

## ■ SENEGAL

### Crafts, Cowries, and Carved Roulettes: A Preliminary Report on Archaeological Research at Diouboye, Senegal

Cameron D. Gokee  
Museum of Anthropology  
University of Michigan  
1109 Geddes Avenue  
Ann Arbor, MI 48109, USA  
E-mail: [cdgokee@umich.edu](mailto:cdgokee@umich.edu)

## Introduction

In this paper I report on the preliminary results from two initial seasons of archaeological fieldwork (2008-2009) along the lower Falémé River in eastern Senegal. Focusing on the site of Diouboye (pronounced *JU-boy*)—a modest complex of low occupation mounds and activity areas dating to the so-called middle Iron Age (ca. AD 500-1000). My research explores the diverse social institutions that structured daily practices and political authority within this village community. Diouboye is notably situated at the northwest gateway to the land of Bambuk, described in historical sources as an “internal frontier” of culture contact and social dynamism (see Kopytoff 1987) and a region whose gold and other commodities fueled trans-Saharan, and later Atlantic, trade (Bathily 1989; Curtin 1975). The site therefore stands to illuminate the ways in which people experienced and reproduced local institutions—including kinship, specialized economy, political authority, and perhaps religious ritual—alongside their participation in broader spheres of cultural and economic interaction documented through extant research on late prehistoric West Africa. Here I outline the multi-scalar strategy of survey, surface collection, and excavation used to explore these dynamics at Diouboye and across the surrounding landscape. While the spatial and material data from this project thus far suggest that people participated differentially in local and interregional economies, on-going analyses and synthesis stand to refine this interpretation and shed light on further political and ritual dimensions of social life across the community.

## Archaeological Setting

Prior archaeological and historical research show that the Falémé River has long held an important place in the social landscape of the eastern Senegambia where it provides a riparian corridor between its southern headwaters in the forested highlands of the Futa Jallon and its northern confluence with the Senegal River at the edge of the Sahel. Because the river bed retains water throughout the annual dry season, it sustains diverse plant and animal resources throughout the year, including people and their livestock. While flood recession gardens are possible along some gentler banks, the surrounding alluvial terraces today receive some 800-1000mm of annual rainfall (June to October), sufficient for cultivation of millet and other savanna crops. Local volcanic and sedimentary rock formations also provide an array of raw materials for chipped and ground stone tool manufacture, construction activity, and iron and gold production (Michel 1973). The variable distribution of these ecological and geological resources, however, has historically precluded aggregation beyond large agro-pastoral villages.

Both oral traditions and Arabic geographies place Diouboye within the northwestern extent of Bambuk, the legendary source of gold traded across the Sahara and taxed by the rulers of medieval Ghana (Bathily 1989:172-180; Curtin 1975:198-206). It is important to note, however, that the exploitation of erratically distributed alluvial ores was probably labor intensive and lucrative only during the dry season, resulting in lower annual yields than those obtained from the Bure and Akan gold fields further south. At the same time, the small villages of Jakhanke and/or Mandinka people sparsely scattered throughout Bambuk supposedly made easy prey for warriors and slave-traders from Ghana, or their rivals from the kingdom of Takrur on the Middle Senegal River (Bathily 1989:180-184). Indeed, with its position at the interstices of several political spheres, the lower Falémé appears to have formed an “internal frontier” for successive waves of settlement by people of diverse ethno-linguistic, political, and religious traditions throughout the 2<sup>nd</sup> millennium AD, culminating with the foundation of the Bundu almamate in the 18<sup>th</sup> century (Gomez 1992).

