

Field survey in the tumulus zone of Senegal

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Abstract

Thousands of earthen mounds of varying sizes, presumed to be funerary monuments, occur throughout a 32,000 km² area of western Senegal. Previous inventory work and extremely limited excavation have not adequately addressed basic questions such as the relation of tumulus sites to habitation sites, the relative chronology and cultural affinities of the tumulus phenomenon in the northern and southern parts of the tumulus zone, and the temporal and cultural relationship of the southern tumuli to the megalithic monuments whose distribution they partially overlap. We describe here the results of a field survey designed to provide preliminary data relevant to these questions. In addition to locating previously unreported habitation sites in several sectors, analysis of surface pottery has permitted recognition of several temporally differentiated assemblages associated with different types of sites encountered during the survey. The distinctive assemblages of the northern and southern tumulus zones indicate that mound construction should not be considered a unitary, homogeneous phenomenon in Senegal.

Résumé

Des milliers de monticules de terre de dimensions variées, que l'on suppose être des monuments funéraires, sont éparpillés dans une zone de 32.000 km² à l'ouest du Sénégal. Auparavant, des travaux d'inventaire et d'excavation extrêmement limités n'avaient pas suffisamment tenté de répondre aux questions fondamentales telles que le rapport des sites de tumulus aux sites d'habitation, la chronologie relative et les affinités culturelles du phénomène des tumulus au nord et au sud de la zone des tumulus, et le rapport temporel et culturel des tumulus du sud avec les monuments mégalithiques dont ils recouvrent partiellement la zone de répartition. Nous décrivons ici les résultats d'une étude sur le terrain conçue pour fournir des données préliminaires ayant trait à ces questions. En plus de déterminer des sites d'habitation non-signalés auparavant dans plusieurs secteurs, l'analyse d'objets en terre cuite trouvés en surface a permis de reconnaître plusieurs assemblages temporellement différenciés, associés à différents types de sites rencontrés au cours de cette étude. Les assemblages distinctifs des zones de tumulus au nord et au sud

indiquent que la construction de monticules ne doit pas être considérée comme un phénomène unitaire et homogène au Sénégal.

In his many writings on the development of trade in West Africa, Merrick Posnansky has frequently pointed to the potential of the Senegambian tumuli and megaliths for illuminating this process. He suggests that the investment of wealth and labour in these costly monuments reflects the increasing social stratification of Iron Age societies positioned to control valuable mineral resources, including iron and gold (Posnansky 1972, 1973, 1975, 1981, 1982). Our own work on early trade has always been informed by Merrick's views on trade and culture process: we frequently find ourselves clearing paths that he has marked out at an earlier time. It was Merrick who first suggested in 1975 that we should investigate the archaeology of the Inland Niger Delta around Jenne. After over a decade of involvement in that enormously rich topic, we found ourselves drawn to the tumuli of Senegal, which Merrick had already identified as 'some of the most intriguing monuments of West Africa' (Posnansky 1975). Aside from a tiny number of excavations that had produced some spectacular material, and an impressive inventory of mound sites, little was known of the nature or chronology of the tumulus phenomenon as we undertook field survey within the tumulus zone in 1988.

Historical perspectives¹

Earthen tumuli in the area of modern-day Senegal were not recognized as a phenomenon of archaeological interest until August 1941, when Joire spent ten days excavating the largest mound (Mound P – 40 m in diameter and 4 m high) at Nguiguélah near Rao between August 11–20. This excavation produced the famous gold Rao pectoral plus other gold, silver, and copper artifacts in association with the bones of an individual estimated to be less than 20 years old (Joire 1943, 1955). Over the succeeding five months, Joire and Duchemin excavated a number of other tumuli in the vicinity of Rao, some of which showed evidence in section of a roofed funerary structure which had been burned prior to erection of the mound. Over the following two years, tumuli were also identified in the area of the Lac de Guiers and Djourbel (Mauny 1961:163). It was not until 1960, however, that earthen mounds once again attracted attention, with the discovery by geologist J. Gard of the great Thiekène Mbacké monument complex on aerial photographs (Gard and Mauny 1961). As Clos-Arceud (1962) comments, this was the first application of aerial photography to archaeological survey in Africa. Clos-Arceud's further examination of the air photos revealed nineteen mounds at Thiekène, the largest of which measured 82 m in diameter and 8 m in height. Each had a circular trench visible at the base. Clos-Arceud (1962:89) concluded that: 1. the work of building the mounds had been highly organized and directed; 2. the large volume of earth represented in the two largest mounds (25,000 m³) corresponds to perhaps 25,000 person/days of work, showing that the deceased was an important person honoured by his successor; and 3. the simple technology involved (digging with a hoe and transport by headpan) gives us no clue to the date of the construction.

The most important period for tumulus research thus far, however, was unquestionably between 1969 and 1972, when Charles Becker and Victor Martin undertook their great

inventory of monuments within the tumulus zone. Their work demonstrated for the first time the actual number and distribution of these earthen mounds: 6982 mounds clustered within 1432 sites covering approximately 32,000 km² in the northwestern sector of Senegal (Becker and Martin 1982; Martin and Becker 1974, 1981, 1984; see Fig. 1). In the south-east corner of their distribution, earthen tumuli overlap the distribution of megalithic monuments, where they comprise 29% of the monuments inventoried in the megalithic zone. Here an additional 600 mounds with flanking menhirs are known, plus another 2700 tumuli covered with lateritic gravel, bringing the total number of tumuliform monuments in Senegal to over 10,000 (Martin and Becker 1974:407). At Becker and Martin's suggestion, G. Thilmans undertook excavations at the Ndalane earthen tumulus (40 m diameter by 2.5 m) in December 1971, bringing to light the remains of five or six individuals associated with six gold tubular beads, plus copper and iron objects and cornaline beads (Thilmans and Decamps 1972). A ¹⁴C date run on charcoal from burned areas above the inhumations produced a date of 1157±119 bp. Two other dates on charcoal from below the inhumations were much earlier: 4811±137 bp and 4770±115 bp. These dates may be associated with the Neolithic pottery and worked flint recovered from the excavations. No one appears to take seriously C. A. Diop's (1976) idea that the earlier dates correctly dated the monument, pushing the Iron Age back into the third millennium BC. Unfortunately, the Ndalane excavations remain unpublished. Alain Gally's excavations in 1980-1 at a

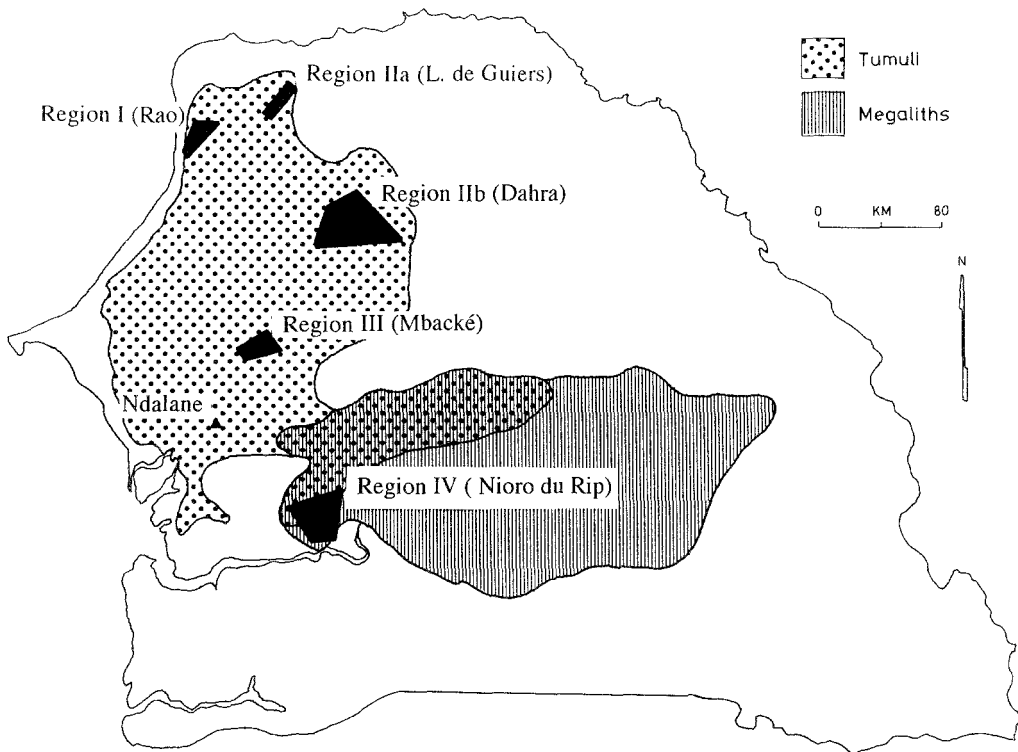


Figure 1 Map showing the extent of the tumulus and megalithic zones in the Senegambia, with black polygons indicating the survey regions investigated in 1988-89.

small earthen tumulus with menhirs at the site of Santhiou Kohel were extremely meticulous, revealing an inhumation accompanied by a decapitated dog and possibly a double human sacrifice, but no grave goods (Gallay, Pignat and Curdy 1982). Gallay's cruciform trenching approach permitted an appreciation of the multi-phase construction of the mound, which had involved the digging of four successive circular trenches of increasing diameter and depth to procure the dirt for the erection of the tumulus. The pottery recovered paralleled that from excavation of a megalithic circle at the same site, demonstrating for the first time that at least some tumuli and megalithic monuments shared a similar ceramic assemblage.

Efforts at interpreting the tumulus phenomenon have tended to focus on the date and ethnic identity of the builders. Joire (1955:328) accepted the information of Bala Nguéye, chief of Nguiguélah village, that the Rao tumuli were built by Serer during the Sossé period (at the height of the expansion of the Empire of Mali – thirteenth and fourteenth century) and noted the similarity of the funerary ritual at Rao to that described by al-Bakri for the king of Ghana and by Desplagnes for the tumuli of the upper Niger Bend. Mauny (1961:162–43) accepted a Serer identity for the mound-builders, but suggested that the period of construction might have been spread over a considerably longer period, perhaps continuing even up until the last few centuries. Gravrand (1983:43) and Pelissier (1966:195–6), working further to the south, were influenced by the Serer's identification of other groups, including the Mandé speaking Sossé, as the builders of the early tumuli, despite the fact that Serer funerary ritual today includes tumulus construction. Becker and Martin (1982) have undertaken a comprehensive review of the ethnographic literature on Serer burial as well as references in historical documents to funerary ritual on the Senegambian coast or along the Senegal river. The earliest, sixteenth-century Portuguese references open the possibility that tumulus burial was widespread along the coast at that time, practised by Manding kings, as well as by Wolof and Serer. Several sixteenth- and seventeenth-century sources refer to the practice of human and animal sacrifice during the funerary rites for kings (Becker and Martin 1982:262–5) but Père Labat mentions that the old customs of sacrifice had been largely abolished in Bissau by 1728. Becker and Martin conclude that it is likely that present-day Serer funerary ritual emerged as a result of contact by the Serer with earlier populations (Mandé and Wolof speakers, as well as others) as the Serer migrated southwards beginning perhaps a millennium or more ago. Today, the Serer retain important elements of funerary practices, including tumulus construction, that were more widespread in previous centuries. The identity of the mound-builders cannot, therefore, be ascertained at present. Nor is there sufficient information relevant to the age of the tumuli to permit generalizations about their chronology. Functional aspects of tumuli at megalithic sites have emerged from Gallay's work at Santhiou Kohel, which has provided the valuable insight that tumuli may have been used for inhumations accompanied by sacrifices, and megaliths for mass ritual sacrifices (Gallay, Pinat and Curdy 1982). The nature of the chronological relationship between these two practices still needs to be clarified.

The 1988 survey

From December 15, 1988 to January 6, 1989, an archaeological team directed by the authors undertook a brief programme of survey within the tumulus zone. The team com-

prised members from Rice University (the authors, T. Togola and H. Haskell), from the Université de Dakar-Ch. A. Diop (H. Bocoum) and the University of Michigan (S. Gabler, J. Brown). Our research was intended to complement Becker and Martin's earlier inventory work by focusing on several issues that remained largely unexplored. Among these were the collection of basic data on geographical variability in the location, size and density of tumuli with respect to landforms, soils and vegetation, the spatial distributions of tumuli within individual sites, and the association of tumuli with habitation sites. One of the most puzzling aspects of the tumulus phenomenon was the virtual absence of any report of habitation sites within the monument zone. It was unclear whether this was real or an artifact of survey methodologies that emphasized funerary monuments. Our research was designed to investigate this question.

Four survey areas were selected that represented a diversity of landforms, vegetation and tumulus configurations within the tumulus zone (Fig. 1). The first two study areas were in the northern, Sahelian sector of the tumulus zone: in the Pleistocene dunes and interdunal depressions around Rao, and in the lower Ferlo Valley near Linguère, Yang-Yang and further down towards the Lac de Guiers. The second two study areas were in the savanna zone to the south: the Sudanic wooded savanna (average rainfall 600–700 mm) south of Mbacké around the great tumulus cluster of Thiekène, and dry sudanic woodland (average rainfall 800–1000 mm) around the monumental sites of Sine Ngayène, Santhiou Kohel and Kaymor. Survey began at Rao in December, employing a transect-walking approach, in which six persons walked parallel paths 50 m apart along selected 5-km-long transects, recording all sites encountered. The advantage of the transect technique is that it permits recognition of all sites, however ephemeral. Comparison of these data with earlier, monument-driven inventories can be useful in estimating how much of the archaeological record remains unreported within the region. However, we quickly discovered that much of the sandy plain in north-west and north central Senegal has an almost continual sparse cover of Iron Age surface material. It became extremely tedious and time-consuming to have to stop every hundred metres to record yet another shallow surface scatter. Evidently, for centuries in the past, as well as today, human occupation in most of the survey areas has been relatively short-term and shifting.

