



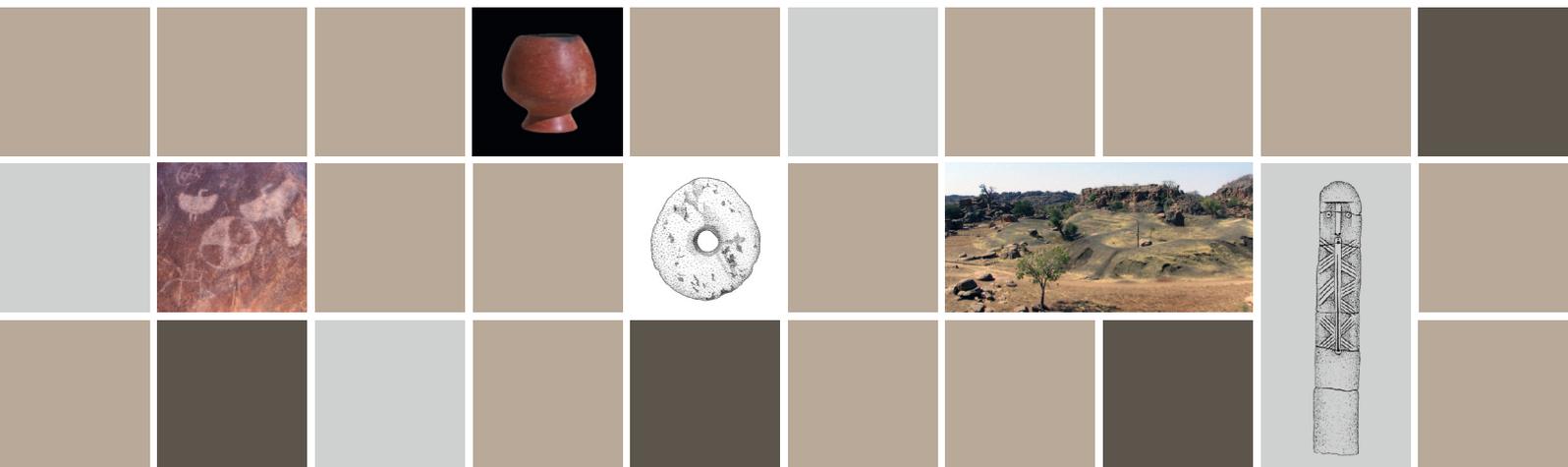
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François-Xavier FAUVELLE-AYMAR



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Editorial office

Claire LETOURNEUX

Translation

MAGEN O'FARRELL

Layout, graphics

Fabien TESSIER

The contributions should be addressed to:

REVUE P@LETHNOLOGIE

Vanessa LEA, Research associates

TRACES - UMR 5608 of the CNRS

Maison de la recherche

5 allées Antonio Machado

31058 Toulouse cedex 9, FRANCE

Phone: +33 (0)5 61 50 36 98

Fax: +33 (0)5 61 50 49 59

Email: vanessa.lea@univ-tlse2.fr

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IN THE SHADOW OF THE KING: the hunter-gatherer, the livestock breeder, the metallurgist, the artist, ...

Introduction

François-Xavier FAUVELLE-AYMAR

Toward the first third of the 4th century AD, in the far north of what is now Ethiopia, King Ezana of Aksum ordered a stone engraved giving thanks to his gods. The stone bore a long bilingual inscription in Greek and Ge'ez in which the king told of the victorious expedition led by his brothers against the Bougaeitai tribe (figure 1). The Bougaeitai had revolted, but were subdued, following which 4400 of them were brought to the capital, along with their livestock – cattle and sheep – and their draught animals – probably camels and donkeys – and for four months sustained upon spelt bread and wine. The king then transferred them to another location, establishing them

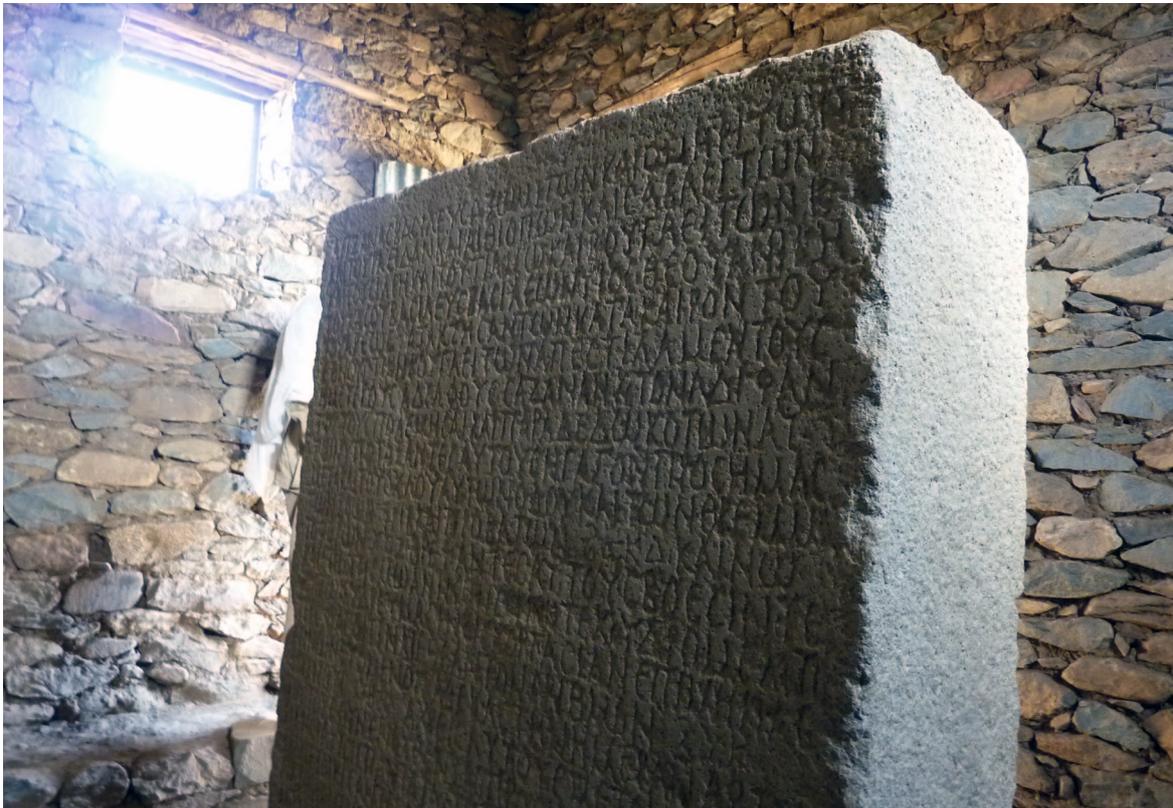


Figure 1 – The bilingual (Greek and Ge'ez) and trigraphic (Greek, Ethiopian and South Arabian) stele of Ezana at Aksum, Ethiopia. The inscription (here the start of the Greek text) provides information on how the social and spatial peripheries of the kingdom were viewed by the political centre (photograph: F.-X. Fauvelle).

permanently and endowing each kinglet (*basiliskos* in Greek, which we are here translating as “chief”) with a much greater number of cattle than had been taken as the spoils of war (inscription 270b in Bernard *et al.*, 1991, 2000). We recognise the name of the Bougaeitai; they are the Beja, a nomadic pastoral population that live, now as before, in the lowlands of Sudan and Eritrea. We are not certain whether a population displacement conceived by the king (*basileus* in Greek) and the plan – which we deduce by implication – of more or less “subsidised” settlement succeeded, but there are grounds to believe that it did not. For many centuries, the Beja remained what they were at the time of the kingdom of Aksum: troublesome nomads on the outskirts of the major political formations dominating the Nile valley and the Horn of Africa, creating sufficiently constant and insidious embarrassment to require the regular dispatch of troops.

From June 1352 to February 1353, Ibn Battuta, a famous Arab traveller originally from Morocco, visited the kingdom of Mali, then ruled by Sultan (Islamic royal title) and *Mansa* (Mandingo royal title) Sulayman (for the story of Ibn Battuta and the contemporary account by al-Umari, with which it should be read, see Cuoq, 1985: 254-323). On both his outward and return journeys he crossed the lands of the Berber nomads “who have no residence”, living under tents and sustaining themselves exclusively on gruel made from cow’s milk and sorghum. During the ten days’ walking that separates Oualata (in what is now Mauritania) from the first large town of the “Land of the Blacks” (*Bilâd al-Sûdân* in Arabic), the traveller met more people travelling with all their possessions – bedding and tableware made from calabashes – taking with them women and slaves. If long-horned cattle were mentioned, we would readily imagine that these were Fulani. Elsewhere, he recounts a hippopotamus hunt on the banks of the river, then tells the tale of a delegation of pagan cannibals to whom the black Sultan offered a slave, which they ate. True or false, the story is above all of value to us due to the reason for which the king of Mali chose not to take offence at the fate of the unfortunate slave: the – unconquered – land of the cannibals was that of the gold mines, and its inhabitants were themselves gold miners. The kingdom’s prosperity was a result of the gold trade. Nomadic livestock farmers, hunters and prospectors lived as much on the periphery of the kingdom as within it, in spaces left vacant by royal control that was exercised more over people than over land.

The two documents that have been examined above talk of relationships between kingdoms and subordinate groups or societies. The rare literary sources on ancient Africa almost exclusively discuss centralised societies and the political formations that were constituted on the basis of a productive, sedentary economy, which saw the development of powerful elites who activated long-distance trade links and established markets and towns that were able to attract foreign merchants and travellers. While these written sources enable us to retrace the history of the African kingdoms, it is not because the latter alone foster history. It is rather because they have left us sources produced internally – in Greek (in the case of Aksum), the lingua franca of the Red Sea region in Antiquity – or by the foreign merchants and travellers of the Middle Ages, most often in Arabic (as in the case of Mali).

The written sources tell us principally of centralised powers. This is only to be expected. Both the merchants who sometimes leave us their stories, and the scholars through whom power was expressed, flourished in proximity to these powers. Sometimes, however, these sources (as in the two cases mentioned above) offer us glimpses of the “Other”: the nomadic livestock-breeder, the hunter-gatherer, the fisherman, the miner, the artisan, the artist... sometimes nominally subject to the central power (as Ezana had sovereignty over the Beja), but who did not take part directly in the system of agricultural production which formed the economic basis for political power.

We see them on the periphery of the kingdom, but they are in truth “peripheral” in both the social and spatial senses. Evidence for this includes their reputation as a homeless group which was nonetheless ineradicable; a turbulent tribe, a pagan and cannibal group and a people of a caste both necessary and despised. This is the paradox of their situation: estranged from the social fabric of the kingdom, pushed to its edge or into its “folds”; judged by contemporary sources to be irreconcilable with the sedentary, agricultural or urban order, these “others” nevertheless maintained a relationship of economic complementarity with the kingdom. Attempts were made, during the time of the *Mansa Mûsâ*, brother and predecessor of Sulayman, to subdue the inhabitants of the auriferous regions, but this was always at the price of a decrease in the gold supply (al-Umari in Cuoq, 1985: 264-265). And how many “marginal” social groups, traditional hunters of wild beasts or elephants, suppliers of ivory or hippopotamus leather, iron producers, gold prospectors, shell gatherers and other “specialists” not directly dependant or paying tribute to the kingdom have nevertheless formed an integral part of its economic catchment? As for the nomads, however uncontrollable they were – or were reputed to be by the central powers that so feared them – they still fulfilled the role of protectors of the caravan routes, provided they were correctly paid (Fauvelle-Aymar, 2013: Chapter 26). Social differentiation does not prevent economic complementarity; it is perhaps its very condition.

Naturally, these peripheral societies and social groups were no less historical than the others, if by this we mean that they had a history; it is merely less well documented by the historical sources. In fact, they are primarily documented by archaeology. Where the written sources are mute or allusive due to their origin in the centres of major political formations – where those who wrote naturally concentrated: clerks, travellers, merchants – the observation of material data reveals the traces left by the production systems, and more generally, the cultures, which have remained unnoticed or merely glimpsed by the historical sources. These societies and social groups have not left the same traces: nomadic pastoralism produces infinitely more tenuous remains than several centuries of mining or siderurgical activity. But they have in common having been confined or rejected outside the political horizons of the kingdoms, and thus outside the narrative horizons of the written sources, of having initially been envisaged as “prehistoric” or “protohistoric” societies in the strict sense; in other words societies for which we have no direct historical sources.

Faced with the observation that “historic” and “prehistoric” (or “protohistoric”) societies were contemporary over the course of the last two millennia, we are justified in sweeping away the nominalism on the basis of which we endow the dignified “historic” and the pejorative “prehistoric” upon social entities simply as a result of the presence or absence of written sources. Once the “kingdoms” (and in general all form of centralised political formation of any kind) and the “peripheral” societies (and in general all form of non-centralised society not directly subject to such centres) have created extensive regional scale economic catchment unified by the circulation of products, should we not consider them to be part of the same regime of historicity? Or, to put it another way, is it not true that “prehistory” and “history” are not chronological categories but rather documentary categories applying to societies of the same period? Undoubtedly. Conversely, we must not fail to explore the forms of co-presence of history and prehistory in “ancient” Africa (i.e. prior to the generalisation of writing in the 19th century). The contribution of this issue is exactly this: to employ archaeology in the service of an alternative examination of the centres of power and the more or less distant political peripheries that this examination reveals as the sources of specific technological or cultural movements.

We begin our re-examination with Aksum, the great African kingdom that dominated the highlands of the Horn of Africa between the 3rd and 6th centuries AD. The contributions by Francis Anfray and Bertrand Poissonnier give us the opportunity to open this issue with two viewpoints on a political formation with all the attractions of centrality: a powerful monarchy; a commercial elite who participated in the commercial dynamism of the Red Sea, that corridor between the Mediterranean Sea and the Indian Ocean; towns and monumental architecture. Francis Anfray's article delivers a re-examination of the results of the excavation led by him fifty years ago in Matara, today in Eritrea; Bertrand Poissonnier's presents the previously unpublished results of the archaeological investigation that he carried out in 1999 at the base of one of the gigantic monolithic stelae on the site of Aksum in Ethiopia. In both cases, the sites involved are among the most spectacular in Africa.

While the kingdom of Aksum was Christianised in late Antiquity, thus sustainably implanting Christianity in African soil, other societies continued to develop in the centre and south of what is now Ethiopia. They were to remain "prehistoric" until the point at which, encountered during the Middle Ages by missionaries from the Christian kingdom, they were briefly seen as the last flickerings of paganism to die and disappear in the face of the conquering religion. Roger Joussaume, a specialist in Ethiopian megaliths, here provides a synthesis of the results of the excavation carried out on the site of the phallic, anthropomorphic stelae of Tuto Fela. He documents both the last, undated, stage of the site and the previous stage, associated with graves of the 11th to 13th centuries AD, lifting a corner of the veil on the nature of traditional cults in this part of the continent.

While the sites at the lagoon of Luanda, in what is now Angola, provide information on the history of settlement over two millennia, the ethnographic and archaeological surveys carried out by Nicolas Valdeyron and Sonia Ludmila da Silva Domingos on several shell middens document the exploitation of a mollusc, *Arca senelis*, in economic contexts that vary over time. The use of this marine resource, initially practised with a view to local consumption of the flesh, later forms part of a regional system for the production and circulation of products derived from the shell, including both shell discs and lime. Apparent in the background, beyond the horizon, is the kingdom of Kongo during its formative period, followed by the Portuguese colonial power.

It is through the filter of colonial power, in this case Dutch, that we receive information on 18th century pastoral populations in the Cape Colony, later to become South Africa. Without these historical sources, our knowledge of the populations encountered by the coloniser would be restricted to the meagre archaeological remains attributed indiscriminately to the region's most recent hunter-gatherers. However, François Bon and his co-authors show that it is possible to employ the results of a geomorphological study of the landscape to locate the most recent prehistoric sites, then to identify among them camps (Dutch *kraal*) belonging to the Khoekhoe precolonial nomadic pastoralists. While validating the hypothesis of their existence posed by the sources, this approach also makes possible the proposal of an archaeological signature unique to these populations.

Markoye is located in the north of what is currently Burkina Faso. The region is located inside the bend of the river Niger and constitutes both the extreme south of the area of distribution of Libyco-Berber engravings and the heart of an area marked by the numerous remains of intense iron smelting activity. On the basis of recent observations carried out in this region of the Sahel and forming part of an overall inventory of this art, Michel Barbaza proposes a mythological

interpretation of some recurring rock art motifs. Jean-Marc Fabre reveals the intensity and standardisation of the characteristic production carried out in a major siderurgical district from the late 1st and early 2nd millennium AD. In each case, it is the significant economic and political changes in the middle of the period that become visible in the background: on one hand the Berber settlement that connects the two banks of the Sahara and establishes regular commercial relationships between north Africa and the Sahel; on the other, the rise of the towns (Gao, Timbuktu) and powerful political formations linked to this commerce and which may have been the sponsors of the metal produced.

Dogon Country, in Mali, was also an area of intensive iron production, exploited until very recently (early 20th century). Employing an ethnoarchaeological approach, Caroline Robion-Brunner identifies the siderurgical traditions found in the archaeological remains from the Bandiagara plateau and the Séno plain, and offers a historical reconstruction of the migratory route of the groups responsible for each technology. These technologies, like the linguistic variety of the Dogon, form part of a social complexity whose formation over the centuries we are today only beginning to perceive. That this historical reconstruction covers the period of the 13th-15th century is perhaps not merely by chance. As in the case of Markoye, Dogon Country seems to have undergone a sudden increase in metallurgical activity during the political apogee of another great kingdom; this time Mali. We can only suggest a relationship between these two phenomena. And it is once again medieval Mali that interests François-Xavier Fauvelle-Aymar, who questions the capital status that seems to have been acquired by the site of Niani, in what is now Guinea, despite the absence of any archaeological evidence. Here we have a “centre” which is not a centre, while the real archaeological site of the kingdom’s capital still escapes us, leaving the historian and archaeologist faced with the challenges of future research in Africa.

Editorial post-script

It would not have been possible to publish this issue without the essential support of several bodies that we would like to thank. Firstly the French Institute of South Africa (IFAS) in Johannesburg (CNRS and MAEE IFRE 25) which made possible the publication of two articles concerning the nomadic pre-colonial pastoralists of south Africa (François Bon and collaborators) and the shell middens of Angola (Nicolas Valdeyron and Sonia Ludmila da Silva Domingos). We would also like to thank the French Centre for Ethiopian Studies (CFEE) in Addis Ababa (CNRS and MAEE IFRE 23) which financially supported the publication of articles relating to megalithism at Tuto Fela (Roger Joussaume) and at Aksum (Bertrand Poissonnier) in Ethiopia, together with that dedicated to the site of Matara in Eritrea (Francis Anfray). Our thanks to Sophie Didier and Éloi Ficquet, the former directors of these two institutions. Finally, the *P@lethnologie* team would like to thank its loyal partners, without whom this review would not be able to function: the service régional de l’Archéologie de Midi-Pyrénées and the TRACES laboratory (CNRS, UMR 5608).

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Francois-Xavier FAUVELLE-AYMAR

Research director
CNRS, Traces (UMR 5608)
Toulouse, FRANCE
francois-xavier.fauvelle@univ-tlse2.fr

Associate researcher
Centre Jacques-Berque
(USR 3136 CNRS-MAEE)
Rabat, MOROCCO

Article outline

MATARA:

the Archaeological Investigation
of a City of Ancient Eritrea

Francis ANFRAY

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MATARA:

the Archaeological Investigation of a City of Ancient Eritrea

Francis ANFRAY

Abstract

Following an overview of the chronological context of Eritrean-Ethiopian antiquity, and a brief summary of research on the Pre-Aksumite and Aksumite periods, this article presents the results of the archaeological excavations carried out by the author and the Ethiopian Institute of Archaeology at the site of Matara, in Eritrea. Four residential complexes and two religious edifices, including a basilica, have been discovered; they belonged to the Aksumite phase. Tombs and numerous inscriptions attest to long occupation of the site from the Pre-Aksumite period, the underlying levels having not been investigated.

Keywords

Matara (Eritrea), ancient archaeology, Aksum (Ethiopia), Pre-Aksumite, Aksumite, architecture.

1 - Chronological context

During the last fifty years, archaeological research has made notable contributions to our knowledge of the early history of Eritrea¹ and Ethiopia. Abundant material evidence has been gathered and numerous remains have been revealed: building substructures; inscriptions engraved in stone, metal and earthenware; pottery and various other objects, together with gold, silver and bronze coins. Today the period examined in this study, from the 1st millennium BC to the 1st millennium AD, appears in a new light. We generally divide this period in two on the basis of archaeological observations and epigraphic studies: the Pre-Aksumite period covers approximately the 1st millennium BC, and the Aksumite period (named for the famous metropolis of Aksum, in northern Ethiopia), corresponds to the 1st millennium AD (more specifically, the evidence available to date covers only six or seven centuries – from the 1st to the 7th century AD). Subdivisions have progressively been introduced into these two major periods in line with the discoveries made; as one might expect these have sometimes been the subject of debate, since although they represent a useful tool with which to determine classifications, they are nonetheless somewhat artificial².

1. Independent state since 1993.

2. R. Fattovich and K.A. Bard (2001), on the basis of their research at Aksum, propose the following divisions: Pre-Aksumite Period (ca. 700-ca. 400 BC); Proto-Aksumite Period (ca. 400-ca. 150 BC); Aksumite Period (ca. 150 BC-ca. AD 700); Post Aksumite Period (after ca. AD 700).

2 - From Pre-Aksumite to Aksumite

2.1 - Brief summary of research at Aksum

Until the mid-20th century, what was known of the material and cultural realities of the ancient period in the Eritrean-Tigrean region was extremely limited. Carlo Conti Rossini (1928) had done the groundwork on the history of the period and it was thought that South Arabia (in other words the kingdoms of Ma'in and Saba) exercised a dominant influence over the north of the high African plateau. Later, the development of epigraphic analyses forced a modification of this view; the discoveries made, together with a close examination of the facts, revealed that a cultural action had in fact taken place (perhaps from the end of the 2nd millennium BC), but in relation to a population of local origin that was already politically structured and which possessed its own culture (Fattovich, 1992).

An important stage in the research was the discovery, around thirty years ago, of Pre-Aksumite levels on the site of Aksum, which was later to become the metropolis of the Aksumite kingdom and on which, until then, no activity from that period had been indicated. Ten kilometres to the south, however, the sites of Goboshela, Enda Tcherkos and Haoulti had already produced inscriptions in stone, remarkable monuments, female statues and a niche 1.40 m high which, with some other pieces, indicated the influence of the kingdoms of South Arabia in the 8th century BC (Contenson, 2005). In 1972, at Seglamen, 7 km south west of Aksum, peasants also discovered a slab engraved with a seven line inscription in the south Arabian characters known as “monumental” and dating perhaps from the 8th century BC. The names of a king and his wife are mentioned; there is also a reference to a temple dedicated to gods belonging to the south Semitic pantheon and the local religion (Bernand *et al.*, 1991). But was Aksum really unoccupied during this period?

In the 1970s and 1980s, on the hill of Beta Giyorgis, to the north west of Aksum, an Italo-American team discovered a site indicating the late 1st millennium BC establishment of a political power which a few centuries later was to become a powerful state (Fattovich, Bard, 1996, 1997; Fattovich *et al.*, 2000b). Archaeological investigation revealed the ruins of an architectural complex dating from the period covering the mid-2nd century BC to the mid-2nd century AD). At the base of the single preserved construction could be seen some of the characteristics of what would become Aksumite architecture. At the same time, also at Aksum, a British expedition studied an assemblage of significant structures in the sector of the giant stelae and Nefas Mawcha (a gigantic megalithic monument) – the “Tomb of the False Door”, “Tomb of the Brick Arches” and “Mausoleum” – through which is manifest the construction expertise possessed by the Aksumite kingdom at the peak of its power in the 3rd and 4th centuries AD (Munro-Hay, 1989; Phillipson, Phillips, 1998).

2.2 - Aksumite remains on the high Eritrean-Tigrean plateau

This fully developed and typically Aksumite art persisted for at least three centuries, as shown by a discovery in the 1960s. This discovery took place in Dungur, located a few hundred metres to the west of Aksum. The Ethiopian Institute of Archaeology with the French Mission of Archaeology had uncovered the ruins of a residence, the structure of which suggested that of a member of the upper classes of Aksumite society. A noble, a landowner, a rich merchant? The exact attribution remains unknown (Anfray, 1972; Bernand *et al.*, 1991). In 1906, a German expedition had discovered and studied three major partially preserved architectural structures at Aksum; their dimensions, the quality of their masonry and their position at the heart of the ancient city earned them the title “princely residences” or “royal palaces” (Littmann *et al.*, 1913). At the same time and at the other end of Aksumite territory, on the coast of the Red Sea at Adulis, an Italian expedition led

by Paribeni discovered other architectural remains demonstrating similarities to those of the monuments of Aksum (Paribeni, 1908).