The available archaeological evidence seems to corroborate this broad portrayal of the lower Falémé as a dynamic social landscape enmeshed

within regional processes of political economy and culture contact. Early fieldwork in the region focused on prominent Middle and Late Stone Age (“Neolithic”) components of the archaeological record; these documented first the arrival of Pleistocene hunter-gatherers, and later Holocene complex foragers whose groundstone and ceramic toolkits suggest low-level food production (Camara and Duboscq 1984; Guitat 1970; Ravisé 1975). In comparison to work on the shell mounds, mortuary monuments, and large occupation sites found elsewhere across the Senegambia (Bocoum 2000; Martin and Becker 1984), however, the Iron Age and historic era occupations along the Falémé had largely remained archaeological *terra incognita* until a more recent study by Ibrahima Thiaw (1999). With a survey along 50 km of the river’s west bank and excavations at the 5ha site of Arondo (AD 400-950) situated on the Falémé-Senegal confluence, Thiaw documented shifts in settlement and subsistence strategies, ceramic and other craft economies, and access to trade goods as broader political economic processes played out over the past two millennia in the region. The results of this project provide a comparative material and chronological baseline for my own research centered on Diouboye to the south. Although this site was subject to amateur fieldwork in the 1980s which focused on the collection of trade beads (Opper and Opper 1990), a subsequent mission by IFAN researchers in 1996 has produced a schematic map and a more rigorous collection of other diagnostic artifacts (SEN 96.52); both missions concluded that Diouboye comprises the most prominent Iron Age habitation site in the area.

Altogether, these diverse strands of historical and archaeological evidence suggested that Diouboye would be well-suited to a study of how people experienced and reproduced social institutions within village-based communities, particularly those at the periphery of interregional political and economic networks during the middle Iron Age.

## Methodology

Over the course of two three-month field seasons (2008-2009) I initiated archaeological fieldwork at and around Diouboye, building upon the results of a 2007 reconnaissance mission that documented intact stratigraphy and the excellent preservation of mud wall structures, stone granary foundations,

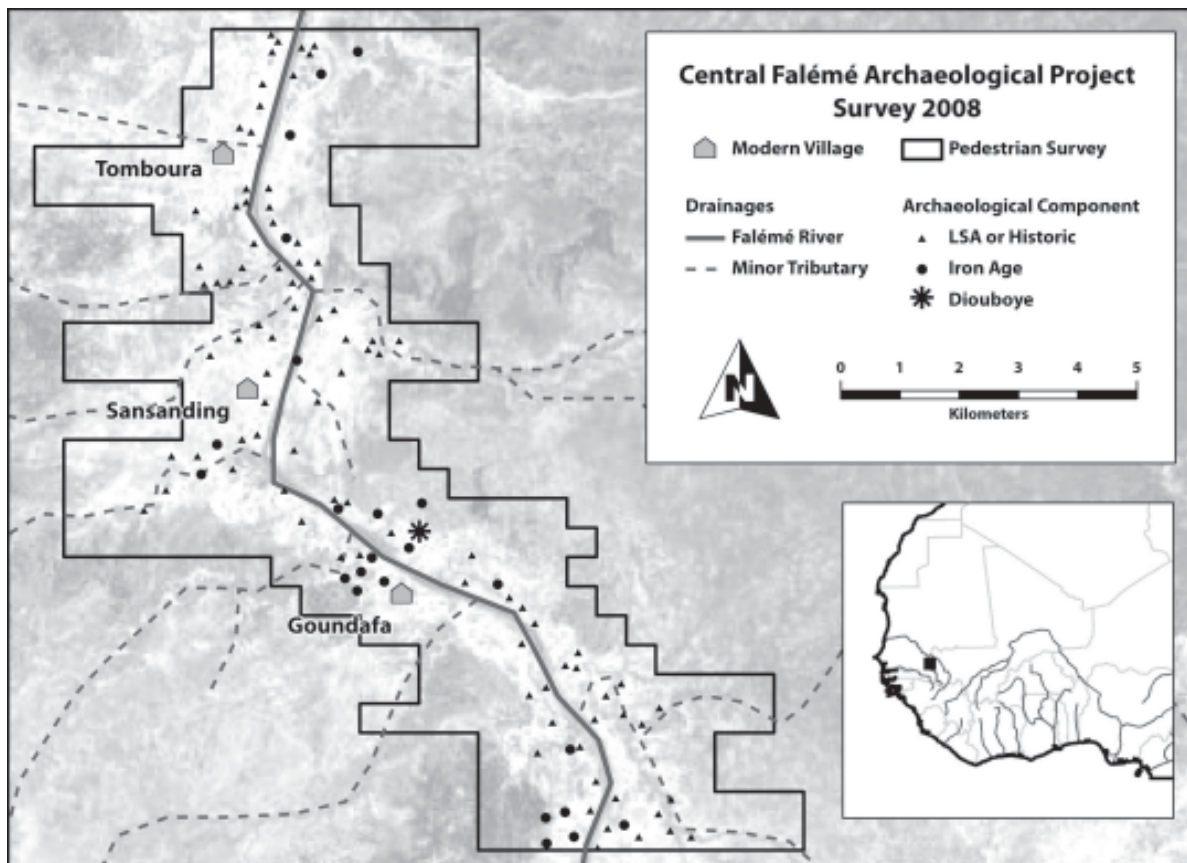
faunal and botanical remains, ceramic sherds, chipped stone debris, and iron metal. A reading of the social dynamics within and beyond this settlement required that I investigate the organization of material practices at three spatial scales: the co-residential compound, the village proper, and the broader landscape experienced by the community on a day-to-day basis. I balanced the collection of data from these analytical units through a combination of: (1) pedestrian survey to identify settlement patterns and landscape use; (2) systematic surface collection and mapping across Diouboye to reconstruct intra-site patterns of activity at a coarse spatio-temporal resolution; and (3) excavation of occupational and activity areas to observe chronological change in material practices at finer spatial scales. This strategy worked to illuminate not only *what* material activities took place during the Iron Age occupation of the region, but also *where*, *when*, and *how* they were implicated in social practice—dimensions critical to the archaeological study of social reproduction and transformation.