After Rao, survey methodology was changed to concentrate on intensive survey of known tumulus clusters, both to map their size and the spatial distribution of mounds within the cluster and thoroughly to search the area within 1 km of the cluster for settlement sites. At each cluster, a plan was made of the tumulus arrangement itself, and all surface artifacts were collected. Crew members would then walk radially outward from the centre of the cluster and record and surface collect all sites encountered. The paucity of surface material on the funerary mounds and on many of the habitation sites surveyed was such that, in addition to collection of all surface pottery, the top 10 cm of soil in one or more 2×2 m squares was screened to recover additional material. Even with these efforts, sample sizes for a number of sites remain too small for meaningful statistical analysis and comparison. This was a disappointment, since one of the principal objectives of the 1988–9 reconnaissance was systematic description of the surface pottery, in the hope that one or more functionally, chronologically or geographically distinct ceramic assemblages might be identified. Scant attention has been paid to the pottery from Senegal's monument sites, with only cursory description and a focus on intact or reconstructible pots being a characteristic

of research reports. As a consequence, little is known about the relative chronology of tumuli within the same complex, or from different tumulus clusters and nearby habitation sites, and about the potential cultural relations among these. Our goal was to devise an initial method or pottery description and classification that would allow comparison of pottery from the many different sites encountered during survey.

The results of the survey and ceramic analysis are described below by region.

Region I (Rao)

This northern survey area covers approximately 240 km² north-east of the town of Rao (Fig. 2). Here, the landscape is a monotonous cultivated sand prairie with undulating relief characteristic of Late Pleistocene (Ogolian) dunefields, and a semi-arid, seasonal rainfall of 400–500 mm (Stancioff *et al.* 1985). The interdunal depressions have pseudo-steppic, very lightly treed vegetation. The rolling relief made detection of tumuli on air photos extremely difficult. The initial transect walked by the crew revealed the shallow habitation sites I-48-30 (called ‘Ngayna’ by local informants and claimed to be a Sossé settlement before the founding of Rao), I-48-50, I-48-51, and I-48-52. At this point, it became clear that all dune crests and to a lesser degree interdunal areas show evidence of multiple episodes of short-term occupation by small communities. This settlement pattern continues today. The boundaries between surface exposures of cultural material are arbitrary at best and probably wax and wane with the shifting sand. Every deflation hollow has a reasonable probability of displaying a significant sherd scatter. It is probably fair to say that the entire Rao region should be considered a more-or less continuous palimpsest of shifting occupation, and this pattern is one of significant time depth in this region of low agricultural and pastoral productivity. In recognition of this, survey methodology shifted to target tumulus clusters for investigation.

Sites investigated (Fig. 2, top) included ‘Nguiguilah’ (I-53), which, along with I-56, was among the Rao sites dug by Joire and Duchemin in 1941, yielding the spectacular Rao gold pectoral (Joire 1943, 1955). The 17 tumuli of Nguiguilah were mapped, surface collected, and elevations shot in by instrument. Site I-54 (‘Ngaye-Ngaye’, recalled locally as the ‘seat’ of the kingdom of Walo), comprised nine mounds. A 50-m diameter accumulation (I-55) of sherds, slag, glass beads and tobacco pipes was found 500 m at 30° from the centre of I-54. The Massar tumulus site (I-56) comprises 10 mounds in two clusters that are probably related. Duchemin apparently trenched nine of these mounds in 1942 (Joire 1955:273). The largest mound sits astride the crest of a dune ridge dominating the low-lying plain to the north and west. Looking north-west one can see tributaries of the Senegal River, the yellow dunes of the litoral and, on clear days, the Senegal River itself. This was surely an intentional siting of this 7-m-high, 60-m-diameter tumulus.

The Rao region pottery collection comprised a total of 257 rim sherds and 1425 identifiable body sherds from 25 sites (6 habitation sites and 19 mound sites). The 19 mound sites belonged to three clusters of tumuli – I-53, I-54 and I-56 – and produced a total of 957 sherds (103 rims and 854 body sherds). Four of the habitation sites (I 48-30, I 48-50, I 48-51, I 48-52) were located close to the town of Rao. The other two habitation sites of I-55 and I-57 (identified by locals as *gent* or recent habitation sites) were respectively located near the mound clusters of Ngaye-Ngaye and Massar. A total of 725 sherds (154 rims; 571

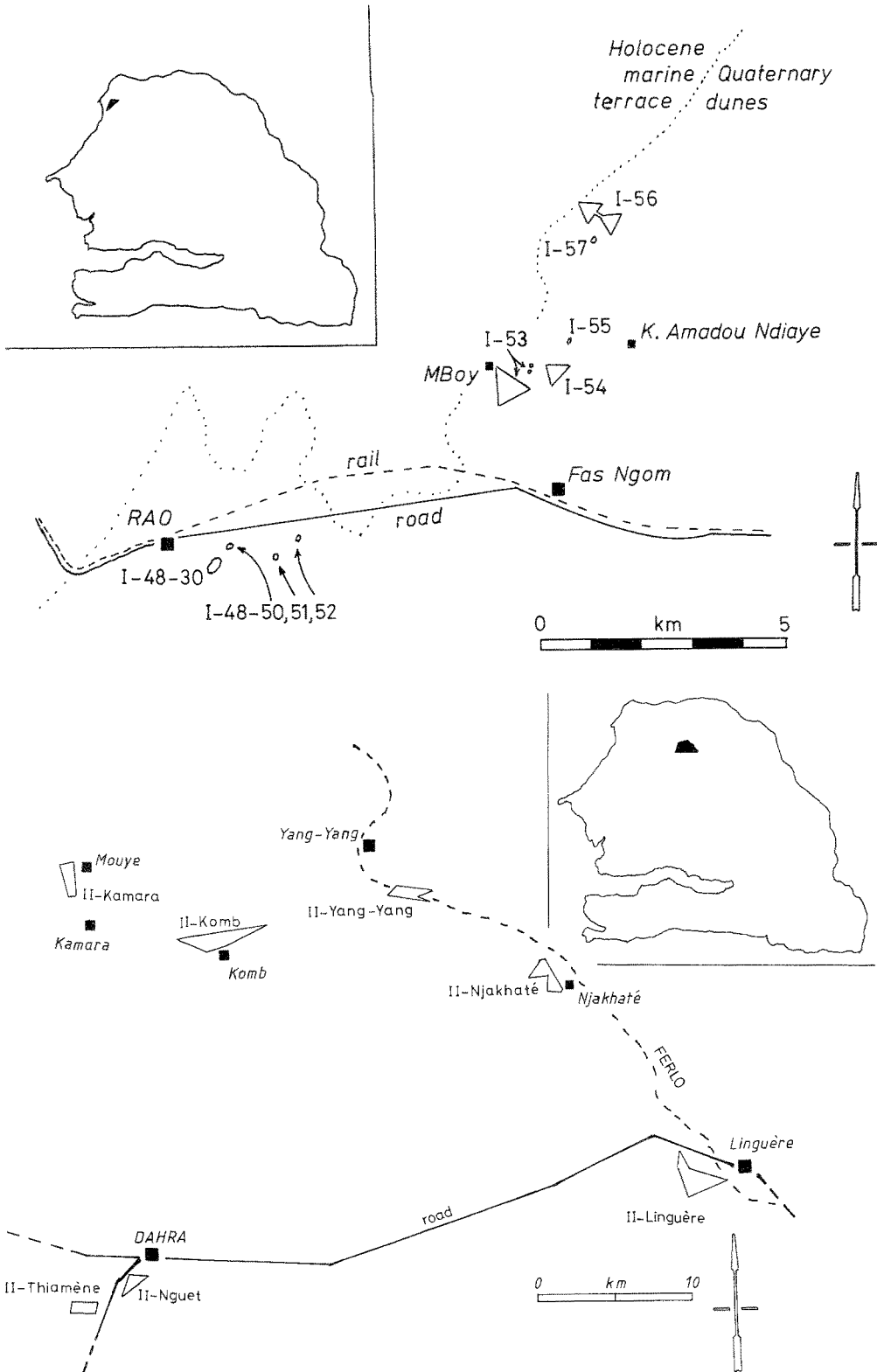


Figure 2 Sites and survey areas (open polygons) in Regions I (top) and IIb (bottom) in the northern tumulus zone. Black squares are present-day villages.

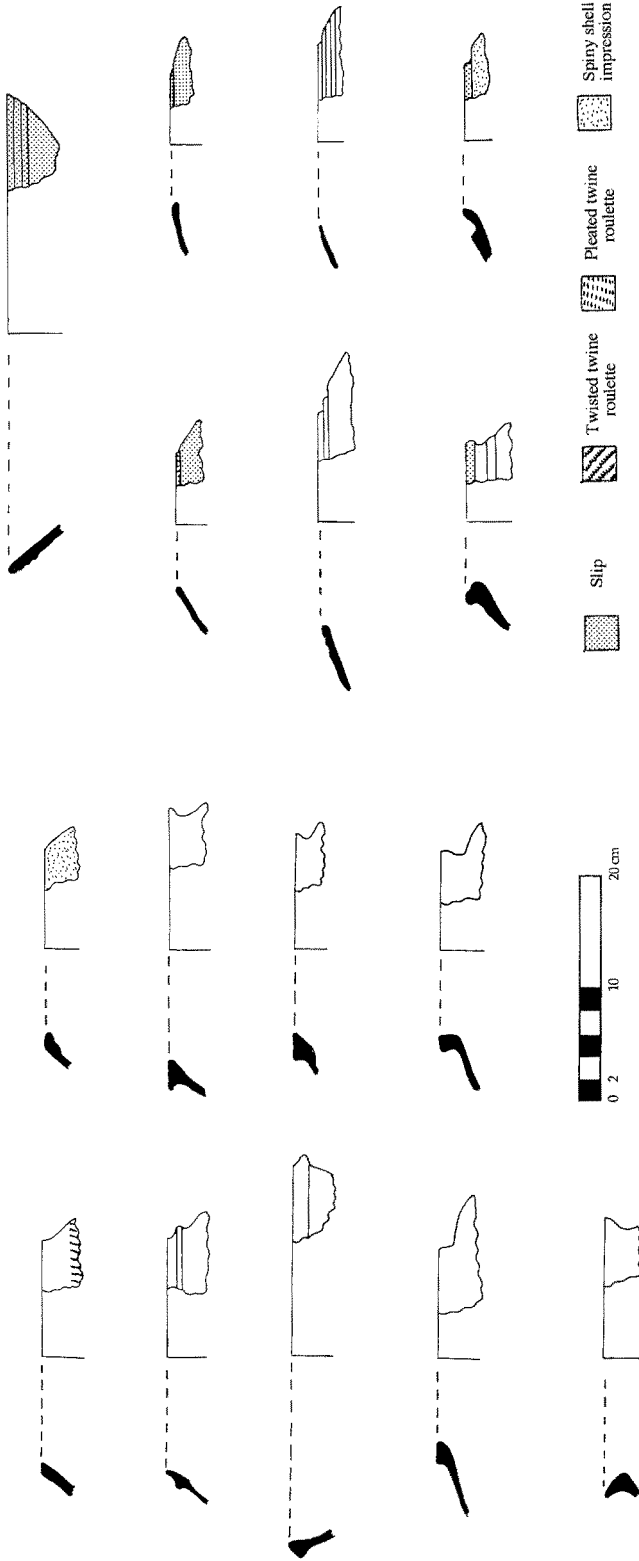


Figure 3 Survey region 1 pottery assemblages. Recent habitation (*gent*) assemblage on left with bevelled-rim bowls (arrows indicate position of bevel); on the right is the older tumulus and habitation site assemblage with channelling at lip.

body sherds) were collected from these six habitation sites. Within the material collected from Region I, two coherent assemblages were identified:

1. A recent assemblage from the two *gent*, I-55 and I-57, characterized by an abundance of simple and bevelled rims from closed globular vessels (Figs. 3 and 4). The bevel is sometimes emphasized to form a slight ridge at the angle. Depending on the placement of the potter's fingers when forming the lip, the bevel is found inside the mouth, angled downwards; at the mouth, forming a flat platform parallel with the plane of the mouth; or outside the mouth, angled outward, forming a slight collar. Rims are generally undecorated (Fig. 5). The temper is dominated by chaff, resulting in a distinctively light fabric that is pitted with elongated holes where fragments of plant stalks and chaff have burned away during firing. Typically, the paste is black throughout, with the exception of a thin (<2 mm) oxidized orange/red (Munsell 2.5 YR 6/6) zone on the surface. 65% of the recorded body sherds are undecorated, and shell impression – achieved by rolling a thorny radula cerith (*Tympanotonus*) shell over the clay – is the only decorative variable found in non-negligible frequencies (*ca.* 20%).

2. An older assemblage dominated by simple rims, both open and closed, often with single or multiple incised grooves at the rim (Fig. 3). There are also a variable number of everted and overhanging rims (Fig. 4). The presence of a handful of bevelled rims at two habitation sites near Rao (I-48-30 and I-48-50) indicates a brief recent reoccupation, to which several tobacco pipe fragments at these sites must also be attributed. Decoration is sometimes hard to determine, since the sherds in this assemblage are usually quite worn, resulting in a high frequency of unidentifiable sherds (approximately 25% of the total).

