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Original Synthesis Article

Megaliths in Tropical Africa: Social Dynamics and Mortuary Practices in Ancient Senegambia (ca. 1350 BCE – 1500 CE)

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Abstract - When analyzed systematically, Tropical Africa megalithism appears to have emerged in contexts of friction between different lifeways, agriculturalists versus foragers, pastoralists versus hunter-gatherers-fishermen, or agriculturalists versus fishing folks. The monuments built were clearly part of actual territorial strategies. Research conducted by the Sine Ngayene Archaeological Project (2002-2012) frontally addressed the "Why" of the emergence of megalithism in that part of the world, and probes the reasons for the performance of the elaborate burial practices preserved in the archaeological record. This paper emphasizes the diversity and complexity of burial protocols invented by Senegambian "megalith-builders" communities from 1450 BCE to 1500 CE. Senegambian megalithism is shown to have proceeded from territorial marking imperatives, shaping a multi-layered cultural landscape through the implemented mortuary programs anchored on the construction of Ancestorhood.

Keywords: Megaliths; Senegambia; Cultural landscape; Mortuary program; Burial practice; Monolith-circle; Sine-Ngayene;

Introduction: Of Monuments and Territories

Megalithic monuments, erected with large stone blocks and built to last, became part of human history at the end of the Early Holocene. It started along the western fringes of Europe and spread later inland, in the south of France for example. For Renfrew (1984, 1987) the Western Europe megalithism is the consequence of the first Neolithic farming and herding communities westward expansion. In other words, it was the result of backward ripple-effects when the westward expansion reached the oceans, the Atlantic in the west, the Mediterranean in the south, and the North Sea in the north. The foundational effect, the two-way interaction with "Mesolithic" hunter-gatherer communities - Teviec, Hoedic for example in Brittany - and the demographic growth that followed led to the implementation of new territorial strategies. Some erected impressive constructions: dolmen, cromlech, causeways, and other tumuli. Others erected huge stone blocks - menhir, and alignment - at different spots in the landscape (Joussaume 2003, 2007, Renfrew 1984, 1987). Territorial marking is undeniable, but its logic remains opaque.

With the notable exception of Lake Turkana basin *Nomaturanga* in East Africa and the large island of Madagascar, Tropical megaliths are found predominantly in the northern hemisphere (Fig. **1**). A series of alignments forming part of a complex comprising a burial of a sacrificed cow, a solar calendar and altars dated from 4000 to 2000 BCE [Before the Common Era] is found at Nabta Playa in Egypt Eastern Sahara (Wendorf and Malville 2001). Diverse sets of monuments including tumuli with burial chambers and elaborate stelae exist in different regions of Ethiopia, with higher concentrations in Sidamo province (Joussaume 2003, 2007).

The dolmens and other megalithic tombs of the Mediterranean fringe of North Africa very probably belong to Chalcolithic and Bronze Age traditions of the circum-Mediterranean space. Saharan funerary monuments, of extraordinary diversity in shape, size, and construction, are found almost everywhere in the vastness of that large desert. These monuments, built with stone blocks are however not megalithic in the strict sense of the term.

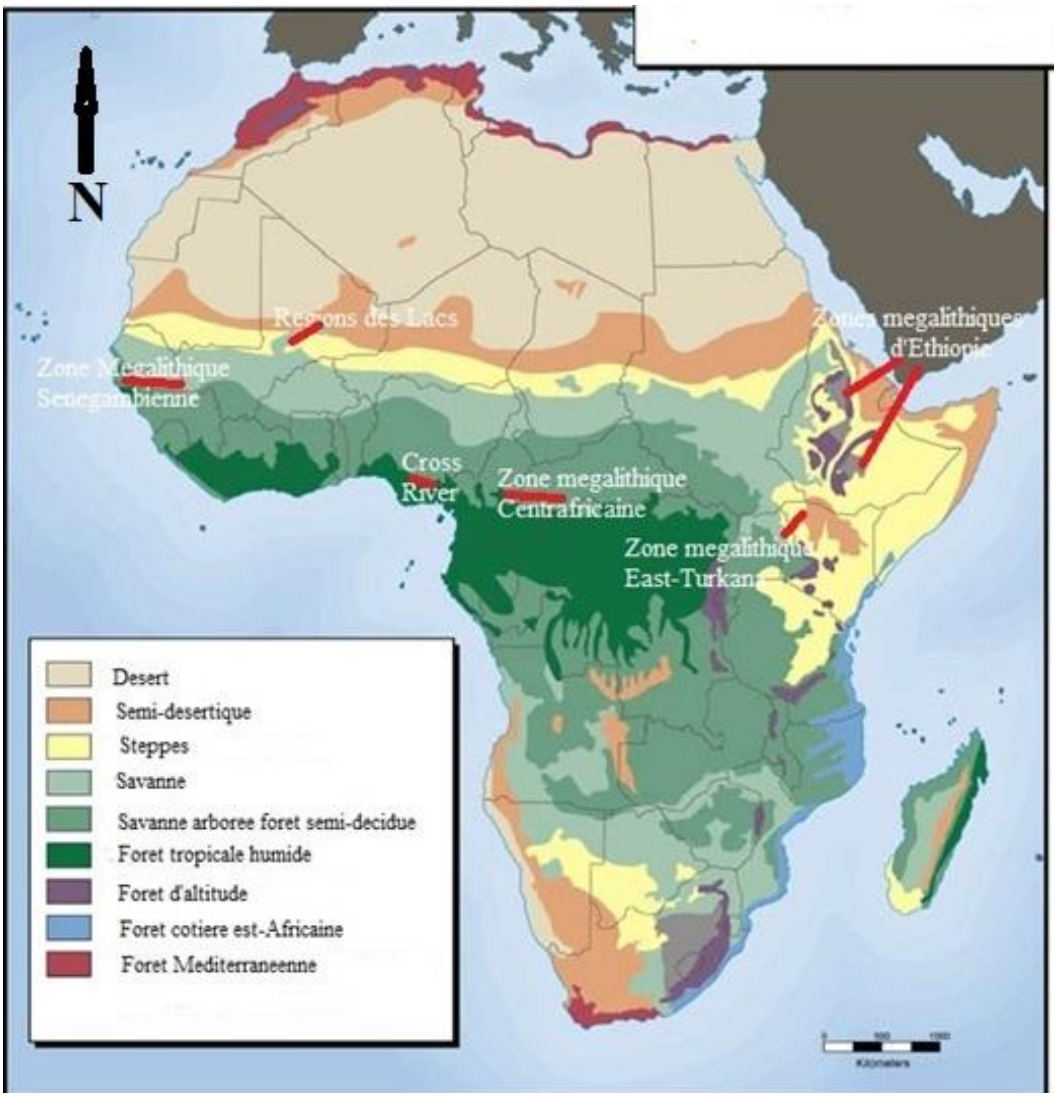

Fig. 1: The main megalithic traditions of Tropical Africa

The anthropomorphic monoliths of southeastern Nigeria, concentrated in Cross-River State, are enigmatic but virtually unknown archaeologically. The megalithic traditions of the northwestern Central African Republic investigated over the past three decades (Zangato 1999, 2000) vary in size and structure, but are generally quadrangular in shape. They are scattered across the landscape, located at streams heads, single or in groups of two to four, but never organized into cemeteries. Some are burial monuments while others served as settings for ritual performances.

The megaliths of the lake zone in Mali, with the famous site of Tondidaru, date from the middle of the first millennium CE (600-700 CE). They consist of monoliths, single or in linear arrangements, some finely carved with human attributes - face, navel, scarifications -, none associated with burials.

The megalithic monuments of Senegambia, to be discussed in more detail below, are found at the western end of West Africa (Fig. **1**). It is one of the most spectacular manifestation of African megalithism.

Malagasy megalithism, a relatively recent phenomenon, is exclusively funerary. Funerary monuments belong to the elite of the Imerina states emerging in the middle of the second millennium CE. They are still part of the local ethno history and some of these monuments are still used for the important ceremony of turning the dead.

The inclination of human communities to develop different forms of spirituality forms the basis of the intuitive and non-elaborate suggestions advanced as an explanation of megalithism. These suggestions are perfectly legitimate, but they do not explain why megalithism developed at particular times and places and not in others. Based on Renfrew (1984) suggestion it can be hypothesized that megalithism was part of the strategies for marking out, controlling, and/or appropriating territories in a situation of contestation. This contestation may have been generated by frictions between different socio-economic systems, hunter-gatherers and horticulturalists on the one hand, or sedentary farmers and nomadic pastoralists on the other. Once developed megalithic practices would have been routinized, then perpetuated in the cultural repertoires of the societies that initiated them. It is also conceivable that these practices could have been adopted and emulated by neighboring communities, ensuring their dissemination step by step over vast areas.

Megalithism as margins phenomenon: A brief survey

Ethiopia has a significant concentration of megalithic monuments dating from the second millennium BCE to the middle of the second millennium CE. They are divided into three main traditions. The oldest tradition, that of the Harar Highlands in the East, from which the other two probably derive, include dolmens and tumuli with burial chambers organized in cemeteries of varying sizes (Joussaume 2003). The tradition of

monumental stelae from the north, particularly spectacular at Axum, and that of anthropomorphic stelae from Sidamo complete the picture.

The dolmen and tumuli cemeteries of Harar province are located at an altitude of 2000 m above sea level (asl) between the Danakil desert and the Tchercher ridge over an area 70 km long and 30 wide. The cemeteries listed, Sourre, Kabanawa, Hallayou, Gand-Hamo, Hassan Yossouf Ofle, Hassan Abdi, and Galma on the one hand, Tchaffe, Ganda-Karkassa, Ganda-Kadana on the other hand, are divided into two major geographical sub-groups: Tchelenko for the first group and Dobba for the second. In each of these subsets, the individual cemeteries are more or less equidistant, spaced about 2 "walking hours" apart. The excavated and dated monuments indicate that the Harar tradition spans from the 2nd millennium BCE to the beginning of the 2nd millennium CE. The territorial marking, undeniable in this case, was probably triggered in a situation of interaction between the hunter-gatherer communities and the first farming communities that initiate agriculture on the Ethiopian Highlands.

The Axumite stelae tradition is monumental, urban, and directly linked to the celebration of monarchs and members of the elite (Phillipson 2003). It emerged in the last centuries of the first millennium BCE and is said to have continued until the conversion to Christianity of Axum monarchs. “The largest of these, now collapsed and broken, was originally 33 m long, weighing 520 tons; it was probably the most colossal stone block that peoples have attempted to erect anywhere and at anytime”(Phillipson 2003: 13)

The stelae tradition of the Sidamo province in the south includes phallic-shaped, anthropomorphic monoliths with swords and masks carvings, all used as tombstones and distributed into cemeteries of varying importance. Tiya, Sedene, Tuto Felo, Arussi, and Konso are some of these cemeteries, presumably attached to large concentrations of sedentary farming populations interacting with pastoral-nomadic communities. The stelae in the northern portion of the Soddo region are distributed in more or less coherent spatial configurations, with however some overlap. The anthropomorphic stelae are found in an area 12 kilometers long and 5 kilometers wide to the northeast along the Awash River. The sword and mask stelae are found in the east, over an area 10 kilometers long and 6 km wide. And finally, the “drum” stelae are found in the West, spread over an area 20 kilometers long and 12 kilometers wide (Joussaume 1995). The territorial marking in relation to the hydrographic network is also undeniable in this case.

The megalithic monuments of the eastern Adamawa and the Oubanguian ridge in Cameroon and Central African Republic, are found in an area of 14,000 km^2 along the Chad/Congo watershed. They exhibit significant variations in shape, size, and use, and date from the late 3rd millennium BCE to the mid-2nd millennium CE. The megalithic monuments are quadrangular, built with granite slabs arranged in rows. They are usually isolated or in groups of 2/3, near streams' head. According to excavation data, these monuments had ritual and territorial marking roles from 2000 to 1000 BCE, in the initial phase known as the Balimbé period (Zangato 1999, 2000). The horticultural communities then very likely interacted with the foragers of the equatorial rainforest. The same use of megalithic monuments was sustained during the next phase, Early Gbabiri from 950 to 200 BCE, with nevertheless the first cairn burials. The monuments were then built with cairns during the Late Gbabiri phase (200 BCE-500 CE), but none contain burials as shown by the excavations of Tazunu Kpogbere 1, 2, and 3. Burial took place elsewhere, in sitting position in a pit in cemeteries and by cremation with deposits of charred remains in urns. The Bouboun period (500-1600 CE) which ends the sequence continues the tradition of using megaliths for territorial marking and ritual practices. The megalithic monuments of the Eastern Adamawa and the Oubanguian ridge were almost exclusively related to strategies of territorial marking and/or appropriation in the context of interaction with neighboring rainforest foragers.