With the exception of non-diagnostic ceramics analyzed in the field, I transported all artifacts recovered during fieldwork to IFAN for curation and analysis which has thus far focused on identifying objects implicated in interregional exchange (glass beads, cowries, etc.) and delineating relative chronologies for regional settlement and the occupation of Diouboye. Inferring other past activities (subsistence practices, craft production, ritual, etc.) from tool sets, household debris, and architectural forms, will further depend on the synthesis of disparate spatial and material data, including the on-going analyses of faunal and macrobotanical remains in collaboration with Stephen Dueppen and Daphne Gallagher at the University of Oregon. Ultimately, a comparison of these archaeological data to those from contemporaneous sites across West Africa will help to situate Diouboye within broader spheres of cultural and economic interaction.

## Regional Survey

In 2008 I conducted a full-coverage survey of nearly 72km<sup>2</sup> centered on the site of Diouboye and designed to sample all major geographical zones identified from topographic maps and satellite imagery (Figure 1). Because several 4-km transects demonstrated an exponential decline in site frequencies with increasing distance from the river, I decided upon

**Figure 1:** Map of the survey region showing the position of Diouboye within the surrounding Iron Age landscape.



complete coverage of a 2-km “buffer zone” along a 14 km stretch of the east and west banks of the Falémé. With a team of four to six people spaced at 30 or 50m apart (depending on surface visibility), we identified 119 sites defined as artifact concentrations greater than 10m in diameter or exceeding 20 artifacts/m<sup>2</sup>; we also recorded some 63 smaller “isolated occurrences.” At each locale we marked the coordinates, noted topography and possible disturbances, and took controlled samples of lithic debitage and ceramic sherds, in addition to purposive samples of diagnostic chipped stone and iron tools, beads, pipes, etc. Given that many sites were palimpsests of material from multiple occupation phases, we identified 80 Late Stone Age sites (39 with ceramics), 25 Iron Age (Diouboye Phase) sites, and 39 sites dating to the era of Atlantic trade over the past five centuries (Tonteko and Karé Phases).

