A CHERT MICROLITHIC ASSEMBLAGE FROM AN EARLY LUCAYAN SITE ON SAN SALVADOR, BAHAMAS

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ABSTRACT

A microlithic assemblage, made up of non-local chert, has been identified from the Three Dog Site, an early Lucayan site located on San Salvador, Bahamas. The assemblage, manufactured by bipolar reduction, consists of seven flakes, one core, and one perforator or point. The significance of these remains is discussed.

RESUMEN

Se ha identificado una industrial microlítica, basada en chert extranjero, en el Three Dog Site, un temprano sitio Lucayo, situado en San Salvador, las Bahamas. La industria, fabricada por medio de reducción bipolar, consiste en siete lascas, un núcleo, y un perforador o punta. Este trabajo se trata del significado de estos restos.

RÉSUMÉ

Une assemblage microlithique de chert était découverte à Three Dog Site, San Salvador, Bahamas. Cette assemblage, a fabriqué par reduction bipolar, consiste de sept éclats, une nucleus, et une perforateur ou pointe. L'importance de ces restes était discuté.

KEYWORDS: Microlithic Tools, Bipolar, Lucayan, Bahamas
INTRODUCTION

Walker (1980) has observed a general lack of concern toward the study of Ceramic Age lithic remains among Antilleanists. In the Bahamas, investigators have readily recognized petaloid axes and other polished and groundstone objects (cf. De Booy 1912). Chipped stone tools and debitage have been rarely recovered or discussed either from lack of interest or difficulty in recognition. Research at the Three Dog (Berman 1933) and Pigeon Creek (Rose 1982) sites, Lucayan settlements located on San Salvador, shows the chipped stone tools manufactured from locally occurring limestone to be crude, rendering them difficult to recognize and to differentiate from naturally formed limestone fragments. Finally, recovery methods employed in the past did not allow for the retrieval of certain small artifacts such as chipped stone. The assemblage discussed in the following paper, for example, would have gone largely unnoticed if it had passed through standard size 1/4” screens.

THE THREE DOG SITE

The Three Dog Site (SS 21) is a coastal site located on Sugar Loaf Bay on the west side of San Salvador, Bahamas (Berman and Gnivecki 1993a). Excavation spanned a nine year period (1984-1993). Research has addressed colonization, local adaptation, regional interaction, environment, and site formation (Berman and Gnivecki 1990, 1993a).

The site was excavated in one by one square meter units. Noncultural deposits were sifted through 1/4” mesh screen; cultural deposits were passed through 1/16” mesh screen. Excavations have revealed a midden, one to two activity areas characterized by food-processing, bead production, and pottery manufacture, and a pendant (or netsinker) maker’s toolkit. Pearsall (1989), Berman (1992, 1993), and Wing (1991) have presented preliminary interpretations of the paleobotanical and zooarchaeological remains.

Two occupations are present at the site. The later component dates to the Spanish Contact Period and is restricted to the northern sector of the site. The early component is represented by one thermoluminescence date (860 A.D.) (Alpha-2871) and five wood charcoal radiocarbon dates (uncalibrated): 1290 +/- 90 B.P. (BETA-26896), 1200 +/- 100 B.P. (BETA-26894), 1170 +/- 70 B.P. (BETA-55102), 1050 +/- 70 B.P. (BETA-55103, CAMS 3549), 1085 +/- 65 B.P. (BETA-26138, ETH-4266). The two AMS dates were adjusted by carbon 13. These dates indicate that the Three Dog Site is the earliest known prehistoric site thus far excavated in the Bahamas. The colonization of the Bahamas is believed to have occurred A. D. 700-800 (Keegan 1992:48). Berman and Gnivecki (1993b) suggest that the central Bahamas was settled by colonists from northeastern Cuba and that the Three Dog Site represents an early stage in the colonization expansion process.
A locally produced shell-tempered redware (a version of Palmetto Ware) dominates the ceramic assemblage. Pottery belonging to the Arroyo del Palo series from the Mayari region of east central Cuba (Tabio and Guarch 1966, Rouse and Allaire 1978) makes up 30 per cent of the assemblage. Coral and shell tools and debitage, shell beads, and chipped, polished, and unmodified stone objects made from local and non-local materials constitute the remainder of the artifactual inventory.

