 mm in width, with a mean of 5.66 mm; 43 examples without shifts that employed semi-round elements varying from 2.5 to 11.5 mm in width, with a mean of 6.21 mm; 17 examples with shifts woven from flat elements that varied from 3 to 12.5 mm in width, with a mean of 5.94 mm; and 8 examples with shifts woven from semi-round elements ranging from 5 to 7 mm in width, with a mean of 5.56 mm. Moreover, there are two examples where a wide element is divided in half, while the weave remains consistent at 2/2 low-relief twill. One impression contained flat elements (7 mm, 3.5 mm), while the other employed semi-round elements (6 mm, 3 mm).

DESIGNS

The weavers used shifts in varying arrangements to create a body of design elements. These elements were manipulated in several ways to create designs. One of the most common design-producing shifts, here termed the "A" pattern, is a four row repetition consisting of: row 1: 2 over/1 under/2 over (2/1/2); row 2: 2 over/3 under/2 over (2/3/2); row 3: 2 under/1 over/2 under (2/1/2), and row 4: 2 under/3 over/2 under (2/3/2) (FIG. 7) or row 1: 2 under/1 over/2 under (2/1/2); row 2: 2 under/3 over/2 under (2/3/2); row 3: 2 over/1 under/2 over (2/1/2) and row 4: 2 over/3 under/2 over (2/3/2). The pattern, expressed in one of its two forms, is the basis for several of the designs in this assemblage. We observe it applied in versatile ways in both high- and low-relief weaves. The weavers created designs by altering the orientation of the "A" shift sequence by rotating it 90°, 180°, or 270° either singly or in multiples. Transverse, zigzag bands were produced by weaving multiple "A"s along a single axis alternating between upright and inverted sequences. There are examples of nested peaks that indicate the possible presence of chevrons. We suspect the "A" pattern shift was also used to make dia-

Table 6. Statistical summary of basketry weaves from the Pigeon Creek site. Measurements in millimeters.

Weave elements	*No.*	*Mean*	*Mode*	*Range*
1/1 Simple, flat	31	6.93	4.0, 5.5	2.8–15.0
1/1 Simple, flat, ribbed	9	11.61	9.0, 11.0	8.0–17.0
1/1 Simple, semi-round	18	5.78	4.0, 4.5	4.0–8.0
1/1 Simple, with 2/2, flat*	1	–	–	4.6
1/1 Simple, with 2/2, semi-round*	1	–	–	6.6
1/1 Simple, with 2/1, semi-round†	3	5.33	–	4.5–6.0
1/1 Simple, with 2/1, flat†	3	4.33	–	3.0–5.3
1/1 Simple, with unrecognizable element shape	1	–	–	7.0
1/1 Simple, each element contains two flat strands	1	–	–	11.0
2/2 HR twill, intentional shift, flat	7	5.5	5.0, 5.5	4.5–7.0
2/2 HR twill, flat	9	4.69	3.0	2.5–10.0
2/2 HR twill, flat with occasional 3/2 shift	1	–	–	5.5
2/2 HR twill, semi-round	11	6.86	9.0	5.0–9.0
2/2 LR twill, intentional shift, flat	17	5.94	7.0	3.0–12.5
2/2 LR twill, intentional shift, semi-round	8	5.56	5.0, 5.5	5.0–7.0
2/2 LR twill, flat	56	5.66	6.0, 7.0	2.5–10.0
2/2 LR twill, semi-round	43	6.21	6.0	2.5–11.5
2/2 LR twill, shape uncertain	3	7.16	–	6.0–9.0
2/2 LR twill, two widths, flat	1	–	–	7.0, 3.5
2/2 LR twill, 2 widths, semi-round	1	–	–	6.0, 3.0
2/2 LR twill, flat elements‡	1	–	–	–
2/2 LR twill, semi-round elements‡	1	–	–	–
Wickerware, flat	23	3.96	4.0, 4.5, 5.0	2.0–5.5
Wickerware, semi-round	5	3.90	5.0	2.5–5.0
Wickerware, indeterminate	1	–	–	4.5
Possibly coiled	2	8.75	–	7.5–10.0
Sample total	258			

* Intentional shift.
† Unintentional shift.
‡ Less than 2.5 mm wide.