The *namoratunga* - monolith circles - of East Turkana in northwestern Kenya date from the beginning of the 2nd millennium BCE (Hildebrand 2010). These are simple primary burials. The dead were buried in a flexed position, lying on their right side. The central tomb is surrounded by basalt monoliths delimiting a circle from 1.20 to 4.40 m in diameter. The builders of the *namoratunga* were nomadic pastoralists, probably interacting with hunter-gatherers fishing communities of the Lake Turkana basin at the beginning of the 2nd millennium BCE. These monuments marked their territories and pasture lands.

As the examples presented above show, African megalithic practices emerged in particularly dynamic situations of interaction between communities with different socio-economic systems, in the form of a "moving frontier". The phenomenon began at the end of the third and early second millennium BCE in the Ethiopian highlands, Eastern Adamawa, Lake Turkana basin, and as will be shown below, also in

Senegambia. The understanding of the "Megalithic Phenomenon" as a striking and durable dimension of the construction of cultural landscape is now widely accepted (Frazer 2018, Holl and Bocoum 2014, 2017, Lozano-Medina and Jimenez 2018, Marak 2019, Muller *et al*. 2019, Ray and Krishnan 2016). The remaining part of this paper analyses the imbrication of socio-cultural processes involved in the 3000 years construction of past Senegambian cultural landscape.

Senegambian Megaliths

The Senegambian megaliths zone is located in the westernmost West Africa, in Senegal and the Gambia. The river Gambia and Saloum 120 to 150 km apart mark its southern and northern boundaries (Fig. **2**). It is stretched on 250 km west-east, approximately from the cities of Kaolack to Tambacounda (Gallay 2006, Gallay *et al.* 1982, Holl & Bocoum 2006, 2013, 2017, Holl *et al.* 2007, Martin & Becker 1984, Thilmans *et al.* 1980). The area measures some 33,000 square kilometers with megalithic monuments concentrated along water courses. They attracted scholarly interest as early as the mid-19th century, with sustained research efforts during the Colonial period (Duchemin 1904, Maxwell 1898, Todd 1903). Captain Duchemin and Dr. P. Jouenne were two of these pioneers who devoted their activities to the search for the Senegambian megaliths builders. In 1903, Captain Duchemin excavated two monoliths circles at Dialato in Senegal. Taking notice of the unusual arrangement of human remains, he suggested the possibility for the practice of multi-stage burial (Duchemin 1906), an idea dismissed without further consideration by Thilmans *et al.* (1980). From 1915 to 1930, Dr. P. Jouenne, explored the central part of the megaliths zone, excavated 15 monuments in six sites, and developed an elaborate and intriguing theory to account for the existence and structure of the monuments he has investigated. For Jouenne (1930), Senegambian megaliths are but another facet of an ancient solar religion, the "Sun Worship", geared to structure the spiritual life of ancient farming communities and fulfill the requirements of the agricultural cycle. Professional archaeologists who took to the field in the 1970s shied away from what they considered un-scientific speculations. They focused essentially on monument taxonomy and chronology with the assumption of primary burial as the exclusive *modus operandus* (Thilmans *et al*. 1980, Gallay *et al*. 1982, Gallay 2006, Gallay and Laporte 2013).

The Senegambian megalithism has been presented and described by generation of researchers. But the processes that have generated its emergence and sustained development for almost 3000 years have not been investigated. The expansion of mixed-farming communities in an area of good agronomic potentials with the dense hydrographic networks of three rivers, the Sine, the Saloum, and the Gambia, have played a crucial role in the genesis of the "megalithic Phenomenon. Were these new practices borrowed down-the-line from one local community to the next – stimulus diffusion – or were they carried as a "cultural package" by groups migrating from a central core area – demic diffusion --? A differential combination of both kinds of processes may have taken place but why did megalithism emerged in the first place?

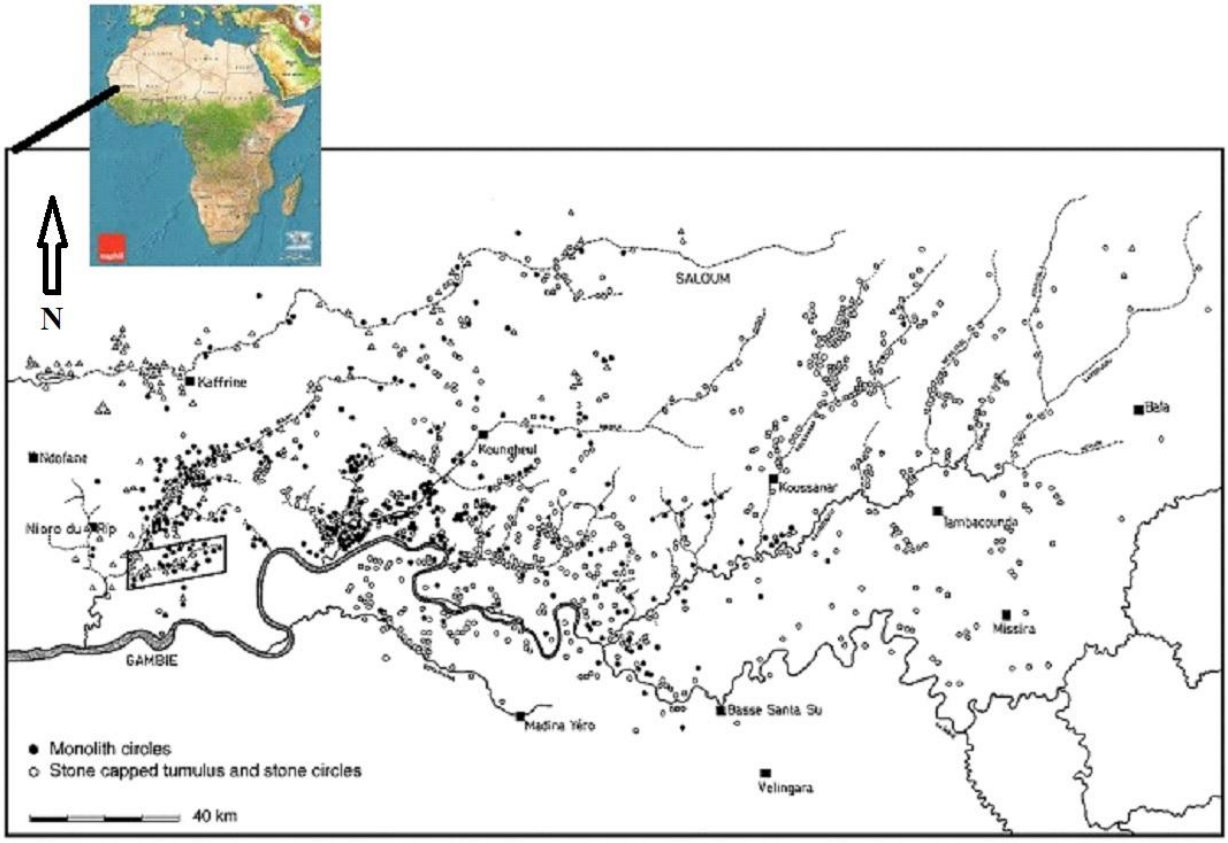

Fig. 2: Location and map of the Senegambian Megaliths Zone

The Sine Ngayene Archaeological Project (SNAP) was designed in 2001 to address the issues raised above within a well delineated regional framework. A small eastern tributary, the Petit-Bao-Bolon drainage, measuring 32 kilometers long (East-West) and 20-10 kms wide (North – South), was selected as study area (Fig. **3**). Sampling strategy is crucial to achieve a reliable and balance assessment of the

operations of past social systems. Fieldwork, including intensive survey, precise GPS site positioning, cemeteries mapping, and excavations, was carried out from 2002 to 2010. 58 cemeteries with differential combinations of burial monuments were recorded, as well as evidence of habitation sites, quarries, and iron-smelting installations (Holl and Bocoum 2017). Read from the perspective of rank-size rule, the mapped cemeteries are distributed into 3 categories. The mapped cemeteries are organized into 3 ranks. Sine-Ngayene with 52 monoliths-circles and 116 earthen tumuli on 50.2 ha is the only Rank I site. There are 8 Rank II sites with 15 to 25 monuments or 6 to 2.5 ha in surface extent. All the remaining cemeteries are Rank III sites measuring less than 1 ha in size. As will be explained later below, the excavation program was focus on the Eastern "province" of the study area. The tested sites, located at 5 kms from one to the next along the Petit-Bao-Bolon river, include Rank I Sine-Ngayene (4 monuments and the ceremonial space excavated), Rank II Ngayene II (42 monuments, entirely excavated), and Rank III Santhiou-Ngayene (9 out 18 monuments excavated) at the water course head. The newly obtained data allow for more robust and sophisticated analyses of ancient Senegambian mortuary practices and territorial strategies (Arnold 2002, Arnold and Jeske 2014, Beck 1995, Chisholm 1979, Crubezy *et al.* 2000, David and Thomas 2008).

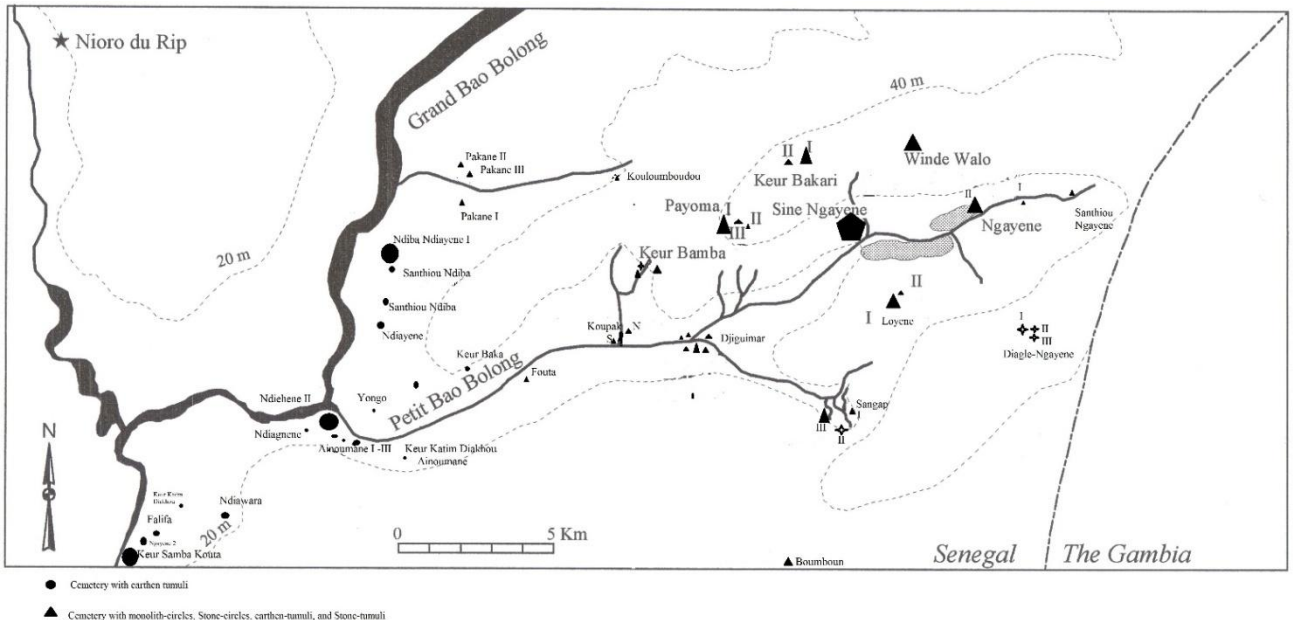

Fig. 3: Site hierarchy and cemeteries distribution in the Petit-Bao Bolon drainage

1. Theory: Initial Models

In general, the Late Holocene is characterized by fluctuating climatic changes within a more or less sustained shift toward increasing aridity in North tropical Africa (Faure and Williams 1980, Lezine *et al.* 2012). Significant populations' movements took place in the southern margins of the Saharan desert with groups of herders and agro-pastoralists settling in wetter environments in the Tilemsi valley, Eghazzer basin, and the Dhar-Tichitt – Walata - Nema. It is in such a climatic context that the portion of Senegambia between the Gambia and Saloum rivers was initially settled. Two models can be suggested at this juncture.

The first model is anchored on the hypothesis of successful initial settlement resulting in sustained population growth. Settlements may have been preferentially located along water-courses, taking advantage of the available farming and grazing lands, salt and aquatic resources, as well as clay and iron ore. Differential population growth generated imbalances between local groups triggering the creation of cultural mechanisms to assert claims to "customary" territories. Mortuary practices characterized by the development of monumental burials, built to last, may have emerged and routinized in such a context.