While Adulis is among the sites for which we have the earliest sources (Fauvelle-Aymar, 2009; Anfray and Godet, forthcoming), there are several others which, during the 20th century, have revealed their share of evidence. In 1953 a chance discovery at Addi Gelemo, near Wukro in eastern Tigray, caught the attention of archaeologists. A variety of objects were found under a slab of stone, including a seated female statuette the base of which was engraved with an inscription in South Arabian characters; four metal bowls, one of which bore Meroitic decoration; incense burners and a metal object engraved with an inscription in the name of GDR (unvocalised letters), king of Aksum. This is the first written evidence, in Ethiopia, for a king of Aksum. The object has been dated to the early 3rd century AD (Admassou Shiferaw, 1955; Bernand *et al.*, 1991). Twenty years later, in a neighbouring region, in the church of Abuna Garima at Addi Kaweh, two incense burners engraved with “royal inscriptions” (i.e. mentioning the name of kings) in South Arabian writing were discovered (Schneider, 1973, 1976; Bernand *et al.*, 1991)³.

The central region of Eritrea contains a large number of archaeological sites, such as the former province of Akkele Guzay, where several sites present the ruins of ancient urban settlements among which Qohayto is one of the most important; mounds of ruins topped by pillars extend over a vast area, some of them having stood since the 6th or 7th century AD. The high plateau is also of great epigraphic interest: around one hundred examples of graffiti, some in cursive South Arabian writing, some in proto-Ethiopian, are engraved on rocks. About a dozen of these texts use a script related to the South Arabian “monumental” style; these are also executed in relief inside a frame. In the 1950s, a schist plaque was found at Safra, not far from the archaeological site of Qohayto, bearing several texts engraved in proto-Ethiopian. Epigraphists have dated some of these graffiti to the 2nd century AD (Drewes, 1962; Drewes and Schneider, 1976). It is interesting to note that further schist plaques with similar inscriptions have been found at Matara, thirty kilometres to the south.

3 - Characteristics of Aksumite architecture

Before examining the results recorded on the site of Matara, a description of the features that characterise all of the major edifices encountered on the Aksumite sites will enable us to simplify the presentation of these results, as these constructions follow the same model (Manzo, 1997). Dating from a period between the 3rd and 7th century AD, this model relates to both domestic and religious constructions.

All of the buildings have a square or rectangular plan. Their rubble-work masonry is of quarry stones bonded by earth mortar. A main building is surrounded by outbuildings; a variety of spaces of different sizes lie between the two. The main building is raised on a substructure made of tiers 44 to 50 cm high and between 6 and 7 cm wide at their apex. These substructures are characterised by a trapezoidal silhouette to which cohesion and stability were often given by quoins (blocks of faced stone). Sometimes, a continuous band of faced blocks runs along the sides of the building at the top of the substructure. In addition to this stepped base, another remarkable characteristic of Aksumite construction is the alternating use of projections and recesses in the external faces of both the substructures of the principal structures and their outbuildings.

3. In 2007, excavations were undertaken on the site of Maqaber Ga'ewa, in Tigray, not far from Wukro; as Hiluf Berhe (2009) reminds us, it is from this site that the inscriptions of Addi Kaweh – actually named «Addi Akaweh» – originate. The new inscriptions discovered during these excavations were published by I. Gadjaj *et al.* (2009) who dated them to the 7th and 6th centuries BC.

Broad monumental steps of (often) seven degrees with paved doorsteps flank the central building on one, two or three sides. What we will call the “ground floor” of the central building was thus constructed on top of the substructure. This ground floor is generally divided into nine rather small rooms arranged in rows of three. In a corner room, an angled masonry block leads us to suppose that a (wooden) staircase was installed in this location. These rooms were often paved (when the paving slabs are absent there is evidence to suppose that they have been removed after the building was abandoned). The cramped nature of the rooms and the presence of a staircase lead us to suppose that they were used as storerooms and not as residential spaces; the latter would have been on the floor above. The available space would have been even smaller as it would also have been encroached upon by the posts or pillars that supported the structure above. The presence of these elements is suggested, in some spaces in the substructure, by the presence of circular heaps of masonry on which slabs were placed to provide stable bases for the supporting posts.

Wood was used in the construction of Aksumite buildings for the execution of floors, the frames of doors and other openings, and for beams and joists, which were sometimes embedded in the walls. Baked brick was also used for some purposes.

These were the principal elements of Aksumite architecture, which, it must be remembered, should be considered only as those of major edifices. This classic model is the rule throughout Aksumite architecture, although subject to minor variations and irregularities.

4 - Matara

4.1 - Presentation of the site

A village on the edge of the small town of Sénafé lies beneath the shelter of a high rock, the *amba* Matara (figures 1-2). The site is located 1.5 km into the plain, at the foot of a rocky hill called “Goual Saïm” (“the daughter of Saïm”), itself dominated in the south by the *amba* Saïm, a haughty eminence of 3 000 m (figure 3). The site has been known since the visit of Rivoire in 1868. Denis de Rivoire saw ruins, a broken “obelisk”, capitals of columns and granite tables. The latter references are not without interest, since although Conti Rossini could still see them thirty years later (Conti Rossini, 1928), the only remaining feature today is the “obelisk” (stele engraved with an inscription). In 1905, Dainelli and Marinelli (1912: 509-511) saw the remains of several constructions and a staircase on a small hill. In 1906, the German expedition to Aksum led by Littmann drew up a sketch plan of the ruins then visible, among which was “the stone base of a royal throne” (Littmann *et al.*, 1913 quoted in Anfray, 1963; in Anfray and Annequin, 1965 and in Drewes and Schneider, 1967).

Foreigners named this field of ruins “Matara”, while the local people called it “Enda Zalatat” (“the ruins”) or “Zala Kaleb Negus” (“the ruins of King Kaleb”). This last expression refers to a popular tradition preserved in a manuscript of the 15th century and according to which the hermits of the mountain were persecuted by the people of Bour, undoubtedly the inhabitants of the neighbouring settlement (for the name of which we would then have an indication). To avenge them, King Kaleb came from Aksum with his army, via a tunnel, and destroyed the town which was then dubbed “the Gate of Aksum⁴” (Anfray, 1963; Schneider, 1963). A link is thus established with the capital of the ancient kingdom. There are other links, of archaeological nature.

4. The name “the Gate of Aksum” appears in the *Storia d’Etiopia* of Carlo Conti Rossini (1928: 242). In the early 1960s we ourselves observed that the legend relating to the Gate of Aksum still lived in the memory of the old priests attached to the church of Kidane-Mehret in the village of Matara.

Figure 1 - View from the *amba* Matara ("mount" Matara). In the background, the *amba* Saïm. In front of this hill, the small rocky hill of Goual Saïm; at the northern foot of this hill is the archaeological site of Matara (photograph: Kebbedé Bogalé).



Figure 2 - To the north, mount Matara (photograph: Kebbedé Bogalé).



Figure 3 - Close up view of the site of Matara, at the foot of the small rocky hill of Goual Saïm (photograph: Kebbedé Bogalé).



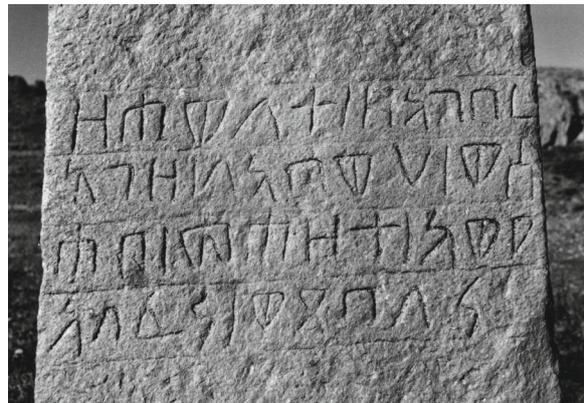
4.2 - The stele

A major monument of the site of Matara, the stele ([figure 4a](#)) that for a long time lay on the ground in two pieces near the hill of Goual Saïm has attracted the attention of travellers. In the 1920s it was repaired and set up on the edge of the track leading to the village of Berakit. The stele is approximately 5 m tall from ground level, and bears on its apex the “disc on crescent” symbol of Astarte, sculpted into the stone (pantellerite, a type of trachytic rock). This symbol is often reproduced on stelae, incense burners and above all on coins, from the early centuries of the Pre-Aksumite period to the 3rd century AD. In the 4th century AD, it is replaced by the Christian cross. In addition to this symbol, four lines of an inscription are engraved at eye-level; these inform us that the stele was erected by AGZ for his ancestors and transported by his friends, the names of whom are indicated ([figure 4b](#)). Palaeographic study of the form of the letters enables the monument to be dated to the 3rd century AD (Littmann *et al.*, 1913; Bernand *et al.*, 1991; Drewes, 1998; Kropp, 2006).



Figure 4a - The stele of Matara with the four lines of the inscription, 3rd century AD (photograph: Kebbedé Bogalé). Damaged during the war, the stele of Matara was restored in the 2000s, under the supervision of Yosef Libsekal, the director of the National Museum in Asmara, and F. Anfray; Tristan Schebat and Girmay Gebre-Maskal lend their technical expertise. Funding was provided by the Eritrean authorities, Unesco and the French Alliance. Figures 4a and 4b presented here date from the 1960s. At about the same time, at the initiative of Anne Saurat-Anfray, the old village church of Matara (which, in the opinion of many historians, dates back to around the 15th century), underwent major restoration work, within the same cooperation frame to which was added funding by the World Monument Fund.

Figure 4b - The inscription in “Ancient Ethiopian” engraved on the stele (photograph: J. Leroy).



4.3 - The excavations at Matara

In 1959, the Ethiopian Institute of Archaeology undertook investigations on the site of Matara. During the previous years, research had above all taken place at Aksum and its surroundings (see above). At this stage it appeared appropriate to widen the field of research. Akkele Guzay presented significant density in archaeological terms. The choice of Matara was dictated by the conditions that it offered: it was free of any occupation which would have hindered operations (figure 5). Farmers from neighbouring villages cultivated the soil over the ruins, but they were employed on the archaeological site to compensate them for the meagre income lost as a result of the excavations.

During the campaigns carried out in late 1959 and continued in the following years⁵, several architectural assemblages were revealed: four residences, two churches and a sector of around thirty ordinary houses (figure 6). The substructures of these edifices, which were the only feature preserved, generally to a height of 2 or 3 metres, constituted the upper layer of the site. The pottery which was associated with these ruins was abundant and varied, and together with the coins and small inscriptions engraved on vases enabled these monuments to be dated to the end of the Aksumite period, the 6th and 7th centuries AD. However, two buildings, designated A and C on the plan, may have been constructed earlier, in the 4th or 5th century AD.

Figure 5 - View of the ruin field before the excavations took place. In the background, the village of Matara, dominated by the rock of Matara (photograph: Kebbedé Bogalé).



5. The excavation campaigns at Matara: 28 November 1959 to 12 January 1960; 27 April to 25 May 1961; 8 April to May 1962; 9 April to 1st June 1963; 4 April to 2 June 1964; 5 April to 12 May 1965; 30 May to 11 July 1966; 3 March to 15 April 1963; 8 April to 15 May 1969 and 15 May to 29 June 1970. No campaign took place in 1967.

4.3.1 - Upper class residences

The structure called “A” (figure 6, reference A) was discovered during the first campaign. This was a quality construction which was an upper class residence, judging from its architectural arrangement and the particular care given to the masonry, indicating the undoubted social importance of its occupants (Anfray, 1963; Anfray, Annequin, 1965). Evidence gathered during the examination of the pottery, and various characteristics of its decoration such as the absence in the archaeological level of material evidence present in other levels of the site, enable this monument to be dated to around the 4th century AD. The central building (figures 7-9) is a rectangle of 12.60 × 11 m. Surrounding it on all four sides are outbuildings which have not all been uncovered. On the west side (figure 9), a staircase with seven steps is 2.70 m wide at its base and 2.20 m wide at the level of the doorstep. This major edifice was built on the ruins of a previous building, of which remained fragments of walls constructed of rough masonry. Similarly, on top of the substructure were found the remains of walls of poor quality constructed of reused stones, indicating a late reconstruction following the destruction of building A. Building A reproduces the architectural model observed throughout the Aksumite area (see above).

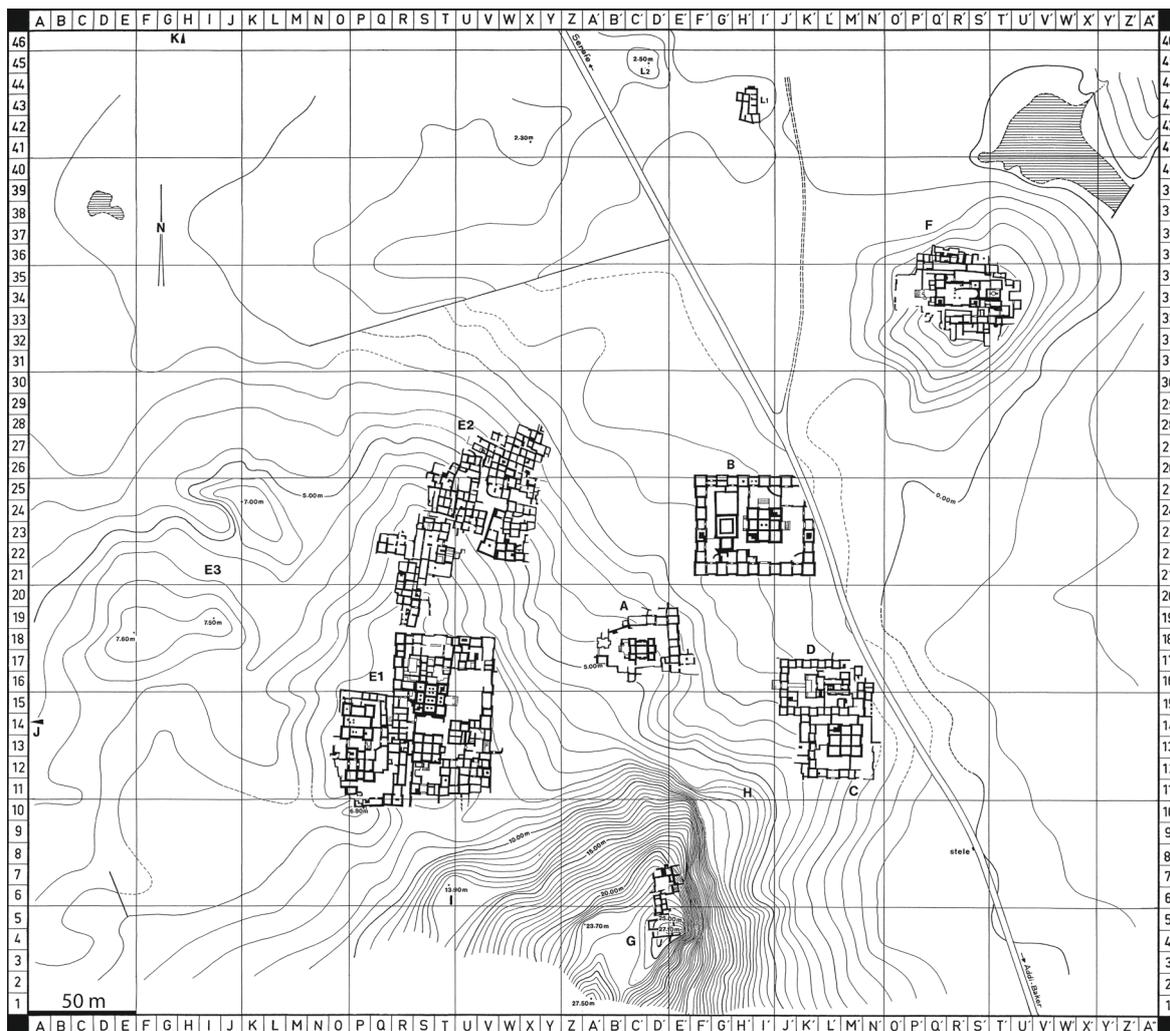


Figure 6 - General plan of the archaeological site of Matara (drawing: J. Gire).



Figure 7 - Structure A, substructure of the central building, east facade (photograph: Kebedé Bogalé).



Figure 8 - Structure A, substructure of the central building, north facade (photograph: Kebedé Bogalé).



Figure 9 - Structure A, substructure of the central building, west facade (photograph: Kebedé Bogalé).

A massive stepped substructure surrounded by outbuildings was discovered not far to the north east of structure A. This was designated structure B (figure 6, reference B). Its construction follows the classic model: a central substructure with alternating projections and recesses, and monumental staircases on the north and east sides (figure 10). The width of the eastern staircase (the largest) is 4.90 m at the base. These two prestigious monumental staircases form the principal entrances of the central building. The latter has a square plan measuring 17.50 m per side. Surrounding this building are thirty additional constructions composing the usual courtyard, with long sides of 50.50 and 49.00 m.

Of a third upper class residence, C on the plan (figure 6, reference C), only the central building has been uncovered (figure 11). It has the classic plan (figure 12): a massive stepped substructure measuring 15.20 m per side at the base, projections and recesses, quarry stone masonry bonded in earth mortar and with quoin stones. The ground floor possesses an unusual characteristic: there is no staircase in place on any of the four sides, the stones that constituted the stairs having perhaps been removed at a later date for use in another construction on the site.

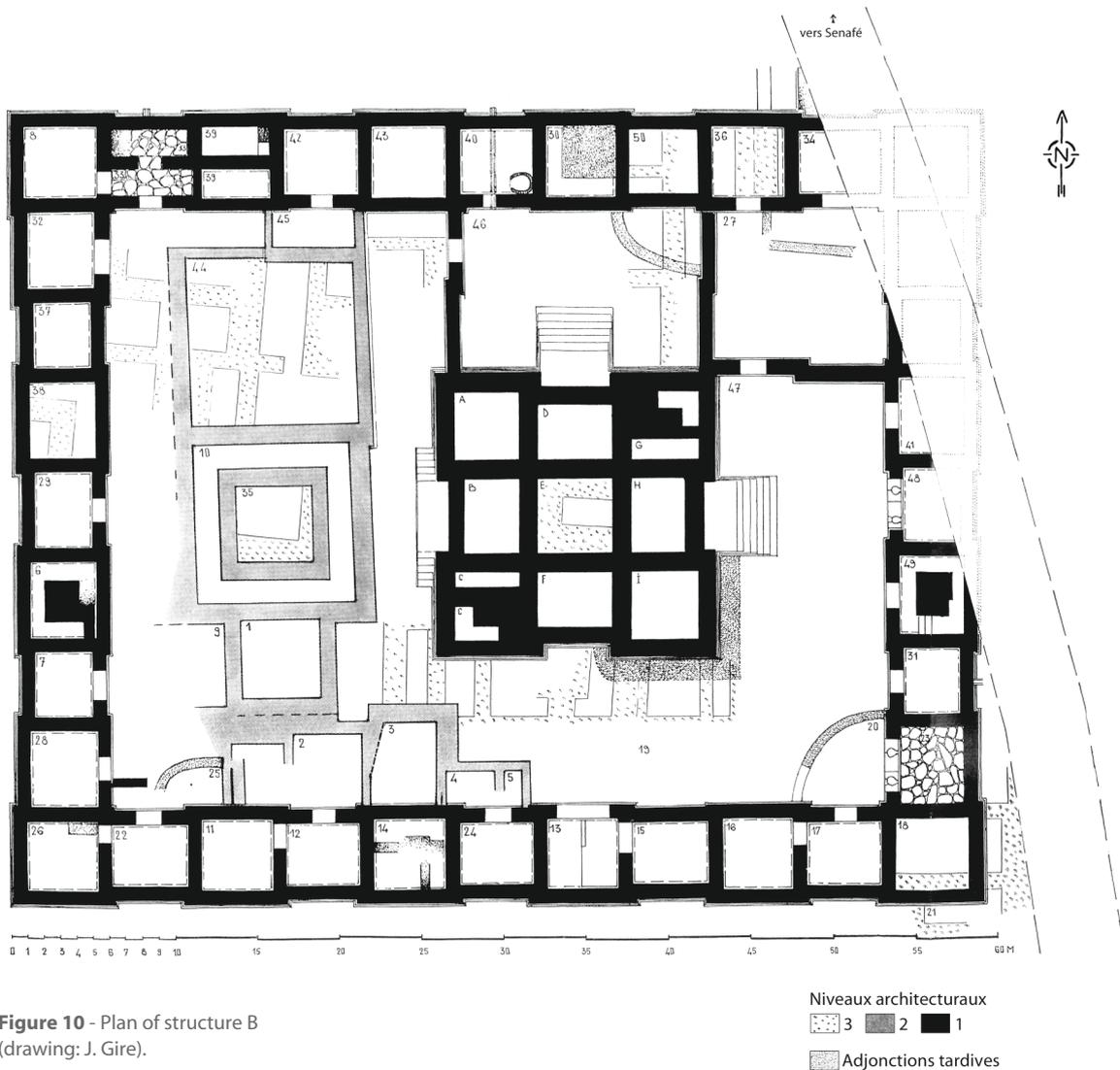


Figure 10 - Plan of structure B
(drawing: J. Gire).



Figure 11 - Structure C, central substructure (photograph: Kebbedé Bogalé).

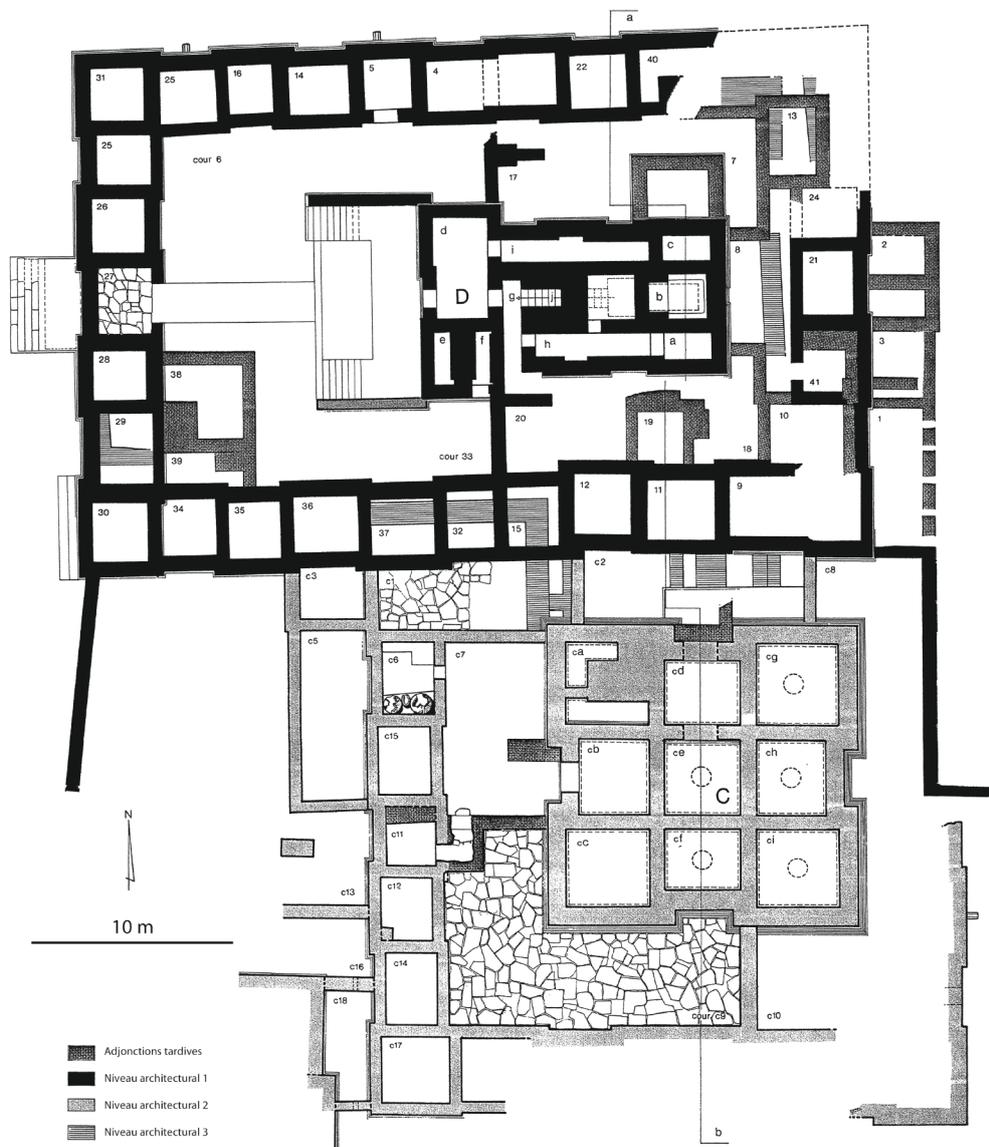


Figure 12 - Plan of monuments C and D (drawing: J. Gire).