Region I Rim Assemblages

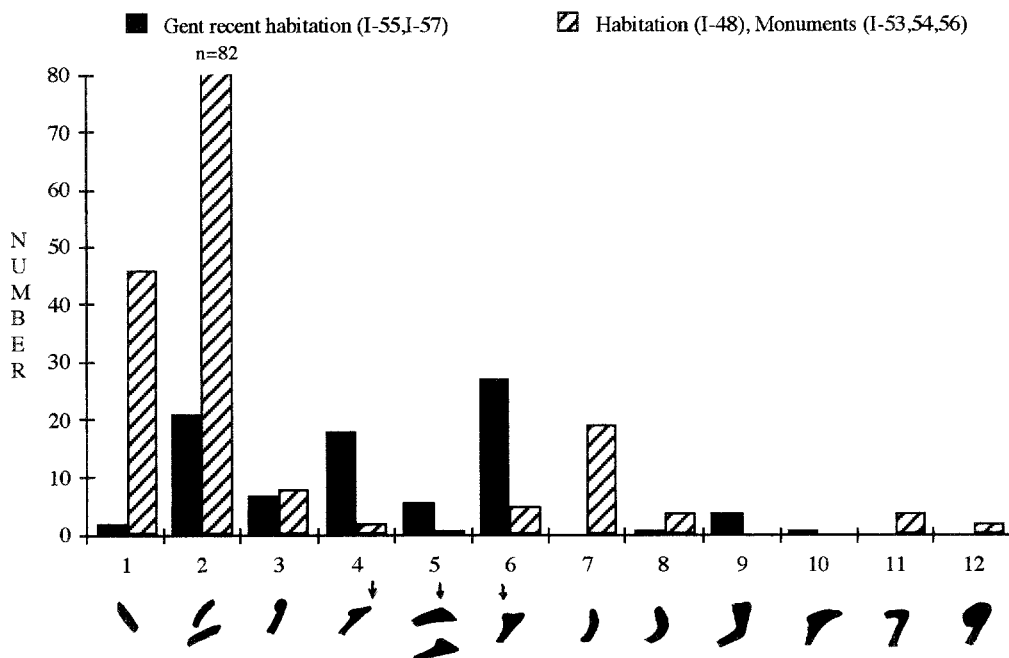


Figure 4 Summary of rim form frequency within the Region I rim assemblages.

Among identifiable sherds, incised grooves are the dominant decorative treatment on rims, and shell impression occurs on 40–50% of the body sherds (Fig. 5). Grog temper dominates, and paste colour tends toward well oxidized red and oranges. In both decoration and rim form, the pottery assemblage from the mound sites of Region I resembles that from the habitation sites, excluding the two *gent.*

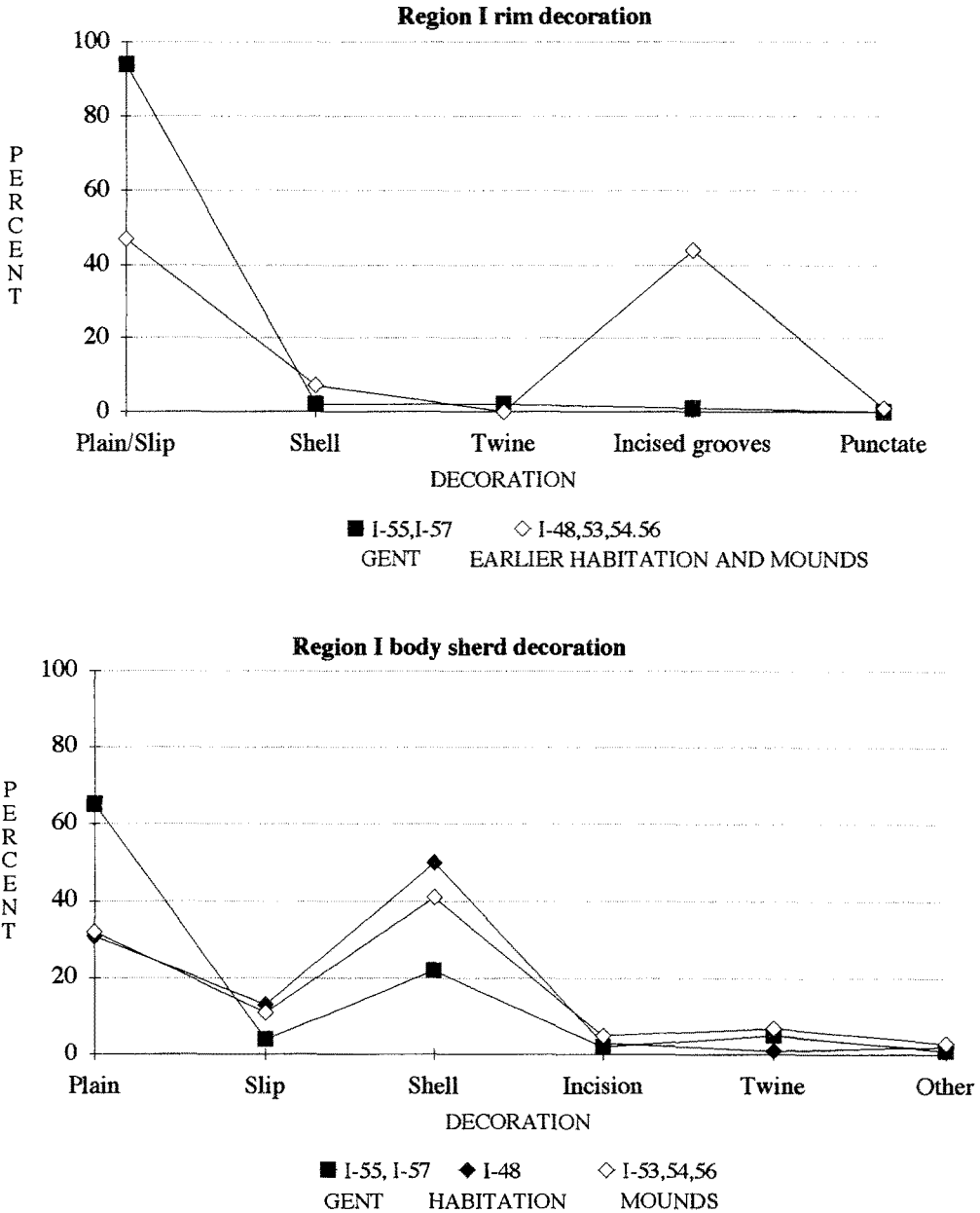


Figure 5 Region I rim decoration and body sherd decoration for major site groups.

Region II (Lac de Guiers and Dahra)

Survey area II samples two parts of the lower Ferlo Valley system: 1. the eastern bank of the Lac de Guiers north of Keur Momar Sarr, located in the far lower Ferlo system close to its junction with the upper Senegal River delta, an area of hydromorphic pseudo-gley surface soils, covered with wooded pseudo-Sahelian vegetation; and 2. the dry Ferlo Valley near Dahra, Yang-Yang and Linguère, where Sahelo-Sudanic lightly wooded prairie covers sub-tropical soils on well-drained ironpan with a high uncemented sand content. In both areas, our approach was to target for investigation several tumulus sites inventoried by Martin and Becker. Table 1 summarizes the sites and mounds encountered during intensive fieldwalking over the areas indicated in Figure 2.

The most sobering observation made in the course of this survey was the disappearance over the past two decades of massive numbers of the low sand mounds which had been inventoried by Martin and Becker as tumuli. It should be recalled at this point that no excavation has ever been undertaken to evaluate the nature and function of these mounds anywhere within our second survey zone, and the destruction of the mounds through deflation, cultivation, and trampling by cattle herds has, in places, already reached 100%. The same general pattern of widespread surface scatters already noted for Rao obtains throughout the second survey zone also. Our failure to locate any habitation sites in the vicinity of the tumuli at Yang-Yang and Njakaté was disappointing, but once again suggests that occupation was short-term and shifting throughout the Iron Age in this area. There is always the possibility that associated habitation sites were located farther away from the tumuli than the 1.5 km radius within which we confined our survey. For the moment, the best possibilities for habitation sites appear to be on the shores of the Lac de Guiers and in the middle reaches of the Ferlo Valley, extending upstream from Linguère, where water availability apparently eliminated constraints to longer-term occupation.

The pottery collection from survey zone II consisted of 252 rims and 1031 body sherds. The mound pottery collection, comprising 83 rims and 553 body sherds, was obtained at three major tumulus clusters (Yang-Yang, Njakhaté, Kamara) and two isolated tumuli (Kamara 2, Komb 1). The seven habitation sites yielded an assemblage of 169 rims and 478 body sherds. Within the collections from this region, two distinctive and coherent ceramic assemblages were recognized (Fig. 6):

1. A recent assemblage, very similar to that from Region I, dominated by simple and bevelled rims from closed, globular vessels. This assemblage is associated exclusively with habitation sites. Three rim forms (simple closed and two bevelled types – Fig. 7) account for 75% of the assemblage. Rims are normally undecorated, except for a band of slip occasionally applied on the lip only (Fig. 8). Body sherds are undecorated in almost 60% of the recorded cases; a further 35% are slipped only, in a handful of cases by linear bands of slip. An exception to this is the pottery from the three sites in the Lac de Guiers region. These sites have a low incidence of plain and slipped wares, and a high frequency (over 40%) of twine-impressed wares, almost exclusively twisted and rolled. Unlike the very similar rim forms from the recent assemblage in Region I, temper in Region II is diverse, with organic temper present in virtually all sherds, added as a minor component accompanying grog or sand. Crushed shell temper is very rarely present (2%). Unusually, only the paste surface is oxidized to a light orange/red, leaving a black core dominating the

Table 1 Sites located in survey area II.

Targeted tumulus cluster, as numbered in Martin and Becker's inventory (1984)	Sites located in and around targeted cluster during 1988–9 survey
LAC DE GUIERS	
30 Temeye Salane – 26 mounds	II-Temeye Salane-2: dense sherd concentration on old beachline of Lac de Guiers. Some habitation accumulation likely. No mounds observed.
31 Mban – 5 mounds	II-Temeye Salane-1: single low mound. Local informants report disappearance of others due to trampling by cattle and wind deflation.
32 Saninte – 48 mounds	II-Saninte: series of low mounds stretching <1km along lake.
DAHRA	
298 Thiamène – 27 mounds	II-Thiamène-1: single low mound, much eroded II-Thiamène-2: 1.5 m deep accumulation of sherds and slag. Habitation site.
297 Dahra – 80 mounds	II-Nget-1: mounds of habitation debris with modern borrow pit; 74 possible tumulus mounds [or termite mounds] <0.5 m high, no surface material.
279 Kamara – 1 mound	II-Kamara-1: 3 low mounds <15 m diameter. II-Kamara-2: tumulus 40 m diameter × 3–4 m high.
284 Komb – 141 mounds	II-Komb-1: single low tumulus 20 m diameter. Informants report disappearance of other mounds since 1970s due to erosion.
282 Komb – 67 mounds	II-Komb-2 and II-Komb 3: habitation mounds <1.5 m high with ashy soil and pottery.
FERLO VALLEY	
324 Ndiakhaté – 2 mounds	II-Linguère-1: 2 60 m-diameter accumulations of pottery and burnt clay architectural features. II-Njakaté-1: sand tumulus 30 m diam. × 3 m. II-Njakaté-2: sand tumulus 40 m diam. × 5 m with Iron Age pottery and abundant lithics on the surface.
316 Yang-Yang – 5 mounds	II-Yang-Yang-1 to 15: 15 tumuli measuring from 10 m diam. × 1 m to 55 m diam. × 5 m, aligned on sand terraces, visually dominating Valley.

sherd cross-section.

2. A mound assemblage characterized by short everted rims, overhanging rims and simple open rims (Figs 6 and 7), often decorated with one or more incised grooves near the rim (Fig. 8). The importance of incised decoration recalls the mound assemblage in Region I, although the dominant rim forms there were somewhat different, with simple closed rims

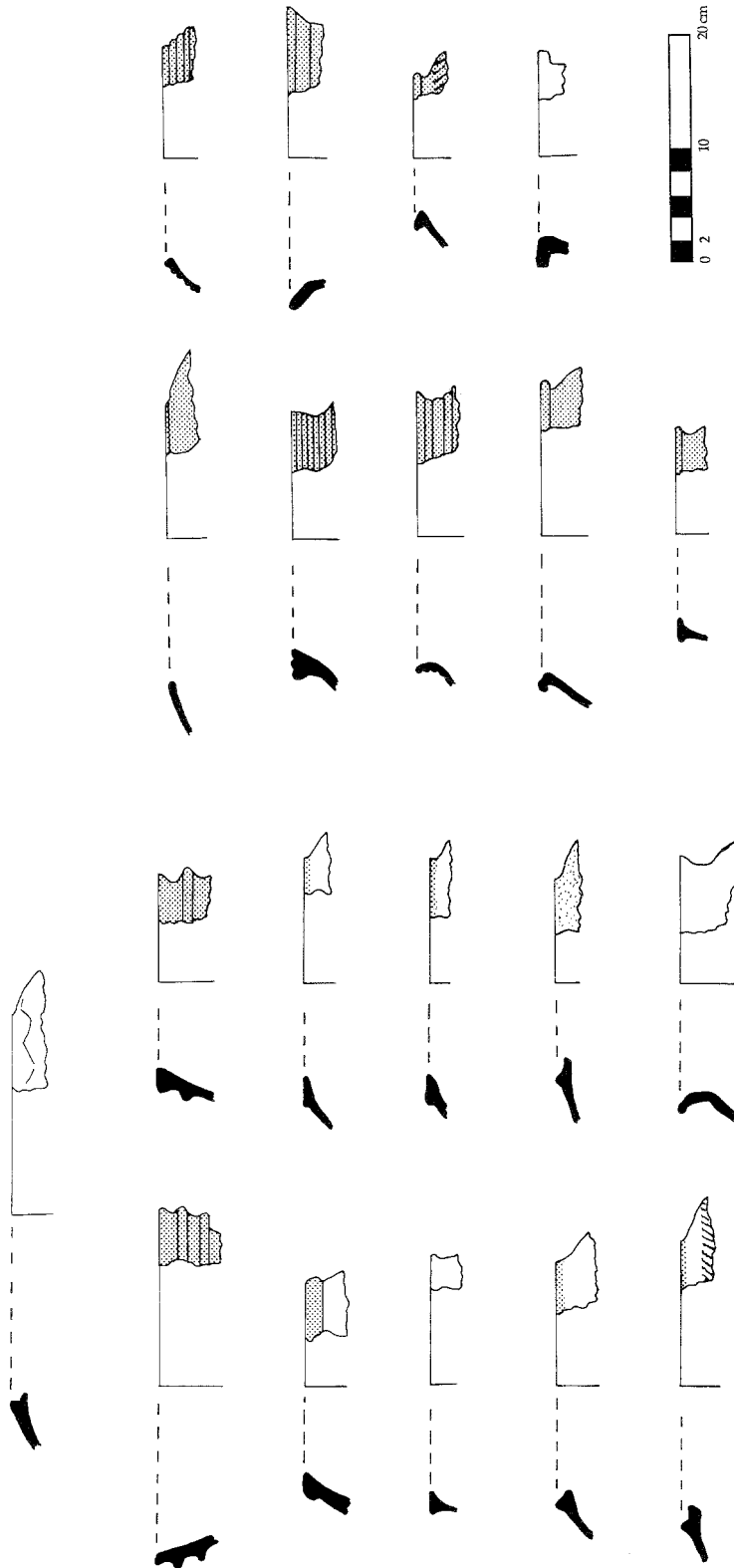


Figure 6 Region II pottery assemblages. Recent habitation (*gent*) assemblage on left; older tumulus assemblage on right. For key, see Figure 3.

accounting for over half the assemblage. Temper is predominantly grog, with paste well oxidized to clear red/orange.