The second model posits the opposite situation. The land may have been inhabited by scattered fishing, herding, mixed farming communities. The deteriorating Late Holocene climate initiated the concentration of population along major river courses, triggering cultural mechanisms geared to mark one's own land. Megalithic cemeteries emerged accordingly, and with time, became *de facto* territorial markers.

The research project conducted in the *Petit-Bao-Bolon* drainage was set to investigate the local dynamics of ancient Senegambian megalithism and the very reasons for its emergence (Holl & Bocoum 2006, 2013, 2017, Holl *et al.* 2007). In the present state of research, the study area witnessed the development of megalithic monuments in the second half of the second millennium BCE, around 1350 BCE at Ngayene-II and 950 BCE at Sine-Ngayene. These megalithic traditions lasted for a little less than 3000 years and disintegrated in the middle of the second millennium CE, around 1500 and 1600 CE. The arrival of the Portuguese and other Europeans and the ensuing opening of the Atlantic trade may have accelerated the demise of the Senegambian megalithic traditions.

2. Methods: Settlement system as cultural landscape

The study area was inhabited by "hamlet-based-societies" constituted of scattered "domestic groups". Habitations sites were preferentially located on the shores of the Petit-Bao-Bolon river, on the gentle slope between the upper and the lower terraces. These hamlets are "socially consecrated" contexts for the perpetuation of the megaliths-builders' communities, people moving according to actual customs and standards. In other words, "the house - [in this case the hamlet, the compound] - both in its physical and institutional form provides a spatial concretization of the sibling relation…. The sharing of the same ancestors and food that characterizes sibling relations is both realized and manifested spatially through cohabitation (Retsikas 2007: 978).

The regional distribution of megalithic monuments reveals the existence of two distinct "cultural" entities: The Western province along the Grand-Bao-Bolon with earthen tumuli and the Eastern province with a broader assortment of monuments, and Sine-Ngayene as the largest and central cemetery (Fig. **3**). Each of the recorded cemeteries appears to be part of a coherent territorial unit measuring 4 to 5 kilometers in maximum diameter. The excavated monuments and cemeteries show the selected localities to present a relatively thick sedimentary deposit. The laterite crust was not reached in any of the tested monuments, with some excavated down to more than 2 m below the surface at Sine-Ngayene, Ngayene-II, and Santhiou-Ngayene.

Quarry sites are difficult to find. The recorded cases show that each significant cemetery had a quarry in its close vicinity. The laterite used for the production of monoliths, rounded blocks, and slabs used in the construction of megalithic monuments was also the main source of iron ore. The small but perennial Petit-Bao-Bolon river was very likely the ancient "lifeline" of the study area. The river provided the inhabitants with water, aquatic resources, and, through the use of dugouts, an access to local, regional, and inter-regional exchange networks. Pottery, fish, and smoked or dried mollusks from the Saloum delta were probably carried in dugouts all over the river Saloum, Gambia, Grand-Bao-Bolon, Petit-Bao-Bolon, and other drainages.

Most of the recorded cemeteries from the Eastern group are located on the upper terrace, the prime agricultural lands. The Petit-Bao-Bolon valley is generally delineated by a laterite escarpment. Wildlife, fuel, and additional construction materials were accessible in the remaining part of the territories. It can be hypothesized that each

hamlet site-catchment included the homestead facilities, surrounded by gardens ring, the cultivated fields and plots left to fallow, and finally, the river and its shore on the one hand, with the "bush" on the other hand, collective grazing land open to all (Chisholm 1979, Haggett 1973). Demography, fields cultivation/fallow cycles, new land clearing, as well as the sustained exploitation of wild resources, generated differential dynamics of actual hamlets catchments. Some expanding while others were shrinking, with people moving within and between hamlets.

In summary, the regional distribution of the Petit-Bao-Bolon megalithic cemeteries presents a remarkable mortuary landscape (Gillespie 2002, Arnold 2002, Klaus 2008, Holl 1993), "While not usually considered material culture in the same sense as grave goods, the mortuary landscape must be taken into account in the decoding of the syntax and vocabulary of death in past societies" (Arnold 2002: 130). In final analysis and in most cases of good ethnographic observation, the loci of burial establish genealogies of places linking descendants to the land (Gillespie 2002).

Actualistic Referentials: Natural Cycles, Social Cycles

Viewed from the perspective of long-term change, the naturalization of society and the socialization of nature are two complementary dimensions of co-evolutionary dynamics. Natural cycles shape the dynamics of the biosphere and social cycles assist in the maintenance and reproduction of the society. A few ethnographic case studies provide solid actualistic referentials that assist in modeling the dynamics of the past megalith-builders societies under investigation. Age and gender roles are constructed according to current contextual social standards. The latter vary from society to society but are for most, anchored on "ideal life-cycle" that is relied upon to shape the person from birth to death and beyond (Gessain 2002, Keen 2006, Kingsley 1992, Peatrik 1995, Retsikas 2007, Testart 1995, Tornay 1997, Vergiat 1981a, b, Vidal 1976).

Keen's work on the Yolngu (Australia) provides an accurate rendering of the idea. "An aspect of the way in which the Yolngu conceptualize the person is in terms of the life-cycle, from the origin of the person's spirit in the waters, through spirit conception and gestation, birth, nurturance, and growth, through the ritual and gynecological events that mark the transition between age and gender statuses, and finally to death, the dissipation of the body, and the passage of the spirits to the domain of the dead" (Keen 2006: 519-20).

Some societies are organized into age-sets (Peatrik 1995, Gessain 2002). Others are arranged into generational cohorts (Tornay 1997, Peatrik 1995). And still others are "initiation-based" (Kingsley 1992, Testart 1995, Vergiat 1981a, b, Vidal 1976). A few examples will be relied upon to look at different paths for the construction of the person, from babyhood, childhood, youth, adulthood, elderhood, to ancestorhood. These data are used to build a frame of references (Binford 2001) to help in the interpretation of the Petit-Bao-Bolon drainage archaeological record. Two systems are particularly relevant for the case under investigation: age-sets societies on the one hand, and "initiation societies" on the other. Both were [still are] widespread in Sub-Saharan Africa (Paulme 1971, Peatrik 1995, Vergiat 1981a, b, Vidal 1976).

Initiation-based societies

The Manjas and Gbaya-kara from the Centrafrican Republic are good examples of "initiation-societies". The former are organized into small villages and hamlets inhabited by closely related individuals, "descending from the same ancestor and constituted into a patri-clans". (Vergiat 1981a: 31). These clans, each with its own totem, are generally exogamic with political and religious authority vested on the oldest male. The latter presides over all ceremonies and the shrine for offerings to the ancestors is located next to his house (Vergiat 1981a). The Manjas were organized into "secret societies". After circumcision, the individuals go through a series of demanding rites of passage. Life in secluded and secret initiation camps is particularly difficult and stressful. The physical and moral challenges are geared toward the strengthening of character. The withdrawal and time spent in the initiation camps are equivalent to symbolic social death. The return to the village is the re-birth of new members of the society (Vergiat 1981a, b).

The Gbaya-Kara present extensive similarities with the Manjas. They are also organized into segmentary exogamic patri-lineages. The *nãm*, their residential units, are separated from each other by a small no man's land. Gbaya religious system emphasizes the harmony between humans and the cosmos. "Nature is a big theatre, a cosmos made of the sky, earth, water-courses, rocks, plants, animals, and also humans, melt and mutually responding in a balance that does not have to be disrupted, but is sometimes. This balance is maintained through rituals performed by humans" (Vidal 1976: 69). The life of an individual Gbaya can be divided into three main periods, the childhood, adulthood, and elderhood.

The shift from one to the next is marked by more or less elaborate rites of passage. The name-giving rite and ceremony allows the new born to become a member of the *nãm*. The *lãbi*, for the boys and *bāna*, for the girls, open the gate of adulthood allowing the new generation to take spouses and create their domestic units. Normally, the seclusion in *lãbi* bush initiation camps lasted for three years (Vidal 1976: 167). Numerous and complementary initiation rites rhythmed the length of adult life: *lābi māna* and *to* for males, *mbusa* and *gbāwââ* for females, and finally, *dôgôê* for both males and females. Finally, the funeral and the ensuing closure ceremony take the elderlies to the status of ancestors and allow them to play an important role in support for the living (Vidal 1976: 72).

Age-sets societies

The Bassari of eastern Senegal are a good case of a well investigated age-sets society (Paulme 1971). Their settlements are located in the relatively rugged hilly flanks of the northern Futa Djalon (Gessain 2002, Girard 1984). They are organized into exogamic matri-lineages - *anongo*,- and live in scattered hamlets of 5 to 6 houses built around an open plaza – *yangana* – located near their cultivated fields. The *ambofor*, comprised of a series of round houses where young girls and boys spend their nights, is the social hub of Bassari village life. It is always located near the village headman's compound and plays a key role in Bassari rites of passage. Bassari society is divided into six age-sets for both males and females (Gessain 2002). In principle, their ritual calendar is fundamentally articulated on the passage from one grade to the next, starting from age 8-10 for boys and later for girls. Normally, in the 8^{th} -10^{th} years of their lives for boys and much later for girls, children leave their parents homes and start spending their nights in the *ambofor*, the common youth house, under the supervision of the village headman. Six years later, around 14-16 years of age they are initiated and enter the first age-grade, *ringta* (male) or *endodug* (female). They move through the whole system, shifting to *lug lemdta*, *falug*, *ndya*r, *ekdok*, and *epidor* for males, and *endopalug*, *endodyar*, *endobatya*, *enddzebdkebatya*, and *endokored* for females (Gessain 2002: 116). The top ranks of *epidor* and *endokored* are reached in the forties when the gates to elderhood are open.

Theoretical Expectations

Important theoretical expectations can be derived from the cases reviewed above. Initiations and other rites of passages generate the creation of pan-regional cohorts of peoples sharing cultural secrets. These cohorts are ripples carrying everybody across their whole life, from birth to death. The access to adulthood allows all the initiated, both males and females, to take spouses, create their domestic unit, and start having children of their own. Patterns of matrimonial alliances and post-marital residence vary significantly (Heritier 1981, 2000). They are nonetheless at the core of social reproduction and govern the circulation of men and women. The Manjas, Gbaya-kara, and Bassari reviewed above are organized into exogamic lineages, patrilineal and matrilineal. Post-marital residence is predominantly patri-virilocal. In this case, women leave their parents and join the husband's father hamlet. Systems of alliances, initiations, rites of passages, funerals, and others rituals performances bring together peoples scattered in small hamlets all over the landscape. The ritual calendar is therefore a constraining "social unifier". The members of the same lineage can be scattered over the landscape into small hamlets. They may come together at certain occasions, and may share common places like initiation camps and cemeteries.

Such portions of the cultural landscape may thus have been consecrated for specific use and rituals. Cemeteries could have been these common places where the members of scattered descent-groups were brought back together at the end of their terrestrial lives to enter the realm of ancestorhood. They shifted to another level, with the crucial responsibility of supporting the living communities. Interestingly, and as seen from the Manjas and Gbaya-Kara perspectives, there is no end to the cycles of social and ritual life. "Death is a liberation, it is a passage, the last threshold crossed in our terrestrial life. It is not an end, it is a beginning. Death begets life" (Vergiat 1981b: 77). Death is accordingly a passage to another level, rythmed by different but complementary ceremonies and rites of passage.

As suggested by the reviewed ethnographic evidence (Gessain 1967, 1971, 2002, Girard 1984, Kingsley 1992, Lestrange 1955, Vidal 1976, Vergiat 1981a, b) the death of middle-aged adults is the most traumatic and disruptive. That of babies and younger children is painful but simply accepted. That of the elderly is in the normal order of things. They have completed all the steps of their social life and are ready to enter the

realm of ancestorhood. Accordingly, and depending on ego's position in the standard life cycle, funerals serve multiple purposes. They help to heal the traumas, re-initialize ego's centered social networks, and forward the deceased to their new identities. It is legitimate to conclude that funerals and burial ceremonies recapitulate the entire social life of the deceased and catapult them to their next roles.

3. Results: Testing the theoretical models

In significant contrast to the dwelling installations built with perishable materials, cemeteries were consecrated landmarks with stone "monuments" erected to last. The tested cemeteries, Sine-Ngayene, Ngayene-II, and Santhiou-Ngayene, selected according to their location and rank-size position, differ considerably in size and number of monuments. They are set at approximately 5 kilometers from one to the next along the Petit-Bao Bolon river (Fig. **3**). Sine-Ngayene, the largest cemetery measures a little more than 50 ha in surface extent, with 116 earthen tumuli and 52 monolith-circles (Fig. **4** Sine-Ngayene). Ngayene-II, five kilometers further east, contains 42 monuments spread over 1.25 hectares. The recorded monuments belong to five variants: 21 stone-circles, 7 monolith-circles, 3 stone-ringed tumuli, 2 stone-tumuli, 8 earthen tumuli, with in addition, the remains of a shelter burnt floor. And finally, Santhiou-Ngayene, 5 kilometers further east of Ngayene-II and at the headwater of the Petit-Bao-Bolon, has eighteen recorded monuments, 3 monolith-circles and 15 stone-circles, distributed over 3,000 m^2.