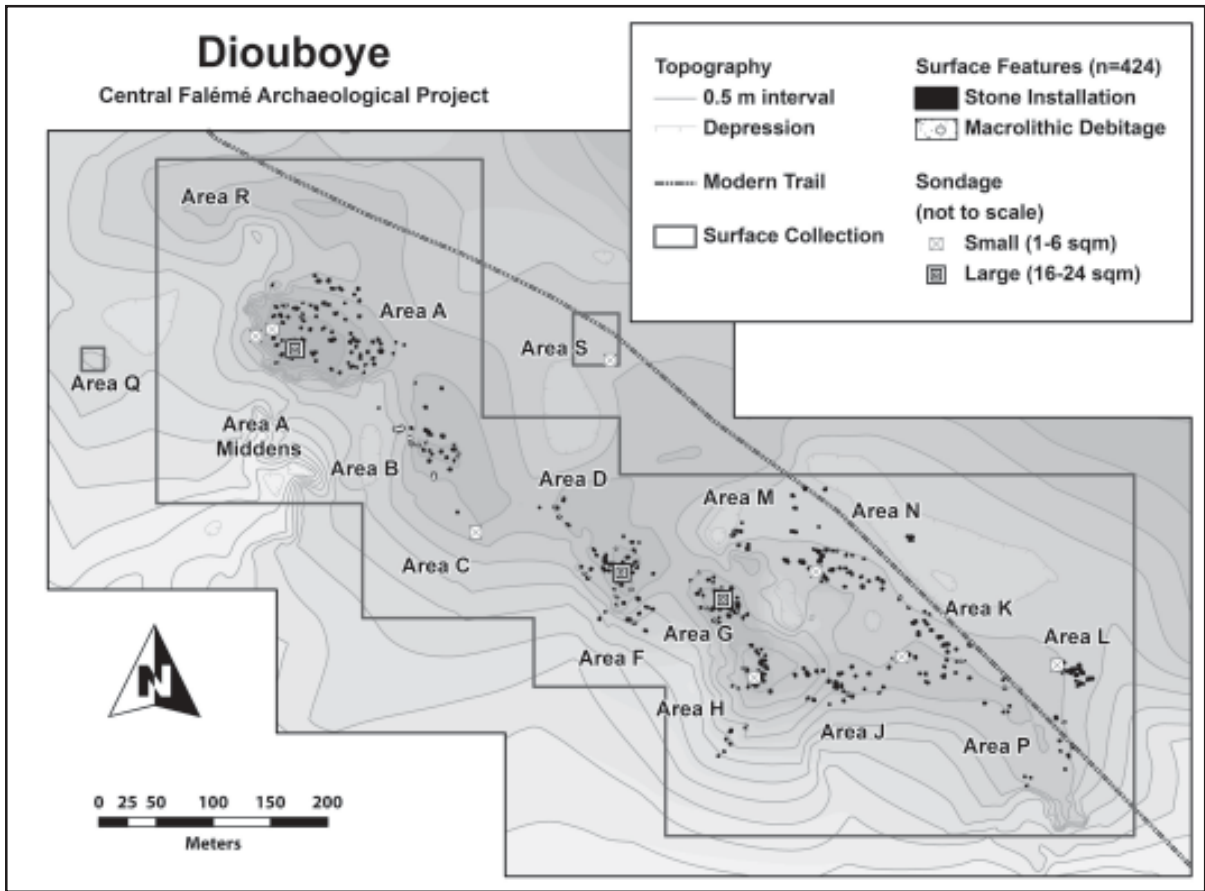
The Diouboye Phase included four general site types: low mounds (n=5) with visible surface archi-

ture; shallow homestead or seasonal sites (n=10) with limited architectural remains; iron smelting locales (n=7) with collapsed furnaces and slag scatters; and unidentified concentrations of ceramic, lithic, and iron artifacts possibly associated with specialized production or extraction activities (n=3). While this diversity points to the differentiated use of the landscape during the middle Iron Age, the aggregated settlement pattern tentatively suggests that Diouboye formed a nexus for political, economic, and possibly ritual, institutions in the immediate region.