Region III (Mbacké)

The third survey zone covers sites south of Mbacké, on either side of the road to Kael (Fig. 9). The landscape here is a lightly dissected plateau with well-drained aeolian sands over a lateritic subsoil. Vegetation is sudanic wooded savannas. The sites investigated are summarized in Table 2.

The Thiekène tumulus cluster is arguably the most impressive in Senegal (Fig. 10). The largest mounds can be detected on aerial photographs, as they were by Clos-Arcduc (1962). This seems to be the earliest – and only – use of aerial photography in archaeology in Senegal prior to 1988, when we evaluated the utility of air photos for site detection in the course of this project. Local informants claim that the height of the major Thiekène tumuli has been reduced by as much as a third in the past decade, due to erosion. Again, a purposeful and intensive search of the area for associated habitation sites yielded nothing. Local informants claim that the tumuli were built by the Sossé who lived along the dead stream valleys south of the tumulus field. Survey of two 300-m transects for a total of 10 km along stream beds running east and south-west of the site revealed only a single surface

Region II Rim Assemblages

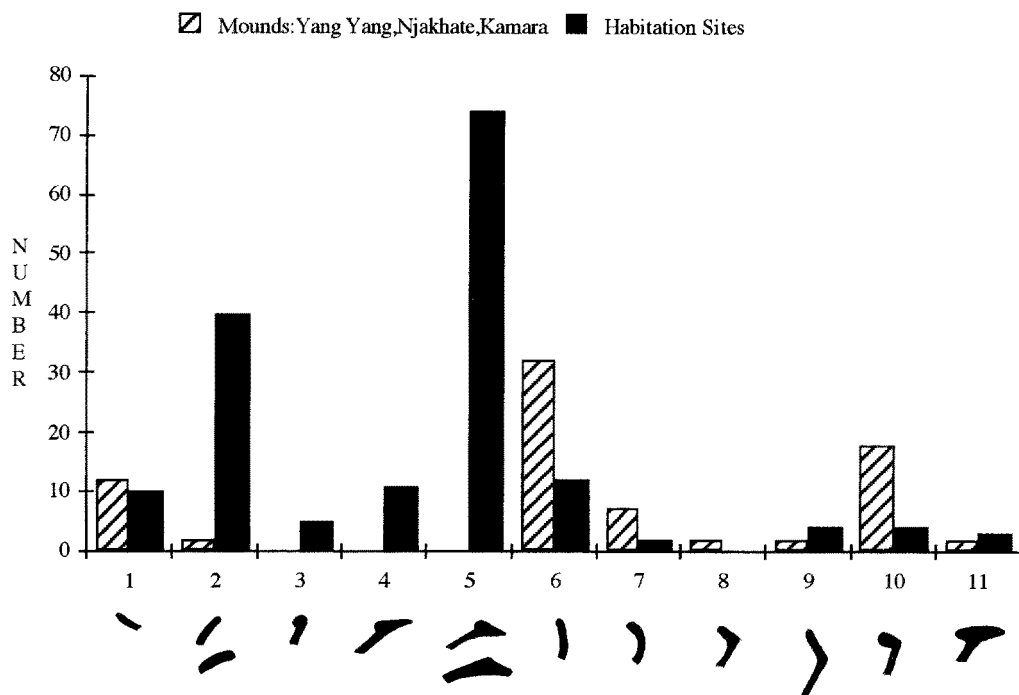


Figure 7 Summary of rim form frequency within the Region II rim assemblages.

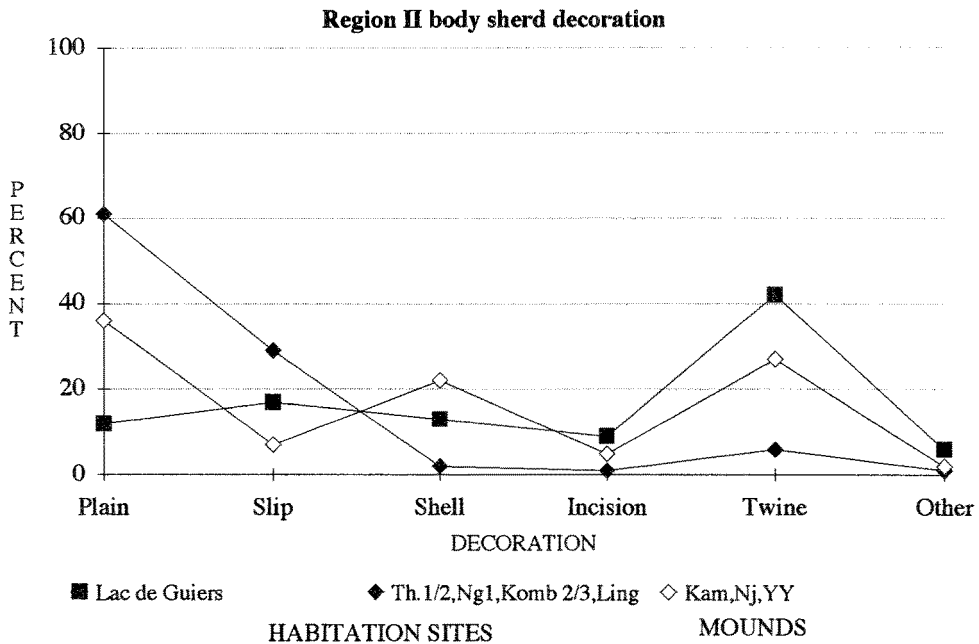
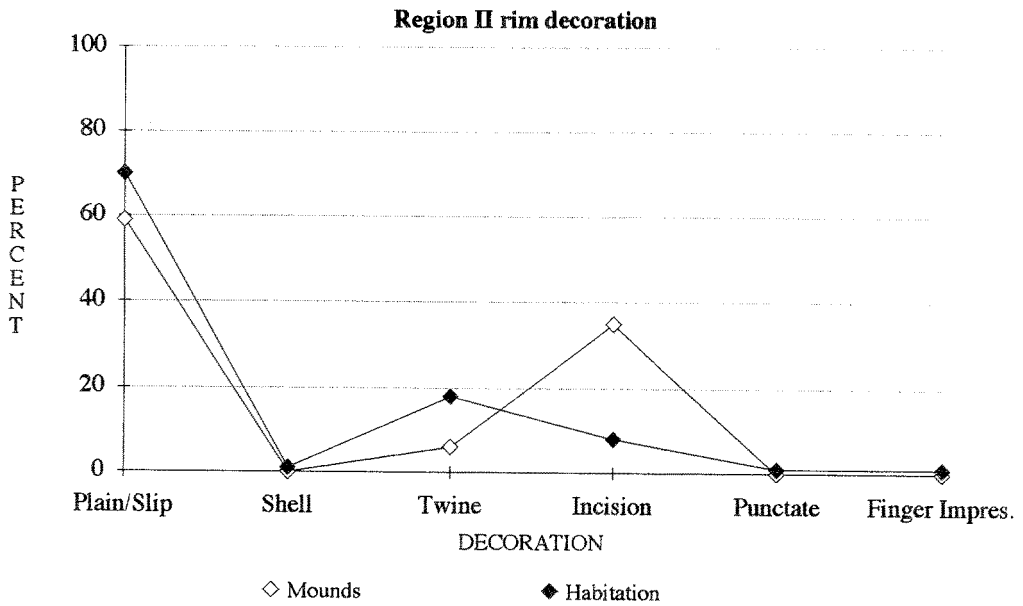


Figure 8 Region II rim decoration and body sherd decoration for major site groups.

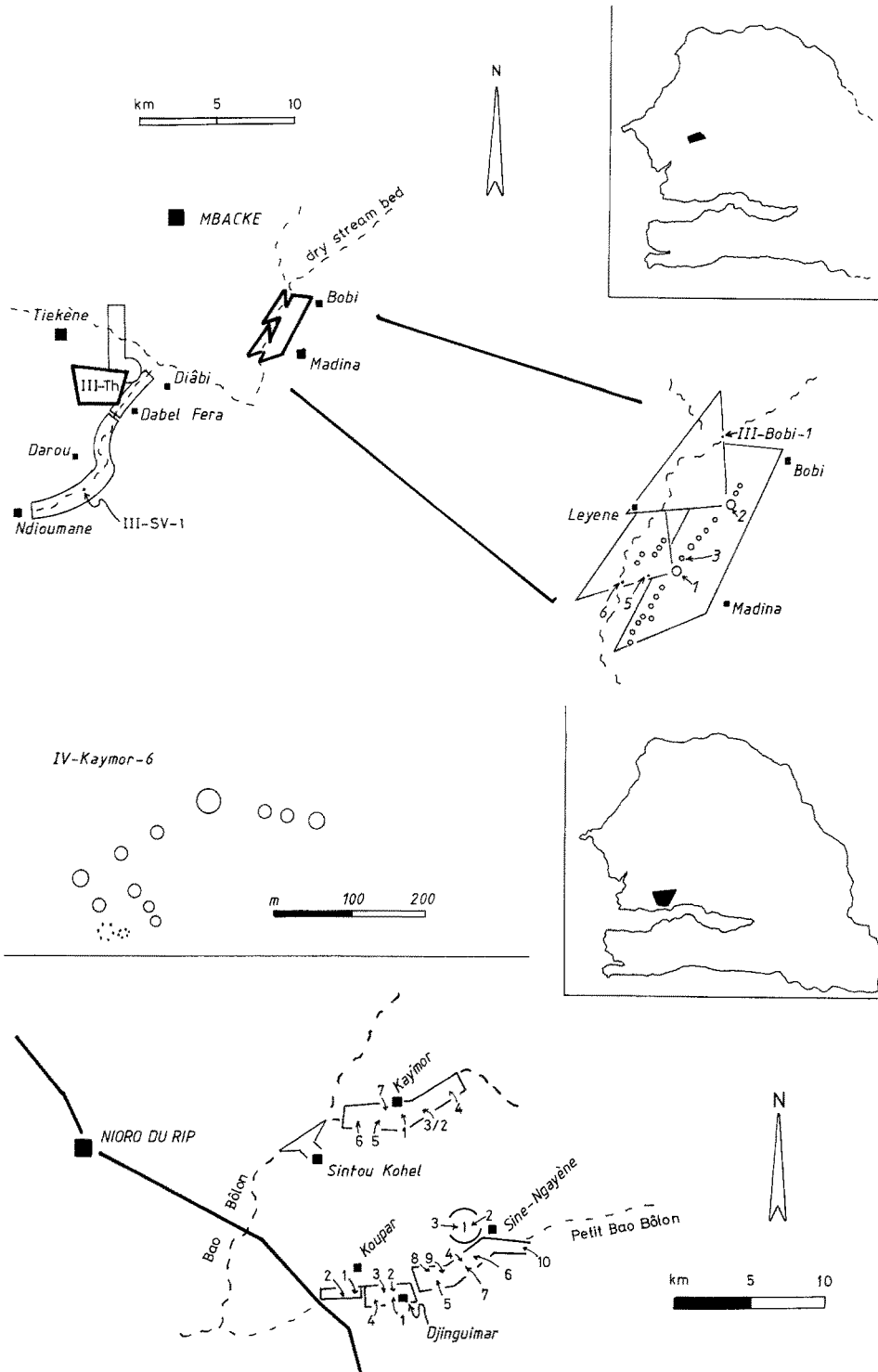


Figure 9 Sites and survey areas (open polygons) in Regions III (top) and IV (bottom) in the southern tumulus zone. Black squares are present-day villages.

Table 2 Sites located in survey area III.