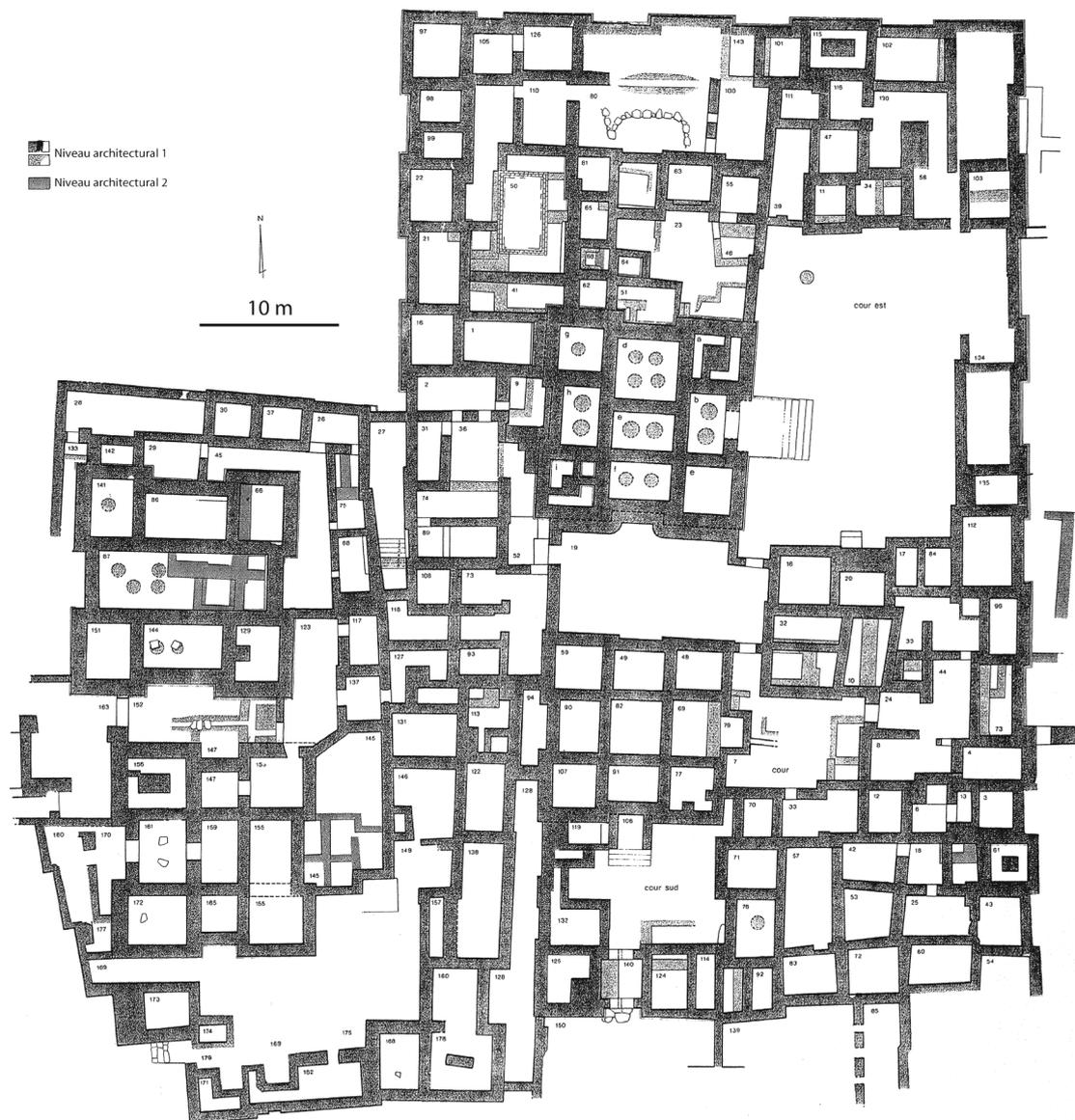


Figure 13 - Plan of the constructions of sites E1 (drawing: J. Gire).

A fourth architectural large structure was discovered to the west of the site, in a significantly elevated position compared to the ruin field. This structure, E1 on the plan (figure 6, reference E1), forms a group of constructions similar to those revealed elsewhere; they are, however, less well-preserved due to their situation on rocky terrain, which has led to a more pronounced levelling of the walls (figure 13). Here we observe the remains of a stepped construction flanked by a staircase and, in front, a vast courtyard; to the north, abutting the edifice, were additional constructions in a compact group forming a courtyard of the usual type. To the south and the south-east, with no clear separation, other buildings surrounded three quadrangular edifices; the latter are similar to each other and to the principal monuments, but their smaller dimensions and certain irregularities undoubtedly indicate the inferior social status of their occupants.

To the north of this architectural assemblage is located a sector of commoners' houses, E2 on the plan (figure 6, reference E2). Distributed on either side of what seems to have been a narrow, sinuous street, thirty square or rectangular attached houses seem to have been left to the hazards of urban development without any obvious plan.

4.3.2 - Two religious edifices

To the east of the site, abutting structure C in the north, were buried the ruins of a construction whose general architecture is identical to that of the other edifices: a central building of 15 × 10 m surrounded by a courtyard with additional constructions forming a rectangle whose external dimension, at 39 × 26 m, constitutes a significant structure, designated “D” (figure 6, reference D, figures 14-15). However, the central building demonstrates dissymetries: the arrangement of the projections and recesses is not regular; nor is that of the internal rooms (Anfray, Annequin, 1965; Anfray, 1974). The edifice also possesses an unusual characteristic: in the west, after a vestibule, is a staircase with 14 steps (95 cm wide) which descends beneath the central part of the building. At the base of this staircase, a rectangular room (2 × 1.25 m) has a tiled geometric paved floor (the diamond-shaped tiles measure 20 cm per side). Beyond this vestibule, an opening aligned with the staircase (1.20 m high and 1.02 m wide) leads to a “vault”. An Aksumite-type cross is sculpted into the lintel. Like the whole of the structure leading to it, the vault is constructed of large, neatly-hewn blocks. The vault is 2.80 m long, 1.72 m wide and 1.70 m high. Its ceiling is made of two heavy slabs. No object was found in this vault, nor in the staircase, which was full of earth when it was discovered. Was this a funerary vault? Undoubtedly. It occupies a central position in the basement of the building, which cannot be anything other than a funerary chapel. Was it intended for the remains of an ecclesiastical dignitary or revered figure, making it a place of pilgrimage? The excavation did not continue beneath the floor of the vault, and the remains of a burial may yet be found there.



Figure 14 - In the foreground, the ruins of structures C and D (photograph: Kebbedé Bogalé).



Figure 15 - Structure D, external wall of the funerary chapel, north facade (photograph: Kebbedé Bogalé).

Two discoveries made in the upper level of the ruins reinforce the religious nature of the edifice: firstly, in the central building a flat ring pierced by holes for attaching candles (the remains of a chain for hanging the ring was still attached) is reminiscent of the *polycandelon* used to light Byzantine churches; secondly, in the same building, hidden in the floor of a side room was a bronze vase containing 14 Roman coins from the time of the Antonine dynasty, fitted with rings so that they could be suspended as pendants, together with Byzantine-style crosses and three chains, one of which may have been worn by a high-ranking churchman (a bishop?) (figures 16-19). Everything from the general organisation of the building to the artefacts found evokes a site dedicated to the Christian cult – most probably a chapel.



Figure 16 - Bronze vase (height: 18.8 cm) containing gold objects, late Aksumite period, 6th-7th century AD (photograph Kebbedé Bogalé).

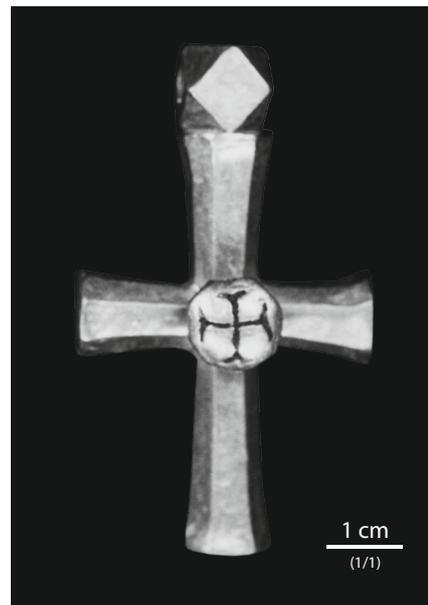


Figure 19 - Gold cross (height: 6.8 cm) of Byzantine type, in a classic model. The cross is fitted with a loop to be worn as a necklace (photograph: Kebbedé Bogalé).

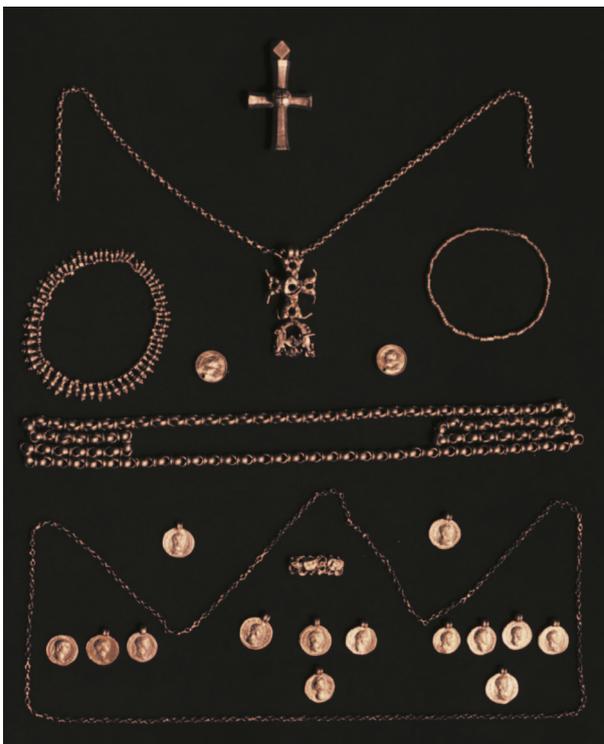


Figure 17 - This collection of gold jewellery was in the bronze vase shown in figure 16; it included small chains and a brooch from the late Aksumite period (photograph: Kebbedé Bogalé).



Figure 18 - Gold coin with the figure of Antoninus Pius (138-161 AD). The loop indicates that this coin had been transformed into a decorative object, worn as a necklace (photograph: Kebbedé Bogalé).



Figure 20 - Structure F, ruins of the basilica (level 2), taken from the west side (photograph: Kebbedé Bogalé).

The remains of another sanctuary were found at the far eastern end of the ruin field, beneath the stones of a mound, and designated “F” (figure 6, reference F). This is a basilica with a classic plan, with a central nave separated from the collateral naves by two parallel rows of four pillars (the bases remain). A semi-circular apse within a square chevet is flanked by two square rooms (figure 20). The church has a rectangular plan, with a length of 22.40 m and a width of 13.50 m (figure 21). It is surrounded by the usual courtyard, delimited in this case not by additional constructions but by a boundary wall. This edifice has another unusual feature: to the east of and in line with the building a construction had been added, containing a baptistery created in line with the central nave; the basin was reached by two staircases of six steps each, symmetrically arranged (figure 22). A conduit enabled the supply of this basin with water from the exterior; it was constructed of Mediterranean amphorae with their ends removed so that they could be fitted together (figure 23). This basilica had undergone four different phases of alterations, the stages of which were revealed by the excavations. The discovery of two superimposed pavements (figure 24) separated by a layer of fill of around 30 cm thick may thus indicate that the upper pavement, of late date, was constructed over the ruins of an edifice (a church) of a prior period (although we cannot state which).



Figure 21 - Structure F, plan of the basilica and its outbuildings (drawing: J. Gire).



Figure 22 - Structure F, baptismal basin in the basilica (photograph: Kebbedé Bogalé).



Figure 23 - Structure F, conduit made of amphorae fitted together in order to supply water to the baptismal basin (photograph: Kebbedé Bogalé).



Figure 24 - Structure F, paving in the basilica, level 1 (photograph: Kebbedé Bogalé).

4.3.3 - Underlying archaeological levels

The work of the archaeological expedition has only concerned the upper levels of the site. It has, however, enabled the observation in a number of places of the existence of structures some of which may date to the early 1st millennium BC. It has also enabled the discovery of stones engraved with South Arabian inscriptions reused in the walls of the upper levels and providing evidence of much earlier periods.

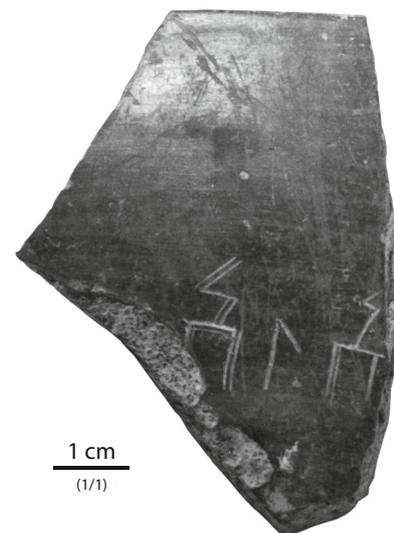
4.3.4 - The inscriptions

The inscriptions constitute an important aspect of the documentation of the site. Some of these date to around the 8th century BC; others date from the Aksumite period. The majority were discovered in the upper layer, being reused in the walls or among the stony debris (figure 25). These are inscriptions in South Arabian writing engraved into the stone (14 “monumental” inscriptions) or on pottery sherds (the great majority in cursive script, but many of the sherds present characters in “monumental” South Arabian script; figure 26). It is above all Ethiopian that appears in its most ancient forms, without vocalisation, and designated by the specialists as “proto-Ethiopian”, “Old Ethiopian” or “Ancient Ethiopian” (Drewes, Schneider, 1976; Schneider, 1981, 1983; Anfray, 1990; Ricci, 2000a, 2000b, 2002, 2003).



Figure 25 - Fragment of stone incense burner engraved with the remains of a south Arabian inscription, 8th century BC (photograph: Kebeddé Bogalé).

Figure 26 - Sherd of pottery engraved with a south Arabian inscription, probably around the 7th century BC (photograph: Kebeddé Bogalé).



The inscriptions in South Arabian script transcribe the classical Sabaean language. Some of these inscriptions seem to emanate from the Sabaeans themselves; others transcribe a distorted South Arabian which, according to the epigraphists, was written by people of local origin (Drewes, Schneider, 1991). These ancient inscriptions are almost all fragmentary, engraved on pieces of libation altars and incense burners reused in ordinary masonry during the Aksumite period. The inscribed sherds (figures 27-28) are particularly interesting (Bernand *et al.*, 1991a; Manzo, 2003a). Prior to the work carried out at Matara, very little was known of inscribed pottery sherds. None had been found at Aksum, Yeha or Adulis. At Matara, 71 have been discovered. They show that a tradition of cursive writing – for which the oldest evidence comes from this area of the high plateau – continued on the site from the start of the Pre-Aksumite period until the Aksumite period; they also enable us to follow its development. They supply elements of knowledge in regards with the origins of Ethiopian writing.



Figure 27 - Inscription in proto-Ethiopian writing (epigraphic stage A) engraved on a sherd of pottery, around the 2nd century AD (photograph: Kebbedé Bogalé).



Figure 28 - Sherd of pottery with letters engraved in "Ancient Ethiopian", 3rd century AD (photograph: Kebbedé Bogalé).

To these epigraphic documents can be added two slates on which proto-Ethiopian inscriptions are found on both faces. One of the slates (figure 29) is 22 × 15 cm and the other (figures 30-31), is smaller, at 9 cm. They are of irregular shape. They were found on the ground, a few hundred metres from the site⁶. Experts are currently incapable of providing a certain translation of these texts, of which some words appear to belong to the lexicon of the Ge'ez language.

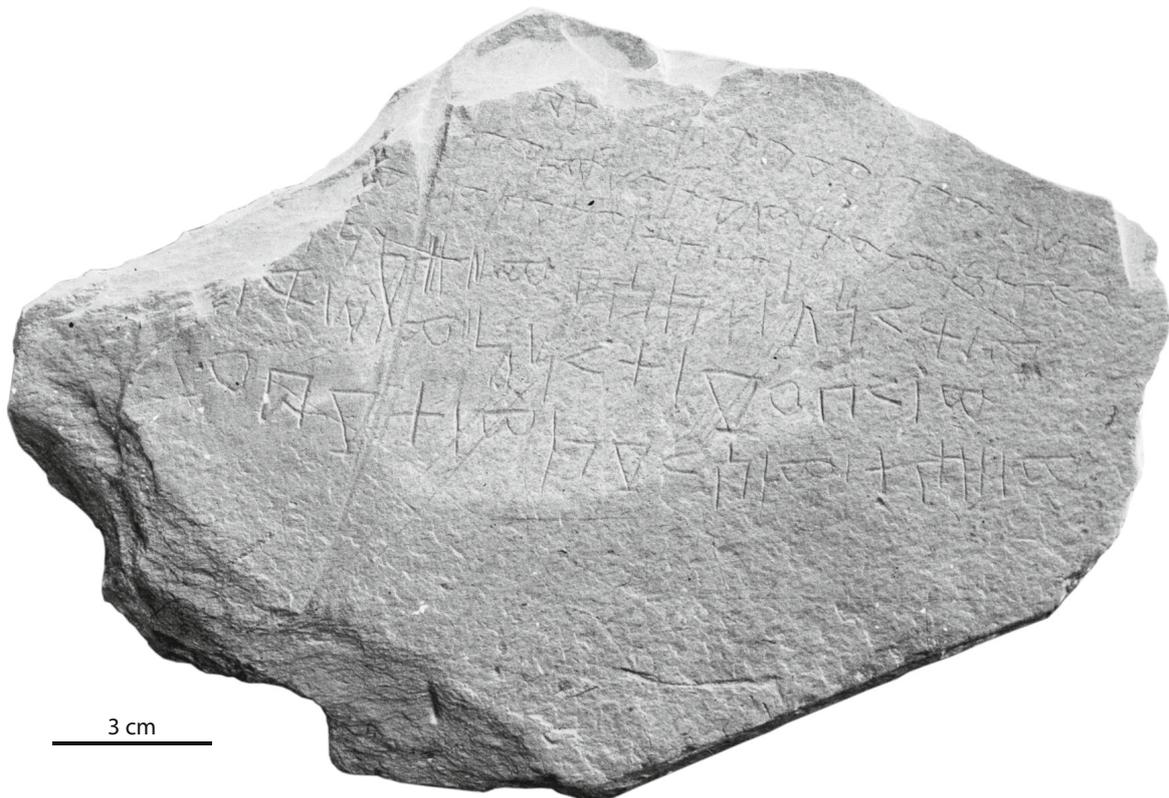


Figure 29 - One of the two examples of slates (schist plaques) found close to the site of Matara; they bear inscriptions in proto-Ethiopian writing (epigraphic stage B), 2nd century AD. (photograph: Kebbedé Bogalé).

6. A third schist plaque was discovered at Matara, at an unknown date and published by L. Ricci (1999).



Figure 30 - Face A of the other plaque found close to the site with its inscription engraved in proto-Ethiopian writing, 2nd century AD (photograph: Kebbedé Bogalé).



Figure 31 - Face B of the same plaque (photograph: Kebbedé Bogalé).

4.3.5 - The tombs

On the upper part of the flank of Goual Saïm hill, 10 tombs dug into the rock have been discovered (Anfray, 1967). They strongly resemble those of Yeha in terms of form: the access shafts are of variable depths, between 2 and 4.50 m, and some of them were closed with a slab. There is one difference, however: at Yeha, the tombs have two or three chambers, while the Matara tombs have only one. Their content was not uniform. Objects from various periods were mixed together, some of Pre-Aksumite type (tulip vases, chalices; figures 32-33) and others from the Aksumite period. This observation tends to indicate that these tombs, undoubtedly dug in the early Pre-Aksumite period, were reused later by the inhabitants of the Aksumite town. One of the tombs

Figure 32 - Earthenware cup-shaped vase and pot with geometric decoration, Pre-Aksumite period. This pottery was found in a grave dug out of the rock on the hill of Goual Saïm (photograph: Kebbedé Bogalé).

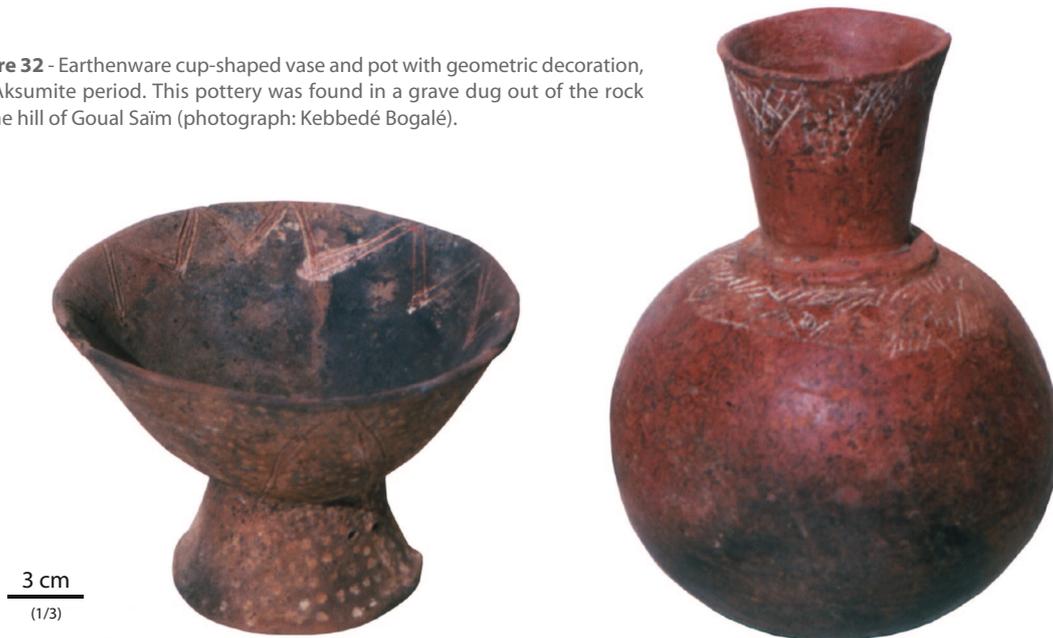


Figure 33 - Two earthenware tulip vases, Pre-Aksumite period. They were discovered in a grave at Goual Saïm (photograph: Kebbedé Bogalé).

contained 403 white sandstone discs (102 in another sandstone), which are very common objects in the Aksumite level of the site (figure 34) and whose use remains unknown. There were also a variety of metal objects (bronze and iron), for example a knife and a pendant representing a hand and an arm. However, no coins were found, nor earthenware vases marked with the Christian cross or any of the vases so characteristic of the upper layer of the ruins. When human bones were found, they were in a very poor state of preservation.

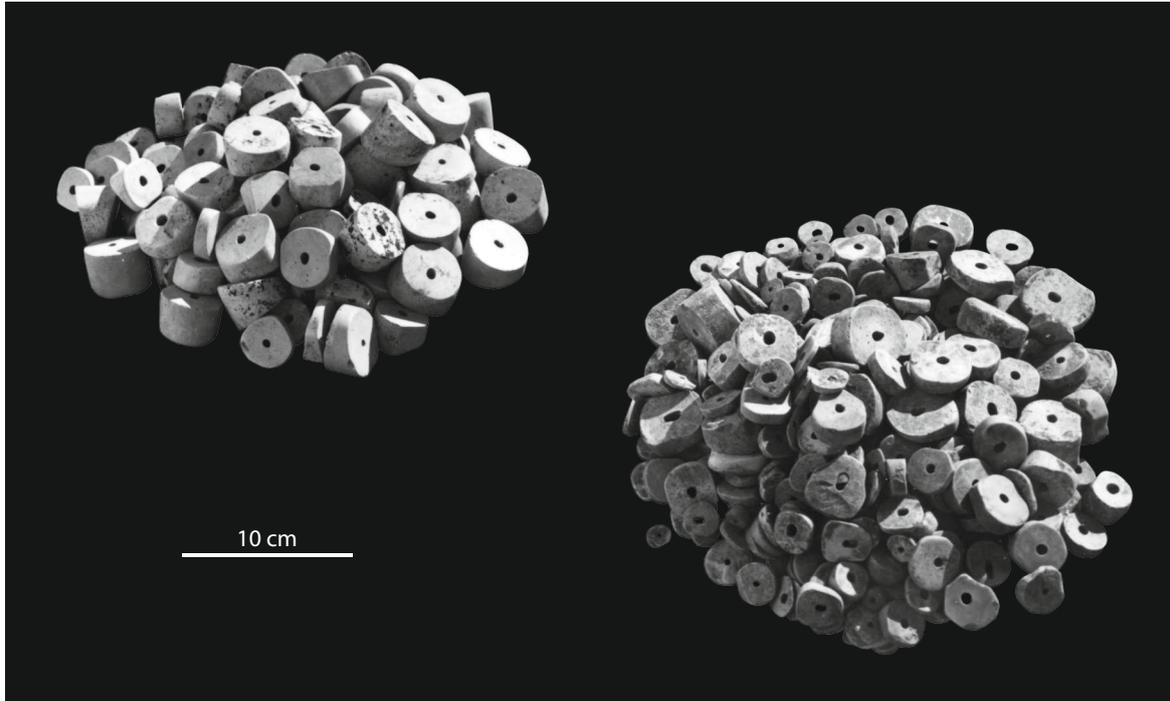


Figure 34 - White sandstone “rondelles” found in great numbers on the archaeological site, principally on the upper level, late Aksumite period. These two items were discovered in two graves at Goual Saïm (photograph: Kebbedé Bogalé).