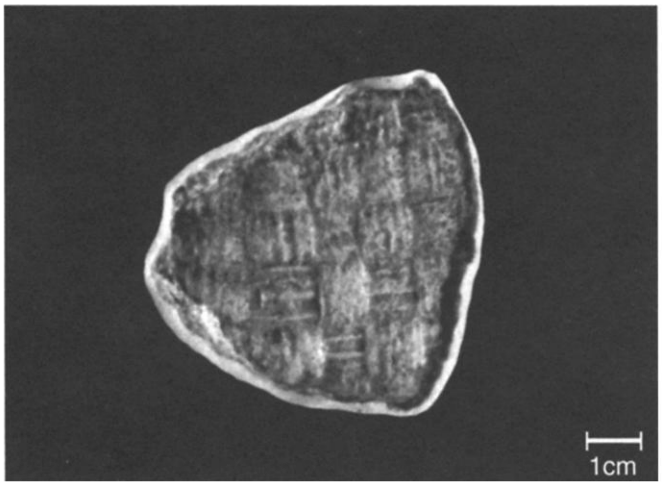

Figure 6. Basketry impression (mold) showing ribbed elements.

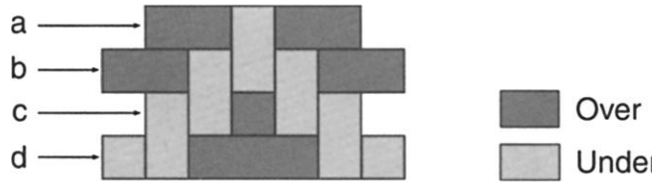

Figure 7. The "A" pattern: a) 2 over/1 under/2 over (2/1/2), b) 2 over/3 under/2 over (2/3/2), c) 2 under/1 over/2 under (2/1/2), d) 2 under/3 over/2 under (2/3/2).

monds or diagonal crosses; however, our data only hint at such patterning. The data also suggest that these designs were applied in the creation of quartered or halved fields.

One of the more intricate and complex uses of the "A" pattern is evident in Figure 8. In one part of the sherd ('a') (FIG. 8C), this "A" pattern is used to create interlocking, nested zigzags. In the lower left portion of the sherd ('b–d'), the "A" forms part of a compound design that appears to be mirrored on the right side of the sherd and inverted on the top of the sherd. The design, outlined in Figure 8c, consists of the "A" pattern ('b') that frames a two row sequence ('c') consisting of 2 under/1 over/2 under (2/1/2) and 2 under/3 over/2 under (2/3/2). Under this, we see a three row sequence ('d') that incorporates five horizontal elements with the following sequence: 2 over/5 under/2 over (2/5/2); 2 over/1 under/1 over/1 under/2 over (2/1/1/1/2); 2 over/5 under/2 over (2/5/2). In the lower middle of the sherd, we see a "winged box" ('e') positioned between the mirrored hourglass figures. Although we lack the lower part of the sherd, we think this is a quartered field with the "winged box" acting as the center of the overall design.

In at least three examples we observed instances where the design was inverted along two parallel diagonal bands between standard 2/2 twill panels. The patterns were created by different shift intervals (FIGS. 9, 10). Beginning with a staggered "A" pattern shift, a stair-step pattern is created by the diagonal offset of the "A" pattern, thus changing the normal sequencing of this shift (FIG. 10). Instead of the usual four-row repeat of the "A" pattern, the horizontal rows only repeat the third (2 under/1 over/2 under) and fourth (2 under/3 over/2 under) rows. This produces the usual horizontal sequences for the second and third rows of the "A" pattern shift, and alters the vertical sequence to rows of 2/2/2 alternating with 2/1/1/2 sequences (FIG. 10A, B, 'a–f') until it returns to the primary 2/2 twilling.

Another pattern, noted in Figures 5 and 11, is created by simultaneous shifts in the horizontal and vertical elements. The vertical sequence alternates between 2 over/4 under/2 over (2/4/2) (FIG. 11A 'a') and the primary interval of 2 over/2 under/2 over (2/2/2) (FIG. 11A 'b'). The horizontal alternates between rows with 2 under/2 over/1 under/2 over (2/2/1/2) (FIG. 11A 'c') and 2 under/3 over/2 under (2/3/2) (FIG. 11A 'd') intervals. Both the horizontal and vertical elements simultaneously undergo shifts at specific intervals unlike the standard "A" pattern which only requires one set of elements at a time to alter its interval, while the opposite set maintains a 2/2 primary interval.