### Diouboye: Surface Collection and Mapping

Perched along the crest of an archaic river embankment, Diouboye includes 5 low mounds and 10 additional occupational and/or activity areas with visible surface material spread discontinuously over some 10ha (Figure 2). Based on analogy with mod-

**Figure 2:** Topographic map of Diouboye showing surface features and excavation units.



ern West African agro-pastoralists (e.g., Agorsah 1986; David 1971; Holl 1993), I took as my starting assumption that each of these areas represented one residential compound, multi-compound cluster, or workshop. An alluvial terrace stretching several hundred meters west to the Falémé would have been ideal for rain fed cultivation of crops such as sorghum or millet, while a weathered sandstone terrace directly to the northeast provided an ample source of domestic building material. Indeed, circular and linear installations of angular sandstone rocks comprised over 98% of the archaeological features (n=424) mapped across the site surface. In addition to the few grinding stands and lithic reduction scatters, these features included hut and granary foundations, pot rests, roasting pits, and platforms possibly used to dry fish. While I have tentatively classified these features on the basis of ethnographic analogy, the artifacts and organic remains associated with them in excavated contexts promise to help decipher their

various functions (see Clark 2003). In order to chart the production of semi-formal space through recurring domestic activity, craft production, and refuse disposal, we also undertook a surface collection using 0.5 and 4m<sup>2</sup> units placed evenly on a 5-m grid to retrieve a 1% sample of body sherds and an 8% sample of rim sherds and other diagnostic artifacts.

Although surface data can provide a critical window onto socio-spatial relations between the excavation unit and the regional survey, they are, of course, plagued by a number of factors that conflate temporal patterns and smear spatial ones (Carr 1984; Clark 2003). In order to control for these biases, I am currently developing a GIS model that incorporates site-level topography, a slope-length factor, and the distribution of seriated pottery types to identify broadly contemporaneous features as well as post-depositional transport and accumulation of artifacts across the site. At the moment, however, it is possi-



**Figure 3:** Domestic occupation surface in Sondage A2 (Area A), Diouboye.

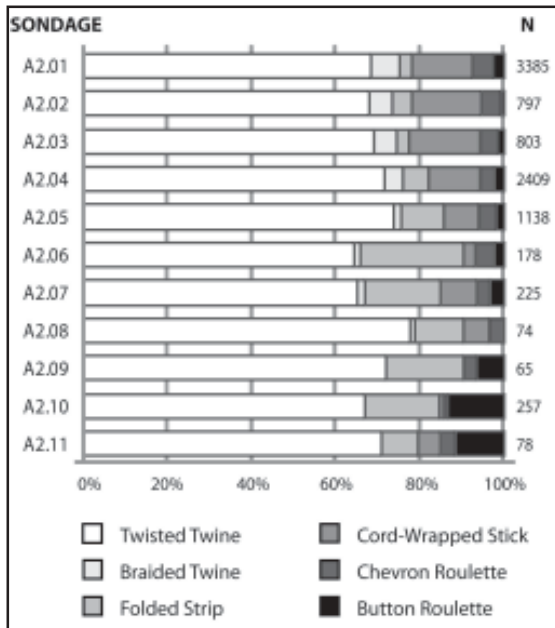


ble to distinguish areas of domestic occupation from more specialized activity areas and refuse dumps on the basis of surface remains. For example, the surface distributions of slag, chert debitage, and quartz hammer stones all suggest that metal working and other tasks related to craft production, and perhaps specialized food processing, were generally restricted to the northern sector of the site around Areas A, B, and C. Meanwhile, an initial study of the size and spatial distribution of granary foundations suggests that people in each occupation area had access to similar quantities of grain, but those compounds in the northern sector maintained greater spatial (and perhaps social) segmentation around food storage facilities (Gokee 2010). Whatever the on-going spatial analysis ultimately reveals about the intra-site organization of Diouboye during its terminal phase of occupation, the data from excavation will help to contextualize how such spatial relations evolved throughout the life of the community.