Targeted tumulus cluster, as numbered in Martin and Becker's inventory (1984)	Sites located during 1988–9 survey
724 Thiekène – 56 mounds	III-Thiekène-1 to 35: 35 large tumuli ranging in size from 10 m diam. × 1 m high to 105 m diam. × 11 m high. Also 50 smaller mounds. Very little surface material. III-SV-1: recent habitation scatter in dead stream valley S.W. of tumulus field.
774 Bobi – 30 mounds	III-Bobi-1: occupation scatter several hundred m wide on valley terrace. 3 small mounds also on terrace.
773 Madina – 86 mounds	III-Madina-1 and 2: Large (40 m × 3 m high), and medium tumuli, respectively, in line of 15 tumuli placed on edge of rise overlooking river valley. III-Madina-3: small mound with large amounts of pottery and slag. Specialized activity area and not a true tumulus? III-Madina-4: small mounds. III-Madina-5: sherd scatter. III-Madina-6: sherd scatter. First terrace rich in small mounds (little surface material-not collected).

scatter of recent date, despite excellent ground visibility. Within the tumulus cluster itself, survey yielded only eight tiny, light surface scatters resembling the overnight camps of a few people.

The Mbacké region assemblage consisted of a total of 92 rim sherds and 731 identifiable body sherds, most of which (82 rims, 629 body sherds) came from two clusters of tumuli: Thiekène (the largest mound complex) and Madina-Bobi. The three surveyed habitation sites – Madina 5, Madina 6 and S.V.-1 – produced only 10 rim sherds and 102 identifiable body sherds. These three sites were all *gent*, or recent habitation sites, characterized by sparse pottery scatter.

The tumulus pottery all appeared to belong to the same assemblage, dominated by collared rims (Fig. 11), over 75% of which are undecorated or slipped, while 50% of the body sherds were twine-impressed. The collared rims are striking in their absolute dominance of the rim assemblage (Fig. 12). Two forms of collar are found: simple collars, added as a final thick coil, which is then shaped, on a simple closed form; and folded collars, usually quite large, created by drawing up clay at the lip and folding it over the external rim surface. Various everted rims and simple rims are the other major components of this assemblage. Decoration on the rims is rare, but includes twine impression (13%) and incision (9%) (Fig. 13). Incision also occurs on a small number of body sherds and is notable for the smallness of the incisions and the fineness of the pattern created. We have dubbed this 'pin incision', because it is achieved with a tool with a sharpened end like a straight pin. The commonest pattern is cross-hatching. Also noteworthy among decorative motifs is the appearance of carved-roulette impression on two chevron-stamped sherds, and

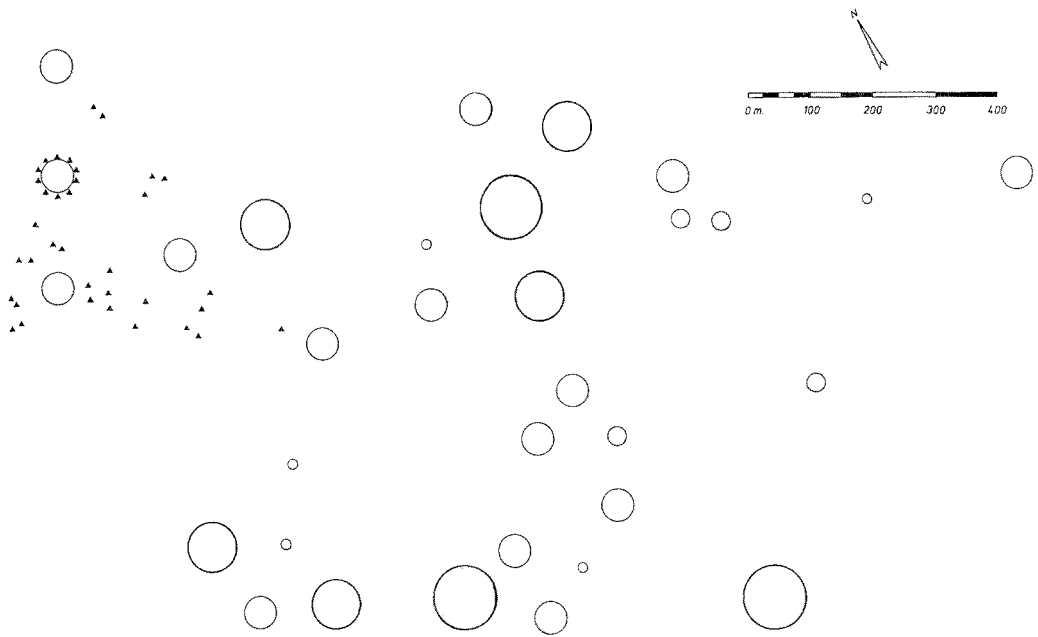


Figure 10 Tumuli of the Thiekène cluster (III-Th). Top: plan (mounds less than 1 m high are indicated by solid triangles). Bottom: mound III-Th-1.

extremely tiny cord-wrapped stick and twisted and rolled twine impression. Among twine-impressed body sherds, pleated, twisted and cord-wrapped motifs are present, but twisted is far and away the commonest (twine descriptions here follow the conventions established for the Jenne-jeno ceramic analysis, see S. K. McIntosh *in press*). Temper is predominantly grog, with coarse sand-and-organic tempered wares forming a small, but significant proportion of the assemblage. Surface paste colour is generally more yellow in hue than the sherds in the regions already described: it ranges from 7.5 YR 6/6 to 7/6 and 7/8. Most sherds are incompletely oxidized and have a grey or black core of varying thickness.

It is likely that the three *gent* sites (Madina 5 and 6 and S.V.) share a second assemblage characterized by undecorated/slipped simple open and closed rims and an extremely high percentage of undecorated rim sherds (90% in our sample). However, the size of the sample from these sites is simply too small to permit meaningful characterization.

Region IV (Nioro du Rip)

The last and southernmost region for survey was to the east of Nioro du Rip (Fig. 9). The vegetation here is dry sudanic woodland and the rainfall averages 800–1000 mm. The landscape is quite dissected; seasonal stream valleys can be quite deep. The soils are a red weathered ironpan (without many concretions, with locally thick subsurface laterite crust. These developed over the ‘Continental Terminal’ (end Tertiary) tabular plateau, composed principally of sandy and loamy sandstones. We selected this particular region because several associations of megalithic alignments and of earthen tumuli have been recorded here, with important excavation carried out at two of them, Sine Ngayène (Thilmans, Descamps and Khayat 1980) and Santhiou Kohel (Gallay, Pignat and Curdy 1981, 1982). To our knowledge, Gallay *et al.* (1981:67) are the only researchers previously to have documented a settlement site associated with a monument (south-east of Santhiou Kohel). Our survey focused on the monument sites of Sine Ngayène, Santhiou Kohel, Koupar, Djiguimar, and Kaymor (Fig. 9).

The large megalithic cluster just outside the village of Sine-Ngayène has a large number of tumuli associated (see Martin and Becker 1984:190). Tumulus ‘A’ in that plan (surface collected as IV-Sine-Ngayène-1) was the point of departure for a survey of a radian, 1.2 km long, running clockwise from 220° to 140° (i.e., all territory beyond the immediate vicinity of the modern village). The purpose was to search for settlement debris, not to remap the megaliths and tumuli which have been planned repeatedly (Martin and Becker 1984: 186 and 190; Thilmans *et al.* 1980). Survey revealed very little cultural material near the tumuli and megalithic circles, with the exception of a 0.5-m-deep sherd build-up revealed by a road cut (IV-Sine Ngayène-2) and an extensive surface scatter (IV-Sine Ngayène-3). However, the seasonally dry valley of the Petit Bao Bôlon, located 1 km to the south, revealed seven habitation sites within a 3 km transect (see Fig. 9 for positions of IV-Sine Ngayène 4 to 10). These results were the most encouraging to date, indicating preferential occupation of the terrace edge and upper third of the valley side (i.e., on the sand-silt, loamy soils, as opposed to the heavier clay soils of the valley floor). Further downstream, occupation evidence was collected from two sites (IV-Djiguimar-2 and 3) near the megalithic alignment of IV-Djiguimar-1, and from an additional two sites (IV-Koupar-1 and 2) near the monument site of Koupar. An iron-working site was also found (IV-

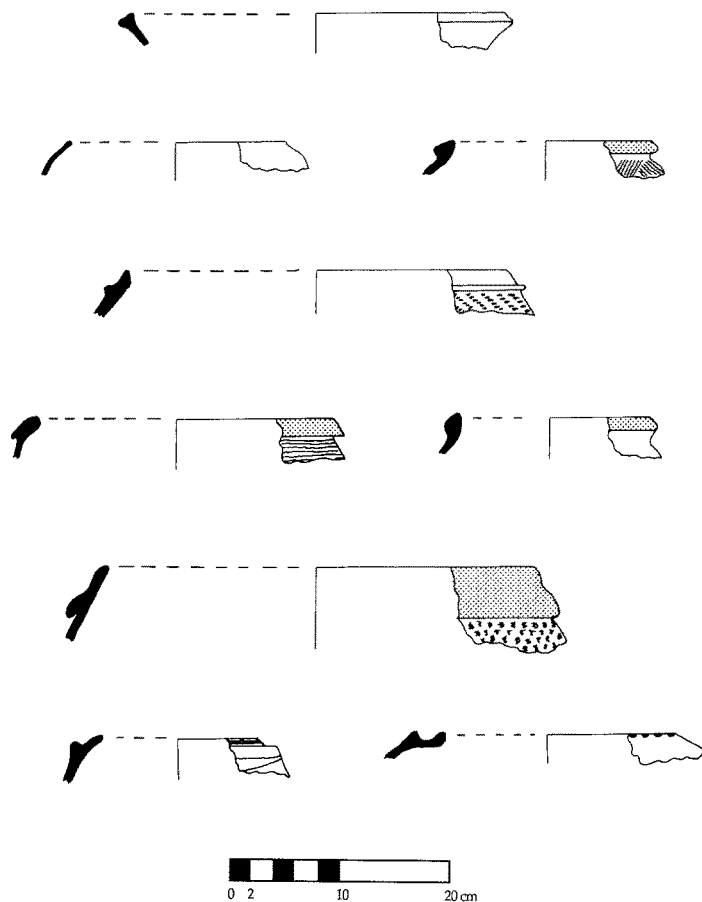


Figure 11 Region III tumulus assemblage. New decorative elements include shallow dragging of a fine-toothed comb, and a knotted twine roulette that creates a raised triangular pattern. For key, see Figure 3.

Djiguimar-4). To the north, along the Bao Bôlon in the vicinity of the village of Kaymor, we discovered that the megaliths listed by Martin and Becker (sites 115 and 140) have been broken up and used by locals to stem gullying. Close to where site 140 should have been, a habitation scatter was encountered (IV-Kaymor-1), followed by several others (IV-Kaymor-2, 3, and 4) spaced every 100–300 m along the Bao Bôlon. The latter site, IV-Kaymor-4, was the only site encountered during the entire tumulus zone survey with any appreciable depth of accumulation, and this did not exceed 2.0 m. IV-Kaymor-5 is a 30-m-diameter scatter attributed to a recent village (*gent*), and IV-Kaymor-7 represents a dense litter of artifacts stretching almost 1 km along the valley ridge immediately south of Kaymor. IV-Kaymor-6 is an east/west line of seven tumuli, bordered to the south-west by a small megalithic circle.

The Niuro region pottery assemblage comprised 163 rim and 740 body sherds, over 90% of which were collected at 21 habitation sites in the vicinity of the monuments at Kaymor, Sine Ngayène, and Djiguimar. The remaining sherds (3 rims, 86 body sherds) were collected

Region III Rims from Mounds (Thiékène, Madina 1-4)

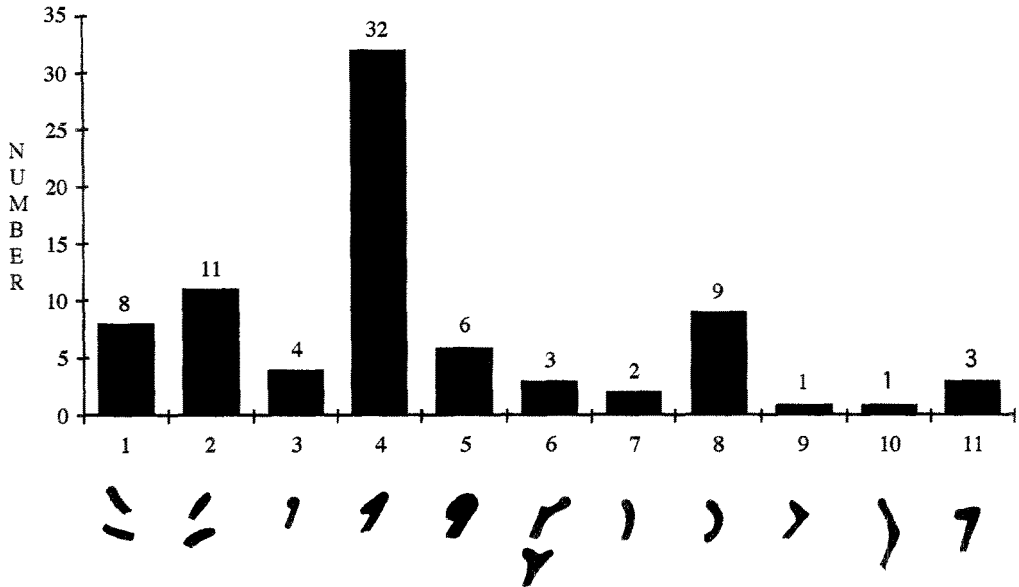


Figure 12 Summary of rim form frequency within the Region III rim assemblages.

at three monument sites: Djiguimar 1, Kaymor 6 and a tumulus at Sine Ngayène, a site with both megalithic circles and tumuli. The small size of the monument surface assemblage precludes meaningful interpretation. Among habitation sites, which include the *gent* of Kaymor 5 and Koupar 2, a minimum of three assemblages can be identified:

1. A recent *gent* assemblage composed of mainly simple closed forms, many with beaded or bevelled lip profiles, and short-necked, deeply everted rims (Figs 14 and 15). The unsmoothed, unfinished surface is characteristic for the assemblage; it results from the dragging of particles of coarse grog temper across the surface by the potter's fingers during forming. This rough appearance is exacerbated by the voids left in the paste by the firing out of organic temper. Rim sherds are either undecorated or carelessly slipped a deep red (10R 5/6, 5/8, 4/8); they are almost never decorated in any other manner. Decoration on body sherds is a bit more common, but also infrequent (15% twine, <5% pin incision; see Fig. 16). As with the other recent assemblages identified to the north, fabric is poorly oxidized on the whole, with the majority of sherds either totally gray or with a large black or gray core.