SHIFTS

We observed intentional shifts in 13% of the sample (n=34). The dominant shift sequence in our sample is the "A" pattern. There are 10 occurrences of what appear to be random, unintentional shifts. These were present in the simple plaiting (n=6) and the low-relief twilling without intentional shifts categories (n=4). Most of the accidental shifts in the twilled examples exhibited 2/3/2 intervals, while the random shifts observed in 1/1 simple plaiting showed 1/2/1 sequencing. In both the simple plaiting and twilled examples, several of these isolated shifts were truncated by sherd breaks, making it difficult to tell if the shift was part of a larger pattern.

Wicker

We observed 29 instances of wicker (FIG. 12), constituting 11.24% of the basketry weaves. Semi-round (n=5) and flat (n=23) elements were observed in this category (TABLE 6); one example used bundled grasses for the rigid foundation element and flat materials for the flexible element stitches. The range and mean measures of element width for this weave are remarkably similar. Flat element widths ranged in size from 2 to 5.5 mm, with a mean of 3.96 mm, while semi-round element widths ranged in size 2.5–5 mm, with a mean of 3.90 mm.

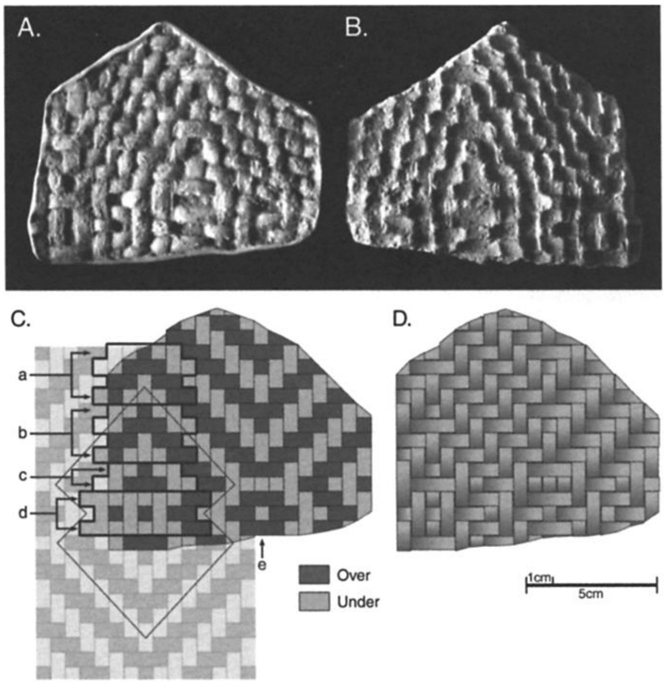

Figure 8. Basketry impression with complex patterning. A) The mold; B) The cast; C) A schematic showing over/under intervals of interlocking, nested zigzags: a) "A" pattern; b) "A" pattern repeat (or nested "A"); c) 2 under/1 over/2 under; 2 under/3 over/2 under; d) 2 over/5 under/2 over; 2 over/1 under/1 over/1 under/2 over; 2 over/5 under/2 over; e) winged box. The large outlined figure indicates the design created by weaves b–d; D) A schematic taken from mold.

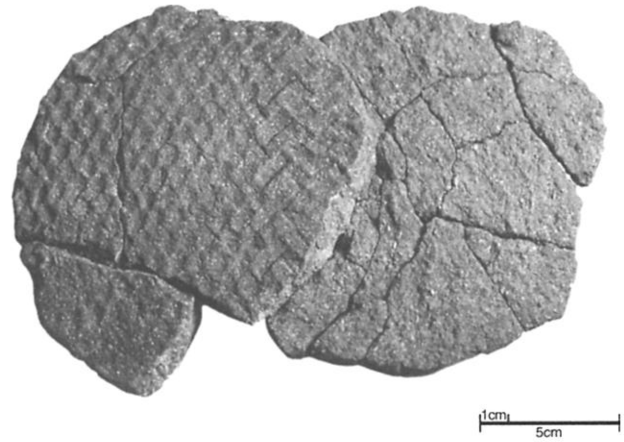

Figure 9. Sherd showing staggered "A" pattern.