4.3.6 - The pottery and other artefacts

A distinctive feature of Matara is the overabundance of vases, particularly in the upper level. These are made of common pottery in black or red ware, the latter being more widespread. There is no indication that a potter’s wheel was used (figure 35). Of a variety of forms – from minuscule cups to jars 80 cm high – the containers are of several types: cooking pots, basins (figure 36), bowls, goblets, jugs, horned vases (figure 37) and vases with a central console adorned with a geometrical engraved decoration. Still more varied is the decoration – incised, relief, painted (figures 38-39), modelled or stamped – and the crosses – surrounded by various ornamentation, sometimes composed of a kind of bushy plant motif executed in relief in the bottom of terracotta bowls (figures 40-41). There is reason to believe that these representations prefigure a type of cross that has continued throughout the centuries and up to the present day in Ethiopia and Eritrea. We also find here the classical form of the Aksumite cross (four equal branches, enlarged at their ends, similar to the cross of Malta), not only represented on a great quantity of pottery, but also sculpted in stone or centrally represented on the majority of coins minted since the reign of king Ezana, in the 4th century. The fact that this cross was placed in the bottoms of vases where it was hidden from sight shows that this was not merely a simple decoration imposed by habit but rather the indication of a Christianity more deeply anchored in the minds of the inhabitants.



Figure 35 - Red earthenware bowl with the exterior surface decorated with geometric patterns and crosses. This type is representative of the pottery from the site; the sides are sometimes engraved with inscriptions (photograph: Kebeddé Bogalé).

3 cm



Figure 36 - Earthenware bowl, Aksumite period (photograph: Kebeddé Bogalé).

3 cm



Figure 37 - Three-horned earthenware container, probably a brazier, early Aksumite period (photograph: Kebeddé Bogalé).

3 cm



Figure 38 - Piece of red ware jug (broken neck). Aksumite crosses (in negative) decorate the shoulder of the vase which is painted a purplish red (photograph: Kebbedé Bogalé).

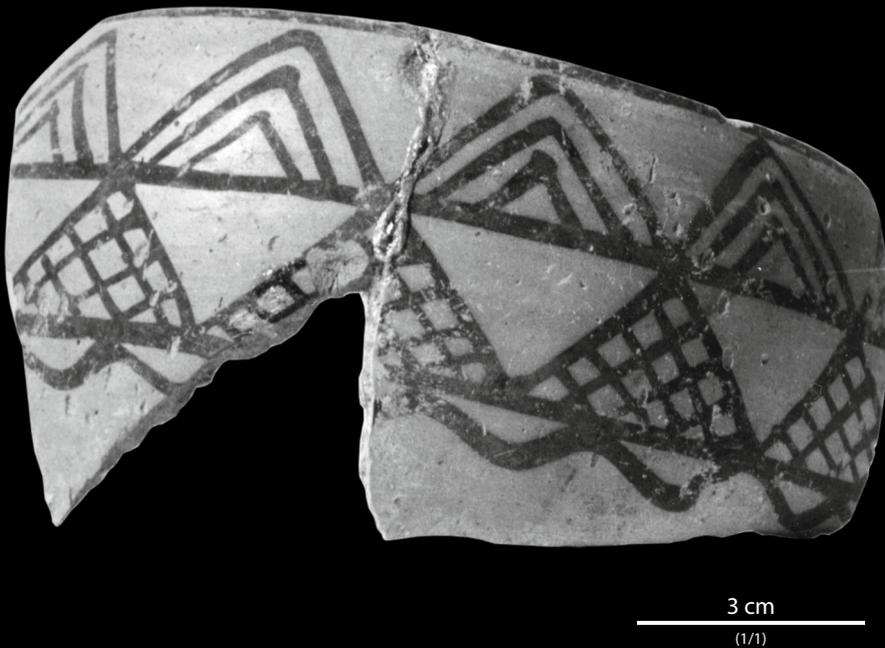


Figure 39 - Bowl with sides decorated with painted geometric patterns, late period, 6th and 7th centuries AD (photograph Kebbedé Bogalé).



Figure 40 - Red earthenware bowl: the bottom bears stamping reproducing the “embellished” cross motif very common at Matara, 6th and 7th centuries AD (photograph: Kebbedé Bogalé).



Figure 41 - Relief stamped “embellished” crosses in the bottom of earthenware vases. A common motif in pottery decoration at Matara, 6th and 7th centuries, upper level of site (drawing: Y. Baudouin).

Widely distributed in the upper layer, one type of vase deserves a special mention, particularly as it does not seem to have existed on any other site: a simple vessel with a flat bottom, vertical sides and a horizontal dimple beneath the lip above parallel furrows incised in the red ware (figure 42). This type of vase possesses a further distinctive mark: the number of parallel furrows varies according to the size of the vessel; if the vase is small it has only a single furrow, but the number increases (up to four) in line with its size (Anfray, 1965, plates LVII, J.E. 2801, J.E. 3019, J.E. 2374).

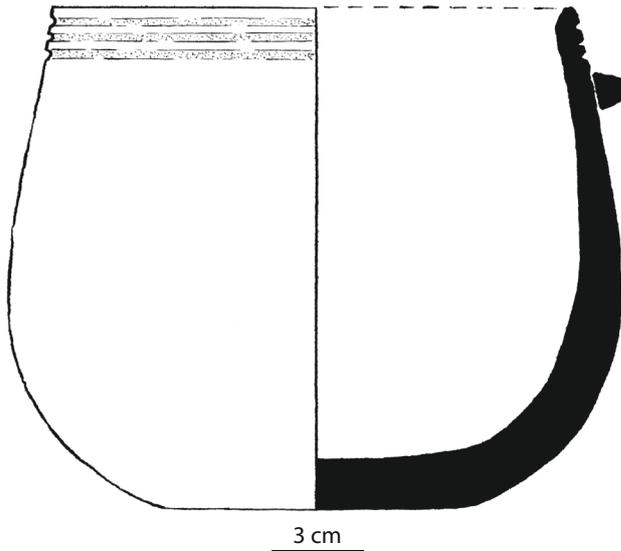


Figure 42 - Section drawing of a earthenware bowl, characteristic of the pottery of Matara, with longitudinal furrows beneath the lip and a dimple on the side. This type of bowl was popular in a variety of sizes during the late period (drawing: Y. Baudouin).

Another group of vases enables us to distinguish an immediately inferior level which is dated to the first centuries of the Aksumite period. The majority of these vases are in black ware, but examples in red colour have also been found. One vase is particularly representative of this lower level (figure 43): it is made of black earthenware with a streamlined shape, and a geometric motif is incised on the shoulder; it also bears the signs of proto-Ethiopian writing, which constitutes valuable date evidence.

Figure 43 - Black earthenware bowl engraved with geometric patterns, early Aksumite level (photograph: Kebbedé Bogalé).



The pottery is sometimes unusual in form, such as this vase in the shape of a bird (figure 44). In addition, investigations on the site of Matara have revealed a large quantity of other objects, such as stone axes, mortars, dice (figure 45), rings (figure 46), seals (figure 47) and glass cups (figure 48). Among these objects, one category has particular importance; that of the coins bearing the effigy of the kings of Aksum (figure 49). The legends inscribed around the edges of these coins indicate their names; those of the sovereigns who ruled between the 3rd and 7th centuries AD.

The existence of a Pre-Aksumite level at Matara is indicated by the discovery, in the upper levels, of sherds relating to a type of pottery listed in the collections of other sites such as Yeha, Haoulti and Aksum, where this pottery has been the subject of systematic classification.



Figure 44 - Red ware ewer in the form of a partridge and decorated with the patterns characteristic of the late period (photograph: Kebbedé Bogalé).



Figure 45 - Ware dice, Aksumite level (photograph: Kebbedé Bogalé).



Figure 46 - Red sandstone ring found in E1. An animal resembling a zebu is engraved on the oval flat (photograph: Kebeddé Bogalé).

Figure 47 - White limestone seal (length: 4.3 cm) pierced with four symmetrically placed holes between two "V" shaped patterns with points facing, Aksumite level (photograph: Kebeddé Bogalé).

Figure 48 - Glass cup with moulded face (probably of Roman origin; height: 3.5 cm), wine coloured. It was found in structure D, in room XV, at a depth of 2.5 m (photograph: Kebeddé Bogalé).



Figure 49 - Bronze coin of Aphilas (diameter: 1.6 cm), king of Aksum in the late 3rd century AD. The Greek inscription contains grammatical faults (photograph: Kebeddé Bogalé; drawing: Y. Baudouin).

A test excavation was carried out to a depth of 5 m in the centre of the area studied, to the north of structure D, outside the north wall of the architectural structure (figure 50). In this test area a layer of pottery sherds was found near to a broad wall, beneath around 2 m of archaeologically sterile soil. These sherds were well fired, resistant to impacts and with horizontal handles beneath the lip: jars resembling the pottery of Es-Sober in South Arabia, not far from Aden⁷.



Figure 50 - Structure D, deep level of the site (between 4 and 5 m); numerous sherds of jars with horizontal ridges beneath the rim, early Pre-Aksumite period. The pottery is of high quality and demonstrates rare craftsmanship (photograph: Kebeddé Bogalé).

7. In October 1969, Dr. Muhammad Abdulwahed, Director of Antiquities of the People's Republic of Southern Yemen, invited me to visit the archaeological site of Es-Sober. On the hill, sherds of jars with horizontal ridges caught my attention as they appeared to me to present similarities with those of the deep level of Matara. I imagined technical and typological parallels between the two pottery types. Closer examination will one day tell us whether this impression is correct.

Among the pottery remains of the upper layer of the site were also found a category of vases originating in the Mediterranean world. These are the ribbed amphorae (figures 51-52). We have found around twenty of these, intact or almost so. Did some of them serve to transport wine or olive oil? We know from an indication in the *Periplus Maris Erythraei* (Casson, 1989) that these products were imported to the African coast. This Greek text mentions Italy and Laodicea as regions from which they came, but many of these amphorae may have been manufactured in Egypt. Large numbers of these sherds were discovered in the ruins of Matara. Also found, but in much smaller numbers, were fragments of African sigillata ware (figure 53), including a small, nearly complete bowl. Another category, present above all on the site as sherds, is well represented by a large blue glazed vase (figure 54) originating in Sassanid Persia (probably around 7th century AD). All of this tableware must have been introduced to the high plateau through the port of Adulis.



Figure 51 - Imported Mediterranean amphora, *in situ* (photograph: Kebbedé Bogalé).



Figure 52 - Imported Mediterranean amphora with ribbed sides. The neck has been broken, and a stone plate acts as a stopper. This amphora was buried; its final use was to hold mortal remains of an infant (photograph: Kebbedé Bogalé).



3 cm

Figure 53 - Dish in *terra sigillata africana*, probably imported from Egypt (photograph: Kebedé Bogalé).



3 cm

Figure 54 - Blue glazed vase (height: 30 cm) undoubtedly originating in Sassanid Persia, 7th century AD (photograph: Kebedé Bogalé).

4.3.7 - Where South Arabia reappears

The discovery of an object which can be described as a “work of art” is of particular interest. This object is 41 cm high and was found, lying on its side, 1.80 m deep into a rock cavity which constituted the base of the constructions of locus 49, sector E1. The object is a bronze lamp (figure 55abc). An oblong-shaped bowl imitating a seashell rests on a base composed of a colonnade of 13 stylised palm trees; the edge of the bowl is decorated with small flames. It is topped by a motif representing a bounding ibex (its horns broken and lost during Antiquity) being attacked



Figure 55a - Bronze lamp discovered in a rock hollow, *in situ* (photograph: Kebbedé Bogalé).



Figure 55b - Another view of the bronze lamp. The animal motif atop the bowl illustrates the theme of the sacred hunt (the dog is wearing a collar) practised in South Arabia (photograph: Kebbedé Bogalé).



Figure 55c - Detail of the bronze lamp: ox skull in relief on the back of the bowl (photograph: Kebbedé Bogalé).

by a hunting dog whose jaws are sunk into the hindquarters of its prey. On the back of the bowl, beneath the rear paws of the dog, an ox skull is depicted in relief (height: 5 cm). It is thought that this lamp was manufactured in South Arabia in a context with Hellenistic influences; Arabia is indicated by the ox skull and the ibex, which are symbols from its sacred bestiary, but also by the dog, which evokes the sacred hunt practised in the ancient period. The fact that in South Arabia, four other pieces of the same type have been discovered, although of smaller size and less well executed in aesthetically terms, clearly reinforces the original assumption.

4.4 - Archaeological potential for the future

One essential objective of this summary has been to highlight the archaeological resources represented by Matara. The site is vast, and it extends beyond the perimeter of the research carried out to date. We have no accurate estimate of its total area, because it appeared too difficult to evaluate while working on the site. Firstly, the uneven relief of the area prevented the execution of an accurate topographical survey. Secondly, given the nature of the land, which has been often turned and in some places levelled by the passage of oxen and iron ploughs, one can no longer distinguish the limits of the ancient site (which, in addition, must have varied between the 10th century BC and the 7th century AD). In other words, it is undoubtedly true to say that a large part of the site remains to be explored. Moreover, as we have already stated, the excavations have only concerned the upper level of Matara. We have therefore not mentioned in these pages the two fragments of sculpture found as erratics in the upper level. One depicts the profile of a head of a female statuette, the other a fragment of an ibex, and they are not without similarity to the monuments at Haoulti (Anfray, 1965, plate LXIII, figures 1-2). They suggest the existence, in a deep level of the ruins, of a temple among the remains already mentioned of an occupation dating perhaps to the 8th and 7th centuries BC. Future research on the site will provide greater understanding of this city of Antiquity, for which one historian (Kobishchanov, 1966) suggested an identification with the Coloe mentioned in the *Periplus Maris Erythraei*.

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Francis ANFRAY

Former director of the Mission Française
d'Archéologie en Éthiopie

Article outline

**THE GIANT STELAE OF AKSUM
IN THE LIGHT OF THE 1999 EXCAVATIONS**

Bertrand POISSONNIER

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THE GIANT STELAE OF AKSUM IN THE LIGHT OF THE 1999 EXCAVATIONS

Bertrand POISSONNIER

Abstract

Excavations were carried out in 1999 on the location of Stela 2 at the ancient site of Aksum in northern Ethiopia. These excavations have permitted the documentation of the foundation of this stela, which was transported to Rome in 1937. Preparations were also made for the stela's return to the site in 2005 and its re-erection in 2008 at the exact location where it stood in the 3rd or 4th century AD. The excavations also made it possible to re-examine our perception of the three giant stelae on the site, from their conception and erection to their destruction.

Keywords

Aksum, Ethiopia, archaeology, stelae (monoliths), Stela 2 from Aksum, megalithism.

1 - Introduction

At the heart of the main stelae field in the town of Aksum (figures 1-3), among a number of undecorated stelae, a group of six bear similar decorations evoking multi-storey buildings (figures 4-9). A seventh stela seems to be a poor copy of the six others (figure 10); an eighth bears unique decoration made of a sort of box installed on top of a column capital and whose meaning is disputed (figure 11). As far as we can tell, the lower part of the great multi-storey stelae is rough-hewn, leaving an incomplete surface over a variable length (around one tenth of the total length). This part was therefore most probably hidden from view. Once upright, the stela was fastened in a vertical position by two notched slabs which to some extent clamped the stela: these are the “base plates”. It has been assumed that these plates lay on the ground of the period, and the visible height of the monoliths has been deduced from their position. Prior to our intervention, therefore, the equation “visible height = length of the decorated part” was globally accepted. The multi-storey stelae, particularly stelae 1, 2 and 3 which have received particular attention up to the present, are dated indirectly to the 3rd or 4th century AD (Phillipson, 2000). They have been considered as markers of royal graves and thus form part of a funerary assemblage including numerous hypogean structures (Munro-Hay, 1989). Here, we suggest (figure 12) a connection not previously considered between these multi-storey stelae at Aksum and some extremely old and unfortunately poorly dated defensive towers which are encountered in the southwest of Saudi Arabia, particularly in the Asir highlands (Mauger, 2001). The analogies are striking; in particular the presence of a vertical projection which protected the entrance door (itself identical to those of the stelae, down to the detail of the door handle) from the top of the tower... Were the stelae erected close to the graves also intended to protect them?



Figure 1 – General view of the stelae field, facing west. Photograph taken in 1906. Note the great Stela 3, on the left of the image (after Littmann *et al.*, 1913).



Figure 2 – General view of the stelae field facing south. Photograph taken in the early 20th century. The large stela in the centre of the image is Stela 3, seen from the back (B. Poissonnier collection).

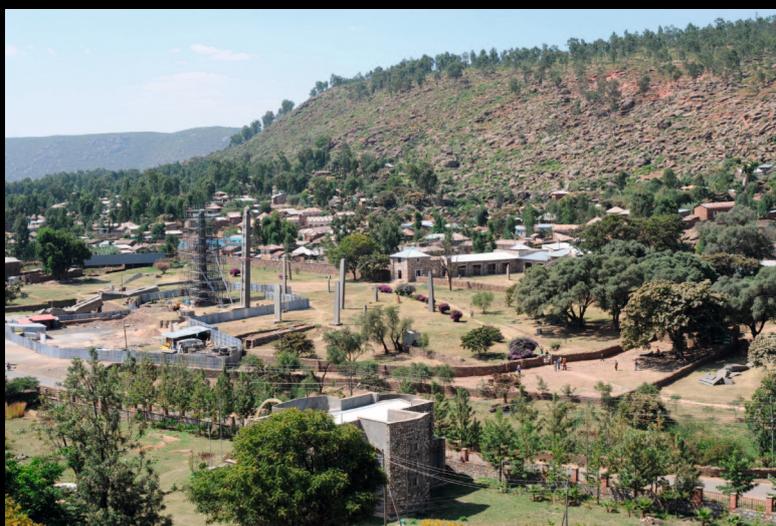


Figure 3 – View of the western part of the stelae field. Stela 2 has just been re-erected and is surrounded by a temporary metal structure. Stela 3 is guyed (photograph: B. Poissonnier, 2008).

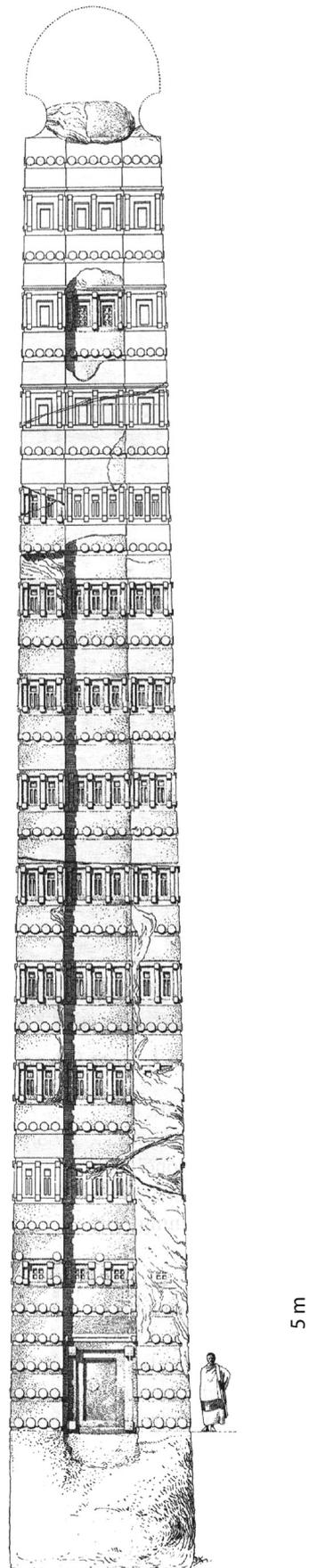


Figure 4 – Stela 1. Fallen and broken, its extremity is missing; it was originally 32.60 m high and weighed 517 tonnes (after Littmann *et al.*, 1913).

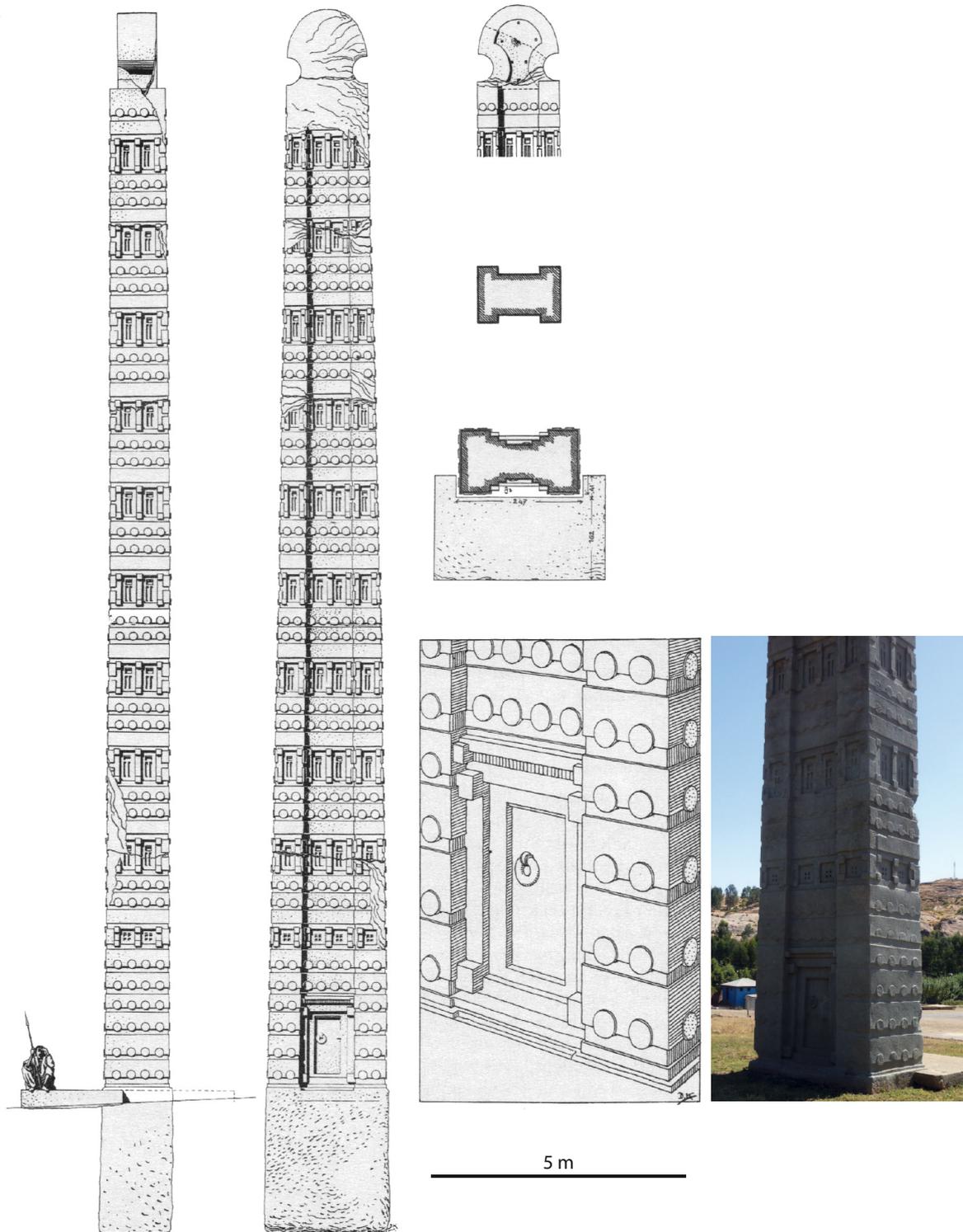


Figure 5 – Stela 2. Fallen and broken, then reconstructed and re-erected in Rome in 1937, then once again dismantled, returned to Aksum in 2005, rebuilt and re-erected in 2008: 24.60 m high and with a weight of 170 tonnes (drawing: after Littmann *et al.*, 1913; photograph: A. Daussy, 2011).