The range of mortuary practices recorded in the Petit-Bao-Bolon drainage is the material manifestations of ancient Senegambian mortuary programs, ie. patterned and socially codified ways the living deals with the lifeless body of a deceased community member. They include three main successive sequences, each with its related rituals. (1) The funerals, as the final rite of passage, deal with the exit of the deceased from this terrestrial life and entry to the next one. (2) The interment in an especially built facility located, in this case, in a consecrated space of a cemetery. (3) And finally, the performance of "maintenance" rituals, like offerings and libations, inscribed in a ritual calendar and geared to "please" and support the deceased.

Fig. 4: Aerial view of the Megalithic Cemetery of Sine-Ngayene

The Funerals

Very few of what happens during funerals is likely to enter the archaeological record. The deceased is prepared for burial and some of these ceremonies may have taken place in the cemetery itself within a dedicated and well delineated ceremonial space. Such ceremonial spaces appear to have been integrated in the layout of the three tested cemeteries.

Part of the ceremonial space from Sine-Ngayene cemetery was excavated. It is singled out by a series of two short standing monoliths (Fig. **4** and **5**). This space is semi-circular, open in the south/southwest, and measures approximately 50 m in diameter. Beside the two short standing monoliths, the excavation shows two successive levels. The lower and early level dated to 1306-1400 Cal CE (ISGS-6229) includes a crushed large clay vessel, a fire pit, a series of smaller potteries, and a circular platform built with laterite blocks (Fig. **5**). The upper and later level is made exclusively of partially exposed circular gravel platforms.

The open-area excavation strategy implemented at Ngayene-II cemetery did reveal the presence of a relatively large clay vessel buried in upside-down position between monument 17 and T-04, along the perimeter of what may have been used as a ceremonial space. The latter is sub-circular in shape and open in the south. Surprisingly enough, the space delineated by these monuments also measures 50 m in diameter.

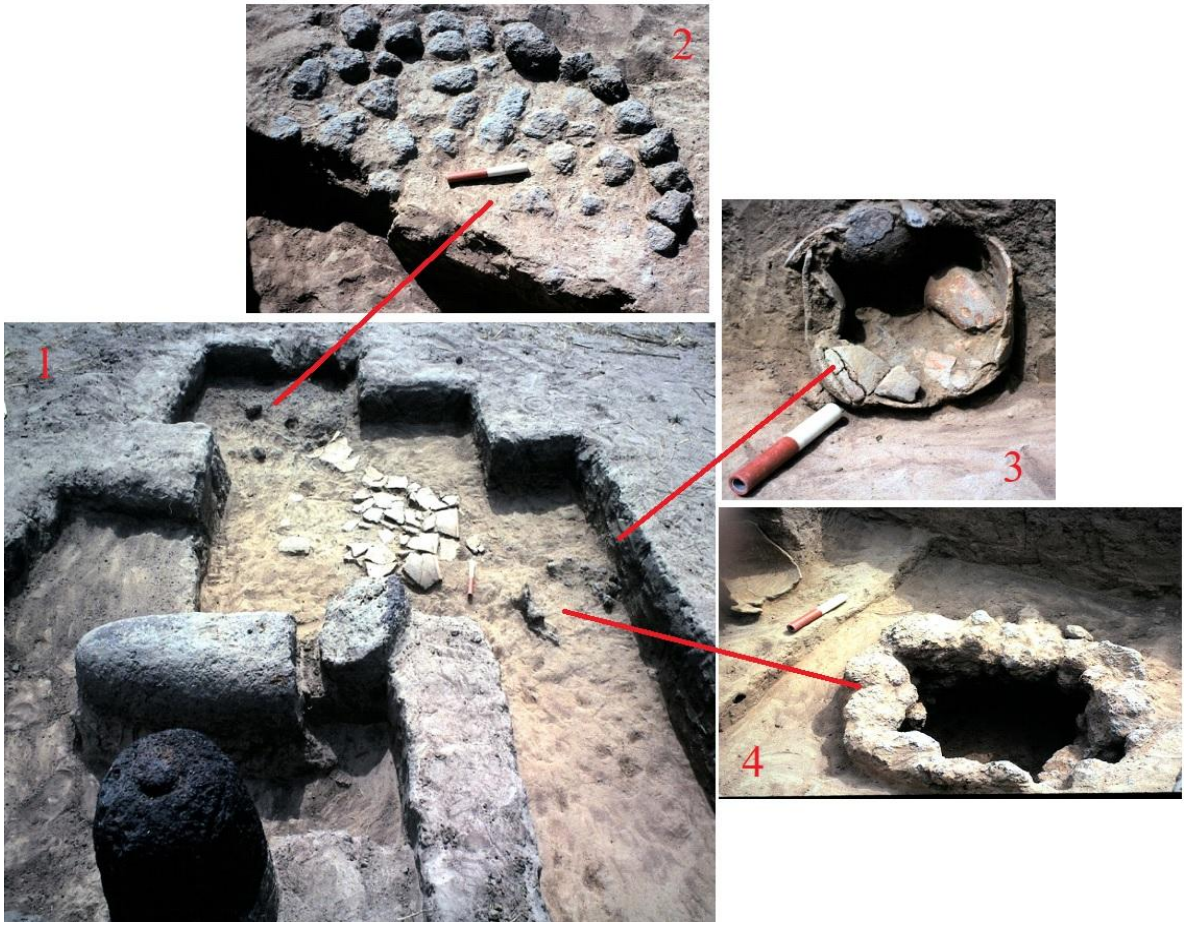

Fig. 5: Sine-Ngayene cemetery ceremonial space:
1- The ongoing excavation; 2- Laterite blocks circular platform;
3- Series of 3 offering vessels; 4- the fireplace.

The cemetery of Santhiou-Ngayene can fit in a 50 m diameter circle. The large open clay vessel exposed at 1 m southeast of monument 6 is located virtually at the gravity center of the cemetery. It was buried along the west flank of a quadrangular open space measuring 45 m north-south and 15 m west-east.

One can but guess about the nature of the ceremonies and rituals performed in the open spaces recorded at Sine-Ngayene, Ngayene-II, and Santhiou-Ngayene cemeteries. They may have been the loci for funerals. It is however very unlikely for their use to have been confined exclusively to this and only this part of the mortuary program.

Burial features

In general, the initial preparations of the burial installations take place in parallel to the funerals. There are two major parallel paths after the funerals, one leading to final primary interment and the other opening on the longer and more ritually elaborate multi-stage burial. Depending on their degrees of elaboration, the construction of burial installations can last for quite a long time. The recorded burial monuments are all circular in shape and range from simple earthen tumulus to monolith-circle, some combined with an earthen tumulus (Fig. **6**). The amount of construction material, labor, and skills invested in these burial monuments vary significantly.

Earthen tumuli, the simplest burial monuments, are made of two components: a more or less shallow grave pit capped with an earthen mound. Most of the recorded earthen tumuli are eroded or were leveled by agricultural activities (Fig. **6**).

Stone-circles are next in the scale of elaboration (Fig. **6**). They are comprised of: a more or less deep burial shaft, a perimeter generally built with one or many laterite slabs and/or blocks courses, and possibly an earthen mound that was not preserved.

Stone-ringed tumuli are made of a perimeter wall with several laterite blocks courses built with dry-masonry techniques (Fig. **6**). In this case, laterite was quarried and shaped into blocks measuring on the average 0.40 m long, 0.30 m wide and 0.20-0.30 m thick. These blocks are adjusted and fit in the wall without mortar.

Stone-tumuli are earthen tumuli capped entirely with rounded laterite blocks (Fig. **6**). They include a grave-pit, an earthen mound, and a laterite blocks dome. In some of the observed cases, the dome is made of blocks set in concentric circles.

And finally, monolith-circles are the most elaborate and labor intensive burial monuments (Fig. **6**). They consist of a deep burial shaft, a circle with varying number of standing monoliths, 1/3 of their length set in the ground. No evidence of a circular trench was recorded so far, suggesting that each monolith required a distinct pit. The quarrying and shaping of monoliths of different size and shape required considerable technical and observational skills. These stone-workers were probably organized into guilds with systems of apprenticeship. The transportation of the monoliths from the quarries to the cemeteries was essentially team-work requiring more organizational skills than raw force. The same applies to the erection of the monoliths around the burial shaft.

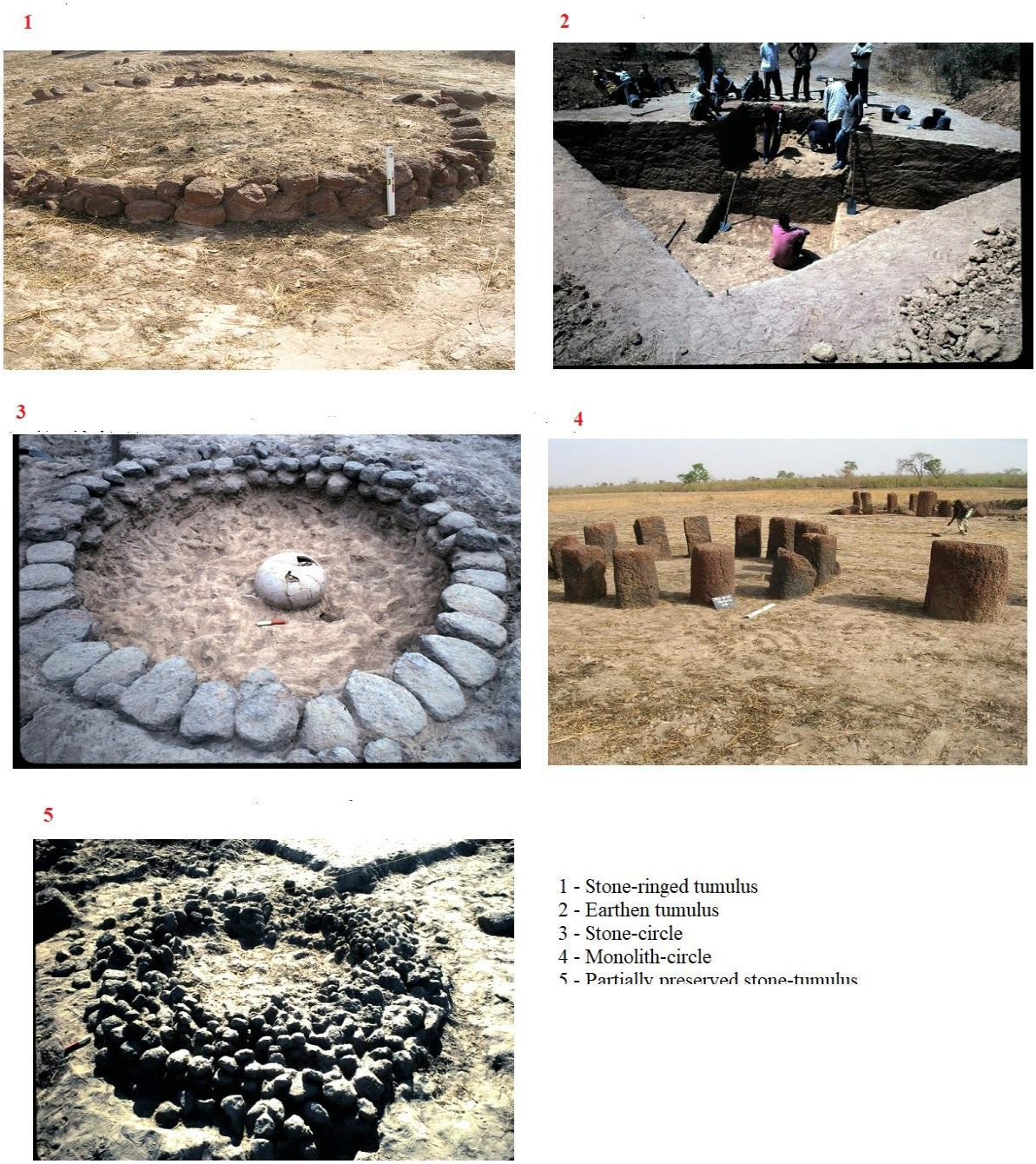

Fig. 6: The recorded burial monuments

In general, most of the burial monuments have a series of accompanying "headstones", standing or collapsed monoliths of varying size and shape set along their east flank. The sequences involved in the construction of a burial monument start with the preparation of the grave-pit, followed by the interment, back-filling, and mounding, then the construction of a circle made of laterite blocks, or a perimeter wall, or a mound, or a stone dome, or a circle of monoliths. Finally, the installation of the headstones

closes the cycle of the monument construction. The interment protocols implemented in all these monuments vary considerably. Some are used for the burial of a single individual and others are the repository of re-assembled skeletal remains of many individuals.