Coiled Basketry

Two sherds contain what may possibly be coiled basketry construction. This subclass has consistently been the most difficult to identify with certainty in this study.

Selvages

Selvages are present in two impressions. One example is illustrated in Figure 13. Both selvages appear to have 180° self-selvages, although the sherds are small and somewhat worn rendering identification difficult.

Breaks and Repairs

There are 17 impressions exhibiting broken elements. All examples are present in weaves lacking intentional shifts. The simple plaiting, 2/2 high-relief twilling, and wicker impressions showing breaks do not give any indication of having been repaired, while two examples of the 2/2 low-relief twilling show clear attempts to repair the basketry using the same or very similar material fibers as the body of the basket. In one example, the repair is achieved through the insertion of elements (FIG. 14). In other impressions, however, elements are inserted haphazardly. In three instances, it could not be discerned if repair had occurred on the broken elements.

Discussion

Our study of basketry impressions has yielded a substantial body of information about Lucayan-Taíno basketry technology and design. The Lucayan-Taíno manufactured at least two classes of weaves: plaiting and wickerware. It is less clear that they made coiled baskets. They produced at least two types of plaited ware: 1/1 simple and 2/2 twill. Both flat and semi-round elements were used to construct all three weaves. Flat ribbed elements were employed in 1/1 simple plaiting, but not in the others. We observed at least 11 different weave types: 1/1 simple with flat elements; 1/1 simple with flat ribbed elements; 1/1 simple with semi-round elements; 2/2 high-relief twilled with flat elements and shifts; 2/2 high-relief twilled with flat elements; 2/2 high-relief twilled with semi-round elements; 2/2 low-relief twilled with flat elements and shifts; 2/2 low-relief twilled with semi-round elements; 2/2 low-relief twilled with flat elements; wickerware with flat elements; and wickerware with semi-round elements. We also noted two instances where 1/1 simple plaiting with two elements acting as a unit and 2/2 twill plaiting were present in one basket. Finally, we noted two specimens with 180° self-selvages. We could break down the assemblage further by examining element width.

Lacking fully preserved specimens, we cannot discern the form or function that the baskets served beyond their use in the creation of impressions. Adovasio (1977: 122) notes that it is often impossible to reconstruct forms from fragments, particularly when dealing with plaited basketry, since more diverse forms can be created by plaiting than with other basketry sub-classes. Thus, we cannot tell whether the impressions were produced from bags, mats,

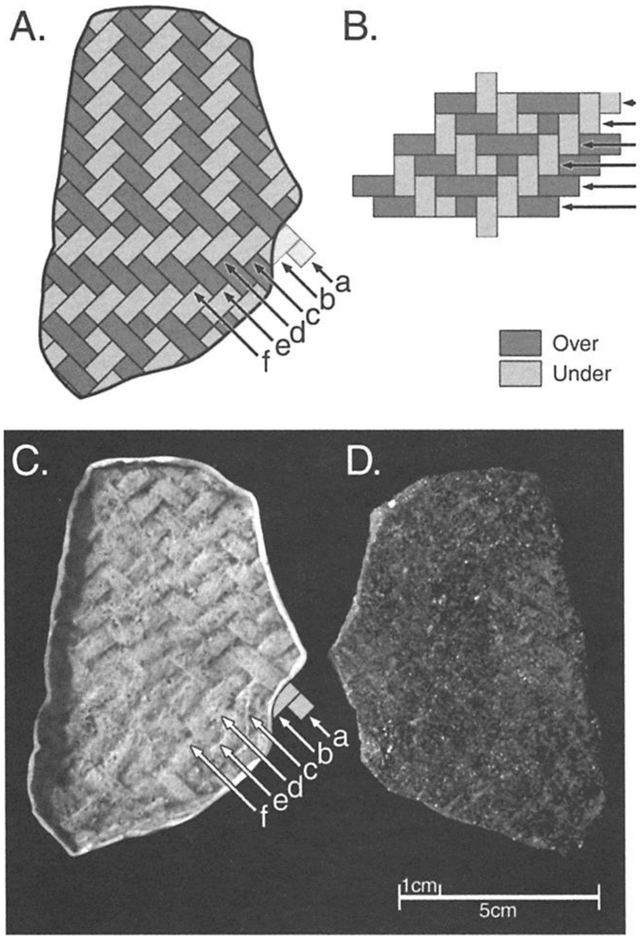

Figure 10. Illustrations of different over/under intervals. A) A schematic: a) 2/3/2; b) 2/1/2; c) 2/3/2; d) 2/1/2; e) 2/2/3/2; f) 2/2/1/2; B) A rotated schematic; C) The mold; D) The original sherd.