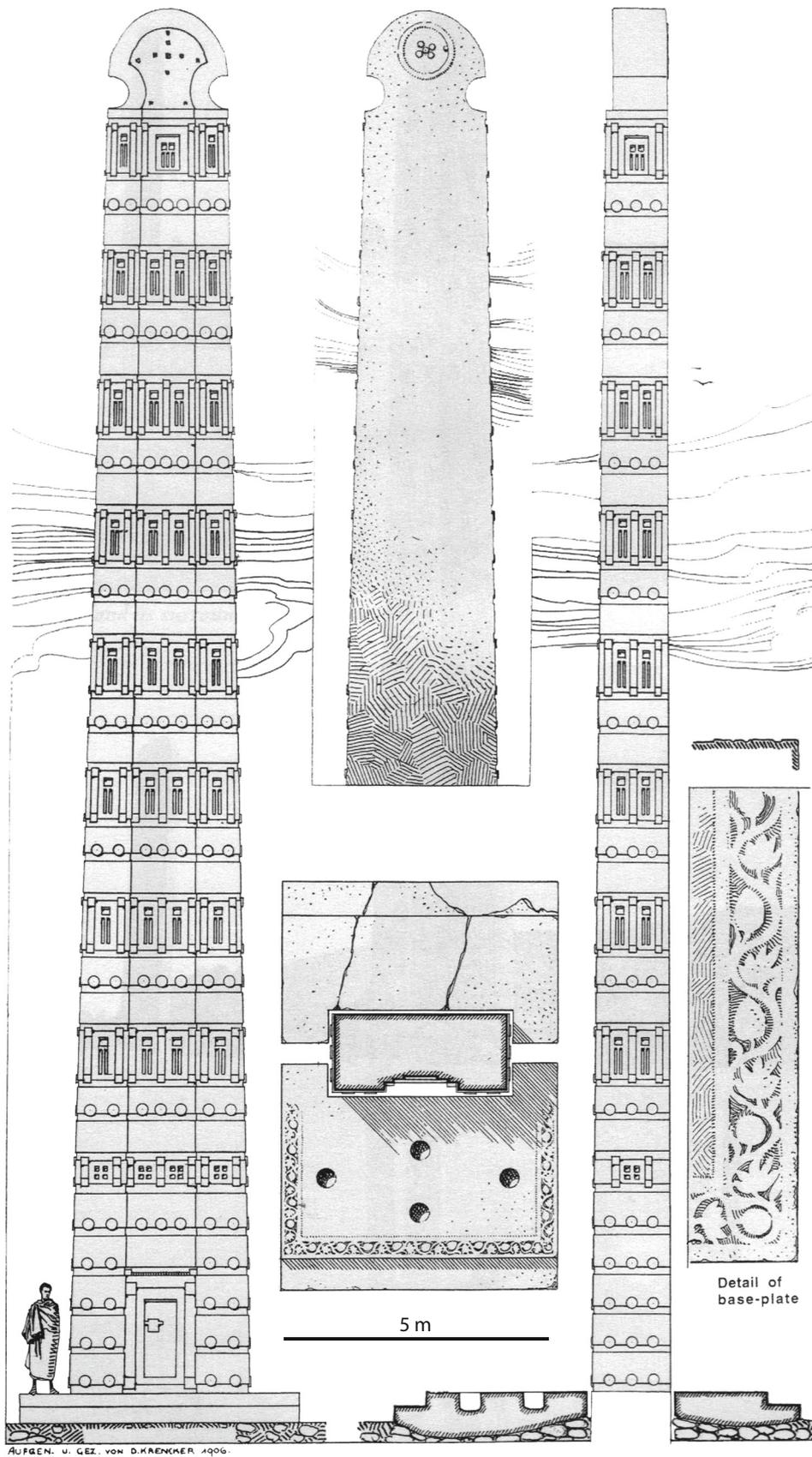


Figure 6 – Stela 3: 1906 drawing. The only stela to have remained upright: 20.60 m above ground and with a weight of 160 tonnes (after Littmann *et al.*, 1913).

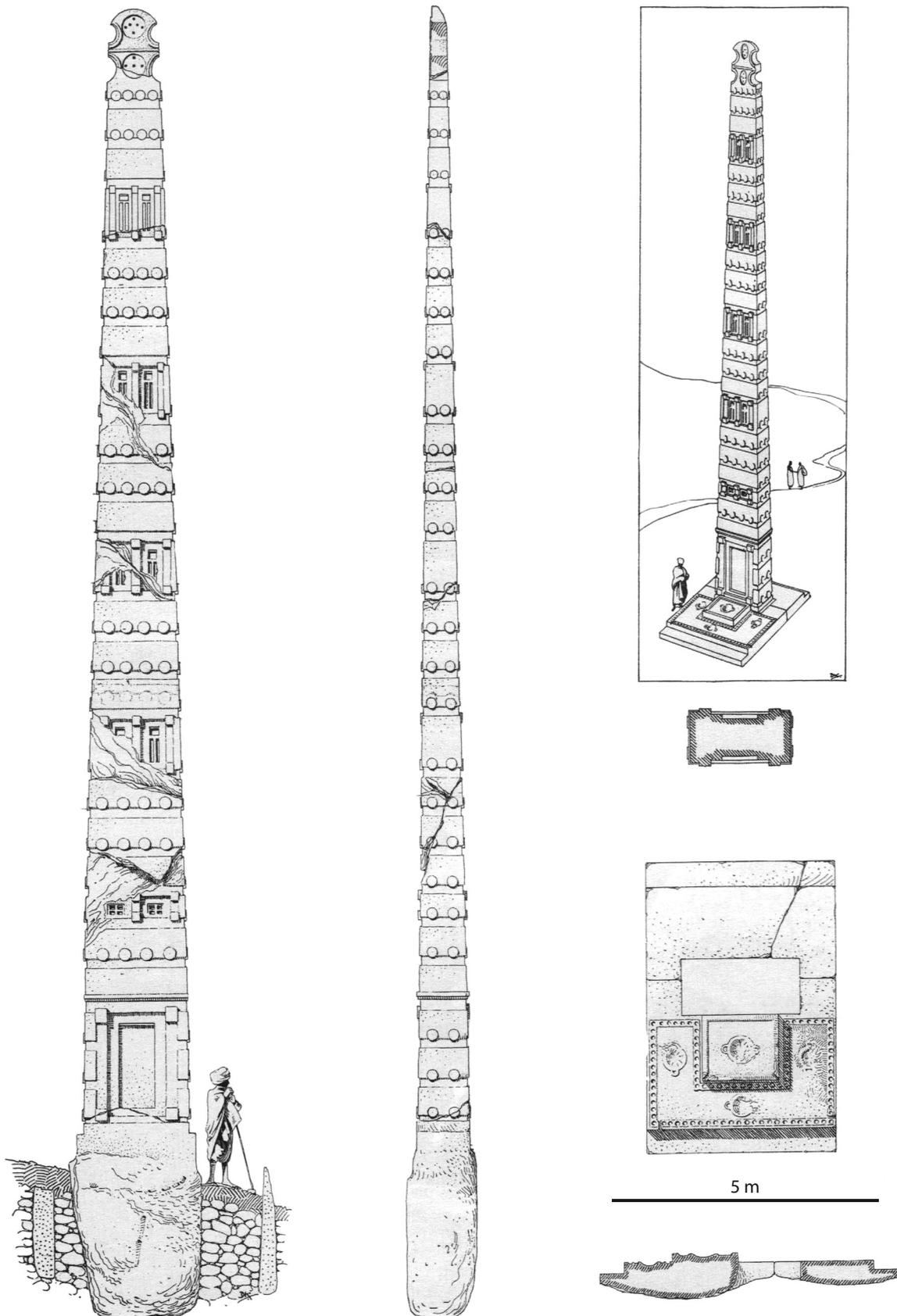


Figure 7 – Stela 4: 1906 drawing. Fallen and broken; it was originally 18.20 m high and weighed 56 tonnes (after Littmann *et al.*, 1913).

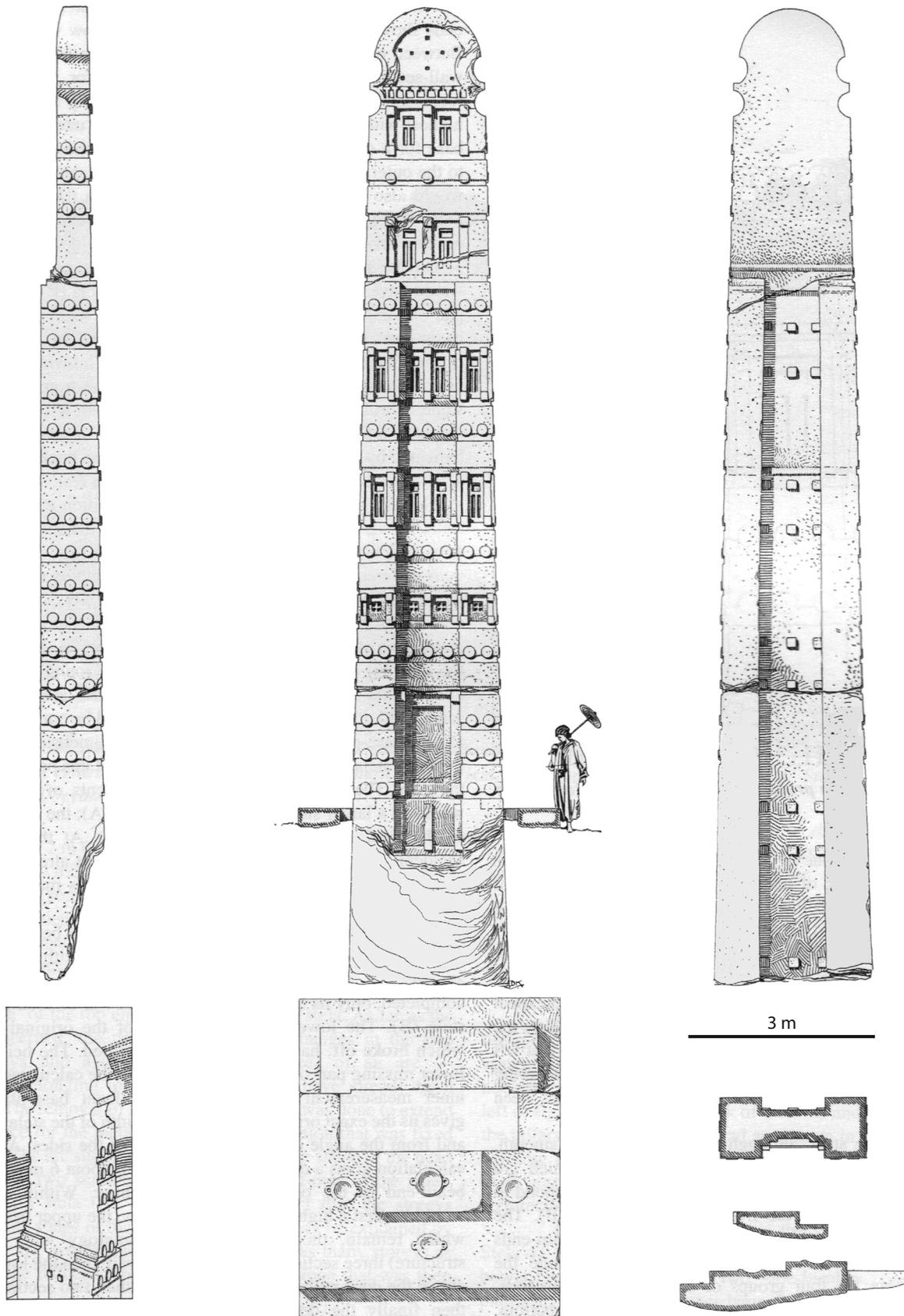


Figure 8 – Stela 5: 1906 drawing. Fallen and broken; it was originally 15.80 m high and weighed 75 tonnes (after Littmann *et al.*, 1913).

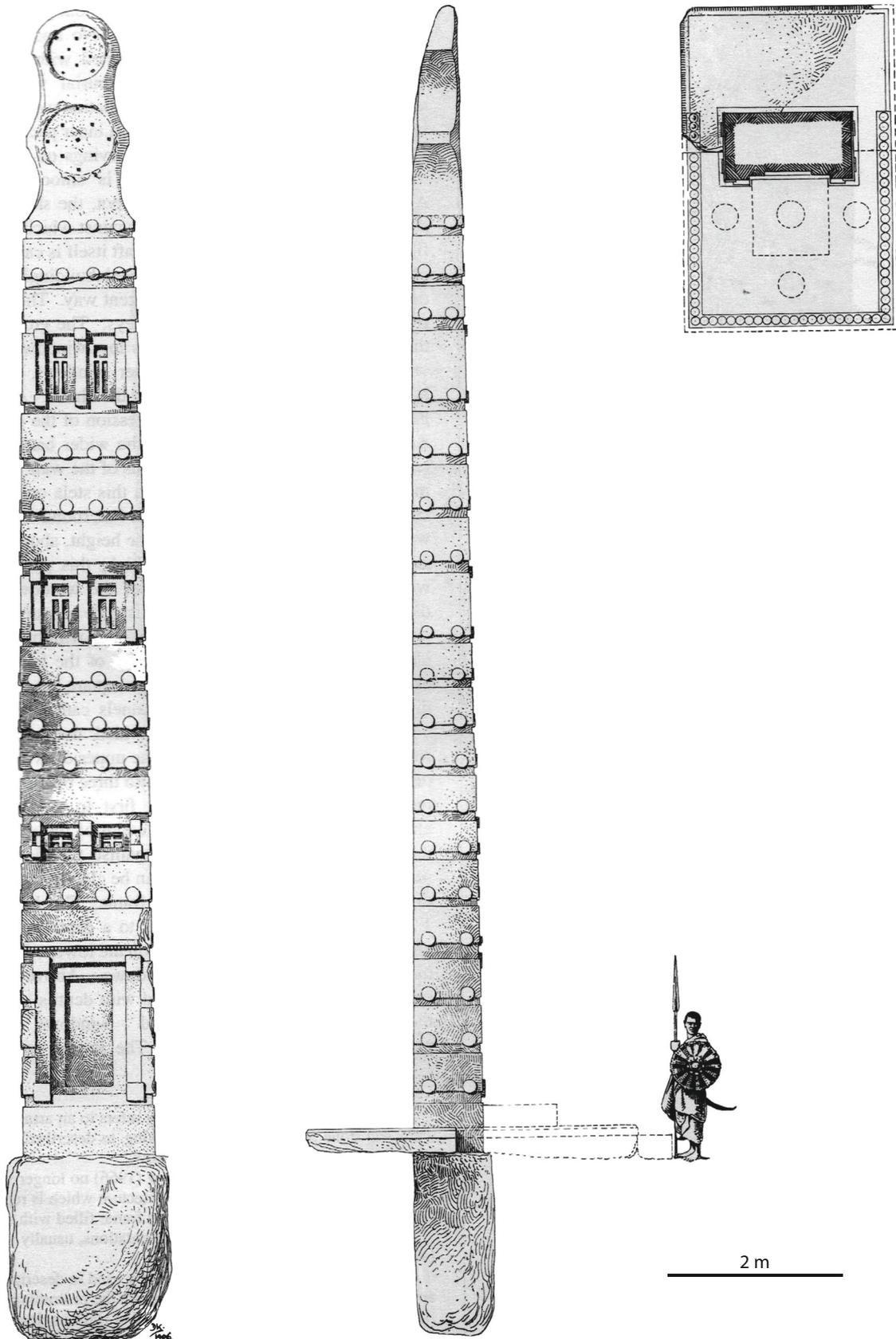


Figure 9 – Stela 6: 1906 drawing. Fallen and broken; it was originally 15.30 m high and weighed 43 tonnes (after Littmann *et al.*, 1913).



Figure 10 – Stela 34: 1906 photograph. Since fallen; 5.70 m high (after Littmann *et al.*, 1913).

The monoliths of Aksum have been subject to partial archaeological excavation during the 20th century. They were first examined, in 1906, by a German team led by Littmann (Littmann *et al.*, 1913), which offered the first systematic lay-out of the site and numbered the stelae (we will use this numbering in this article). In 1937, during the Italian occupation, Stela 2, which was lying on the ground in five principal pieces, was removed on the orders of Mussolini and re-erected in Rome. Later, the Mission Française d'Archéologie en Éthiopie undertook excavations from 1954 to 1957 (de Contenson, 1959a, 1959b, 1963; Leclant, 1959). Finally, the British Institute in Eastern Africa took over, first under the leadership of Neville Chittick (from 1972 to 1974; Munro-Hay, 1989), then under David Phillipson (from 1993 to 1997; Phillipson, 2000).

In 1994, Phillipson carried out a series of test excavations at the place where Stela 2 had lain, and in 1997 he began to explore the location where it initially stood (Phillipson, 2000). From this work, he deduced that the stela had been raised on a ground level which was higher than the current ground level and which had been deliberately lowered at the end of the Aksumite period. We will see later what is to be made of these two assertions.

In January 1998, an Ethiopian team from the ARCCH¹ led by Yonas Beyene took up the research abandoned by the British. The team was assisted by an engineer, Tadele Bitul, who organised the removal of several enormous stones linked to the foundation of the stela and which were preventing the excavations from continuing. I became involved in October 1998 as advisor² to the ARCCH excavation, then led by Tekkle Hagos, in collaboration with the National Coordinating Committee for the Return of the Stela of Aksum. The excavation, which was very deep and took place in a narrow space encumbered by large blocks, could not then be completed.

1. The Ethiopian Authority for Research and Conservation of Cultural Heritage.

2. I was involved as a member of the Centre français des études éthiopiennes.

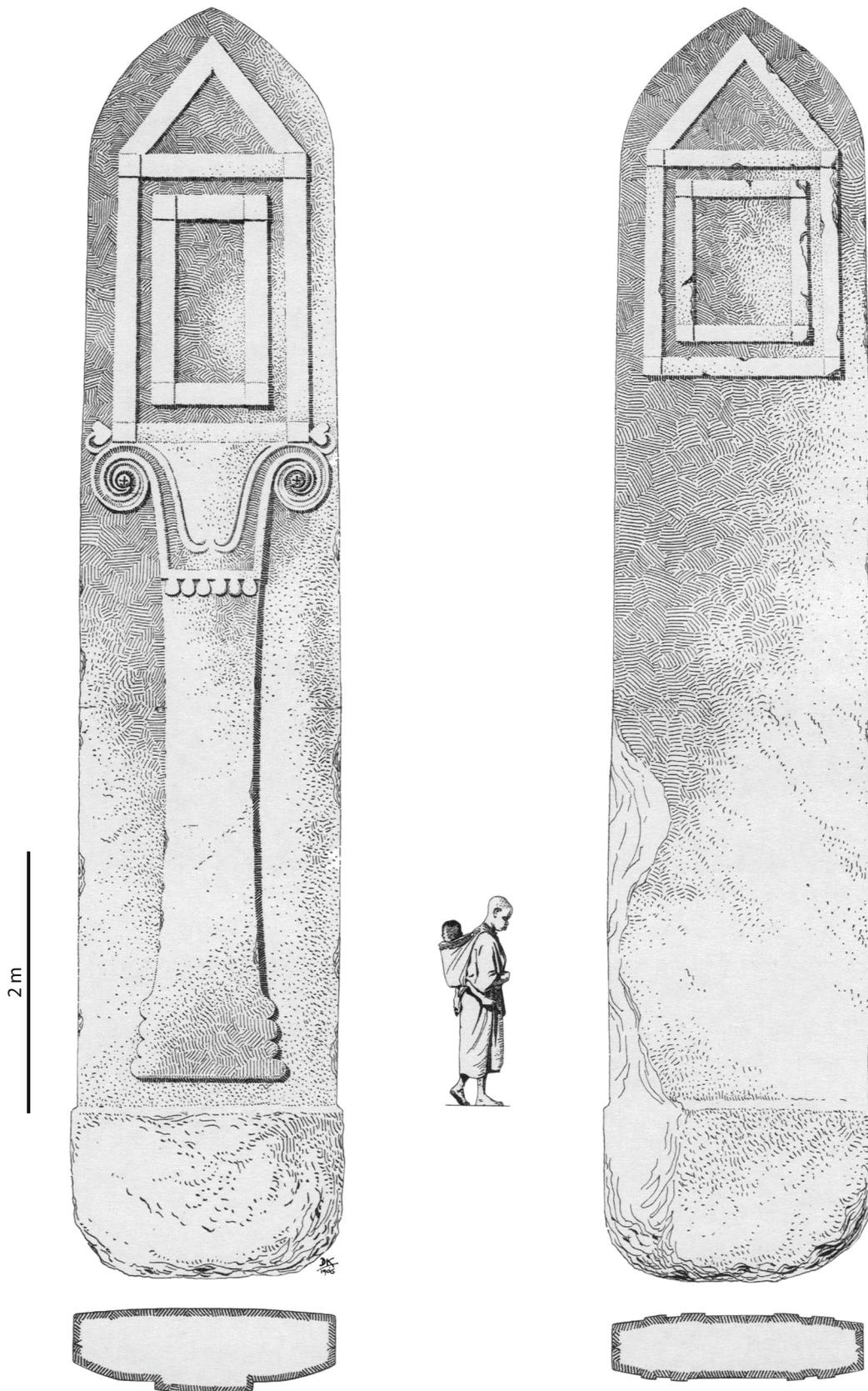


Figure 11 – Stela 7: 1906 drawing. Fallen (after Littmann *et al.*, 1913).

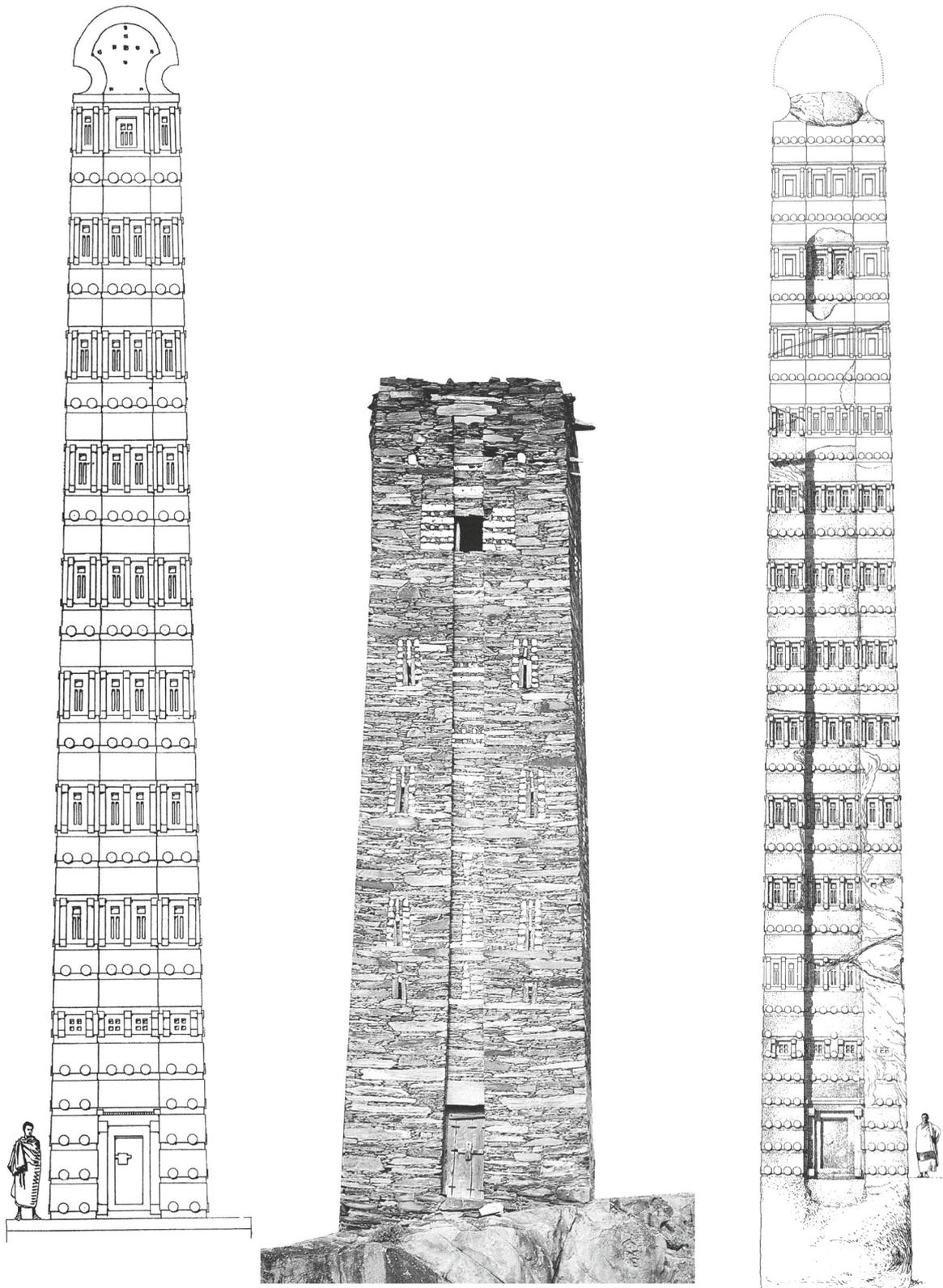


Figure 12 – Comparison (not to scale) between two stelae from Aksum (Stela 3 on the left, Stela 1 on the right, after Littmann *et al.*, 1913) and a defensive tower from southern Saudi Arabia (Asir highlands, photo reworked after Mauger, 2001:64).

2 - The 1999 excavations

The following year, at the request of the Ethiopian government, I led a new team in an excavation of the presumed site of Stela 2, still with the aim of confirming its initial location, but also of documenting the context of its installation and collapse. The work was once again interrupted, this time by war³.

The excavation was undertaken manually. The recent and/or disturbed levels were rapidly removed and the greatest of care was applied to the excavation of the sealed levels linked to the stela. At the end of the campaign, all sections both of our excavation and those preceding it were reinforced with stone walls. A test trench excavated by Phillipson in 1994 was cleaned out and filled with a stone construction in order to avoid any risk of collapse.

We enlarged the area of the previous excavation (Z1B) by 33 m² (Z1A) to the north. In addition, we opened a broad “window” onto the interior of the previous excavation, which enabled us to expose the bedrock on which the underground structure maintaining the stela had been installed.

2.1 - An enormous mass of underground masonry: foundation F9

The structure on which the stela stood was formed of a quadrangular masonry base (F9) at least 7.30 m long from northwest to southeast and 6 m wide, with a thickness of 4.50 m. We were able to clarify the boundaries of this base except in the southeast.

The opening of the “window” onto the interior of the previous excavation (figures 13-16) necessitated the removal of eight boulders with a total volume of around 3 m³ (two of these stones had already been removed during the last excavation in October 1998). Solid bedrock (US 1025) appeared at a relative depth of 6.30 m. The Aksumites had followed its irregularities as it was revealed, and had flattened the upper part. The marks of their pick-type tools are still clearly visible (figure 16¹⁴). They then fixed very large blocks of rock on top of this using a whiteish mortar, thus constituting a kind of artificial rock several metres high.