What are the reasons for such variations? Did they result from distinct clan/lineage affiliations, specific age-set membership, or a combination of both? The absence of babies and young children remains from the monuments excavated so far (Gallay *et al.* 1982, Gallay 2006, Holl and Bocoum 2006, Holl *et al.* 2007, Laporte *et al.* 2007/9, Thilmans *et al.* 1980) suggests that they were buried elsewhere. This points to the fact that they did not yet achieved the status of full social membership. The youngest individuals recorded in the monolith-circles from Tiekene-Boussoura (Thilmans *et al.* 1980) are 9 to 12 years old, the age of the first significant rite of passage beside the name-giving ceremony (Gessain 2002, Girard 1984, Kingsley 1992, Vergiat 1981a, b, Vidal 1976). It is thus likely that initiation was a mandatory requirement for eligibility to be buried in a cemetery.

Primary interments

A primary interment contains the complete remains of an individual buried all at once without any further disturbance. A handful of such cases of simple or multiple primary burials were recorded at Sine-Ngayene and Ngayene-II. They are generally found in earthen tumuli, with or without laterite blocks perimeter wall (Table **1**).

Single primary burials

Two single primary burials located in the central part of the cemetery are documented at Sine-Ngayene. SN-T-01, measures 11 m in diameter and contains the remains of a young 20-30years old adult male, buried at 2 m below the surface, dated to 848-992 CalBCE (ISGS-7227). His grave-goods, made predominantly of iron weaponry and other prestige items point to “warrior identity” (Fig. **7**, Table **1**). SN-T-02, measures 10 m in diameter, and contained the poorly preserved remains of an adult of unknown age and sex exposed at 0.80 m below the surface dated to 647-769 CalCE (ISGS-6228). The grave-goods consist exclusively of a rich assortment of items of personal adornment in alloyed copper, with a string of small fish vertebras at the ankle (Table **1**).

Table 1: The primary burials

Feature No	Diameter (m)		Orientation	Position	Age	Sex	Grave-goods
Single Primary burials in earthen tumuli							
Sine-Ngayene							
SN-T-01	11		East-West	Dorsal decubitus	20-30 years	M	1copper torque, 1 sheathed iron sword, 8 iron spearheads, 1 iron fly-whisk handle, 1 iron walking stick handle, 1 copper belt buckle, 2 iron ankle-bells
SN-T-02	10		East-West	Left decubitus	?Adult	?F	2 bi-conical copper bracelets, 8 copper arm-rings, 1 copper ankle ring, 1 string of small fish vertebras at ankle.
Ngayene-II							
T-01	10		East-West	Dorso-lateral left	20-30 years	M	-
T-02	10		South-North	Left decubitus	40-50 years	M	1 copper arm-ring, two dogs
Multiple primary burials in earthen tumulus							
Ngayene-II							
T-07	??		East-West	Left decubitus	?Adult	?M	-
			East-West	Left decubitus	?Adult	?F	1 copper arm-ring
			East-West	Left decubitus	pre-adult??		-
Multiple primary burials in large stone-circle							
Ngayene-II							
Feature 25	6.0		East-West	Dorsal decubitus	Adult	??	1 carnelian bead
			East-West	Dorsal decubitus	Pre-adult	??	-
			East-West	Dorsal decubitus	Pre-adult	??	-
			East-West	Dorsal decubitus	Adult	??	1 iron spearhead
Single primary burials in stone-ringed tumuli							
Ngayene-II							
T-05	7		South-North	Dorso-lateral right	Adult	??	-
20	6	I-5	SE – NW	Left decubitus	Adult	??	1 iron spearhead
		I-4	SE – NW	Left decubitus	Adult	??	-
		I-3	South-North	Dorsal decubitus	Adult	??	-
		I-2	South-North	Dorsal decubitus	Adult	??	-
		I-1	East-West	Dorsal decubitus	Adult	??	-

The sample of primary burials from Ngayene-II is larger. It is made of 5 monuments containing the remains of 11 individuals in total. Monument T-01 measures 10 m in diameter and contains the remains of a 20-30 years old young adult male exposed at 0.80 m below the surface. Monument T-02 in the center-east of the cemetery measures 10 m in diameter and contains the remains of a 40-50 years old adult male and two dogs exposed at 0.40 below the surface. He is buried wearing an alloyed copper arm-ring at the left wrist.

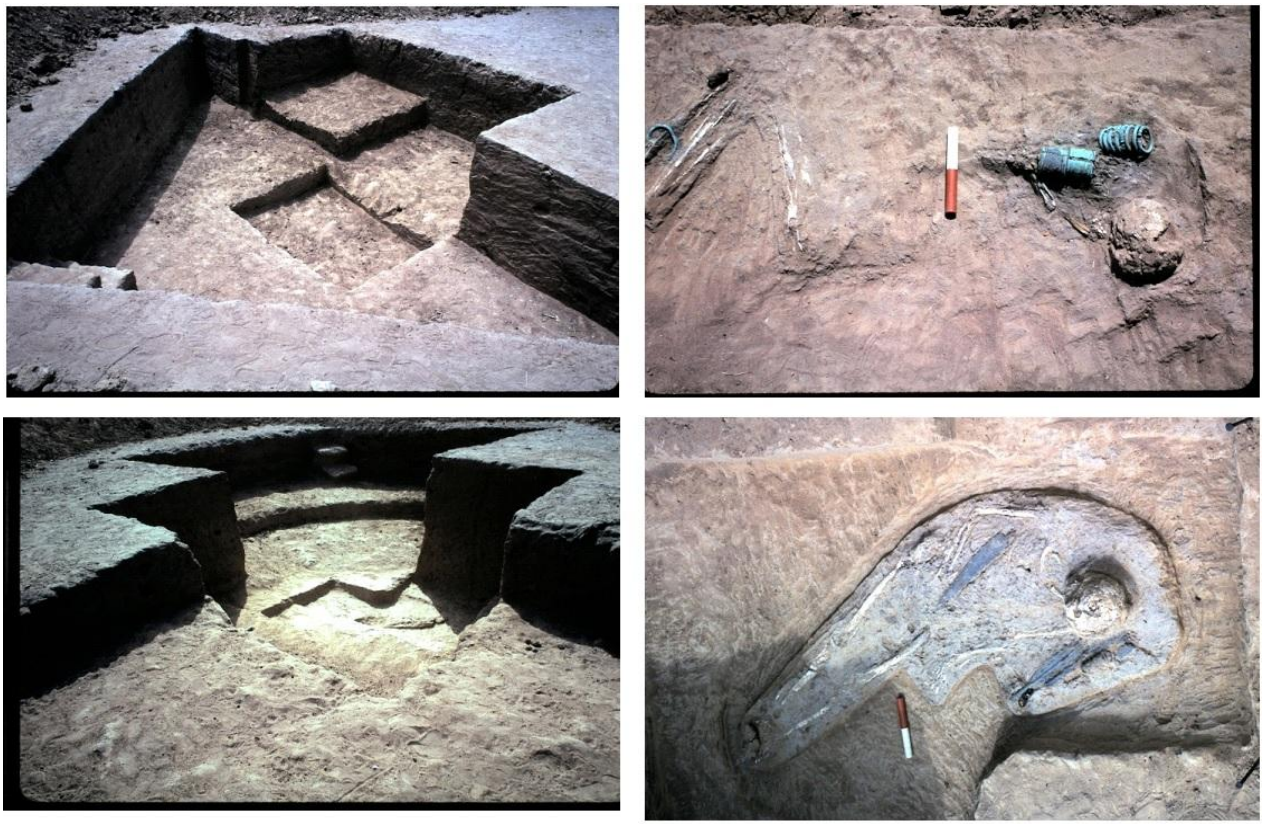

Fig. 7: Single primary burials in earthen tumuli SN-T-01 (bottom) and SN-T-02 (top).

Monument T-05 and T-20 are stone-ringed tumuli. The former measures 7 m in diameter and contains the poorly preserved skeletal remains of an adult of unknown age and sex, found at 0.90 m below the surface. Monument 20 measures 6 m in diameter and contains the superimposed remains of five adult individuals of unknown sex and age buried sequentially at the feature center, from burial 5 to 1

Multiple primary burials

Monument T-07 size is not known. It is made of two collapsed headstones located at 15 m east of the burial. The latter, exposed at 0.80 m below the surface, contains very poorly preserved remains of three individuals, two adults, probably male and female of unknown age, and one adolescent buried at the same time. One the deceased was wearing an alloyed copper arm-ring.

Primary Burials variants

The recorded primary burials can be partitioned into two major variants (Table **1**). One, variant 1, includes all simple earthen tumuli. They can be subdivided into two sub-variants, single primary (1-A) and multiple primary (1-B) burials. The other, variant 2, is comprised of stone-ringed tumuli also partitioned into two sub-variants, single primary (2-A), and multiple sequential primary (2-B) burials.

Sub-variant 1-A is documented at SN-T-01, SN-T-02 (Sine-Ngayene) and T-01 and T-02 (Ngayene-II), all earthen tumuli measuring 10 to 11 m in diameter with a single headstone when present. This category includes the richest burials ever excavated in the Senegambian megalithic zone, nicknamed "the Mighty Warrior" from SN-T-01, the putative "Prestigious Lady" from SN-T-02, or the "Mighty Hunter" from T-02. Two of the deceased (SN-T-01, T-01) are 20-30 years old young adult males, suggesting that this kind of interment may have been used for a specific age set of young adults in their prime. The East-west orientation is relied upon three times (SN-T-01, SN-T-02, and T-01), with two of the deceased (SN-T-02 and T-02) buried on the left side, one (SN-T-01) on the back, and one (T-01) on the back and left side.

Sub-variant 1-B is represented by monument T-07 from Ngayene-II. It is also a simple earthen tumulus with, this time, two headstones. Three individuals, two adults of unknown age and sex and one pre-adult were buried at the same time. The tightly "choreographed" disposition of the deceased bodies, all oriented east-west, leaves no doubt on the simultaneity of the interments. They may have belonged to the same "family unit".

Variant 2 is represented by two monuments, T-05 and 20, both from Ngayene-II. They measure 6 to 7 m in diameter, built with a multi-course laterite blocks perimeter wall and a single headstone. T-05, the variant 2-A monument, contains the remains of an adult individual of unknown age and sex buried in a dorso-lateral right position and oriented south-north. Variant 2-B, documented in monument 20, presents a radically new situation with five successive primary burials superimposed in its center. The positions of the deceased are patterned. Individual 5 and 4, the first and second to be buried, were laid on their left side, oriented southeast-northwest, with an associated iron spearhead. Individual 3 and 2, the third and fourth in the order of interment, were buried lying on their back and oriented south-north. And finally, Individual 1, the last of the sequence, was laid on the back but oriented east-west.

A very narrow range of options was selected in the mortuary programs implemented in the primary burials discussed so far. The orientation of the deceased, or more precisely the position of the head, is confined in the East-South quadrant of the compass, with 7 individuals (SN-T-01, SN-T-02, T-01, T-07 (3 cases), 20 (individual 1)) oriented East-West, 4 individuals (T-02, T-05, 20 (individual 2 and 3)) oriented South-North, and finally, 2 individuals (20 (individual 4 and 5)) oriented Southeast-Northwest. Two modes are clearly dominant as far as the position of the body is concerned: lateral left decubitus recorded in 7 instances (SN-T-02, T-02, T-07 (3 occurrences), and 20 (individual 4 and 5) was by far the preferred position. It is followed by dorsal decubitus documented in 4 cases (SN-T-01), 20 (individual 1, 2, and 3), and finally, combined dorso-lateral right (T-05) and dorso-lateral left (T-01) with one occurrence each.

The general poor state of preservation precludes a more ambitious analysis of the recorded skeletal remains. The processed data suggest nonetheless that primary interments, whether simple or multiple, may have been predominantly used for the final burial of pre-adult and young adult distinguished community members with possibly outstanding achievements.

Multi-stage interments

As far as the treatment of the deceased bodies is concerned, multi-stage interments take place in three major successive steps. The first is the initial interment in a "interim" grave, and this for a certain amount of time allowing for the decomposition of the flesh. The second revolves around the re-opening of the "interim" grave to collect the whole or parts of the skeleton. Depending on the care put in this operation and the cultural prescriptions implemented, the provisional grave can be completely emptied or un-picked and left bones can still be found in the installation currently in use. And finally, the third step is the final re-burial of the selected skeletal remains in a definitive burial monument.