### Diouboye: Excavation

Following two preliminary sondages in 2008, excavation became a primary focus of the 2009 field season when our team included the author, two graduate students from IFAN, and five local workmen. Balancing contiguous areal exposure with adequate intra-site sampling, we excavated a total of 79m<sup>2</sup> across the site with larger units (16-24m<sup>2</sup>) on three of the mounds, and smaller units (1-6m<sup>2</sup>) on one mound and four off-mound areas (Figure 2). Excavation proceeded according to natural stratigraphy with thicker strata subdivided at arbitrary 10-cm intervals with all soil screened through 2mm mesh to recover artifacts and observe densities of burnt daub. All architectural features and cultural and natural deposits were assigned a unique field specimen (FS) number to maintain vertical and horizontal control, while special finds were given an *in situ* point provenance; these included 6-liter flotation samples (n=113) from

**Figure 4:** Relative frequency of dominant ceramic decorations by stratigraphic level in Sondage A2 (Area A).



each stratum, feature, and intact ash lens and radio-carbon samples from uncontaminated, primary contexts.

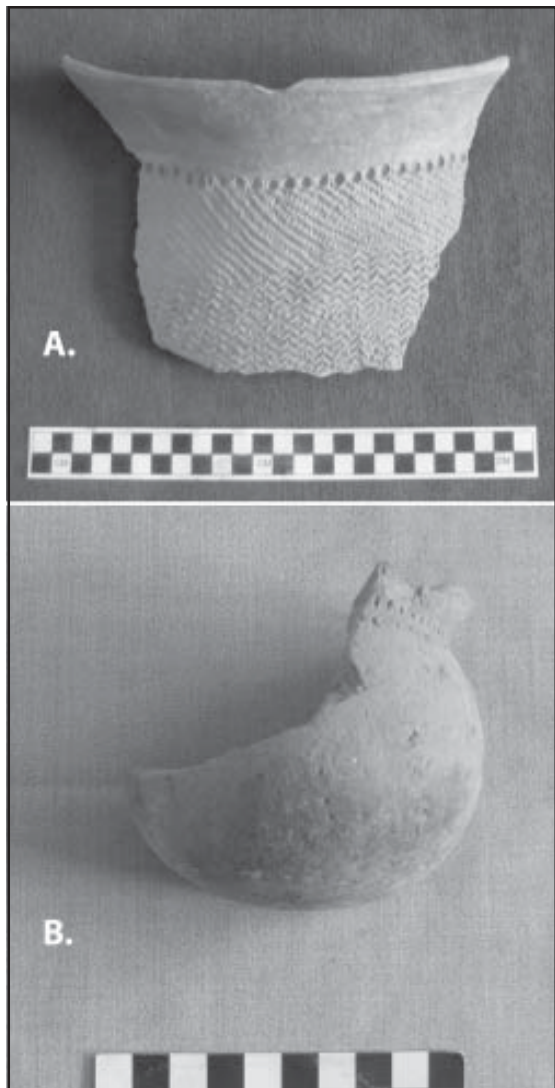
Excavations exposed stratified deposits to a depth of 0.8-1.5m at mound areas (A, F, G, H) and two off-mound areas (K, N)—all with shallow hearths, mud wall stubs, sandstone rock foundations, borrow pits, and sheet middens, documenting a diverse range of quotidian activities and the production of domestic space (Figure 3). Area C, with a depth of 0.2m, proved to be a deflated workshop area strongly associated with chipped stone and metal production activities, while exploratory trenches showed that a number of small cairns in Areas L and S were most likely the result of more recent plowing episodes. As illustrated in Figure 4, a seriation of major roulette decoration types on ceramic body sherds has allowed for the construction of a three-phase framework critical to correlating trends in architecture and activity across the excavated areas. Two charcoal samples from the early and late phases at Area H have provided calibrated (2σ) dates of AD 660-880, and an additional eight samples from the other excavation units have been submitted to the NSF-Arizona AMS Lab to anchor the relative chronology of different

occupation areas and to situate Diouboye in the broader historical dynamics of West Africa.