The flat upper part of this massif of masonry was then topped by an enormous pecked and shaped slab, which played the role of the base; the excavations led by Phillipson found it in an upturned position (this is the “footing slab” in Phillipson’s descriptions [2000]). Initially socketed into the construction, this slab had tipped towards the southeast when the stela fell, but still bore the exact location of the base of the stela in relief. This enabled us to determine accurately this location. The stones of the immediately underlying level presented fractures due to the pressure of the stela, which gave us accurate information about the height of this slab. However, locating the stela site in plan proved to be more difficult. To do this, we undertook a micro-topographical survey of the revealed surface of the foundation building. By comparing it with the position of the slab during the excavations and with the morphology of its base, we have been able to suggest a plan reconstruction for the slab with an estimated margin of error of less than ten centimetres (figure 17).

These observations provide us with information on the construction technique employed: wishing to rest their foundation on a solid substrate, the Aksumites had no qualms about excavating the softer upper levels of the rock (US 1018, 1017, 1021 and 1026) to a depth of 4.50 m, down to

3. The team was composed of: Bertrand Poissonnier (director, CFEE), Tekle Hagos (ARCCH), Zeresenay Alemseged (geological study, National Museum), Kalamoa Araya (†, pottery study, ARCCH), Jean-Marc Bryand (drawing), Asamerew Desse (ARCCH), Lionel Fadin (topography), Gigar Tesfaye (ARCCH) and around 20 local workers. The operation began on 17 January 1999 and was halted on 5 February due to the commencement of hostilities.

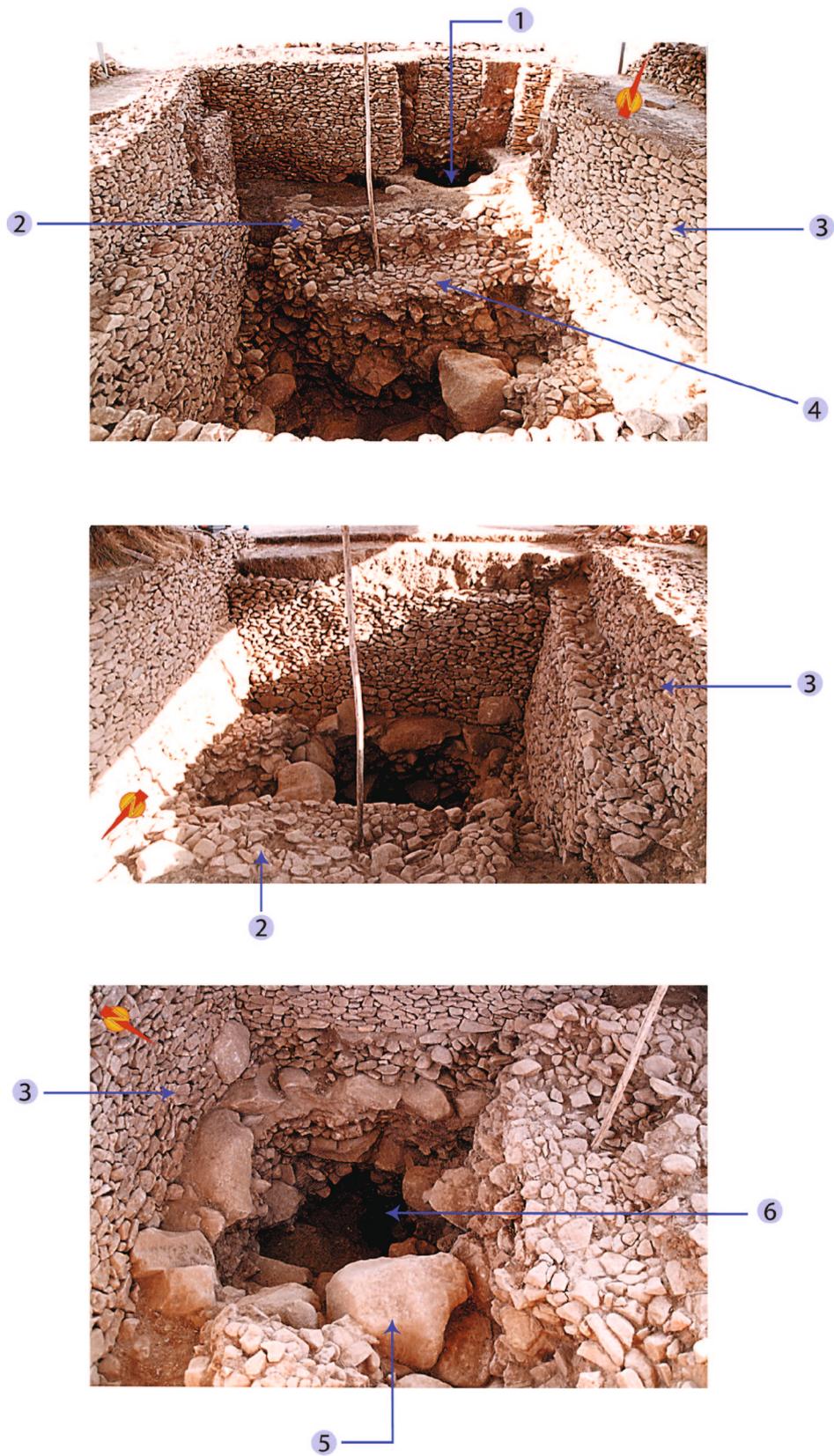


Figure 13 – Aksum, 1999: general view of the excavation at the foot of Stela 2. 1: Pit F10; 2: surface of the masonry of the foundation of Stela 2; 3: contemporary support wall; 4: location (in negative) of the “footing slab”; 5: rock; 6: window created through the foundation building to the resistant substrate (photograph: B. Poissonnier, CFEE).

a level with sufficient mechanical resistance (US 1025). They then arranged boulders, either raw or roughly hewn, binding them with mortar. The remainder of this carefully composed quadrangular construction is made up of smaller stones assembled with the same mortar. These smaller stones were also used for the facings of the foundation, as did the surface of the foundation that received the “footing slab” directly supporting the stela.

2.2 - An artificially constructed floor in mortar (US 1010-1011)

To the northwest of foundation F9 we uncovered a relatively uniform level of compact whitish mortar (US1010-1011) of the same appearance as that used for the construction of the foundation (figure 15). This level had been perforated by trenches F2, F10 and F11 (figure 14). It rests directly on foundation F9. Elsewhere, it was supported on a level of black clay mixed with angular pebbles (US 1018). In the western sector, it forms a sort of concrete by the incorporation of angular pebbles and is perfectly analogous with the floors of contemporary Tigrayan houses. In the great section FG, this level presents a depression aligned northwest/southeast (figure 18).

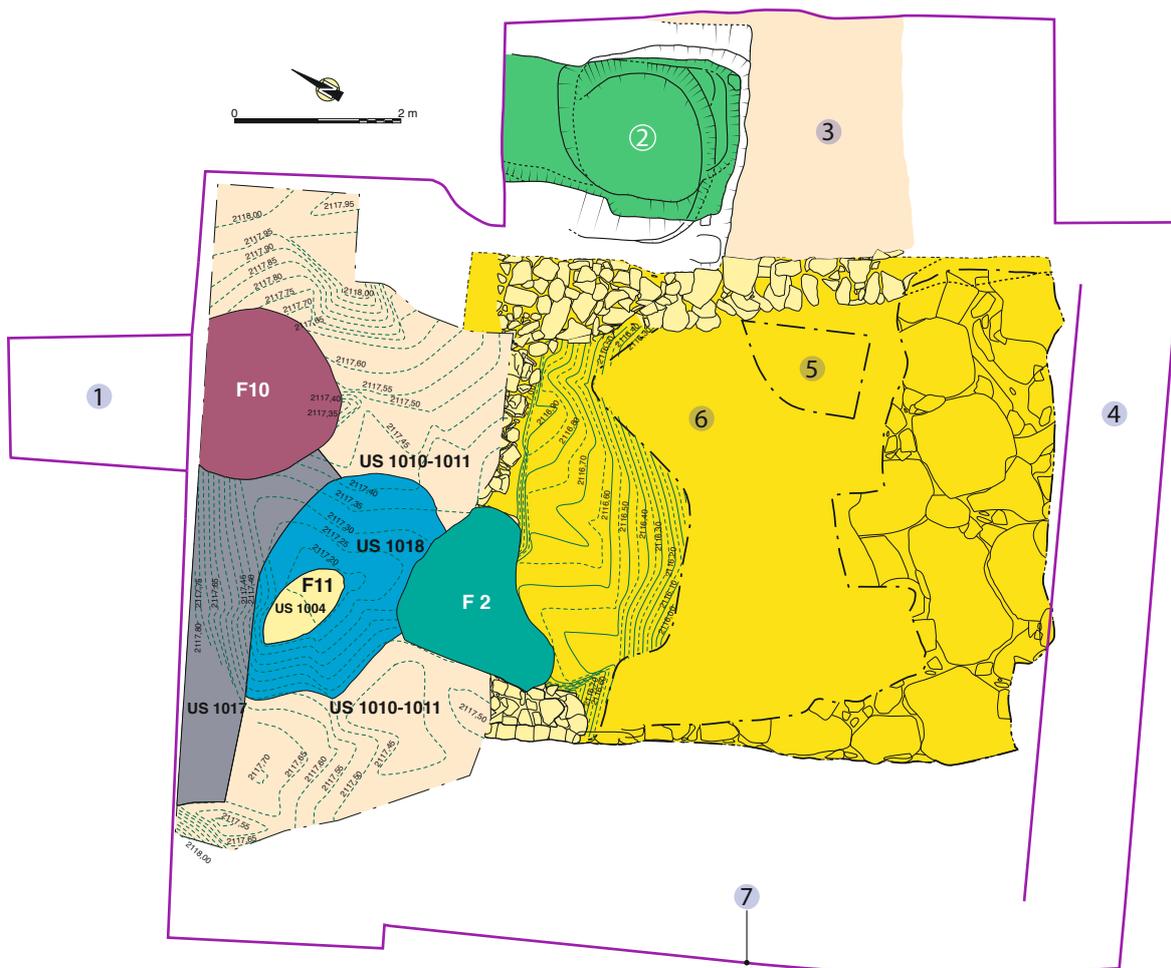


Figure 14 – Stratigraphic structures and units at the foot of Stela 2. 1: Trench from the 1994 excavations; 2: pit excavated in 1997; 3: Akumite mortar floor; 4: deep step of 20 cm; 5: undisturbed sector; 6: disturbed sector; 7: boundary of the 1997 excavation (the altitudes are given in metres above sea-level; topography L. Fadin, CFEE; drawing and synthesis: B. Poissonnier, CFEE).

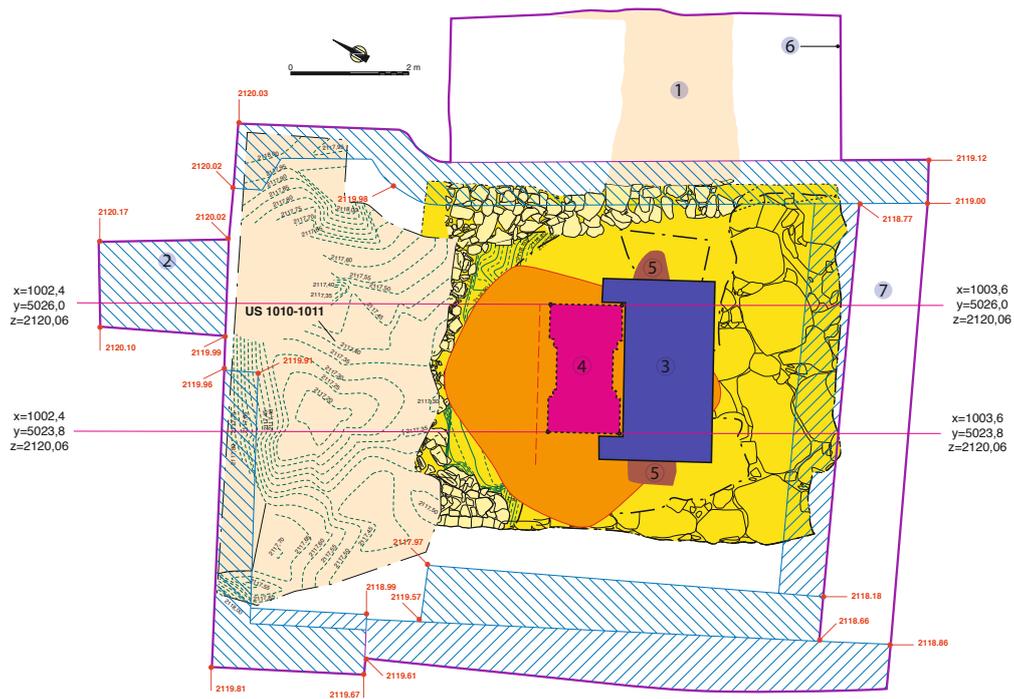


Figure 15 – Original location of Stela 2: plan of the 1999 excavation. 1: Aksumite mortar floor; 2: excavation trench; 3: base plate; 4: Stela 2; 5: wedge slab; 6: boundary of the 1997 excavation; 7: deep step of 20 cm (the altitudes are given in metres above sea-level; the coordinates of Stela 2 are local, at the level of the base plate; the point of origin, HPN1, was located close to the base of Stela 1; topography: L. Fadin, CFEE; drawing and synthesis: B. Poissonnier, CFEE).

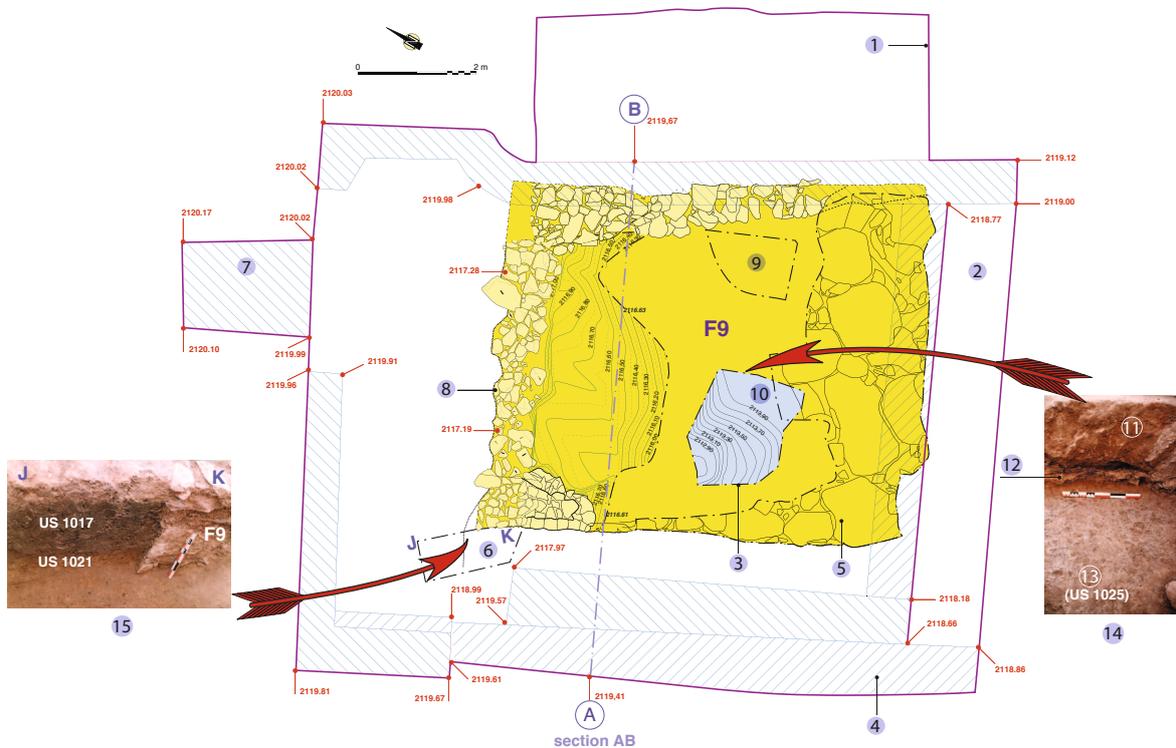


Figure 16 – Plan of the masonry building (F9) of the foundation of Stela 2: condition in 1999. 1: Boundary of the 1997 excavations; 2: deep step of 20 cm; 3: window showing the resistant substrate beneath the foundation; 4: contemporary support wall; 5: boulders integrated into the lower level of the foundation; 6: excavation trench; 7: 1994 excavation trench; 8: upper level of the foundation; 9: undisturbed portion; 10: resistant substrate; 11: boulder; 12: mortar; 13: resistant substrate; 14: boulder bonded with mortar to the flattened resistant substrate (scale = 50 cm); 15: section of the west angle of foundation F9 (scale = 50 cm; topography: L. Fadin, CFEE; drawing and synthesis: B. Poissonnier, CFEE).

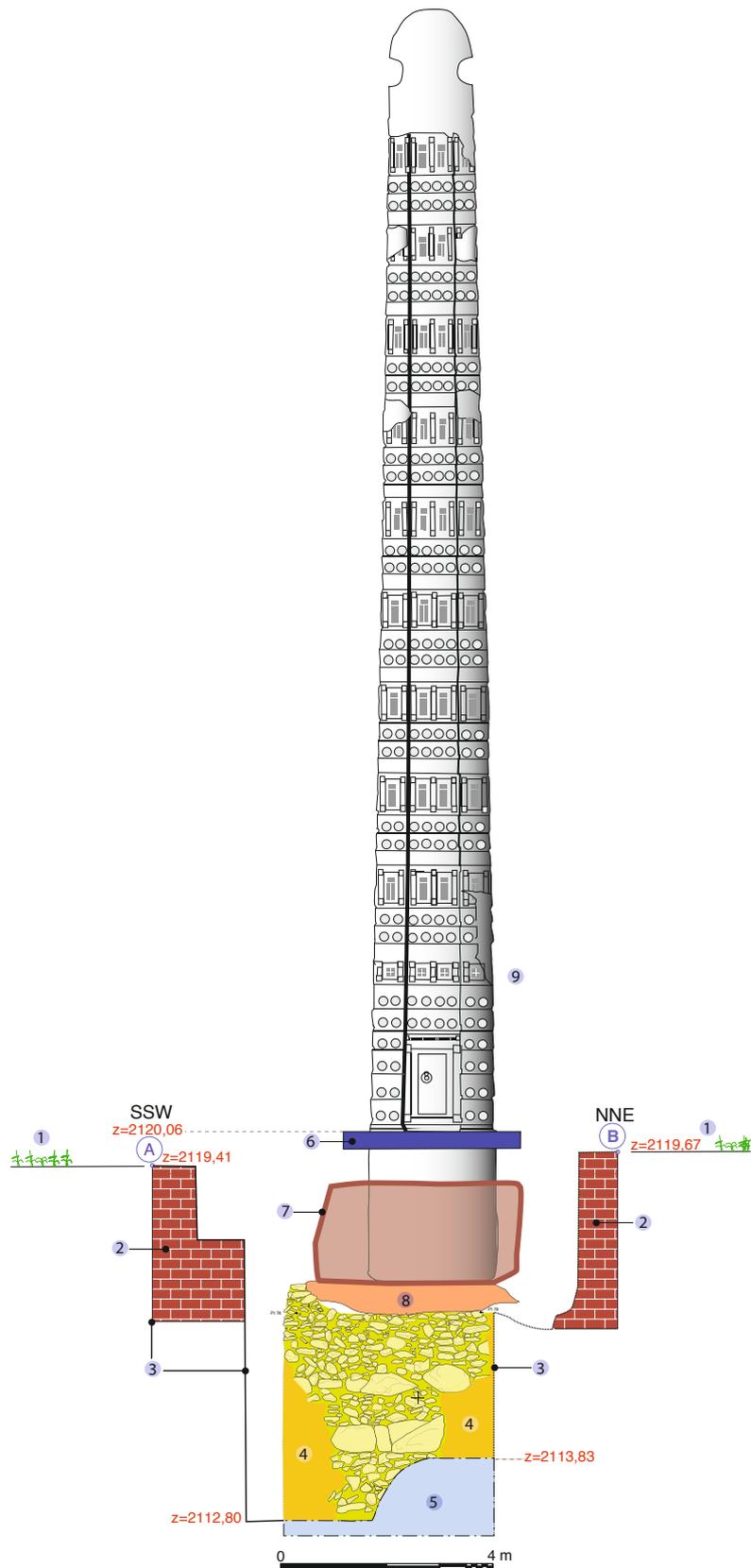


Figure 17 – Original location of Stela 2: section AB (SSW-NNE). 1: Current ground level; 2: contemporary support wall; 3: boundary of the excavation; 4: not detailed; 5: resistant substrate; 6: base plate; 7: wedge slab; 8: "footing slab"; 9: Stela 2 redrawn (after Littmann *et al.*, 1913; the altitudes are given in metres above sea-level; topography: L. Fadin, CFEE; drawing: J.-M. Bryand and B. Poissonnier, CFEE; synthesis: B. Poissonnier, CFEE).

Perhaps more or less flat originally, and intended to be resistant in order to permit the transport of the stela before its erection, this area had then settled under the heavy pressure from the passage of the stela. At the same time, it provides us with information on the contemporary circulation levels at the time of the construction: we finally have information that enables us to identify in terms of stratigraphy and height the ground levels linked to Stela 2.

We can also remark that the “Aksumite surface” excavated in 1997 to the northeast of foundation F9 was described by Phillipson and Watts (1998) as a “mortar” level which may correspond to US 1010-1011 (figure 15).

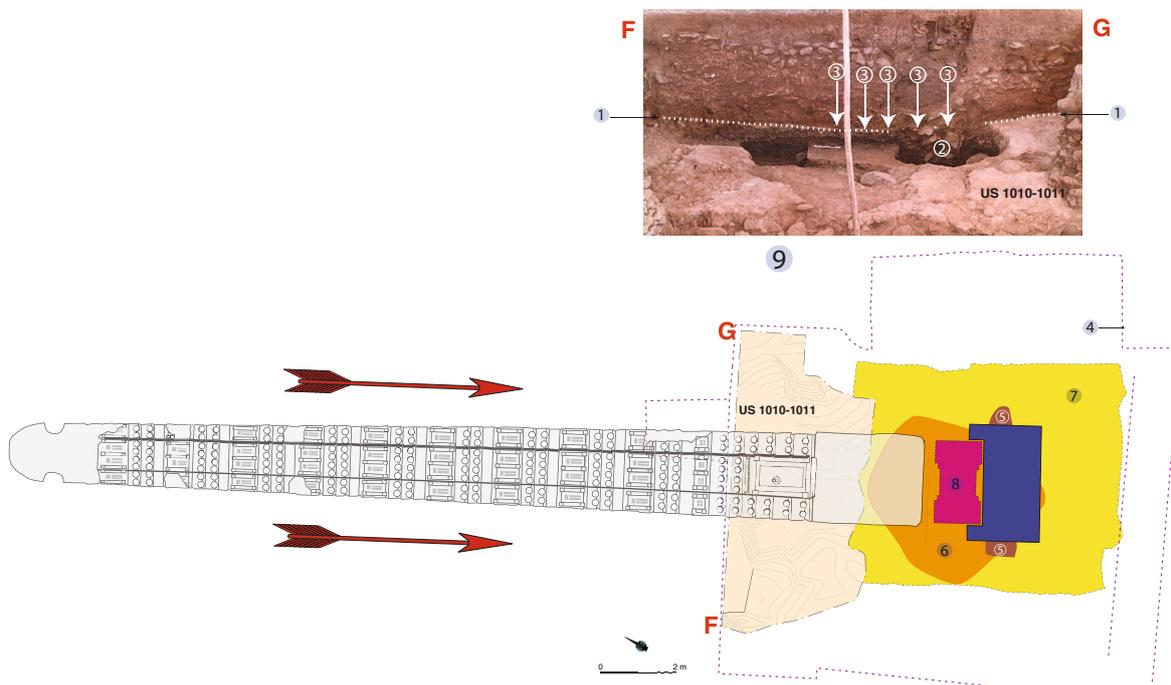


Figure 18 – Reconstruction of the direction of movement of Stela 2 just before its erection. 1: Upper limit of the mortar floor (US 1010-1011); 2: pit F10; 3: pressures; 4: boundary of the excavation; 5: wedge slab; 6: “footing slab”; 7: foundation masonry (F9); 8: section of Stela 2 in vertical position; 9: section FG showing the transverse depression in the axis of movement of the stela, probably due to the pressure linked to its movement (topography: L. Fadin, CFEE; drawing, photograph and synthesis: B. Poissonnier, CFEE).

2.3 - Pit trenches: graves?

To the northwest of foundation F9, we discovered two pits; at least one seems to be linked to the stela. This one (F10), with a depth of more than 7 m beneath the current surface, has an unusual profile (figure 19): a vertical shaft which becomes wider lower down and ends with a step opposite an offset recess.

The pit had been plundered long ago, but we were able to find remains of the probable original funerary deposit: a glass bead, fragments of several imported glass and pottery containers and a variety of metal objects (copper, bronze and, perhaps, lead). A flat quadrangular stone, roughly hewn, was also discovered in the deepest part of the pit. However, it is not possible to be certain whether this was part of the original deposit, as the fill of the whole structure after it had been plundered was itself comprised of many stones.