The "interim" graves

A number of enigmatic megalithic monuments, previously un-recorded anywhere else, were excavated. They are generally large stone-circles, totally empty or containing clustered or scattered human skeletal remains, along with varying number of

clay vessels and metal artifacts. No such monument was found at Sine-Ngayene. However, considering the large size of the site and the minute portion of the excavated sample, this absence, interesting as it is as will be argued below, is not necessarily an evidence of absence of "interim" graves in this site. The excavations of Ngayene-II and Santhiou-Ngayene cemeteries have brought to light this interesting facet of the implemented mortuary practices (Table 2).

Table 2: The "Interim" burial structures

Feature No	Diameter (m)	Depth (m)	Number of frontals	Minimum number of Individuals	Grave-goods	Other
Ngayene-II						
T-04	6.50	1.30	-	-	-	An entry/exit
T-06	6.00	1.20	2	1	1 clay vessel, 1 talisman	Central monument?
24	7.00	1.20	2	1	3 clay vessels, 1 iron ring	-
25	6.00	1.90	1	> 7	1 clay vessel, 1 carnelian bead, 1 iron spearhead	Dual feature
Santhiou-Ngayene						
1	6.00	0.70	3	?2	7 clay vessels	-
5	5.00	0.60	2	?8	12 clay vessels, 1 copper ring, 1 carnelian bead 1 haematite axe	-
6	11.00	1.00	2	?2	20 clay vessels	Central monument with an entry/exit?
8	6.00	1.00	2	?2	8 clay vessels	-
12	6.00	0.50	2	??	2 clay vessels	-
15	5.00	0.50	1	??	2 clay vessels	-

Ten such monuments used as "interim" graves were excavated, 4 at Ngayene-II and 6 at Santhiou-Ngayene, All Ngayene-II specimens, are located in the central part of the cemetery, along the edge of the "ceremonial space". They measure 6 to 7 m in diameter, built with none to 2 headstones. They were tested down to 1.2 to 1.9 m below the surface, and contain scattered human skeletal remains as well as 1 to 3 clay offering vessels (Table 2).

Monument T-06 and 25 are singled out by their very characteristics. T-06 is a monumental stone-tumulus located at the gravity center of the cemetery. It can accordingly be considered a central monument comparable to the double monolith-circle (monument SN-27) from Sine-Ngayene. There are two possible options: in one, monument T-06 built as part of the layout of the cemetery was re-used later for the

concealment of a skull and its associated talisman [*gris-gris*]. In the other and viewed as evidence for syncretism, it was built later after the expansion of Islam in this part of West Africa, toward the end of the Senegambian megalithic traditions, especially to contain a skull and its accompanying *gris-gris*.

Monument 25 is an intriguing dual-feature. It contains a multiple primary burial of 4 individuals at 1.7-1.9 m below the surface dated to 1362-1195 CalBCE (Dak-1457), and a series of disturbed skeletal remains at 0.70-0.90 m. There are two options possible in this case too. In one option, the association was a simple coincidence; the initial multiple primary interment may have been un-marked, with the stone-circle "interim" grave built later on the same spot. In the other, the initial multiple primary burial and the later "interim" graves were part of a long-term sequential use of the stone-circle. The situation is undecidable at this stage .

Five out of 9 megalithic monuments excavated at Santhiou-Ngayene were used as "interim" grave installations, with monument 6 devoted to a special but obscure role. These stone-circles "interim" graves measure 5 to 6 m in diameter, are shallow, their depth ranging from 0.50 to 0.70 m, and built with 1 to 3 headstones (Table 2). All of the excavated specimens had 2 to 12 clay offering vessels and additional objects in the headstone zone as well as the inner circle. Monument 1, 5, and 8 contained scattered skeletal remains of 1 to 8 individuals.

Monument 6, the largest stone-circle of the site, located at the center of the cemetery measures 11 m in diameter. Its 1 m high multi-course perimeter wall was re-arranged to create an entrance/exit in the west flank. The proximity of a large clay vessel in upside down position as well as its series of 20 offering vessels distributed in three distinct clusters, and the few human skeletal remains that may have belonged to two individuals, point to the special role of this monument. It may have been used for the performance of a number of rituals linked to the funerals and the collection of bones after flesh decomposition.

With an unusually large proportion of "interim" graves and its location near the source of the Petit-Boa-Bolon river, Santhiou-Ngayene appears to have been used as a critical node in the Petit-Bao-Bolon drainage ritual landscape. It was partly a transitory cemetery, very likely open to people belonging to the different hamlets scattered in the Petit-Bao-Bolon drainage. Selected skeletal remains collected from the "interim" graves were probably taken later to major cemeteries like Sine-Ngayene for final interment.

The absence of "interim" graves from Sine-Ngayene makes sense if seen from the perspective outlined above.

Low frequency single episode multi-stage interments

Low frequency single episode multi-stage interments contain the selected bones of 1 to 7 individuals buried at once. Such burials are concentrated at Ngayene-II. They are distributed into 1 earthen tumulus, 12 stone-circles, and 2 monolith-circles, clustered predominantly in the south and southwest of the cemetery (Table 3).

Table 3: Low frequency secondary interments

Feature No	Diameter (m)	Depth (m)	Number of monoliths	Number of frontals	Minimum number of Individuals	Grave-goods
Single episode *Ngayene-II*						
Feature 1	4.50	1.40	-	1	2	8 copper rings, 1 iron spearhead
Feature 4	4.50	1.70	-	2	? 7	1 copper ring
Feature 5	5.50	1.40	-	1	3	1 iron ring, 1 iron spearhead
Feature 6	4.00	1.75	-	-	1	2 copper rings
Feature 7	4.00	1.65	-	1	1	1 iron spearhead
Feature 8	5.00	1.70	-	2	4	1 iron spearhead
Feature 9	3.50	1.75	-	1	1	1 very large clay vessel
Feature 12	4.00	1.40	-	2	1	1 iron spearhead
Feature 16	4.00	0.35	-	-	1	-
Feature 18	4.50	1.75	-	-	3	1 iron knife stem, 1 Iron spearhead, 1 copper ring
Feature 19	3.60	1.45	-	1	5	5 iron spearheads
Feature 21	4.00	1.20	-	-	3	1 iron spearhead, 1 iron arrowhead
Feature 23	4.00	0.60	15	5	2	-
Feature 30	4.00	1.70	14	4	2	1 copper arm-ring, 1 iron artifact
Symbolic secondary interments *Ngayene-II*						
Feature 2	4.70	1.20	-	1	-	1 very large clay vessel, 1 iron spearhead, 1 copper ring
Feature 3	3.00	1.25	-	2	-	1 iron spearhead
Feature 13	3.80	1.40	-	-	-	1 iron ring
Feature 22	????	1.25	-	1	-	1 large clay vessel, 2 iron spearheads

Monument 32 in the NE of the cemetery was indicated by two headstones. The earthen tumulus was completely leveled and eroded. The human remains arranged into two distinct small piles, were found at 5.5 m west of the headstones, at 0.50 m below the surface: the west pile with two truncated long bones and the east one with four truncated long bones and a skull fragment. A poorly preserved clay offering vessel was exposed in the monument's headstone zone.

The excavated stone-circles measure 3.5 to 5.5 m in diameter. The exposed human remains made of selected skulls, jaws and/or long bones were buried at depth ranging from 0.35 to 1.75 m. Monument 16 is particularly shallow. In general, the grave-pits were 1.2 to 1.75 m deep (Table **3**). Four of the excavated monuments were devoid of headstones, the remaining specimens having 1 to 2 small standing headstones each.

Both monolith-circles, monument 23 and 30, are similar in size: 4 m in diameter, built with 14 and 15 monoliths and 4 to 5 headstones. They are located at both end of the cemetery central east-west axis, monument 23 in the west and monument 30 in the east. They nonetheless present significant differences. One (monument 23), built with thin and elongated cylindrical shaped monoliths, has two shallow human remains deposits exposed at 0.60 and 0.30 m below the surface. The other (monument 30), includes a central earthen tumulus delineated by bulky quadrangular section monoliths, with a circular deposit of human remains found at 1.70 m below the surface (Table **3**).

In summary, two kinds of monument, small-size stone-circles and monolith-circles, were used for the final interment of selected remains of 1 to 7 seven individuals. Iron and copper artifacts as well as large clay vessels were found in many of these burials but none was associated with evidence for offerings.

Low frequency multiple episode multi-stage interments

SN-52, the northernmost monolith-circle 150 m away from the other monuments of Sine-Ngayene, is the only monument recorded to have been used for multiple low frequency multi-stage interments. It is relatively small in size, 3.5 m in diameter, built with 12 cylindrical shaped monoliths and a 2-m long collapsed headstone broken into three pieces. The burial pit was dug down to 1.40 m below the surface. The earlier and deeper burial episode at 1.10-1.40 m contains the skeletal remains of at least three individuals, associated with 2 iron spearheads, 2 iron arm-rings, 1 iron dagger, 1 carnelian and 1 glass bead scattered among the bones. The later and

higher burial level at 0.80-0.90 m includes the remains of at least two individuals with an iron spearhead, a glass bead, and a sea-shell (*Conus conus*). Six poorly preserved offering vessels were found in the headstone zone.

Intermediate frequency single and multiple episode multi-stage interments

Two cases of intermediate frequency monuments with a minimum number of individuals represented, ranging from 8 to 9, were recorded, one at Ngayene-II and the other at Santhiou-Ngayene (Table 4).

Table 4: Medium frequency secondary interments

Feature No	Diameter (m)	Depth (m)	Number of monoliths	Number of headstones	Minimum number of Individuals	Grave-goods
Single episode *Ngayene-II*						
Feature 17	5.00	1.6	-	1	9	-
Multiple episodes *Sine-Ngayene*						
SN-52	3.50	1.75	12	1	4	6 clay offering vessels
Episode 1		3 individuals	2 iron spearheads, 1 iron dagger, 2 iron rings, 1 glass bead, 1 carnelian bead			
Episode 2		1 individual	1 iron spearhead, 1 glass bead, 1 sea-shell (*Conus conus*)			
Santhiou-Ngayene						
Feature 4	5.00	1.40	13	6	8	3 clay vessels
Episode 1		3 individuals				
Episode 2		4 individuals				
Episode 3		1 individual				

Monument 17, in the NE of Ngayene-II is a stone-circle measuring 5 m in diameter with a short small headstone. The skeletal remains of at least 9 individuals were buried in a single episode at the center of the monument in a pile exposed at 1.40 to 1.60 m below the surface. The absence of any material culture element from this burial is remarkable.

Monument 4, the northernmost monolith-circle from Santhiou-Ngayene combines an earthen tumulus with a 5-m diameter circle built with 13 bulky monoliths and 6 monumental headstones. Three offering vessels were found in the inner-circle. The recorded human remains were arranged into three successive interment episodes. The earliest contains the remains of at least three individuals recorded at 1.30-1.40 m below the surface. The second, with the remains of at least 4 individuals, was exposed at 1.00-1.20 m. And finally, the third, with probably the bones of a single individual, was found at 0.60-0.90 m.

Two kinds of monuments were used for medium frequency multi-stage interments, a stone-circle for a single episode at Ngayene-II and a monolith-circle/tumulus for three successive burial episodes at Santhiou-Ngayene.

High frequency single and multiple episode multi-stage interments

Large quantities of human remains were recorded in five monolith-circles at Ngayene-II and Sine-Ngayene (Table **5**). Three from Ngayene-II were used for single episode multi-stage interments. The remaining two, monument 31 from Ngayene-II and SN-27 from Sine-Ngayene, are high frequency multiple episode multi-stage burials.

Monument 26, 27, and 28 are all located in the central part of Ngayene-II cemetery. The first, monument 26, dated to 1173-1264 CalCE (Dak-1462), measures 4 m in diameter, built with 19 monoliths and 5 headstones. The burial pit was dug down to 1.80 m below the surface and contains the remains of at least 36 individuals. The recorded grave-goods are distributed into 8 iron spearheads, 2 iron finger rings, 2 copper arm-rings, and finally, 1 copper finger ring. The bone pile set in the center of the monument is circular in shape and measures 1.4 m in diameter and 0.90 m in maximum thickness.

The second, monument 27, at the gravity center of the cemetery has a single very large headstone. It measures 4.5 m in diameter, built with 15 bulky monoliths, dated to 748-930 CalCE (ISGS-6225). The grave shaft was dug down to 1.60 m below the surface and contains a large 2 m in diameter and 0.60 m thick bone pile, with at least 33 individuals represented. 11 small bowls used as offering vessels were found in the headstone zone between the headstone and the circle perimeter. The grave-goods found throughout the bone deposit consist of 3 iron spearheads, 1 iron knife, 1 copper arm-ring, and 1 glass bead.