Despite substantial erosion along the western margin of the site, the stratified sediments of Diouboye yielded a remarkably well-preserved assemblage of durable artifacts and organic materials (Figures 5 and 6). The excavated pottery assemblage totaled 2624 diagnostic (rim, base, lid, handle) and 44,021 body sherds. These materials appeared to derive predominantly from cooking pots and storage jars of local manufacture. Indeed, a nearly complete broad and heavily worn bowl from Phase III deposits in Area A was most likely a hand-wheel for building pottery vessels. Vessel forms and decorative motifs—dominated by everted rims and fiber roulette decorations—belong to pottery traditions of the western savanna (see Bocoum and McIntosh 2002; Togola 2008), but the common use of carved roulette also suggests ties to a poorly understood “Mande” tradition along the Gambia and Upper Niger Rivers (Gallay 2010; Livingstone Smith 2007:201-203). The ceramic assemblage from Diouboye becomes more interesting when compared to that of Arondo, 90km to the north, whose long-collared and channeled rims reveal greater stylistic affinities to sites along the Middle Senegal River (Thiaw 1999:172-178). While the sparseness of regional data currently precludes a rigorous assessment of the social institutions and identities underlying such “ceramic spheres” in West Africa, Livingstone Smith (2007) has hypothesized their correspondence to emerging supra-local networks of craft specialists including blacksmiths.

In this regard, it is noteworthy that a vitrified crucible and modest frequencies of slag across all phases attested to the concentration of metal-working in Area A, where we also uncovered the imprint of a small forge dating to the earliest occupation phase. Corroded iron fragments and tools such as spear points, on the other hand, appeared infrequently (n=33) in nearly all excavation units, indicating that the circulation of iron objects was not greatly restricted within the community. Chipped quartz, chert/jasper, mudstone, sandstone, and hematite artifacts recovered in modest frequencies from excavation (n=759) and surface (n=4234) contexts also appear more concentrated in the northern part of the site, particularly in Area C and a diffuse midden southwest of Area A. Although these included rare points and backed bladelets, most tools were informal and expedient—including cores and flakes with macro-

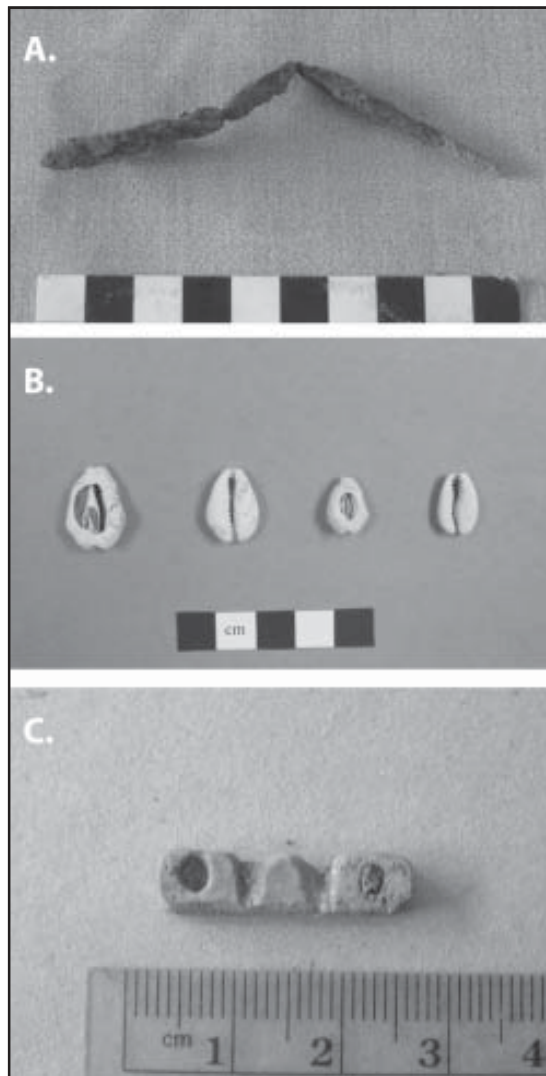
**Figure 5:** Selected sherds from Diouboye including (A) flared rim jar with twisted twine and carved chevron roulettes, and (B) small “sauce” pot with punctate décor.