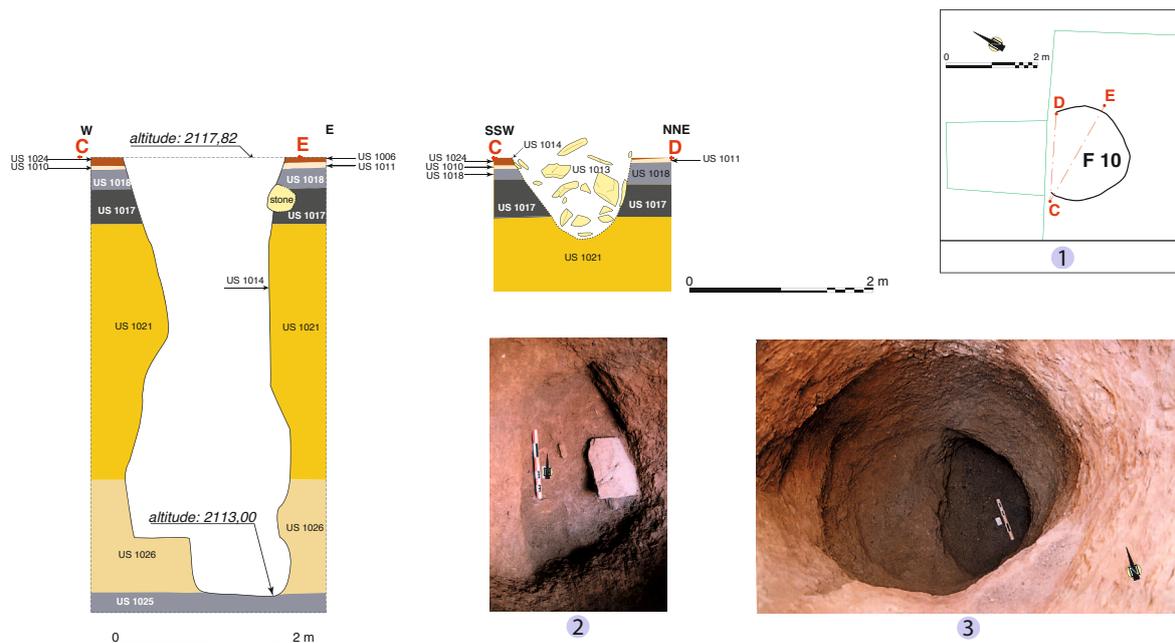


Figure 19 – Pit F10. 1: location of the sections; 2: slab at the bottom of pit F10 (scale = 50 cm); 3: pit F10 at the end of the excavation (scale = 50 cm) (The altitudes are given in metres above sea-level; topography: L. Fadin, CFEE; drawings, photographs and synthesis: B. Poissonnier, CFEE).

This pit had been dug, like the foundation of the stela, through the softer levels of the substrate (US 1018, 1017, 1021 and 1026⁴) to end in solid rock (US 1025). The original level of the opening of F10 is not known – the stratigraphical links were destroyed by the activities of the thieves – but it is logical to imagine that this pit was dug after the erection of Stela 2 since the mortar level (US 1010–1011) linked to the erection of the stela had been perforated by the shaft.

Another pit (F11), also clearly later than the erection of the stela, is located just to the north-west of the foundation (F9; [figure 14](#)). It can already be seen in an upper level ($z = 2119.00$ m) where it was marked by several large vertical stones. Its fill (US 1004), essentially formed of a very fine sediment, contained only a few stones and some rare sherds of Aksumite pottery (*Red Aksumite Ware*). More or less conical in form, this pit was at least 3 m deep (lower altitude: $z = 2115.90$ m). We do not know its function or date. The uniformity of its fill clearly distinguishes it from the neighbouring pit F10.

Finally, a disturbed area was noted in the west angle of foundation F9. This area (F2) probably corresponds to a pit dug after the fall of the stela and the tilting of its footing slab. It was observed in the excavation in 1997, during which it was recorded under number 1220.

A recent synthesis has demonstrated that pit graves are encountered from the north to the south of Ethiopia, from Antiquity to the present day (Fauvelle-Aymar, Poissonnier, 2012) and with a morphology similar to that of pit F10. Whatever the diameter and length, an access (“well”) ends in a funerary space in which the body is deposited without being covered with sediment.

4. Studied by Zeresenay Alemseged (Poissonnier *et al.*, 1999).

It is, however, isolated in a variety of ways, for example with a stone slab. Once the body is underground, the access well is refilled. Stones are usually piled above the grave. It is thus tempting to read F10 as a pit grave the original contents of which have been disturbed. As for the possible bone remains, the local taphonomic conditions agree with the idea of disappearance by means of physico-chemical weathering.

3 - When and how was Stela 2 erected?

During the excavation, we collected charcoal fragments unquestionably associated with the construction of the stela, as they came from the foundation itself and from the burnt level immediately underlying it, but unfortunately they could not be radiocarbon dated⁵. We also collected 2000 artefacts which have been recorded and deposited at the museum of Aksum. They will not be described in this article; we should, however, mention that the *Red Aksumite Ware* pottery associated with the foundation dates it to the 3rd or 4th century AD, in line with the data previously collected by the British team (Phillipson, 2000).

The mortar level seems to correspond to the working level on which the stela was transported to the site, which also indicates the direction from which it came, namely the north. We can thus suggest that the erection was carried out not by the tipping of the stela (from a higher level) into a supposed pit, but from the identified ground level, being supported directly by the monolithic footing slab. Nor has any trace of a ramp been discovered.

The large slab that wedged the obelisk to the southeast clearly broke during the fall of the latter. We have reconstructed it in its probable original position (figure 17). Its flattened, easily recognisable base must have been supported by the part of the footing slab carved in relief. The height of the wedge slab is not, however, sufficient to offer a suitable support for the base plate that surrounded the bottom of the decorated part of the obelisk; it was thus essential to wedge the stela with a construction above ground and reaching up to the upper level of the base plate (or an absolute altitude of 2120.06 m). This construction was probably adapted to the form of the foundation and should – although we cannot be categorical about this – have had a more or less parallelepipedic volume. If we admit that the probable pit graves (F10 and that of 1997) are associated with this stela, we must imagine a rather confined structure, and one which in any case did not impinge upon the pits (figure 20).

Only the megalithic elements of this “podium” have been reasonably well preserved over time. The remainder of the edifice was probably constituted of masonry with more modest stones, of which we have found no certain remains. It must have been possible to mount to the summit of the podium, because, like those preserved on the site, the base plates were equipped with small basins, probably intended for ceremonies. In addition, stelae 3, 4 and 5 demonstrate stepped plates which seem to be the edges of staircases.

This arrangement was perhaps that described by a traveller in 1520. Standing in front of Stela 3, he described the base, raised in relation to the surrounding ground, and which seems at that date to have retained part of its podium: “The stone which supports this one and serves as a base is as thick as a man is tall and well squared: seeming to be placed on others, small and large: but I do not know how deeply it penetrates them, or whether it reaches the ground” (Alvarez, 1558: 108).

5. Transferred for export authorisation to the ARCC on our return to Addis Ababa, they were lost.

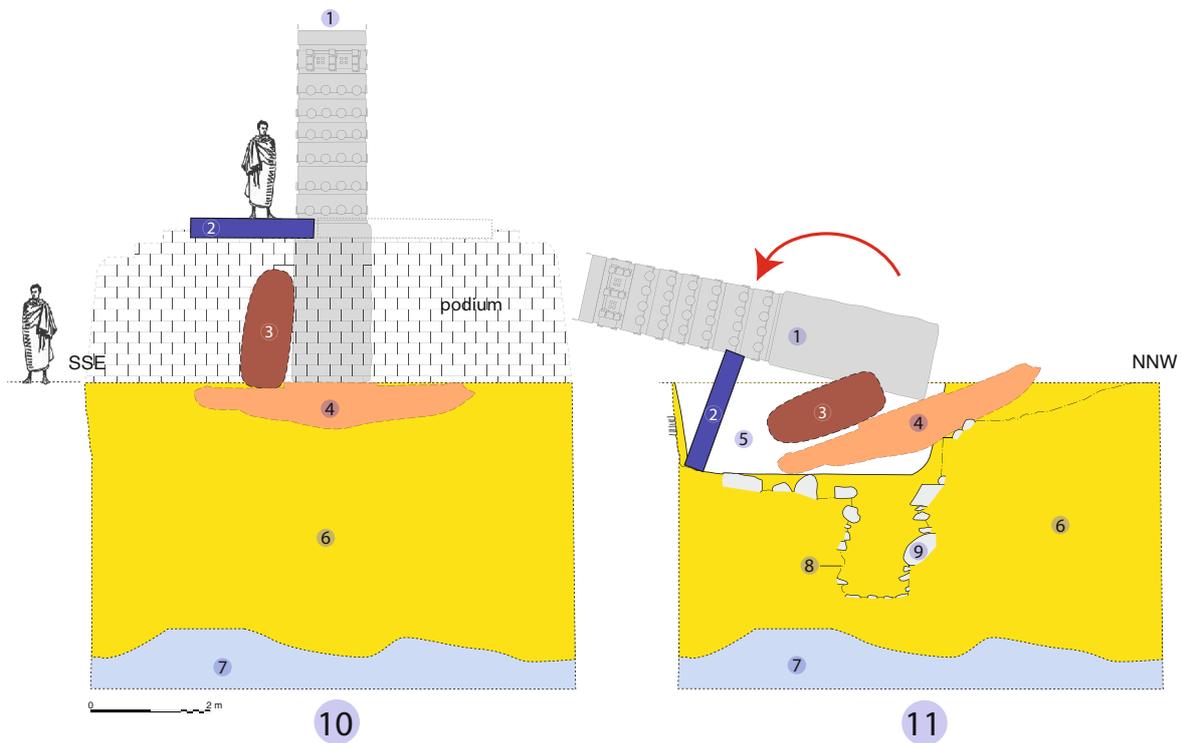


Figure 20 – Diagrammatic reconstruction of the process of collapse of Stela 2. 1: Stela 2; 2: base plate; 3: wedge slab; 4: "footing slab"; 5: plunder trench and disturbance; 6: masonry building of foundation (F9); 7: resistant rocky substrate (US 1025); boundary of the window of the excavation; 9: boulder integrated in the masonry of the foundation; 10: reconstruction of the original location of Stela 2; 11: scenario of the collapse of Stela 2 and synthesis of the elements discovered by successive archaeologists (drawing: J.-M. Bryand and B. Poissonnier, CFEE; synthesis: B. Poissonnier, CFEE).

3.1 - Absolute and relative altitude: three hypotheses

The proposal that we have just elaborated radically modifies the vision of Stela 2 and, in consequence, that of its neighbours, stelae 1 and 3, although we do not know the details of their foundations (figures 21-22). These stelae erected on podiums were higher, to the extent that Stela 1, 32.60 m long, would have been raised 32.60 m above the construction level when it was upright. This confers upon it the title of the highest monolith ever raised. However, stratigraphic information gathered from the 1999 excavations does not make it possible to differentiate with certainty between the construction levels and the circulation levels at the foot of Stela 2.

We will here attempt an overview of the three principal giant stelae. Three general hypotheses can be envisaged. The first, classic, hypothesis, is that of a circulation level corresponding to the base of the base plates; this assumes the refilling of the sector on an enormous scale (figure 22, niveau 1). In this case, the stepped portion of the base plates would not truly play the role of a staircase, at most representing the final steps of an extremely reduced podium. The stelae lose the visual benefit of the podiums, but is this the effect that was sought? Struck as we are today by the size of these exceptional monuments, we risk misjudging the intentions from which they result. We must not forget that the stelae field is above all a hypogean field, and that this funerary assemblage should not be equated to a simple display of upright stones.

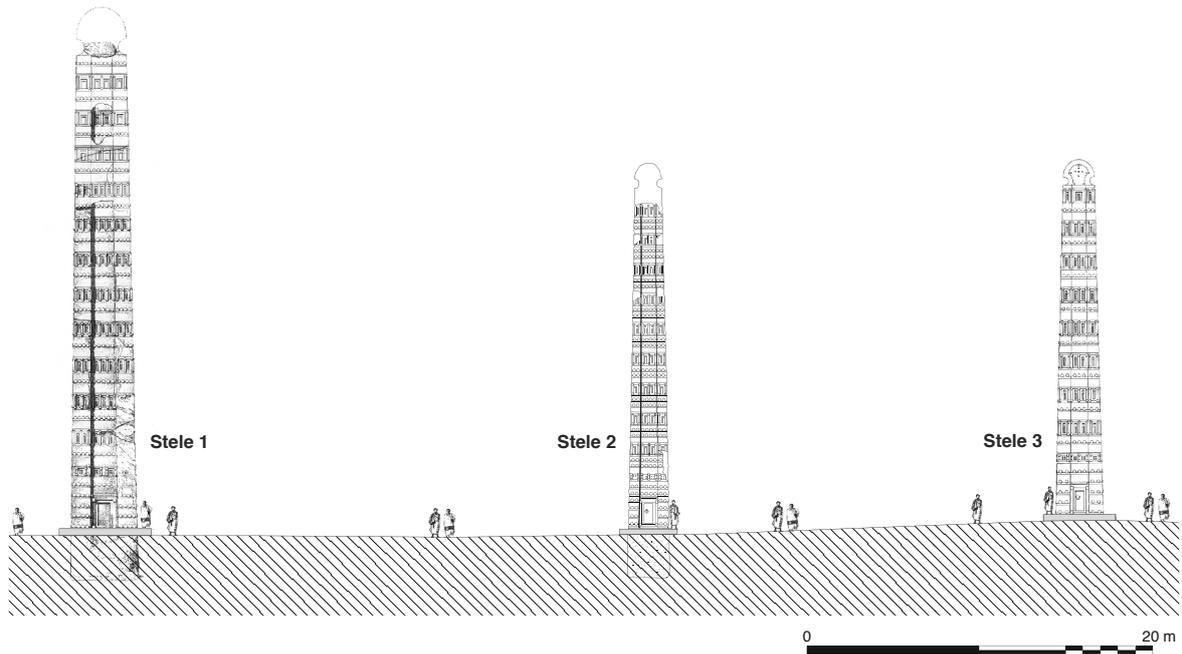


Figure 21 – Reconstruction of the alignment of stelae 1, 2 and 3 according to the “classic” view of the stela field. The stelae drawn after E. Littman *et al.* (1913) have been located according to the topography and Stela 2 has been replaced according to our work. The underground structures at the base of Stela 1 have not been depicted.

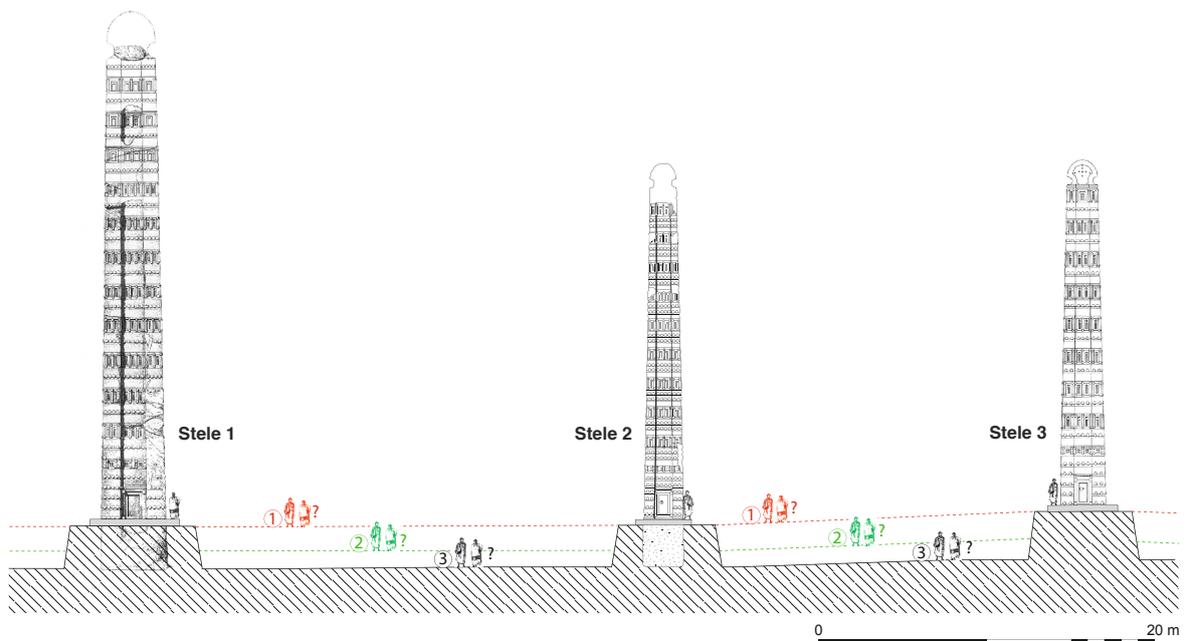


Figure 22 – Reconstruction of the alignment of stelae 1, 2 and 3 according to our proposal. The underground structures at the base of Stela 1 have not been depicted. 1: Hypothetical upper circulation level; 2: hypothetical intermediate circulation level; 3: hypothetical lower circulation level, namely the construction level.

In the second hypothesis, the construction levels correspond more or less to the circulation levels, at the base of the podiums, which optimises the relative height of the stelae, and thus their disproportion (figure 22, niveau 3). However, the proximity of the long terrace wall M1 (figure 23) poses a problem: how did it relate to the podiums? Even if we imagine that this wall, still 3 m high in places in 1955 (Leclant, 1959: 4), and which was reconstructed on its Aksumite bases during the 20th century, was a little lower than its current appearance, its higher altitude can be deduced from the current location of Stela 1, which broke when it fell on top of the wall: it must have been higher than the base of the podiums (figure 24). Would it be correct to say that, as seems to us most probable, the circulation level was situated on an intermediate level, around one metre above the construction level (figure 22, niveau 2)?

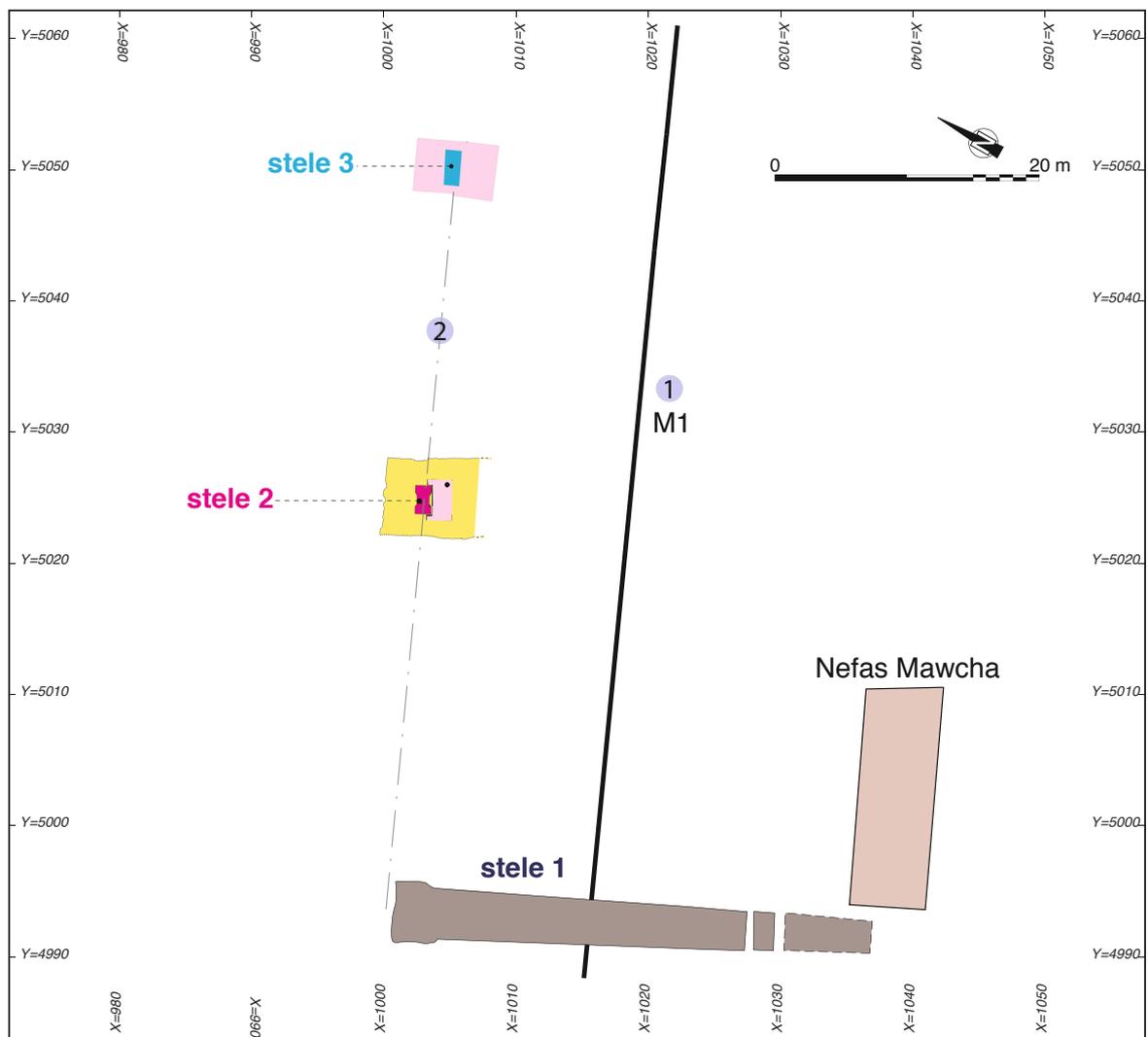


Figure 23 – View of the alignment of stelae 1, 2 and 3, parallel to Aksumite wall M1. 1: Wall M1; 2: virtual parallel to wall M1 (topography: L. Fadin, CFEE; drawing and synthesis: B. Poissonnier, CFEE).



Figure 24 – Stela 1 facing north (photograph: B. Poissonnier, 1996).

3.2 - Raising a giant monolith

Can we now attempt to reconstruct the manner in which the stela was erected? Firstly, the extraction site 4 km away of the great stelae has been identified, and transportation routes have been proposed (Phillipson, 2000: 229-251). We do not know the methods by which they were transported, but we must recall the local presence of very large trees, giant junipers (*Juniperus procera*), which could have offered excellent rollers and other timber. Contrary to the classic hypotheses (Phillipson, 2000: 251-254), we thus suggest that the stela was not tipped into a pit, and that the use of a ramp – a method more valued by archaeologists than by early constructors – was here very unlikely. It is true that we have no direct evidence for the operation. We do, however, possess extraordinarily valuable evidence relating to comparable work carried out in the Roman world, at about the same time.

In around 330 AD, two obelisks from Karnak were transported to Alexandria; one was then moved to Rome, the other to Constantinople. Excavations at the initial site of the latter have revealed the substructure of raw earth bricks for the large-scale wooden scaffolding that enabled it to be dismantled without being damaged (Azim, 1980; Azim, Golvin, 1982). There was an eyewitness to the re-erection in the Circus Maximus at Rome, in 357 AD, of the great obelisk of Karnak, 32.18 m long (perhaps originally 32.50 m) and weighing 460 to 510 tonnes according to estimates. Ammianus Marcellinus explains how, three miles from there, disembarking from the Tiber, “it was put on rollers and carefully drawn [...] and brought into the Circus Maximus. After this there remained only the raising, which it was thought could be accomplished only with great difficulty, perhaps not at all. But it was done in the following manner: to tall beams which were brought and raised on end (so that you would see a very grove of derricks) were fastened long and heavy ropes in the likeness of a manifold web hiding the sky with their excessive numbers. To these was attached that veritable mountain [the monolith] [...] and it was gradually drawn up on high through the empty air, and after hanging for a long time, while many thousand men turned wheels resembling millstones, it was finally placed in the middle of the circus” (Ammianus

Marcellinus, 1989, 17, IV, 15). It is clear that the operation was slow: it took place “gradually”, the monolith “hanging for a long time”. The tension of the ropes must have had to be perfectly controlled, and any jerking avoided.

Another exceptional document from the 4th century concerns the re-erection at Constantinople in 390 AD of the obelisk of Thutmose III, with an estimated length of 29.0 m and a weight of 380 tonnes. The base of the monument bore Roman bas-reliefs (figures 25-27) together with two inscriptions providing information on the duration of the erection operation: three times ten days according to the Latin text, thirty-two according to the Greek text (Iversen, 1972: 12-13). This duration alone reveals the precautions that surrounded the manipulation of a monument of such inertia, losing control of which would have had irreparable consequences. It is also interesting to note that in this case the obelisk was not tipped into a pit: one of the bas-reliefs on the base, which illustrates the operation, shows it installed on a pedestal.

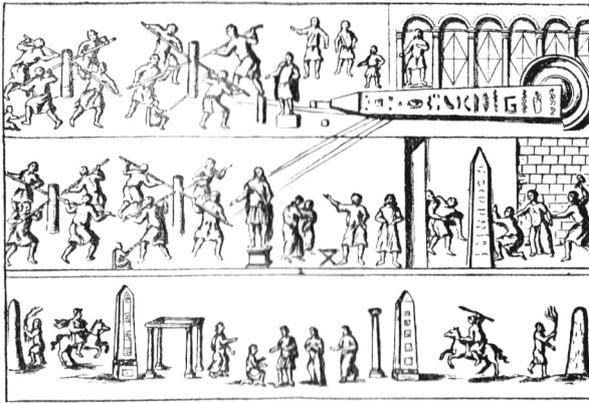


Figure 25 – Roman bas-reliefs at the base of the obelisk of Karnak, re-erected at Constantinople in 390, drawn in 1675 (after Spon and Wheeler, 1678).