Table 5: High frequency secondary interments in monolith-circles

Feature No	Diameter (m)	Depth (m)	Number of monoliths	Number of headstones	Minimum number of Individuals	Grave-goods
Single episode *Ngayene-II*						
Feature 26	4.00	1.80	19	5	36	8 iron spearheads, 2 copper arm-rings, 2 iron finger rings, 1 copper finger ring
Feature 27	4.50	1.60	15	1	33	11clay offering vessels, 3 iron spear-heads, 1 iron knife, 1 copper arm-ring, 1 glass bead
Feature 28	5.00	1.80	15	-	50	11 iron spearheads
Multiple episodes *Sine-Ngayene*						
SN-27	9.50	2.00	32	2	40	Clay vessels, iron and copper artifacts
Cycle 1	20 individuals			5 iron spearheads, 1 copper ring		
Cycle II	10 individuals			1 iron spearhead		
Cycle III	8 individuals			8 clay vessels		
Cycle IV	2 individuals			4 clay vessels, 2 copper rings, 7 glass beads		
Ngayene-II						
Monument 31	4.00	2.10	22	12	37	Metal artifacts
Episode 1	35 individuals			14 iron spearheads, 4 copper arm-rings, 1 iron arm-ring, 2 iron artifacts		
Episode 2	1 individual					
Episode 3	1 individual					

The third, monument 28, dated to 1301-1393 CalCE (ISGS-6221) is built with 15 laterite monoliths without headstone, and measures 5 m in diameter. The burial pit was dug down to 1.80 m below the surface contains a 1.5 m in diameter and 0.80 m thick bone pile with the skeletal remains of at least 50 individuals. The recorded grave-goods consist exclusively of 11 iron spearheads.

Monument SN-27 and 31, at Sine-Ngayene and Ngayene-II respectively, are very elaborate archaeological monuments used for multiple multi-stage interments. SN-27, by far the most elaborate and intriguing megalithic construction of the Petit-Bao-Bolon drainage, is the central monument of Sine-Ngayene cemetery (Fig. **8**). It is a double monolith-circle, measuring 9.50 m in maximum diameter with both circles built with 32 monoliths and two massive headstones. The exposed archaeological deposit measures 2 m in thickness resulting from four cycles of use dated from 727-911 CalCE (ISGS-5297) to 1337-1427 CalCE (ISGS-A0333). The use history of this monument is particularly complex and cannot simply be presented as a series of successive episodes (Holl *et al.* 2007, Holl and Bocoum 2006, 2013, 2017).

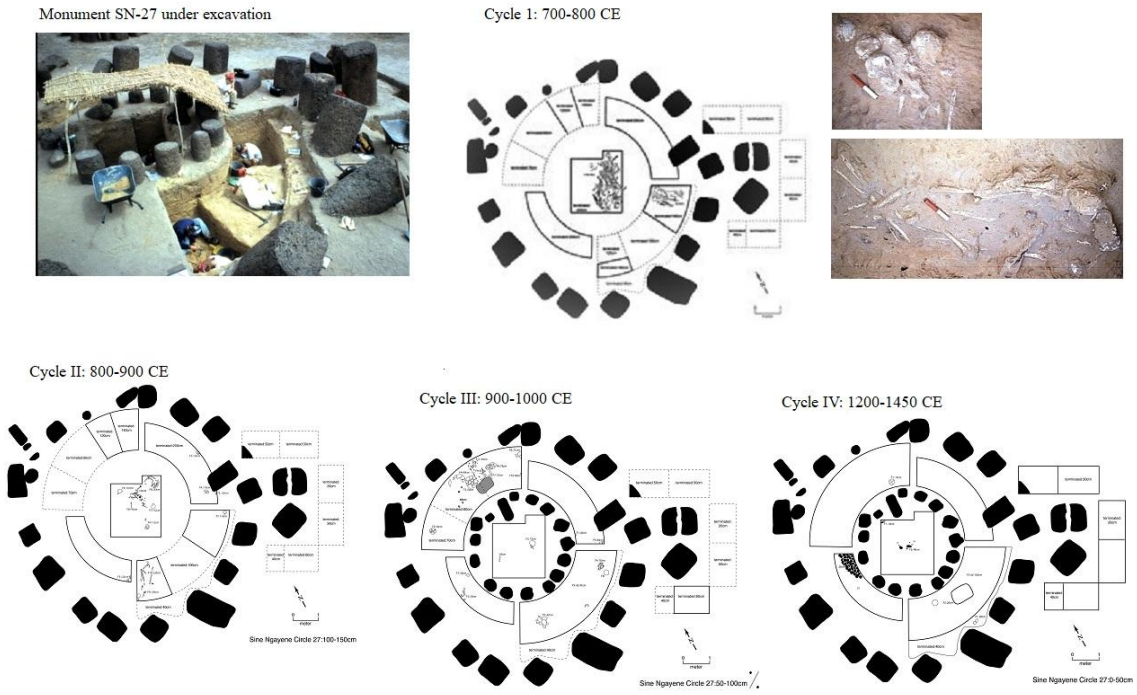

Fig. 8: Use-history in 4 cycles of Sine-Ngayene cemetery Central Monument SN-27.

In fact, beside the earliest bone pile at the bottom of the monument, cluster of human skeletal remains were more plausibly buried in discrete episodes within each of the second to the fourth use-cycles. The bone pile from episode 1 contains the remains of at least 20 individuals associated with 5 iron spearheads, 4 copper arm-rings, 1 iron arm-ring, and 2 undetermined iron artifacts. Cycle II deposit includes the remains of at least 10 individuals associated with 1 iron spearhead. Their bones may have been buried at different times, raising the possibility of 10 distinct episodes. The same situation applies to Cycle III and IV deposits with at least 8 individuals represented associated with 8 clay vessels in the former and 2 individuals with 4 clay vessels, 2 copper rings, and 7 glass beads in the latter. In summary, monument SN-27 contains the skeletal remains of at least 40 individuals buried in at least 20 distinct episodes.

Monument 31 is located in the central eastern part of Ngayene-II. Despite heavy trees disturbances, it was still the most elaborate monolith-circle of the site, built with 22 thin, elongated, and cylindrical shaped monoliths and 2 parallel rows of 5 and 7 headstones. The burial shaft was dug down to 2.10 m below the surface. It contained the remains of at least 37 individuals distributed in three interment episodes. The earliest burial episode, recorded at 1.40 to 2.10 m is made of the skeletal remains of at least 35 individuals associated with 14 iron spearheads, 4 copper arm-rings, 1 iron arm-ring, and 2 undetermined iron artifacts fragments. Interment episode 2, at 0.90 m includes an adult mandible. And finally, burial episode 3, documented at 0.50-0.70 m, contains a series of adult limb bones that may have belonged to the same individual.

The largest concentrations of human skeletal remains are found in monolith-circles, the most labor-intensive monuments of the Senegambian megalithic zone. Their burial shafts are generally deeper, ranging from 1.60 to 2.10 m below the surface, and contain the remains of at least 33 to 50 individuals associated with a broad range of grave-goods (Table **5**).

Combined primary and multi-stage interments

Three combined primary and multi-stage interments, all in monolith-circles, were recorded at two of the tested cemeteries (Table **6**). One, monument 29 possibly a single episode monument to be discussed below, is found at Ngayene-II and the remaining two, monument 2 and 3, single and multiple episodes interments are located in Santhiou-Ngayene cemetery.

Table **6**: Combined primary and secondary burials

Feature No	Diameter (m)	Depth (m)	Number of monoliths	Number of frontals	Minimum number of Individuals	Grave-goods
Ngayene-II						
Feature 29	3.80	1.80	18	5	8	2 offering vessels, 1 iron spearhead, 1 copper finger-ring
2 primary burials, 1 bones' pile with 6 skull						
Santhiou-Ngayene						
Feature 2	4.50	1.60	16	2	26	28 offering vessels, 5 iron spearheads
Episode 1 (1.00 – 1.60 m): 1 primary internment associated with bones accumulation (secondary burial)						
Feature 3	5.00	2.00	10	2	23	30 offering vessels, 1 tortoise shell, 3 copper arm-rings, 1 iron spearhead, 1 iron artifact
Episode 1 (1.80 – 2.00 m): bones accumulation (secondary burial) Episode 2 (1.60 – 1.70 m): bones accumulation (secondary burial) Episode 3 (1.20 – 1.50 m): 2 primary burials on top of bones accumulation (secondary burial)						

Monument 29 in the central eastern part of Ngayene-II measures 3.8 m in diameter built with 18 cylindrical and elongated monoliths and 5 headstones (Table **6**). The burial shaft was dug down to 1.80 m below the surface and contains three distinct sets of human remains. Two are primary interments of adult individuals located along the central west-east axis of the monument. One, still wearing a copper finger-ring and associated with an iron spearhead, is oriented south-north, facing east. The other, oriented west-east and facing north, had the legs bones re-arranged. The multi-stage burial consists of a 0.50 m in diameter bone pile located in the northwest of the monument. It is made of six skulls and a number of limb bones associated with an iron spearheads. Finally, two poorly preserved clay offering vessels were found in the monument headstone zone.

Monument 29 contains the remains of at least 8 individuals arranged into three sets. All the remains were found and exposed at the same depth, 1.80 m below the surface. However, this does not automatically mean that they were buried simultaneously. Each of the recorded sets was very likely a distinct interment event coordinated to be at the same depth. The re-arrangement of burial 2 legs bones to make room for the multi-stage burial bones pile points to two successive interments events that took place in around 720-894 CalCE (ISGS-6220). Two deceased adult individuals were buried first along the central axis of monument 29. After a certain time of unknown length, parts of the bones from burial 2 were removed to make room for a multi-stage interment including the remains of at least six adult individuals.

Monument 2 and 3 are located along the east flank of Santhiou-Ngayene cemetery. Monument 2, the single episode burial monument, measures 4.50 m in diameter, built with 16 cylindrical shaped and elongated monoliths and two impressive headstones (Table **6**). The burial shaft was dug down to 1.60 m below the surface and contains the remains of at least 26 individuals arranged in a 0.60 m thick bone pile. The bones were accumulated on an adult body in what appears to have been a simultaneous interment. The body at the bottom of the bone pile was buried in dorso-lateral left decubitus, oriented south-north with legs slightly flexed, facing west, with extended arms. Grave-goods consist of five iron spearheads found throughout the bone pile and 28 offering vessels arranged in three superimposed layers were recorded in the monument's headstone zone.

Monument 3, a few meters north of the previous one, is a multiple episode interments monument. It measures 5 m in diameter, built with 10 bulky monoliths and two large headstones. The burial shaft dug down to 2 m contains the remains of at least 23 individuals arranged into three successive interment episodes (Table **6**). Interment episode 1 is documented at 1.80-2 m; episode 2 at 1.60-1.70 m; and finally, episode 3 at 1.20-1.50 m. The latter episode is topped by two primary burials of 20-30 years old adult females. They were buried in dorso-lateral left decubitus, oriented south-north, facing west, legs tightly flexed, with arms extended along the body. The recorded grave-goods are distributed into 1 iron spearhead, 3 copper rings, 1 copper arm-rings, and 1 undetermined iron artifact. The grave-pit was partly back-filled and a tortoise shell (*Testudo* sp.) deposited 0.20 m above the bone pile. Finally, 30 offering vessels were found in the monument's headstone zone.

All the monuments discussed in this section included 2 to 30 clay offering vessels in their headstone zone. In addition, four out of the five primary burials recorded in these combined primary and multi-stage interments monuments present strong similarities in the position of the deceased bodies. They were laid in dorso-lateral left or right decubitus, oriented south-north, the legs slightly or tightly flexed, facing west or east (1 case), with extended arms. There was very probably, a prescribed way of handling the bodies of the deceased buried in this symbolically charged and ritually intensive mortuary program. Each of the excavated monument has at least one iron spearhead. With 28 and 30 specimens, Santhiou-Ngayene monument 2 and 3 have by far the largest amounts of clay offering vessels ever recorded in the Senegambian megalithic zone. They also present an interesting contrast in the represented grave-goods: monument 2 assemblage is made exclusively of 5 iron spearheads. While monument 3 includes 4 copper rings and only 1 iron spearhead and undetermined fragment. These two monuments are intriguing and seem to complement each other.

Symbolic multi-stage interments

A number of symbolic multi-stage burials, containing a narrow range of material culture items but no skeletal remains were found at Ngayene-II. Four such monuments, (monument 2, 3, 13, and 22) were recorded. They measure 3 to 4.7 m in diameter, built with none to 2 short headstones, with archaeological deposit ranging from 1.25 to 1.4 m in thickness. Two, monument 2 and 22, contained a large hole-mouth vessel in upside-down position at their center, above deposits of metal artifacts. The latter includes 1 iron spearhead and 1 copper ring (monument 2), 1 iron spearhead (monument 3), 1 iron arm ring (monument 13), and 2 iron spearheads (monument 22).