The local (limestone) objects include a pendant or netsinker in the shape of a porpoise or seal, a hammerstone, which is part of the tool kit associated with the former, a hoe, and a handful of tools resembling knives and scrapers. The non-local materials include a polished diorite fragment, several quartz sandstone abrader bits (part of the previously mentioned tool-kit), a quartz sandstone whetstone believed to be associated with beadmaking, and a microlithic assemblage manufactured from chert. Like other low relief carbonate limestone islands making up the Bahamas Archipelago, San Salvador lacks the crypto and microcrystalline siliceous deposits (Sealey 1985, Curran 1989, Foos et al. 1991) associated with well developed prehistoric chipped stone traditions elsewhere in the Caribbean. Thus, the recovery of a chipped stone tool assemblage manufactured from non-local material is significant to the study of Lucayan lifeways.

MICROLITHIC ASSEMBLAGE

The microlithic assemblage consists of seven chert flakes, one chert flake core, and one chert perforator or projectile point. Five of the flakes are illustrated in Figure 1.

Raw Materials

Without petrographic analysis it is impossible to identify the exact source of the chert. The Arroyo del Palo pottery at the site suggest a close link with northeastern Cuba. Therefore, I suggest that the chert is from the eastern Camaguey-northern Oriente geologic area of Cuba (Pardo 1975: 556, 559, 588), a narrow belt characterized by folded and faulted carbonates, cherts, quartz-derived sandstones and shales and ultrabasic igneous rocks such as gabbro, serpentine, and serpentinized peridotite. The Arroyo del Palo pottery type site is located in this region. Furthermore, as will be discussed below, microlithic assemblages similar to the one recovered from the Three Dog Site have been located in this general area (Moure and Rivero de la Calle 1984; Febles 1991a, 1991b).

Five flakes, the core, and the perforator/point are white to buff colored. Two flakes are green chert. Transverse running quartz veins are evident on several of the white-buff pieces. Round quartz crystal inclusions are also present in some flakes.

Morphology

The flakes range in size from 5.9 - 10.8 mm in length, 4.5 - 7.6 mm in width, and 2.9 - 3.8 mm in thickness. All weigh 0.1 - 0.2 grams. Seven flakes were recovered from the midden; the remaining one came from a food-preparation area. A wedge shaped core is 37 mm in length and 25 mm in width. Cortex is present on the dorsal side. The core was recovered from a living floor located in the site's southernmost area and appears to have been still usable when the site was abandoned. The perforator or point is 10.9 mm in length, 8.3 mm in width, 3.2 mm in thickness, and weighs 0.2 grams. It was found in the midden.

Bipolar Reduction

The assemblage exhibits the distinctive features resulting from bipolar reduction (Jeske
1992: 472). The flakes are small and vary widely in shape and form resembling lamellar flakes, blades or bladelets. They lack bulbs of percussion and are triangular or rhomboidal in cross section. Ridges run down the length of their dorsal surfaces. In some instances, the edges exhibit crushing and/or pronounced rings of percussion.

Bipolar flaking (Flenniken 1980: 51; Crabtree 1972: 42; Shott 1989:2) is a technique of striking the parent material, which rests on a hard surface (anvil), with a hard percussor. The force of the hard percussor and the anvil are in direct opposition. The parent material can be a core, pebble, mass of stone, or an already reduced implement. The technique allows the knapper to manufacture many flakes requiring little modification from small cores. The technique does not allow for fine control of flake characteristics and results in many different types of flakes and pseudo blades. The types of cores associated with the technique include lozenge, wedge, or pillow-shaped cores, which are often confused with pièces esquillées.

**Bipolar Reduction and the Caribbean Microlithic Tradition**

Bipolar tools appear to be widespread throughout the Antilles. Walker (1980: 25-31, 187-198) has noted them from Ceramic Age sites on St. Lucia, Nevis, Antigua, Puerto Rico, and Cuba. In Cuba, a chipped stone tradition consisting of microliths produced via bipolar reduction dates to A. D. 450-950 (Tabio 1991: 6-7). (Chipped stone forms employing other means of reduction are present, too). Known as the Canímar-Aguas Verdes Complex, it is found in association with the earliest evidence of ceramics in Cuba. The complex has been found near Havana at Playita, Canímar I, and Punta del Macao and in northeastern Cuba at Aguas Verdes, Miramar, Durán I, Durán II, Cueva de Caballero, and Casa de Caballero (Febles 1991a, 1991b, 1991c; Moure and de la Calle 1984: 109-119). One-third of the chipped stone assemblage at Aguas Verdes consists of microliths (Febles 1991b: 318-319). Of these, 60 per cent were produced by bipolar reduction. The most abundant form of chipped stone at Casa de Caballero consists of bipolar produced microliths (Febles 1991a: 305). The microlithic assemblage present at the Three Dog Site appears to belong to the Canímar-Aguas Verdes Lithic Complex.