2. Older material consisting of at least two possibly chronologically differentiated assemblages (A and B), which nevertheless share several features, such as collared rims, and unusual decoration such as extremely fine twisted twine impression, cord-wrapped cord, carved wooden chevron or diamond roulette, and pin incision (Fig. 14).

- A. The assemblages from Sine Ngayène and Djiguimar are linked by the presence of carinated and ledged rims, the dominance of twisted twine roulette among twine-decorated sherds, and the relative rarity of collared rims. A notable particularity

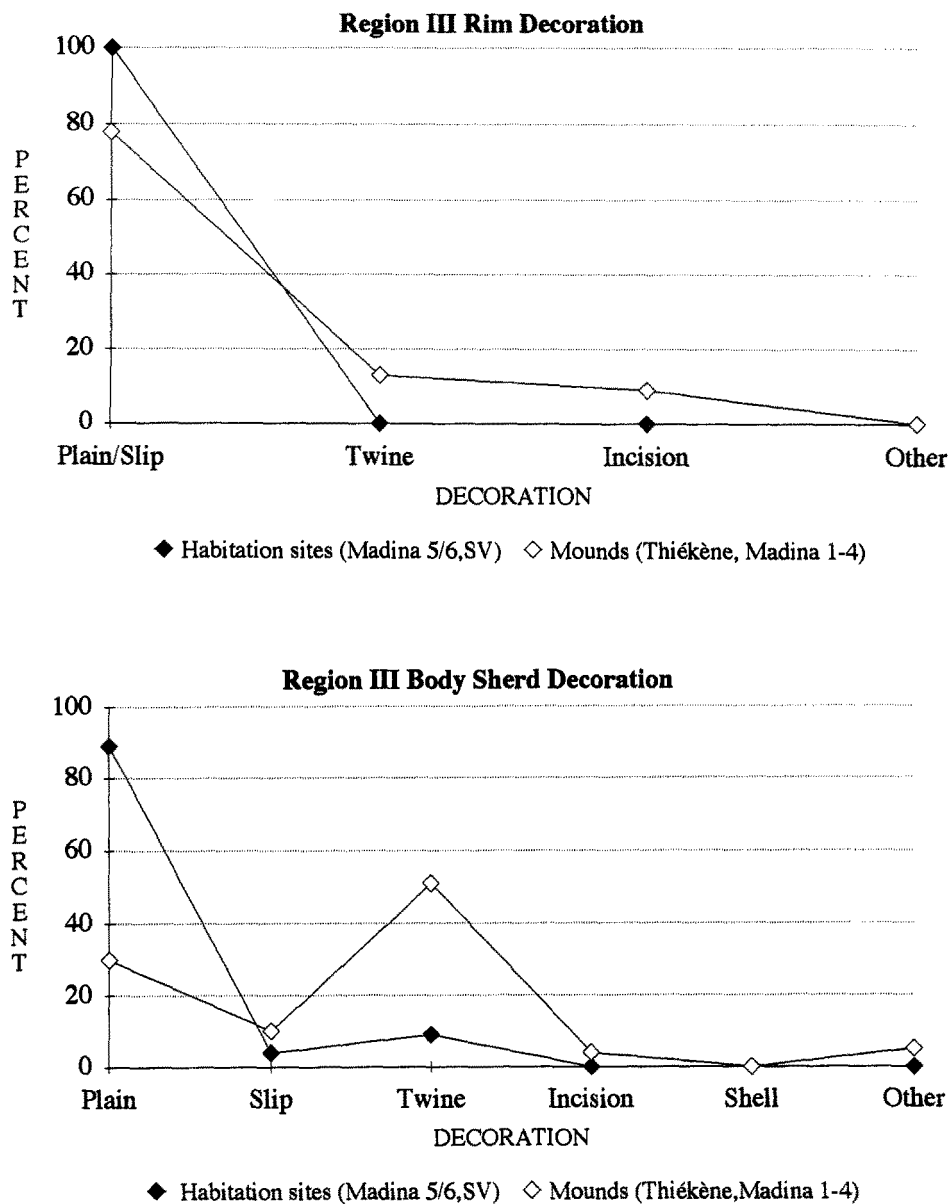


Figure 13 Region III rim decoration and body sherd decoration for major site groups.

of the Sine Ngayène assemblage is the presence of a fine, grog-tempered white paste in 20% of the rim and body assemblage. Recent ethnoarchaeological inquiries by M. Thiam into potting practice in different parts of Senegal has revealed that white paste results when potting clays are dug from rice paddies. The deoxygenated environment of the standing water results in the near total elimination of the iron oxides that would otherwise colour the paste (Thiam

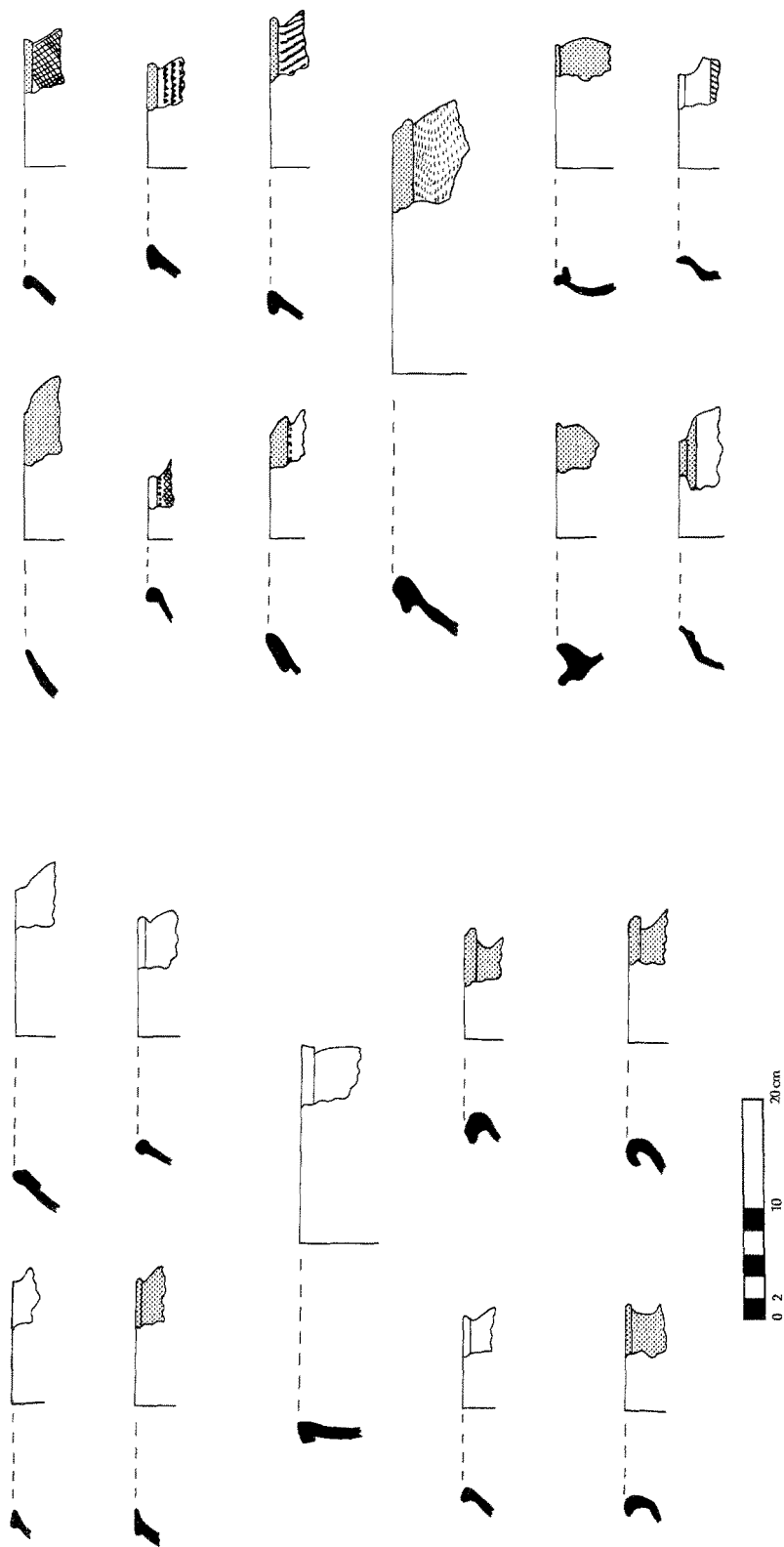


Figure 14 Survey Region IV pottery assemblages: left, recent habitation sites (*geni*); right, monuments and older habitation sites (relatively rare, but significant, decorative elements include triangular carved wooden rouletting and fine incised cross-hatching). For key, see Figure 3.

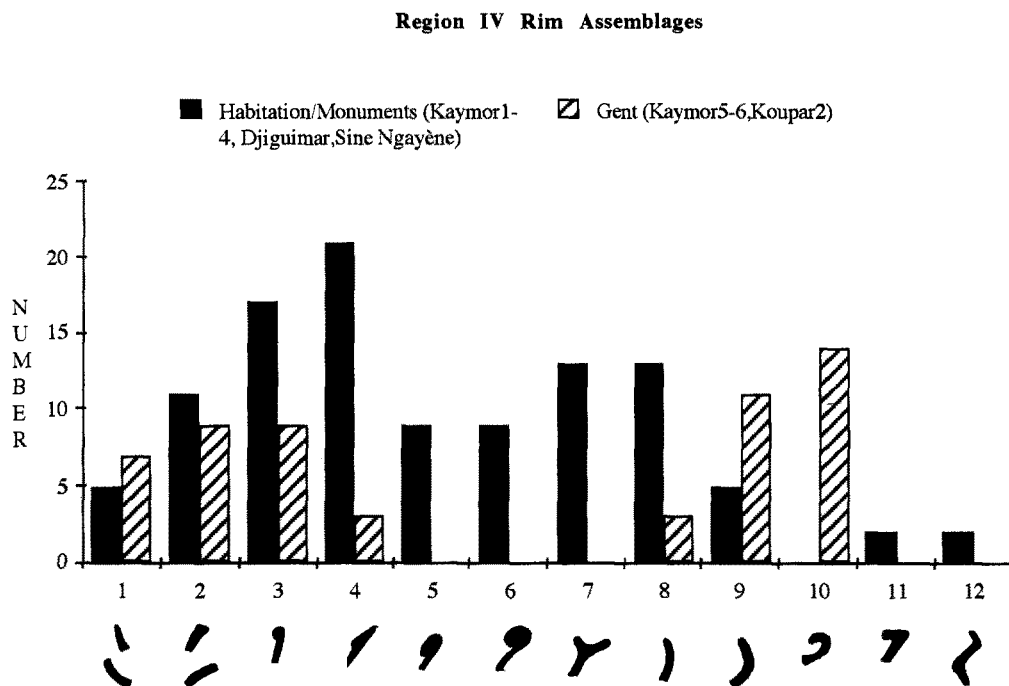


Figure 15 Summary of rim form frequency within the Region IV rim assemblages.

1991:383). Almost 60% of the assemblage has black or gray coloured paste, however. Temper is predominantly grog with some organic additions.

- B. The Kaymor assemblages, on the other hand, are dominated by collared rim forms, while carinated and ledged forms are rare or absent. Among twine-decorated sherds, pleated twine roulette predominates. No white paste ware was recovered from the Kaymor sites, where sandy yellow-orange paste was common. Carved wooden roulette was notably frequent at Kaymor 4.