The large predominance of iron weaponry in these monuments may point to a social identity connected to a specific age set, that of adult male “warriors”. These individuals may have been captured and taken away. Their skeletal remains being out of reach, they were nonetheless granted the privilege of multi-stage interment in a symbolic burial.

Discussion: Patterns and Inferences

The mortuary programs implemented in the Petit-Bao-Bolon drainage cemeteries include some "consecrated" spaces and structures used for the funerals and the performance of a diverse range of rituals. Each of the investigated cemeteries has an open central space with special monuments as is the case for the Sine-Ngayene "ceremonial space", Ngayene-II monument T-04, 10, 11, 14, and 15, and finally, Santhiou-Ngayene monument 6 with its associated large clay vessel.

The excavated megalithic monuments are partitioned into four main burial categories, primary, multi-stage, combined primary and multi-stage interments, and symbolic tombs. Primary interments, either single or multiple and documented in 7 monuments are generally found in earthen tumuli, some ringed with a low laterite blocks wall. Single primary burials were excavated at Sine-Ngayene (SN-T-01 and SN-T-02) and Ngayene-II (T-01, T-02, and T-05). Multiple primary interments are of two variants: multiple simultaneous and multiple successive. The former variant is documented by Ngayene-II (T-07 and 25 with 3 and 4 individuals respectively). The latter variant is represented by Ngayene-II monument 20 with 5 superimposed successive interments.

Multi-stage interments are largely predominant. Interim burial monuments are required for the provisional interments of the deceased selected for multi-stage inhumation. Such interim burials are documented Ngayene-II (T-04, monument 24 and 25) and Santhiou-Ngayene (monument 1, 5, 8, 12, and 15). The latter cemetery appears as a key node in the cultural landscape of the Petit-Bao-Bolon drainage, mostly used for provisional burial. With the single exception of Ngayene-II monument 32 – an earthen tumulus --, multi-stage interments are found in small stone-circles and monolith-circles. They can be divided into three sub-categories: low, medium, and high frequency, each split into two variants: single and multiple episodes.

Low frequency single episode multi-stage interments are predominant. They are recorded exclusively at Ngayene-II (stone-circle 1, 4, 5. 6. 7. 8. 9.12, 16, 18 and 21, monolith-circle 30, and earthen tumulus 32). Low frequency multiple episode interment is documented at Ngayene-II monument 23, a monolith-circle with two superimposed and successive bones deposits.

Three medium frequency multi-stage interments are rcorded: one single episode case at Ngayene-II stone-circle 17 and multiple episode occurrences in monolith-circles, at Sine-Ngayene SN-52 and Santhiou-Ngayene monument 4.

High frequency multi-stage interments are found exclusively in monolith-circles. Single episode burials are documented at Ngayene-II (monument 26, 27, and 28), and multiple episodes ones at Sine-Ngayene (monument SN-27) and Ngayene-II (monument 31).

Combined primary and multi-stage interments are found exclusively in monolith-circles. Three such cases were recorded, two single and one multiple episode monuments. The single episode interments are found at Ngayene-II monument 29 and Santhiou-Ngayene monument 2, and the multiple episode one at Santhiou-Ngayene monument 3.

Multiple episodes interments, primary or multi-stage, were documented in different cemeteries of the Senegambian megalithic zone. They are symbolically rich, ritually intensive and were very likely inserted in a demanding social and ritual calendar. Surprisingly, all such superimpositions of skeletal remains have frequently been interpreted in terms of human sacrifices (Gallay *et al.* 1982, Gallay 2006, Thilmans *et al.* 1980). According to this interpretation, a number of deceased individuals were initially interred at the bottom of the burial shaft. Their bones deposit was sealed with sediment. The remains of sacrificed individuals were buried afterward above the initial interment, and the grave shaft finally back-filled and sealed. This suggestion is ‘unfalsifiable’. It is difficult to pinpoint precisely what data are relied upon to suggest this interpretation. In fact, the case is made even weaker with the practice of multi-stage interment.

On the average, the burial monuments from Sine-Ngayene are richer and present a broader spectrum of material culture items. With the significant exception of single primary interments in earthen tumuli SN-T-01 and SN-T-02, single and multiple episodes multi-stage interments monuments, that required extravagant investment of labor and resources, appear to encapsulate the ultimate ethos of ancient Senegambian communities. After a long ritual cycle of unknown length - that may last several years -, many different and possibly scattered members of the same descent groups were finally brought back together in their last “resting place” to join the “league of the ancestors”.

Convergence of Natural, Social, and Ritual cycles

It is very likely that the construction of any of the megalithic monuments and the performance of all the required rituals had a significant cost for those involved. The quarrying, shaping, smoothing of monoliths and other laterite blocks was time-consuming and highly skilled work. These building blocks of megalithic monuments were probably obtained through special orders to known experts. The compensations were probably costly. Some groups could only afford one to two monoliths to be set as headstones; others could obtain shaped laterite blocks to build a stone-circle or a stone-tumulus; and a few others with more means or social leverage could order as many monoliths as they wished. Monolith-circles are by far the richest and most elaborate monuments recorded so far. The number of monoliths used for the construction of each varies from 34 to 12; 34 (monument SN-27) to 13 (monument SN-52) at Sine-Ngayene, 34 (monument 31) to 15 (monument 28) at Ngayene-II, and finally, 19 (monument 4) to 12 (monument 3) at Santhiou-Ngayene.

The transportation and storage of the monoliths and stone blocks also required labor mobilization of another kind. Some age-sets, those of pre- and young adults for example, could have been mobilized in festive atmosphere - feasting - as part of their ritual duties or compensated.

The construction of the monument is another peak in labor mobilization. Expert builders probably directed and organized work crews. All those involved in the preparation and construction of burial facilities had to be compensated and/or fed and sheltered. Mourners and other participants to the funerals and interments have to be fed. Relatives, allies, and friends can be counted on to offer help and support. In all the cases, the political economy of death has extensive implications on the working of the society as it involves the mobilization of resources, labor, and social relations.

The erection of the headstones and the performance of the offering ceremonies were probably the last and closing steps of the megalithic monuments. These steps were very likely planned in advance and scheduled to take place at the most propitious time of the year. The data at hand allow to pinpoint when most of these closing ceremonies may have taken place (Jouenne 1918). The inference is based on the assumption that headstones generally found in the east flank of the monuments were set along the axis of the rising sun. Jouenne (1918: 67) devised an elaborate approach relying on the

intersection of three distinct axes, the magnetic north axis from the circle center, the headstone line axis when there are two and more headstones, and the perpendicular to the headstone line drawn from the circle center. The intersection of the magnetic north axis with the perpendicular to the headstone line creates an angle "that ranges from 100° to 125° and sometime more. This angle is more rarely equal to 90° when the headstone line is in the magnetic east of the place" (Jouenne 1918: 67). The apparent movement of the sun takes place between the tropics. It is on the Capricorn tropic at 23° 28' South on December 20th, the winter solstice, on the equator at 00°, twice a year on equinoxes, on March and September 20th, and finally, on the Cancer tropic at 23° 28' North on June 20th, the summer solstice.

The Petit-Bao-Bolon drainage is located at 13° 30'-14° north latitude. The sun moves north of the study area in early April. "On June 20th, the summer solstice, the sun can be seen rising at 83° East. It then moves back South …. Finally, on the winter solstice, one can see the sun rising at 133° East of the magnetic north" (Jouenne 1918: 67). Most of the headstones stones of the study area are found in the southeast quadrant, generally in the upper third, with angles ranging from 120° to 125° (Jouenne 1930: 316). This means that the erection of the headstones and the connected ritual offerings took place in winter, when the sun was in the southern hemisphere. This corresponds to the end of the rainy season, the maturity of millet fields, and the beginning of harvests. For Jouenne (1918: 67), "most of the monuments were built in December, and many others in November, January, and February". In normal years with sufficient rainfall, the harvest is done at that time of the year. Granaries and other storage bins are full, and feasting to honor the deceased and the ancestors can take place.

The construction of a megalithic monument was very likely a long and costly process. The final and closing stages were thus scheduled to take place at the optimal time of the year, when resources are available. The ritual performances peaked for those selected to be interred in monolith-circles. The latter contained the skeletal remains of 30 to 56 individuals, probably members of the same descent groups and/or allies, brought together to enter the realm of ancestorhood in a grand ceremony. Through this mortuary program, people built strong ties with their land via their ancestors.

Conclusion: The chronological timeline

The Senegambian megaliths zone is a relatively low intensity area as far as archaeological research is concerned. Despite that limitation, the results obtained by successive researchers provide a glimpse of a possible time-line to understand the genesis of the megalithic phenomenon. Single-site programs provide very interesting and accurate information on the characteristics and use-history of a single place. Settlement systems however operate at regional and inter-regional levels.

The Sine-Ngayene Archaeological Project has opened the possibility to probe the dynamics of mortuary programs at the regional level. The new chronological framework ranges from 1350 BCE to 1500-1600 CE (Table 7).

Table 7: Chronological chart of Senegambian megalithism

Site	1500	1000	500	BCE 0 CE	500	1000	1500
Ngayene-II	Monument 25 1360-1200				Monument 29 720-900 Monument 27 750-930	Monument 26 1170-1260 Monument 28 1300-1400 Habitation site 1310-1410	
Sine-Ngayene		SN-T-01 990-850			SN-T-02 650-750	Monument 25 1000-1100	
					Monument SN-27 750 ----------1450	Ceremonial Space 1306-1400	
Tiekene-Boussoura			Monument 1 200-150				
Kodiam					Monument 17 600-750		
Wassu					Monument VI 700-800		
Wanar						Monument I 1200-1400	
Sare-Dioulde						Monument 1 1500-1600	

Relying on the Petit Bao Bolon drainage archaeological record, the area appears to have been inhabited by scattered small groups of mixed farmers since the latter part of the second millennium BCE, thus supporting the second model. The practice of single and multiple primary burial in earthen tumuli is the oldest so far. It is dated to 1360-1200 CalBCE at Ngayene II quadruple burial monument 25 and 990-850 CalBCE at Sine-Ngayene SN-T-01 (Table 7). The shift to the practice of multi-stage burial in combination with multiple episodes of single interments is documented in Tiekene-Boussoura Monument I and dated to 200-150 CalBCE (Thilmans *et al.* 1980).

Considering the low research intensity, caution has to be the rule when faced with absence of evidence. It is nonetheless interesting to note a sort of chronological hiatus in the first half of the first millennium CE. The diversification of the deceased disposal patterns and burials features is amplified in the second half of the first millennium CE, from 600 to 1000 CE. Large stone circles like Ngayene II monument 29 are submitted to a dual use as interim grave and collective multi-stage burial. Ngayene II monument 27 is used as high frequency collective multi-stage burial; single primary burial is documented at Sine-Ngayene SN-T-02; Single and multiple primary interments in distinct burial episodes are documented at Kodiam monolith circle 17; Low intensity multi-stage burial is recorded at Wassu monument VI.

The trends set in the previous period is sustained and amplified during the last half millennium of the Senegambian megalithic traditions. The practice of high density collective multi-stage interments, that pooled back together siblings scattered in different settlements all over the land between the Gambia and Saloum rivers, is largely predominant during that period. Ceremonial spaces and especially dedicated monuments became part of the cemeteries layouts, along with the practices of combined primary and multi-stage interments in Sare-Dioulde stone tumulus, monument I. Pan-regional phenomena like rivalry between competing neighboring communities could have triggered the need to cling to the land and strengthen the links between the living and the dead. The most elaborate Senegambian megalithic monuments were clearly devoted to the construction of ancestorhood.

At this juncture, it is possible in a full-circle to reconsider the “ripple-effect” theory and the suggestion of “megalithism” as margins phenomenon formulated at the beginning of this paper. Despite its patchiness, the chronological outline presented in table 7 clearly features a West-East chronological gradient. The earliest manifestations of Ancient Senegambian elaborate mortuary practices leading to the routinization of

megalithic burials constructions are recorded along the westernmost flank of the study area, and the latest ones at Sare Dioulde further East. Such a chronological cline corresponds to the prediction of the "ripple-effect" model. Material culture and sea shells from the Saloum delta are documented in almost all excavated megalithic cemeteries in the Senegambia (Holl and Bocoum 2014, 2017). Megaliths Builders communities were accordingly in constant interaction with coastal shell-fishing societies that dates from the middle of the Holocene on (Camara *et al.* 2017, Hardy *et al.* 2016). The data at hand thus support the expectations derived from both initial theoretical models, the "ripple-effect" on the one hand, and the "culture-contact/interaction" on the other.

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