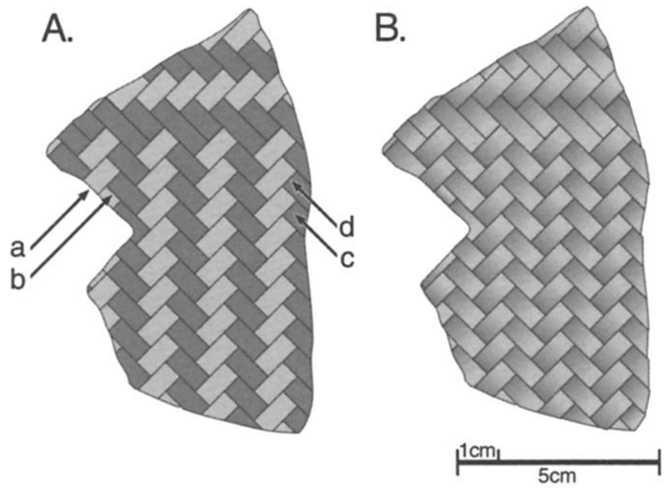

Figure 11. Illustrations of additional over/under intervals. A) A schematic: a) 2/4/2; b) 2/2/2; c) 2/2/1/2; d) 2/3/2; B) A schematic taken from the mold.

bowls, or trays. Certain technological attributes, however, provide us with some clues about basket use. The juxtaposition of 2/2 twilling and 1/1 simple plaiting in two examples may have functional correlates. Such weaves are found on sieves. The similarity in element width in wickerware may have had a functional relationship. Finally, the tightness of the weave can inform about mechanical performance. We will measure this attribute in our continued study of the assemblage.

Patterns were created through the manipulation of the elements of varying widths or interval engagements. It is likely that the weavers used colored elements to produce bichrome patterns, although some contemporary groups, such as the Warao (Wilbert 1975), form designs without the use of colored elements. Adovasio (1977: 120) notes that it is a common practice to use colored elements in the same and/or opposing series of plaited elements to produce patterns without shifts. In our study, the simple 1/1 plaiting examples did not contain designs produced by the weave itself and colored elements may have been used to enhance them.

The predominant graphic convention in the Pigeon Creek assemblage is the four-row sequence termed the "A" pattern. The "A" pattern is manipulated through rotation, reflection, and translation (Washburn and Crowe 1988) to form zigzags and chevrons. Where element width varies, the overall size and visual effect of the "A" pattern changes. Due to its recurrence, varying orientations, and use in numerous contexts, we believe the "A" pattern to be a graphic device basic to the Lucayan-Taíno basket weaving grammar. Other graphic conventions found in the Pigeon Creek site assemblage include a three-row sequence that incorporates five horizontal elements and another that resembles a winged box. The data also suggest that some of the baskets were organized into quartered or halved fields.

The predominant weave is a 2/2 twill. Designs were created by varying the number of elements that could be crossed over to one, three, four, or five floats. We do not know, however, if these variations were restricted to particular basket types or if they occurred universally on each basket possessing designs. This is an important aspect to consider, since, as mentioned previously, another means by which groups differentiate themselves is by the element intervals. In this assemblage, it appears that such variation may exist, since the 1, 3, 5 pattern is observed on a basket woven from flat elements and the 1, 4 span is present on a basket with semi-round elements.

It is highly likely that the design patterns described above possessed symbolic significance. The "A" pattern is present in Desana basketry, for example, although the number of intervals that the elements pass over differs from the Pigeon Creek site examples. The Desana refer to the pattern as "antways" and "piranha fish," or "pacú fish" (see Reichel-Dolmatoff 1985: 33–36, pls. 21, 23, 24). We are not suggesting that the Lucayan designs signify the same meanings, but rather the possibility that the designs present in the assemblage were likely imbued with some meaning.