scopic edge wear or light retouch generated through bipolar reduction. Altogether these data suggest that the occupants of Area A controlled the technical and practical knowledge associated with craft production and/or other specialized production activities.

Exotic objects such as glass beads, cowry shells, and copper objects recovered from both surface and excavation contexts at Diouboye further attest to participation in interregional exchange networks through direct or down-the-line trade, or both.

**Figure 6:** Selected artifacts from Diouboye including (A) iron projectile point, (B) cowry shells, and (C) carved bone pendant.



Despite the small excavated samples involved a distinct pattern has emerged between Area A, which yielded 7 of the 8 copper and glass ornaments, and Areas F, G, and N to the south, which yielded 7 of the 9 cowry shells. Although it is not yet clear whether this pattern relates to different supra-local relations, modes of consumption, or simply depositional biases, it could suggest that, in addition to craft production, the occupants of Area A also maintained preferential access to exotic goods such as copper associated with high status in pre-colonial Africa (Herbert 1984).



The analysis of organic remains, currently in-progress, promises to help evaluate this tentative model of social organization within Diouboye. Due to excellent conditions of preservation, some 51.4kg of faunal remains were recovered from excavated contexts, including general soil accumulation and construction sequences, feature fill, and midden deposits. An initial analysis of materials from the 2008 season has identified the presence of domestic cattle and ovicaprids (and perhaps fowl), as well as wild ungulates, reptiles, mollusks, and large fish from nearby wooded savanna and riparian habitats (S. Dueppen, personal communication). Comparable to botanical assemblages with limited preservation known from Arondo (Gallagher 1999) and the Middle Senegal Valley (Murray et al. 2007; Murray 2008), a preliminary analysis of four macrobotanical samples shows that fruit and seed preservation is poor in comparison to carbonized wood, but a few domesticated grains of indeterminate millet or sorghum have been identified (D. Gallagher, personal communication). Ultimately, the intra-site distribution of these organic materials will allow me to evaluate the functions of various architectural features and patterns of food consumption related to domestic economy, status, and/or ritual practice across the community.

### Looking Forward

A preliminary examination of data from survey, surface collection, and excavation has revealed some of the key socio-economic dimensions that structured spatial and material practices within and around the middle Iron Age village of Diouboye. People built and rebuilt houses, stored and processed grain, prepared and consumed daily meals, and deposited their rubbish in cylindrical borrow pits—all within the context of co-residential spaces. Craft production activities were concentrated at and around Area A, the largest such space at the site, where people may have also enjoyed greater access to copper and glass ornaments. Cowry shells, however, were found in most other occupational areas, suggesting heterogeneous participation in supra-local exchange networks.

Pending the results of on-going analyses, my further synthesis of these archaeological data will move to clarify how economic differences across

Diouboye played into the dynamic control or diffusion of political authority within the community—however it was constituted and experienced. Here I propose to examine other sources of power generated through limitations in access to the spaces, objects, and knowledge involved in acquiring wild game and fish, raising livestock, generating social capital with feasts and/or beer, and coordinating religious rituals. In so doing, my research will further explore how people in village communities negotiated their roles in the social production of institutions at diverse interregional, regional, and local scales during the late 1<sup>st</sup> millennium AD in West Africa.

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