Discussion

Survey observations

Several significant observations emerged from the survey. First and foremost is the alarming pattern of monument disappearance noted in all four zones surveyed. The rate of tumulus destruction appears to be greatest in the northern region (survey zone II), where mounds are generally small and constructed of sand. Factors related to the Sahelian drought, including reduced vegetation cover, increased deflation, and trampling by cattle herds brought south for extended periods to graze, have at many sites obliterated 90–100% of the low mounds observed 25 years ago by Martin and Becker in the areas around Dahra, Linguère and the Lac de Guiers. In the Mbacké region, tumuli are threatened by intensification of cultivation. And in the Nioro de Rip area, we note the disappearance of two megalithic sites due to quarrying of the stones by local inhabitants. These findings deserve

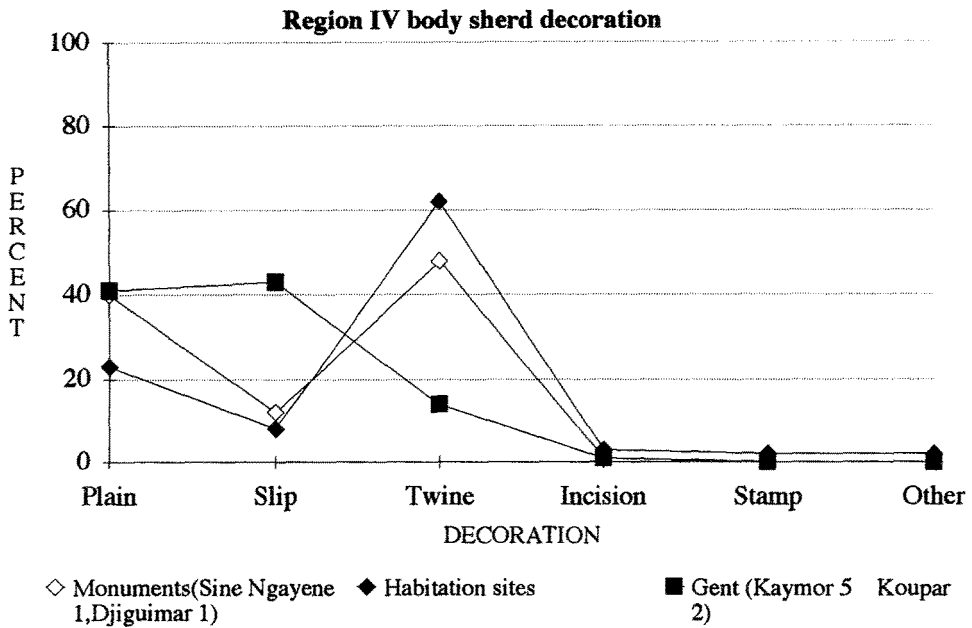
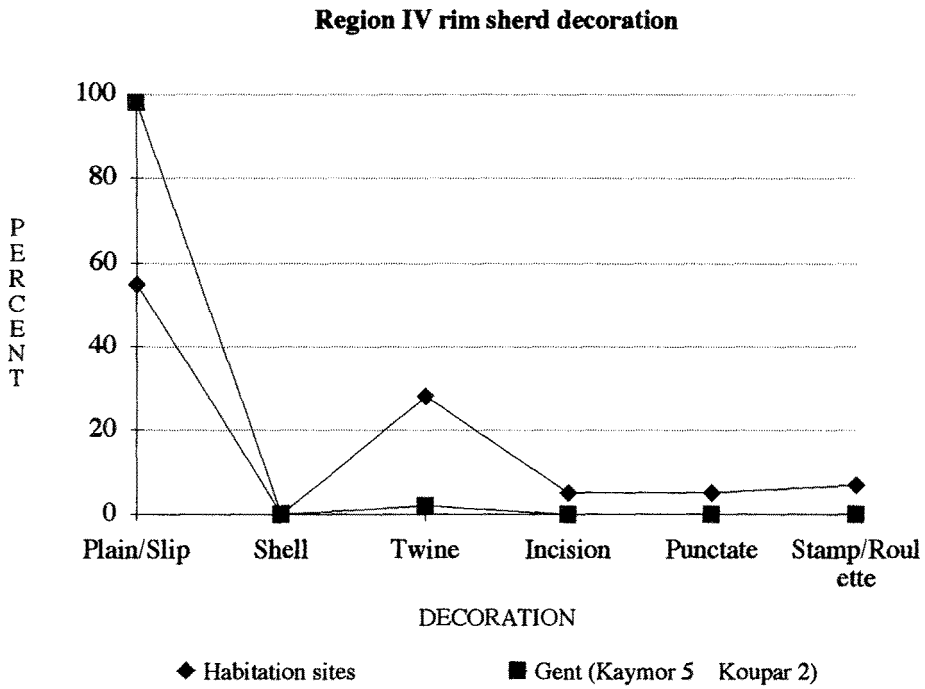


Figure 16 Region IV rim decoration and body sherd decoration for major site groups.

serious consideration both by the Senegalese authorities charged with protection of the cultural heritage, and by archaeologists interested in investigating the northern tumulus phenomenon before it ceases to exist.

A second observation of interest concerns the preferential siting of large tumuli along dune crests at sites such as Massar, Yang-Yang and Njakhaté, or along river terraces at Kaymor-6 and Madina, ensuring the visual dominance of these mounds over the surrounding landscape (Fig. 17). Similar dominant positioning of barrows in England has been interpreted as evidence of territorial structuring of small-scale chiefly societies in the Neolithic and Bronze Age (Fleming 1973; Renfrew 1973). Future research to examine systematically the placement of Senegalese tumuli in the landscape may encourage more

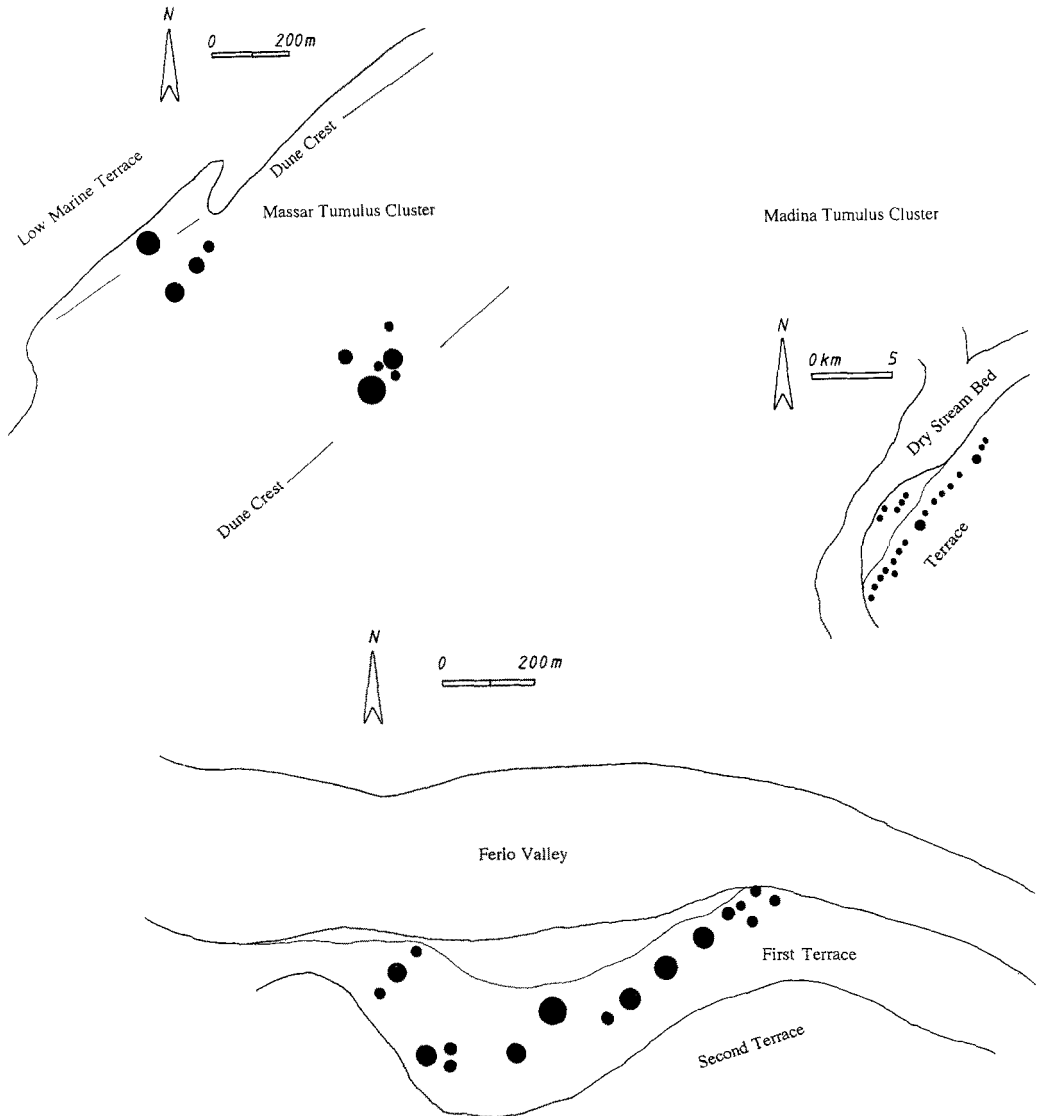


Figure 17 Examples of visually prominent siting of tumuli on river terraces and dune crests.

sophisticated interpretations of these monuments. Regrettably, our research demonstrates that labour-intensive foot survey will be required for these studies because the monuments are virtually undetectable on air photos.

It is clear that the evaluation of monuments and associated settlements will be exceptionally difficult in most areas. Surface indications of habitation are often shallow scatters, sometimes stretching intermittently over large areas, suggesting a palimpsest of short-term and shifting occupations. Very few cases were observed in which occupation deposits had accumulated to a depth of even 50 cm. Unless a great deal of Iron Age sub-surface accumulation exists for which there are no visible surface clues, it seems that we must also conclude that the societies that created these monuments were either relatively small in scale or deposited little in the way of permanent material culture, or both. Compared to Saharan Late Stone Age sites or contemporary Iron Age sites in the Middle Senegal or Middle Niger valleys, for example, the habitation remains within the monument zone in Senegal have remarkably sparse surface vestiges. The general lack of surface material on the monuments themselves compounds the problem of devising a relative chronology. It unfortunately seems inescapable that detailed chronological studies of the tumuli will require excavation of many individual mounds.

Observations from ceramic analysis

Inter- and Intra-site considerations

Despite the inevitable limitations imposed by the small size of the pottery samples from individual sites in the survey, it is possible to draw some broad preliminary conclusions based on the nature and distribution of the various pottery assemblages identified within the four survey regions. One of the most intriguing points to emerge is the extent to which these assemblages differ from one another. Up until the implantation of the recent assemblages (post-sixteenth century, associated with tobacco pipes), there is a conspicuous lack of common elements in the pottery from the northern and southern tiers of the tumulus zone. While the mound sites surveyed in the north-western and north-eastern sectors of the tumulus zone produced pottery assemblages that shared certain fundamental characteristics, such as a high frequency of channelled decoration, the tumulus pottery from the Mbacké region had much more in common with pottery from megalithic sites further south than it did with the channelled ware of the northern tumuli.

The implications of this observation for our understanding of the tumulus phenomenon are difficult to assess, for the fundamental reason that we do not know whether the surface pottery is coeval with the erection of the mounds themselves. If pre-existing deposits were dug into and heaped up during monument construction, then the surface material could well pre-date the erection of the tumulus. The presence of a large number of lithics on some of the Njakhaté mounds in Region II and the recovery of 550 pieces of worked flint from the excavations of the Ndalane tumulus near Kaolack (Descamps 1976:28) are likely examples of this phenomenon. Charcoal from deposits pre-dating monument construction was probably responsible for the anomalously early ¹⁴C dates from Santhiou Kohel (fifth millennium BC, see McIntosh S. K. and R. J. 1986:431), Ndalane (third millennium BC, see Calvo-coressi and David 1979:28) and Tiekène Boussoura (fourth millennium BC; *ibid.*:27).

Alternatively, the surface material on tumuli could post-date the erection and active use of the monuments. That some mounds were used for temporary encampments in recent times is evidenced by small numbers of distinctive, organic-tempered, recent pottery as well as pipe fragments on the surface. Secondary re-use of the monument surface may have occurred at other, earlier times as well. In the absence of a viable ceramic sequence for the tumulus and megalithic zones (indeed, for most of Senegal), it is difficult to determine the chronological relationship of surface material to the tumuli themselves. At present, we can say only the following with any degree of certainty:

1. The simple rims and channelled decoration characteristic of the surface material from the Rao region mounds is similar to the pottery excavated from the Massar tumuli near Rao by Joire and Duchemin in 1941 (Joire 1955; the pottery from these excavations in the I.F.A.N. collections – SEN 42.6 – was examined by S.K.M.). We therefore tentatively conclude that the Region I tumulus surface collections comprise, generally speaking, pottery similar to that contained in the tumulus deposits: the pottery from the habitation sites around Rao (I-48) appears to belong to this same channelled assemblage. The surface material does not appear significantly to post-date the monuments themselves. Whether it, and the similar material excavated from the Massar tumuli, pre-dates or is coeval with the construction of the monuments cannot be determined at the present time.

2. The collared and ledged rims, plus the presence of pin incision, in the excavated pottery assemblage from the Ndalane tumulus (Fig. 1) excavated in 1972, are matched in the surface collections from tumuli in the Mbacké region: the 22 sherds in the Ndalane collection at I.F.A.N. (SEN 71.30, studied by S.K.M. in 1991 and by several members of the tumulus survey team in 1989, appear to be all that remains of the 25 kg of pottery reportedly recovered from the excavations (Descamps 1976:28; Thilmans and Descamps 1972)). Since the pottery from the Ndalane tumulus deposits may represent more than one chronological period (the large number of lithics suggests a Late Stone Age component), it will be interesting and extremely important to see in the final report if the excavator was able to detect multiple modalities in vessel form, decoration, paste composition and/or colour. At present, we tentatively conclude that the Region III tumuli surface material comprises a pottery component similar to one from the tumulus deposits at Ndalane. It is therefore likely to pre-date or be coeval with the construction of the tumuli, but does not significantly post-date them.

3. The carinated and ledged rims, the distinctive white paste ('whiteware'), and the presence of very fine twisted twine roulette in the surface assemblage from the habitation sites around Sine Ngayène and Djiguimar in Region IV are exactly matched in the excavated material from three megalithic circles at Sine-Ngayène. A selection of the pottery from the latter excavations, briefly described in Thilmans *et al.* (1980), is housed in the collections at I.F.A.N., where it was examined by S.K.M. in 1991. Unfortunately, the sherds do not appear to have depths recorded; and the lack of labelling on individual sherds has probably permitted a lesser or greater degree of mixing of the contents of various bags, if the presence of contradictory tags in at least one of the bags examined is any indication.