In many lowland South American groups, cosmological meanings also reside in the production, use, weave, design, shape, and smell of baskets and their materials. Among the Warao, a basket maker can become a shaman through the meticulous practice of the rules associated with basket making and knowledge of the weaves and materials and their proper uses (Wilbert 1975). For the Desana, Yekuana, Warao, and others, everyone in the culture who makes or uses baskets is aware that the materials, shapes, weaves, designs, and uses have mythical origins and powerful meanings, but only shamans possess superior understanding of these properties (Guss 1989; Reichel-Dolmatoff 1985; Wilbert 1975).

In many societies the shaman's esoteric knowledge and the power it confers are the group's most highly valued source of authority. Hendricks (1988: 220) has noted that a powerful person is defined in terms of the kind and amount of knowledge he possesses, while Earle (1997: 9) notes that information is a "base of power." In some ethnographic situations, shamans are known to achieve chieftain status and under certain conditions may have even achieved chiefly status (Redmond 1998a, 1998b). It is possible that the masterful knowledge of basketry was one of several routes by which individuals became shamans in Lucayan-Taíno society. Through competitive feast-giving, the cultivation of social networks, strategic marriages, and support from one's corporate group (Feinman 1995), such individuals may have achieved these positions.

Regional Patterns

While detailed studies similar to the one presented here have not been conducted, we are able to note some regional Lucayan-Taíno patterns based on the descriptions and photographs presented in publications referred to earlier. First, 2/2 twilled weaves appear to be widespread throughout the southern and central Bahamas. Simple 1/1 plaiting is also found, and in the examples we have observed, it appears to have the widest elements, a pattern also observed by Hutcheson (2001) at the Palmetto Grove site. Curiously, flat ribbed elements are not present in the Palmetto Grove site assemblage. Hutcheson observed the "A" pattern in the Palmetto Grove site assemblage. Zigzags, chevrons, and quartered fields are present in both assemblages. Wickerware is present at sites throughout the archipelago. A few examples of wickerware and twilled basketry have been recovered from the Deadman's Reef site on Grand Bahama.

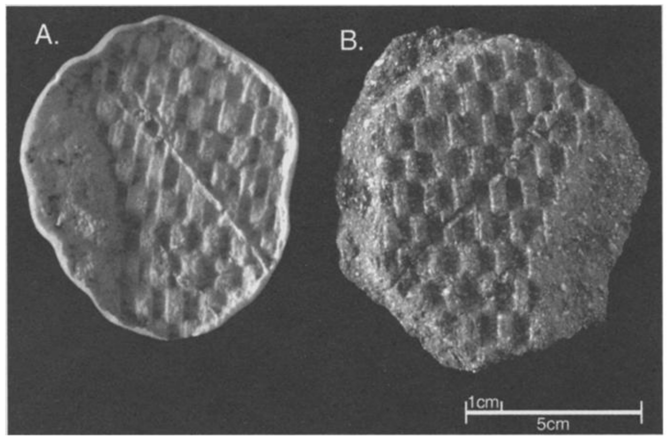

Figure 12. Basketry-impressed sherd showing wicker weave. A) The mold; B) The sherd.

Other geographical trends are beginning to emerge. Three published Cuban examples indicate 2/2 twilling (Dacal Moure and Rivero de la Calle 1984) and the "A" pattern shift is present in one example. Sherds found at several sites in eastern Cuba (Loma de la Forestal and Ventas de Casanova) have been described as possessing impressions made from twigs (Castellanos 1991a: 211, 1991b: 252; 1991c: 479), which we suspect refers to wickerware. While the details of the Cuban finds have not been discussed in depth, we think that the distribution of basket-impressed pottery may be greater than reported.

Different basketry classes appear to be present in the northern Lesser Antilles. Petersen et al. (1999) report coiled basketry, and while 1/1 plain and 2/2 twilling are present in the assemblage they studied, so are 3/3 and combined 2/2, 3/3 weaves. They did not observe wickerware. Finally, the Pigeon Creek site impressions did not yield twined examples. This does not mean, of course, that they did not produce twined basketry. Rather, twined basketry was not used to impress pottery. Hutcheson (2001) found an impression of twined cloth on a sherd from the Palmetto Grove site. The impression, identified as countered weft-twining is characterized by an S-spin on the twined fibers and alternating S and Z twist rows. Petersen et al. (1999) found impressions of twined cloth or fine twined basketry from Montserrat and Antigua.