The occurrence of the bipolar technique is due to a number of factors: the unavailability of large cobbles, poor quality stone due to internal fractures and impurities, and attempts to conserve raw material (Jeske 1992; Shott 1989). Jeske (Ibid.) argues that among some groups, the technique represents a least-effort approach towards stone tool production in order to minimize conflicting demands on time and energy.

The use of the bipolar technique at the Three Dog Site is attributable to several factors. First, the site's settlers brought their existing skill and knowledge of the technique and maintained it through close contact with the homeland. Prior use may have been necessitated by the properties of available stone. As noted above, the chert found at the Three Dog Site contains quartz inclusions and bands. Second, due to the absence of fine grained siliceous materials on San Salvador, the Three Dog Site inhabitants employed the technique in order to conserve their existing stores of imported raw material. In fact, flake size is smaller than that observed at Aguas Verdes and Casa de Caballero, reflecting a conservatory strategy. Fourth, the flakes' intended function might have been best met by bipolar production.

**Tool Use**

Identification of stone tool use involves the study of morphological characteristics, edge damage patterns, edge angles, residues, ethnographic tool use, and experimentally produced tools. An extensive literature exists on prehistoric and contemporary bipolar tool production and use. The following uses have been suggested for bipolar objects: skinning and gutting game, gutting and preparing fish, boneworking, woodworking, and body scarification (Hayden 1980; Shott 1989). Febles (1991b) has suggested that the tools in the Canímar-Aguas Verdes microlithic complex were used for drilling, scraping, cutting, perforating, and graving.
Walker (1980) and Lewenstein and Walker (1984) have suggested that bipolar microflakes recovered from Caribbean and Middle American sites were used as manioc grater chips. Their work is supported experimentally, as well as by comparison with ethnographic descriptions of grater chip assemblages.

The morphological characteristics of the microflakes from the Three Dog Site resemble the manioc grater chips observed for the Wai Wai (De Boer 1975), Taruma (Roth 1924: 278-280) and Black Carib (Walker 1980). Walker (Ibid.) believes these assemblages were produced through the bipolar technique. Additionally, the Three Dog Site microflakes resemble objects identified as manioc grater chips from Parmana (Roosevelt 1980, 1984) in shape, size, and flaking characteristics. These similarities are tantalizingly suggestive that the Three Dog Site assemblage of microflakes served as manioc grater chips. This must await further analysis, however. Residue analysis and examination of the artifacts under high power magnification (in progress) can strengthen the argument.

It is not clear how the artifact resembling a microperforator or point was used. A high frequency of microperforators is found in Cuban microlithic assemblages, particularly at Playita where they are believed to reflect an economic adaptation to mangrove environments (Febles 1991b).

CONCLUDING REMARKS

Walker (1980: 197) has suggested that the appearance of the bipolar technique is a distinguishing feature of Ceramic Age sites in the Caribbean. He recovered such assemblages on Nevis and at Cayon, the earliest Ceramic Age site on St. Kitts. In Cuba bipolar microlithic assemblages are associated with the earliest ceramic bearing sites of the Protoagricultural Stage (Tabio 1991: 6-7).

Parry and Kelly (1987) argue that expedient techniques of tool manufacture such as bipolar reduction are associated with sedentism. In the examples cited above, the co-occurrence of bipolar tools at sites with early evidence of ceramics may, therefore, reflect a shift to sedentism by previously mobile Archaic hunters and gatherers. Sedentism or reduced mobility may be related to the incorporation of domesticates into the diet. In their capacity to prolong heating foodstuffs without charring them, ceramics might have provided a means of increasing palatability and aided in the removal of toxins found in such tropical root crops as manioc. In the Bahamas, the co-presence of these two artifact classes represents the existing artifact and dietary inventory of Cuban colonizers who may likely have made the transition to sedentism and horticulture before their emigration to the Bahamas. (Most investigators believe the Bahamas was settled by ceramic-bearing peoples) (Keegan 1992). In Cuba, and elsewhere in the Caribbean, the combination of bipolar microliths and early evidence of pottery reflects changing patterns of diet, food procurement strategies, food preparation practices, mobility, and stone tool technology. These interrelationships will be explored in future papers.

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Fig. 1. Bipolar Microlithic Assemblage. Catalogue Numbers: 16746 (a), 6225 (b), 5490 (c), 16513 (d), 5665(e). The dorsal and ventral sides are reversed in figures a, b, and e.