Thilmans *et al.* suggest (1980: 70, 152) that the excavated sherds represent an occupation by megalith-builders prior to the actual construction of the monuments. There is nothing from our survey results to contradict this hypothesis. The surface material from habitation sites around Sine Ngayène all belongs to the same general assemblage, to which the

excavated Sine Ngayène pottery can also be confidently assigned. The presence of a number of small carinated pots, some of a type common in the excavated and surface material, directly associated with the frontal stones of the three excavated stone circles, indicates the general contemporaneity of the monument and the habitation material. A similar conclusion was reached by Gallay *et al.* (1981), whose investigations of a tumulus, a megalithic circle and a nearby habitation site at Santhiou Kohel confirmed the presence of virtually identical ceramics in all three. Sine Ngayène and Santhiou Kohel are unique in Senegal as sites in which all of the following obtain: 1. pottery directly associated with a monument has been identified; 2. pottery from monument deposits is known in some detail; 3. the contemporaneity of 1 and 2 can be postulated with some confidence; 4. habitation sites yielding pottery similar to 1 and 2 have been identified, allowing conclusions about the contemporaneity of monument and habitation. Unfortunately, the surface pottery from the tumuli at Sine Ngayène was too rare to permit any evaluation of its similarity to the megalith and habitation pottery from the immediate area.

Following on the discussion of the state of knowledge concerning the chronological relation of monument surface pottery to the erection of the monuments themselves, we turn to the relation of monument surface assemblages to the surface pottery of nearby habitation sites. In brief, our findings are:

Region I. The tumulus pottery strongly resembles the pottery of the non-*gent* habitation sites encountered around Rao. The two sites identified by informants as *gent* had distinctively different ceramic material, in addition to tobacco pipes.

Region II. The tumulus pottery forms a coherent assemblage that resembles none of the habitation site material (most of which is from recent occupations, associated with tobacco pipes), with the exception of Mban, near the Lac de Guiers, and Linguère. The paucity of habitation sites with tumulus-related assemblages is one of the most significant aspects of Region II, as is the complete absence of habitation sites in the vicinity of the major tumulus complexes investigated: Yang-Yang and Njakhaté.

Region III. Once again, the tumulus pottery forms a coherent assemblage that resembles none of the habitation sites material. All three habitation sites discovered were from recent occupations. The absence of any visible habitation sites within a 4-km radius of the major tumulus complex at Thiékène-Mbacké is surprising, but the impact of intensive agriculture on surface archaeological manifestations here in the heart of the peanut basin must be considered.

Region IV. Three habitation assemblages were identified: one recent, one associated with the settlement sites around Kaymor, and another, related, assemblage associated with habitation sites near Sine Ngayène. For reasons explained above, only the Sine Ngayène habitation assemblage can be linked confidently with a monument assemblage. The tumuli which encircle the megalithic zone at Sine Ngayène did not produce enough surface material during survey to evaluate. However, work by Gallay *et al.* (1981) at nearby Santhiou Kohel produced the same ceramic assemblage from a megalithic circle and a tumulus, suggesting relative contemporaneity of these two monuments.

Chronological placement of identified assemblages

Recent habitation assemblages. These assemblages, which have been identified in each of the four survey regions and which display remarkable homogeneity across them, are the

easiest to place in time. Not only do informants identify many of the sites that produced these assemblages as *gent*, or sites occupied within living memory, but tobacco pipes have also been found in the surface material on the sites. This suggests an occupation later than the sixteenth century, following Mauny's (1961:59) date of 1591 for the introduction of tobacco-smoking to West Africa.

Channelled ware tumulus assemblages, Regions I and II. Because so little is known of the archaeology of the zones south of the Senegal Valley, placement of these assemblages can only be attempted through extrapolation from the pottery of better-studied neighbouring areas. The establishment, in 1991, of a pottery sequence based on excavated material from the Middle Senegal Valley provides a baseline from which to work. This preliminary sequence, which can and should be subjected to continuous verification and refinement in the course of future work on the Middle Senegal, comprises five major phases, concluding with recent material (Phase V) similar to that discussed above, found in association with tobacco pipes. (Phase V pottery has been studied in depth by N. S. Gueye 1991.) Phases I, II, and III are well known and documented from excavations at the sites of Cubalel and Siouré. The major characteristics of each of these Phase assemblages has been described by S. K. McIntosh (1991; S. K. McIntosh *et al.* 1992).

The most significant point to note is that over the course of these three phases, which run from the establishment of permanent settlement in the Ile à Morfil in the first century AD to the end of the first millennium AD, channelling is a rare decorative motif, and it is almost never found on the lip of simple rims, which is the commonest case in the tumulus assemblages of Region I and II. Such channelled rims do become common in the Middle Senegal Valley, however, after Phase III (which ends *ca.* AD 900), and before Phase V (begins AD 1600). They have been found on the surface of a number of sites in the course of survey work in 1991, and are identified as one of the characteristic rim types of the heterogeneous material that, until future controlled excavation permits the identification of sub-phases, remains lumped together within Phase IV. Exuberant use of channelled decoration characterizes the material excavated from Sincu Bara, located some 100 km upriver from Cubalel. From the presence of common elements at Cubalel and Sincu Bara, it has been possible to determine that this channelled assemblage at Sincu Bara immediately post-dates the Cubalel Phase III assemblage. M. Thiam reached the same conclusion based on his 1990 sondage at Cubalel – Thiam 1991 (S.K.M. is indebted to Hamady Bocoum for providing her with a copy of this extremely useful dissertation). Channelled sherds with affinities to Sincu Bara are found on the surface of Cubalel, but not in the excavations. We suggest that the most plausible chronological placement for the Region I and II channelled assemblages would be the time period covered by Phase IV in the Middle Senegal Valley sequence, roughly AD 1000–1500. Our remarks here should not be construed as meaning that we think the Region I and II tumulus material is the same as, or even particularly similar to, the Sincu Bara material. It is not. It is, however, very similar to surface material from the Cubalel study region at sites which also produced more 'typical' Sincu Bara forms. There is sufficient evidence to warrant the hypothesis that intensive use of channelling on the lip of simple rims is restricted along the Middle Senegal to a certain period of time, which we have called Phase IV. Through extrapolation of this principle to neighbouring zones to the immediate south and south-west, we suggest that the

channelled assemblages of the tumuli in Region I and II probably date to this period as well. By way of independent confirmation, however indirect, ostrich eggshell from the excavations of the Massar tumulus near Rao produced a radiocarbon date of 751 ± 100 bp (Descamps 1979), which calibrates, using 1σ limits and Stuiver and Pearson's (1986) calibration tables, to AD 1180–1290.

Collared rim mound assemblage, Region III. The extent to which the collared rims of the Region III assemblage resemble the collared rims that characterize Phase III along the Middle Senegal was a surprising conclusion of the analysis. While we retain a healthy scepticism for migrating potsherds, we also remain aware of the weight of oral tradition in Senegal, which insists on the reality of large-scale, long-distance movements of population, not once, but repeatedly during the Iron Age. Until we know something about the ceramic sequence from the Mbacké region and neighbouring regions to the south, we cannot evaluate whether collared rims stem from an earlier local substrate, with a resemblance to Middle Senegal Valley material that is purely fortuitous, or whether they appear rather suddenly as new elements. If there is some relation between the collared ware of the Middle Senegal and that of the Mbacké region, we would expect the Mbacké material to date somewhere between AD 700 and 1000, when collared rims were frequent on the Middle Senegal, and the longer collars (extending down >2 cm from the lip) known from Mbacké are also present on the river. It is interesting, but certainly not conclusive, to note that the single ^{14}C date available from an excavated tumulus located some 60 km from Mbacké, Ndalane, is 1157 ± 119 bp, which calibrates at 1σ limits to AD 690–1000. All the usual caveats about single ^{14}C dates apply here fully, not least because the context of the charcoal dates has not yet been specified, and because material from different periods may be mixed in the deposits. One additional, and potentially more reliable piece of chronological information exists from Ndalane, however. This is a small pottery bowl which is an unmistakable copy of a bowl style produced at Tegdaoust in the tenth and eleventh century. Similar bowls are illustrated in the published Tegdaoust excavation reports (Robert-Chaleix 1989:227, 229; Vanacker 1979:79). And an example exists in the I.F.A.N. collections from Tegdaoust (MAU 75.1), possessing the same multiple cordons at mid-body, the same pattern of slip over the entire surface except between the cordons, and the same double line of punctate between the cordons (Fig. 18). The two bowls have vastly different paste compositions, however, with the sandy, gritty paste of the Ndalane bowl more suggestive of local manufacture than of import from Tegdaoust.

If the Ndalane bowl is associated directly with the inhumations in the tumulus (a point on which the preliminary report is not clear), we would suggest that tumulus construction occurred sometime between AD 900 and 1100. The potsherds recovered from the deposits would thus be either coeval or pre-date them by some unknown amount of time. Only the most meticulous excavation of tumulus deposits in the future will clarify the chronological position of this assemblage.

The Sine Ngayène/Djiguimar habitation assemblage, Region IV. The reasons for interpreting this assemblage as generally contemporaneous with the ceramics associated with the megalithic monuments at Sine Ngayène have been enumerated above. The presence in the Sine Ngayène assemblage of several distinctive decorative elements also



Figure 18 Small bowls (diameter 16–18 cm) in identical style with cordons and clustered punctate decoration from the Ndalane tumulus (SEN 71.30 – left) and Tegdaoust (MAU 75.1 – right).

found in the Mbacké tumulus assemblage, such as extremely tiny twisted cord, cord-wrapped cord, and knotted cord impression, carved wooden chevron roulette, and cross-hatched pin incision, suggests that the two assemblages might overlap chronologically to some extent. Charcoal from Circle 25 at Sine Ngayène has produced a ^{14}C date of 867 ± 117 bp (Thilmans *et al.* 1980:59), calibrated at 1σ to AD 1000–1250. The Kaymor habitation assemblage would appear to be of a somewhat different date, with a different, but clearly related, set of rim forms and dominant decorative motifs. Beaded rims with carved roulette decoration (chevrons and waffle-stamping) are characteristic of the assemblage. Carinated rims are virtually absent. Pin incision and tiny twisted cord impression are present, suggesting continuity with the Sine Ngayène/Djiguimar assemblage. In the absence of independent chronological information, it is impossible to suggest whether the Kaymor assemblage is the earlier or the later of the two. It would be useful to have more information from the areas further south, especially in Guinea and south-western Mali where carved wooden roulette is commonly found, on the chronology of this motif's popularity.

The most significant implications of this work for an understanding of the 'tumulus phenomenon', are:

1. in most of the surveyed areas, there are only two kinds of assemblages – a recent (*gent*) habitation assemblage probably dating from the eighteenth or nineteenth century, and a monument assemblage (two monument assemblages at Nioro du Rip) similar or identical to the ceramics found at non-*gent* habitation sites in the area. This raises the question of where the traces of human activity from other periods of time, including the Late Stone Age, might be.

2. The northern tumulus assemblage (from zones I and II) has little in common with the southern tumulus assemblage (zones III and IV), and there are indications that the former post-dates the latter. Comparative pottery studies provide an expected chronology for the northern tumuli that does not antedate AD 900–1000 and continues into the second millennium AD. This expected chronology receives support from the single radiocarbon date from the Massar tumulus near Rao of AD 1180–1290 (Descamps *et al.* 1978). For the southern tumuli of zone III, pottery assemblage similarities to ceramics dated AD 700–1000 in the Middle Senegal Valley lead to a tentative hypothesis of an earlier emergence of monuments in that zone. The single excavated zone III tumulus of Ndalane provides radiocarbon and ceramic evidence of construction *ca.* AD 900–1000. Further south, in zone IV, there are no direct dates from earthen tumuli, only the observation that the ceramics from dated megaliths such as Sine Ngayène (AD 1000–1250 – Calvocoressi and David 1979:27) are identical to the ceramics from the excavated tumulus of Santhiou Kohel. So

far, there is no evidence to suggest that earthen tumuli were being erected as early in zone IV as megalithic circles (dates of AD 600–780 and 670–960 from Kodiam, AD 680–960 from Wassu – Calvocoressi and David 1979:27). However, it must be recognized what a slender and unsatisfactory chronological database there is currently for all these monuments.

3. There is evidence in the case of the northern tumuli and the southern tumulus of Ndalane, with its Tegdaoust-style beaker, that tumulus erection was occurring during a period of intensive exposure to northern influences from Arabo-Berber settlements on the southern Saharan fringe. The monuments in these areas may well provide exciting insights into processes of change, perhaps involving secondary state formation, related to these contacts.

Conclusion

Although Merrick presented a case for the Senegambian tumuli and megaliths as related phenomena that first appeared before the ‘golden trade of the Moors’ was firmly established in the ninth and tenth century (Posnansky 1981, 1982), it now appears that the northern tumuli in particular do not conform to this hypothesis. The pottery from the northern tumuli does not resemble the southern tumulus pottery or the megalithic pottery, and the available evidence for chronology suggests that the northern tumuli date to the second millennium AD, as Joire first suggested. The appearance of the northern tumulus phenomenon is clearly linked to the trade activities and political fortunes of Senegal River polities such as Takrur. In the south, megaliths and tumuli may be somewhat earlier, with ceramic affinities to both the Middle Senegal Valley and the carved roulette assemblages of Guinea and southern Mali. This is unsurprising if exchange networks of the era linked tumulus-builders with gold-producing areas to the south and demand centres to the north, as Merrick suggests. In this case, however, we will still need to understand why the earliest signs of stratified societies in the Senegambia appear so far from both gold and other metal sources as well as the areas, such as the Senegal River, best suited to control metals trade.

Endnote

1. The drafting of this section was greatly facilitated by the detailed historical survey of monument investigation (‘Historique des recherches’ extract from *Vestiges, Peuplements et Civilisations Protohistoriques de la Senegambie* by C. Becker and V. Martin, *in prep.*) that Charles Becker kindly provided in advance of publication.

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