Summary and Future Directions

While we recognize that impressions are only partial representations of the baskets that existed in the Lucayan-

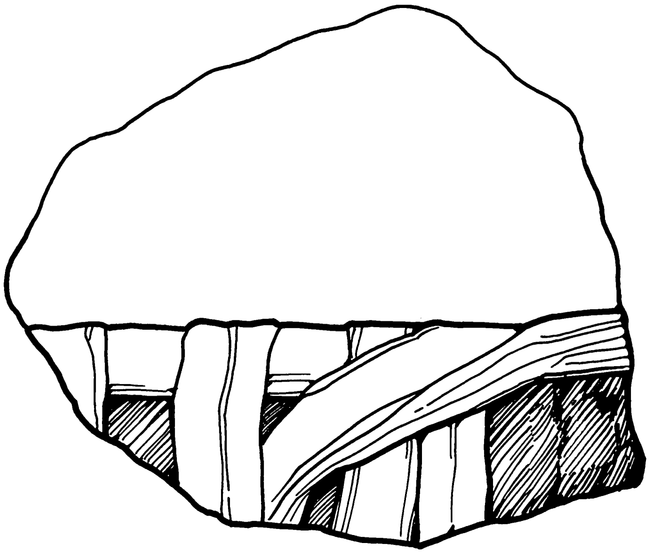

Figure 13. Reconstruction of self-selvage from basketry impression.

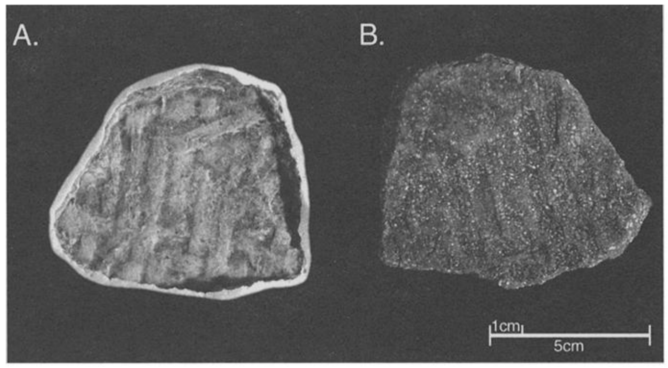

Figure 14. Basketry-impressed sherd showing repair. A) The mold;) The sherd.

Taíno repertoire, we concur with Adovasio (1974: 102) and Adovasio and Gunn (1977: 138), who note that even the smallest fragments of basketry can provide important technological, functional, and cultural insights. In this project, we examined 260 basketry impressions and identified several different kinds of basket weaves: 1/1 simple and 2/2 twilled plaiting, and wickerware. No examples of twined basketry were found and further research will elucidate the possibility of coiled forms. Although we only found two examples of selvages, they have enabled us to start building up a body of information about selvage types and their association with particular weave types; these will be compared with other selvages when they are found. The "A" pattern is emerging as a diagnostic Lucayan design element and its occurrence in a Cuban example warrants further investigation. We also found complex designs incorporating varying shift sequences.

Finally, it is not clear why the basketry impressions occur on some, but not all vessel bottoms or sides. Are they an accidental byproduct of manufacture or were they placed there deliberately to provide technological advantage or serve symbolic purposes? Keegan (1997: 39) suggests that unfired vessels were molded in baskets to prevent their walls from collapsing during the drying phase. Such containment would also have lowered the stresses involved in handling large vessels in a pre-fired form. Several investigators (Hoffman 1967; Winter 1978a) believe that griddles were formed on mats that left an impression when the clay was removed. Sullivan (1974) and Sears and Sullivan (1978) suggest that the impressions were purposeful. Conflicting evidence exists as to whether the greater exterior surface area afforded by texturing holds heat longer and absorbs and disperses heat more evenly than smooth surfaces (Herron 1986; Espenshade 2000; Schiffer 1990; Young and Stone 1990). In future work, we will examine the intra-site spatial distribution of basketry types and vessel forms. The study of material types and element preparation from the specimens is also underway.

We have suggested that in addition to serving domestic and ritual purposes, baskets were used as forms of tribute, trade, and gifts in Taíno and Lucayan-Taíno economies and that their spatial distribution will help us define and explain the social, political, and cultural dynamics of the northern Antilles during the 15th-century. We also propose that basketry may have played a role in the expression of power and authority of shamans in Lucayan-Taíno society.

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