Figure 26 – Roman bas-reliefs at the base of the obelisk of Karnak, re-erected at Constantinople in 390. Elements remaining today, left part (photograph: P. Moret, Traces, UMR 5608).



Figure 27 – Roman bas-reliefs at the base of the obelisk of Karnak, re-erected at Constantinople in 390. Elements remaining today, right part (photograph: P. Moret, Traces, UMR 5608).

These accounts from the 4th century – in other words contemporary with the erection of the great stelae at Aksum – should be taken into account when attempting to understand the technical context of the Ethiopian achievements. Nor is Egypt very distant from Aksum. The elements in our possession permit us to assume the use of wooden rollers (attested in Rome) for the transport of monoliths, and the manufacture of enormous wooden structures and a great quantity of ropes enabling the power applied to be multiplied through pulley systems, winches and other capstans. It is worth noting that, in the pre-industrial world, sailors were the specialists in moving and lifting the heaviest loads, from water-borne transport to problems of loading and unloading. Until the 19th century, in the majority of cases naval architects were in charge of the operations to transport and re-erect ancient obelisks in several capitals far distant from Egypt. And the Aksumite culture was a maritime culture, open to the Red Sea. Even if the erection of stelae was a phenomenon known in Ethiopia in the Pre-Aksumite period, perhaps rooted in even older practices (Fattovitch, 1987), the implementation of the series of giant stelae at Aksum could only have been carried out by calling upon exceptional methods borrowed from new technical repertoires. Indeed, this was the case more than a millennium later, not in Africa but in Italy, as we will soon see.

The ancient obelisks present in Rome aroused great interest among the Renaissance popes. Under the pontificate of Nicholas V (1447-1455) it was thus planned to move an obelisk, which had been transported in 37 AD from Alexandria to the circus of Caligula, in order to re-erect it in front of the cathedral. Judged to be impossible, this project was abandoned; however, it was frequently revived during the following century (Hemphill, 1990). Pope Sixtus V in turn launched a competition with the intention of selecting the best plan for the project. The technical difficulties seemed to be insurmountable, despite a great number of applications from excellent engineers, until architect Domenico Fontana was awarded the project in 1586. He constructed a double tower in wood, dismantled (figures 28-29) the 25.13 m high obelisk, which weighed around 340 tonnes, then moved it 260 m from the side of St. Peter's Basilica in Rome, where it was partly buried in ruins, to the Piazza del Popolo, where he re-erected it (figures 30-32) on a pedestal. To carry out the operation, 40 special capstans were worked by 800 men and 75 horses, while 106 men manipulated five gigantic levers. The complete operation took a long time, but the erection itself only took 13 hours, to the great amazement of those present; the wedges between the pedestal and the block were then removed, and the monolith installed in its final position (Fontana, 1590; Wallis Budge, 1926: 41-47). Two years later, the same architect moved the obelisk described by Ammianus Marcellinus and re-erected it on the Piazza di San Giovanni in Laterano.

These operations employed traditional knowledge very similar to the technical context of the Antique period. One thing is certain: these techniques could not be envisaged in narrow or cluttered spaces, as is shown by figures 31 and 32, in which the capstans, men and horses cover the piazza; indeed, in reality they would have done so to a much greater extent than is suggested by the artist. In the case of Aksum, the rare stelae set up behind the giant stelae could not reasonably antedate the erection of their larger sisters, for technical reasons. In the same manner, given the excesses of the methods employed, it is considerably more restrictive to imagine a construction spread out over time, with a first assemblage linked to a single stela, then a second linked to a second, and a third to a third, which moreover is linked to a single long terrace wall, than a global construction project. We will return to this important point.

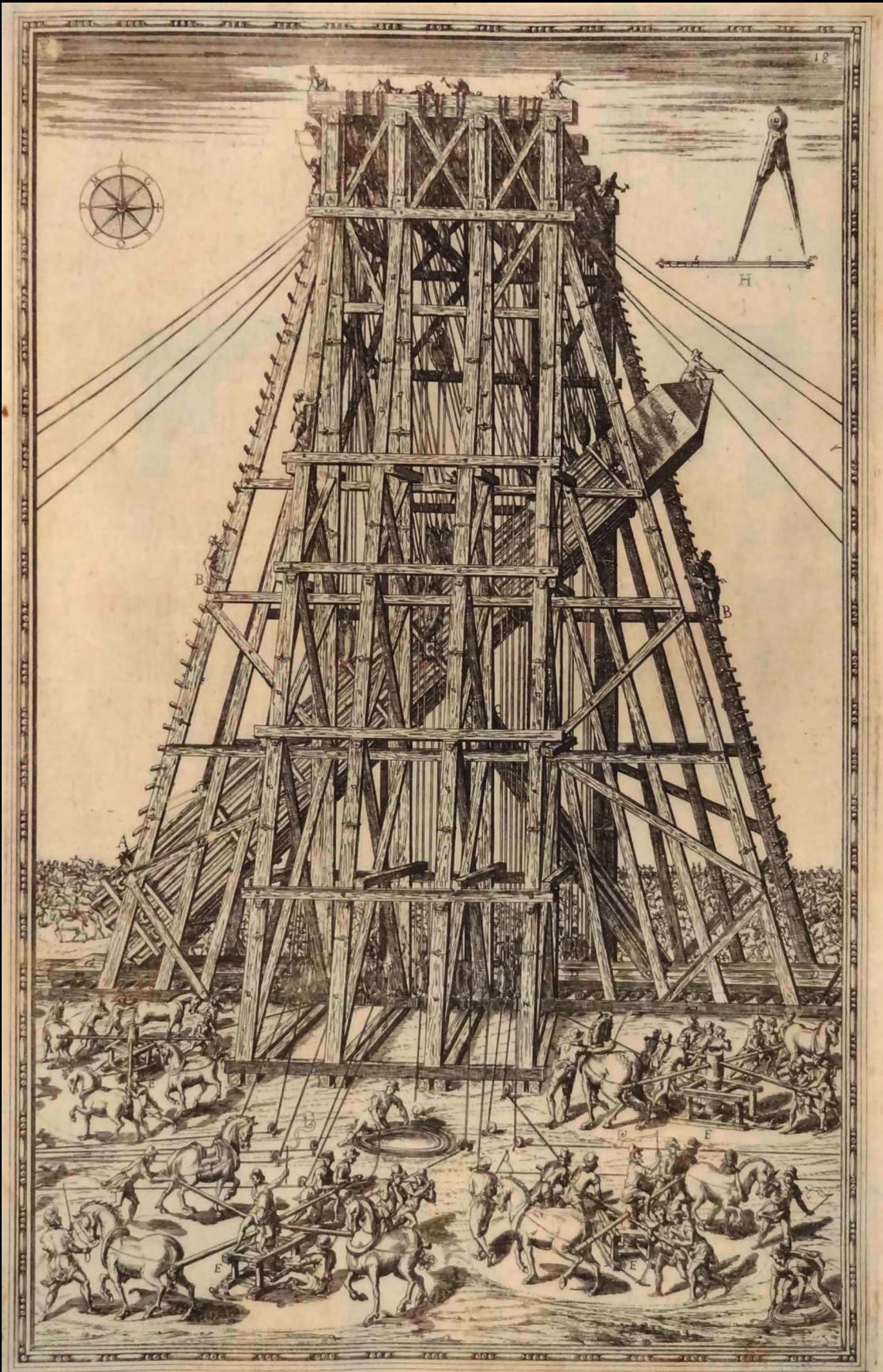


Figure 28 – During the dismantling of the Vatican obelisk, 1586 (in Fontana, 1590).

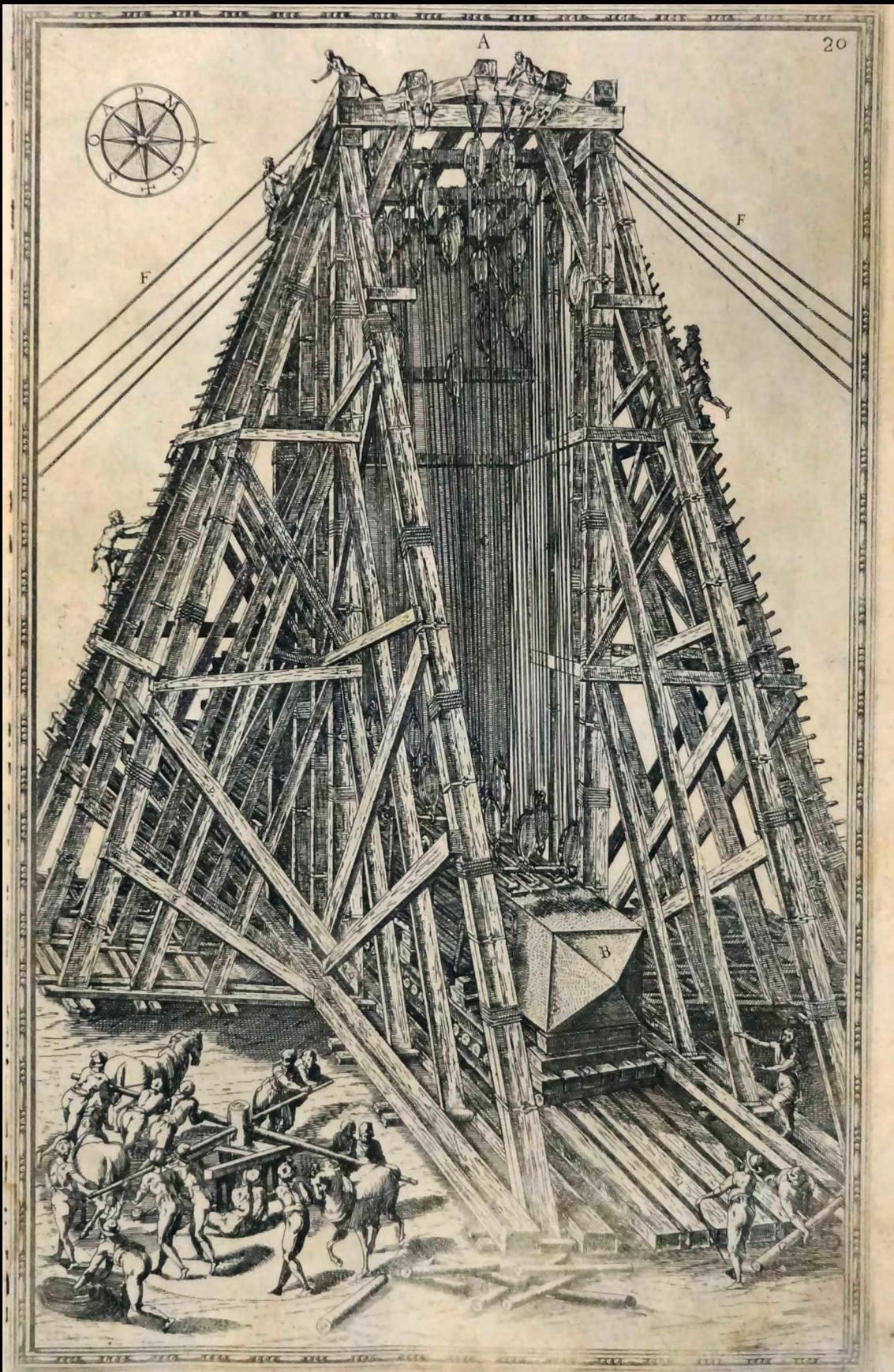


Figure 29 – After the dismantling of the Vatican obelisk, 1586 (in Fontana, 1590).

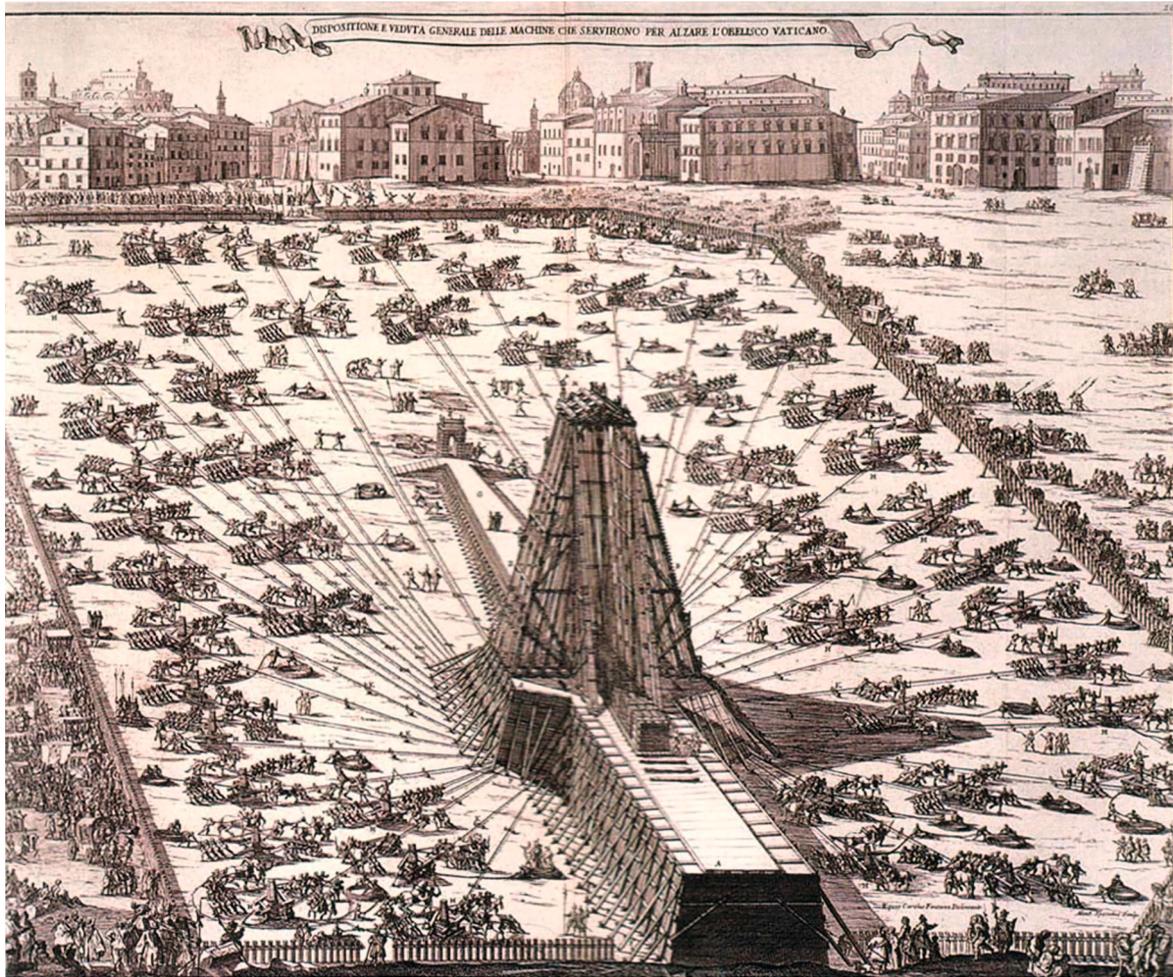


Figure 30 – Re-erection of the Vatican obelisk, 1586 (in Fontana, 1590).

4 - The collapse of Stela 2: when, how and why?

The 1997 excavations clearly demonstrated that during its collapse, Stela 2 tilted with its pedestal and its large wedge stone into a pit dug at its foot (Phillipson, 2000). The following research had confirmed this point (figure 20). We know today that it was a trench dug beneath the structure by thieves in search of precious objects that destabilised the pedestal, which slid to the south, while the stela tipped over, trapping the base plate beneath it. A coin of the Aksumite ruler Gerssem, issued in around 600 AD and which circulated into the early 7th century, was discovered in 1998 on foundation F9, at the edge of the disturbances attributed to the thieves. This may indicate the approximate date of the fall of the stela, during a troubled period in the life of Aksum, which was undoubtedly not a leading settlement at the time.

The fall of the stela does not constitute a deliberate action: on the contrary, we can state that it was the accidental consequence of the sap made at the base by the thieves. Indeed, in 1906, the stela was still set in the base plate with which it had collapsed. There is no doubt that this stone would have been removed first if the monolith was to be deliberately toppled.

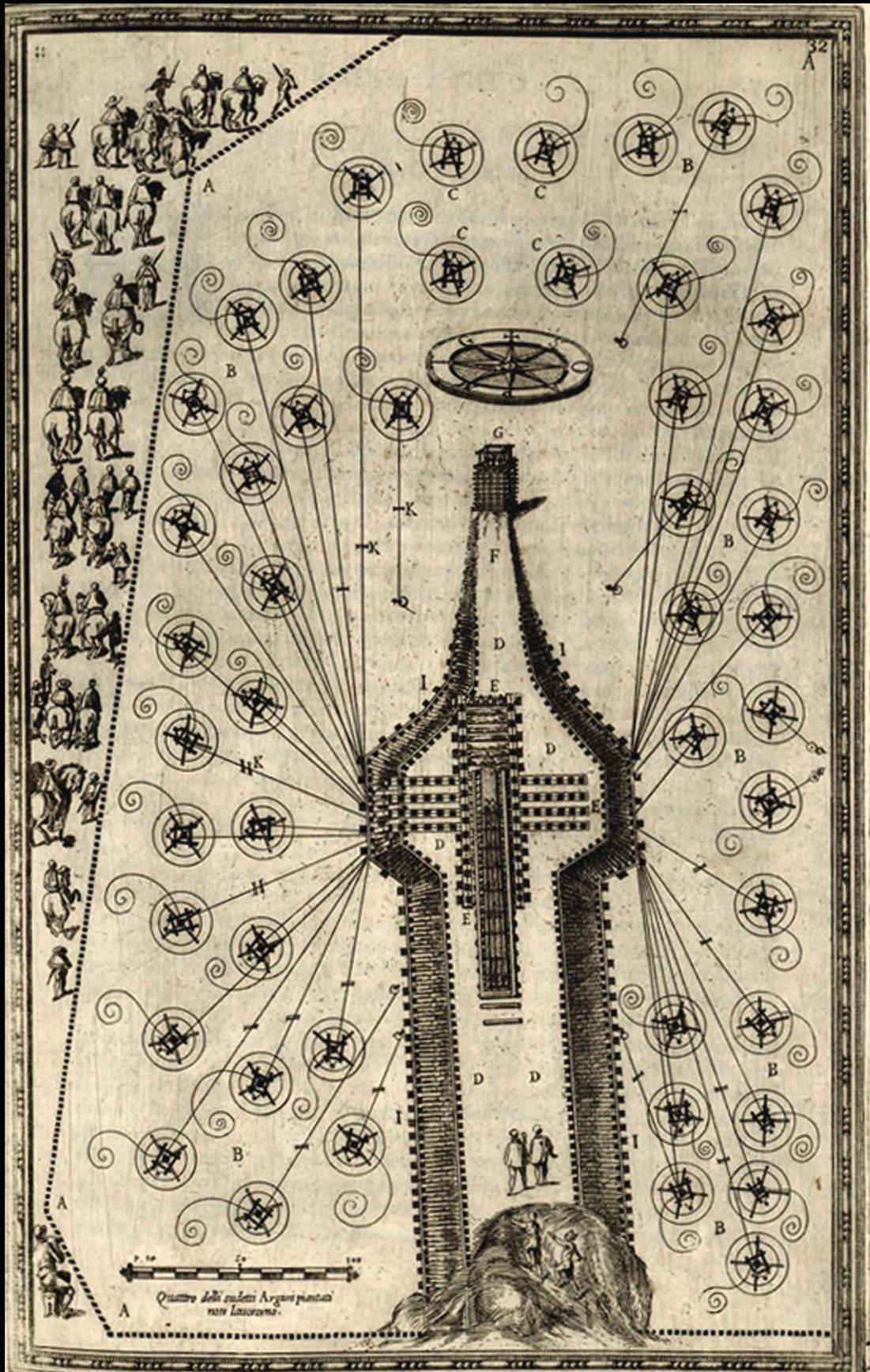


Figure 31 – Re-erection of the Vatican obelisk, 1586 (in Fontana, 1590).

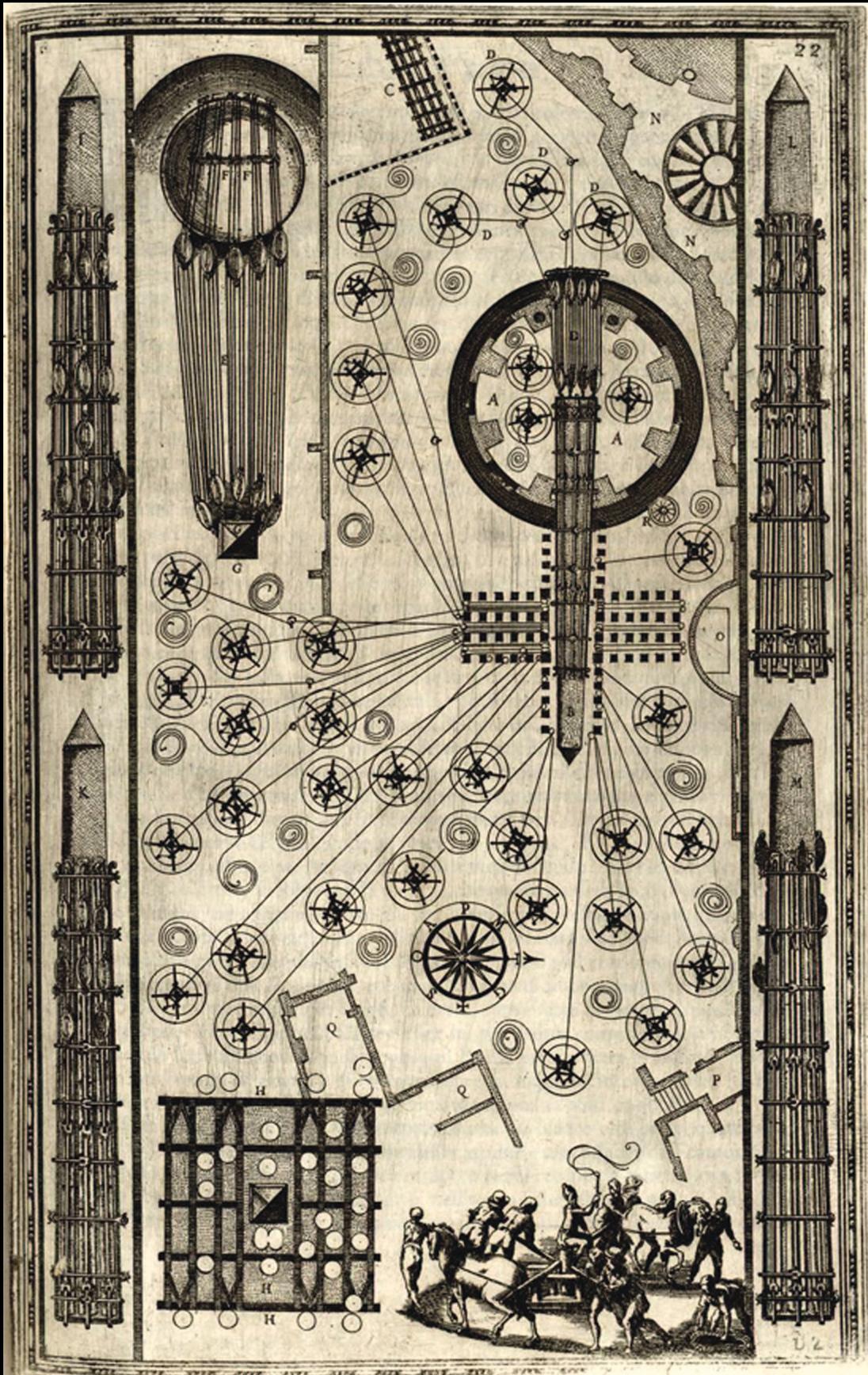


Figure 32 – Re-erection of the Vatican obelisk, 1586 (in Fontana, 1590).

4.1 - Towards a new view of the stelae field

4.1.1 - Stela 1 was properly erected

Another repercussion of our work concerns giant Stela no. 1. This stela, having fallen on the ground exactly like Stela 2, is frequently considered as a “failure”: according to this view it tipped over during the erection process and was left in that state, offering to the view of all and sundry the image of a monumental misadventure.

Phillipson (1994; 2000: 222) supported the idea of a failed erection of the stela, an opinion already presented by Van Beek (1967). Here are the arguments employed:

1. The stela, three times heavier than any other at Aksum, must have been intended for erection in loose rocky soil or at a level at least 9.3 m below the end of the ramp on which it was positioned.
2. Only 2.8 m (8.5 % of its total length) was intended to be set in its socket: far too little to achieve stability.
3. Some stratigraphic elements enable the assertion that the stela had fallen in the late 4th century AD (coins of Ouazebas; see de Contenson, 1959: 29-32).
4. There is no trace of the stela’s base plates: they would undoubtedly have been present if the erection had been completed.
5. The fall and the fracture of the western portal of the Mausoleum are probably due to the vibrations caused by the fall of the stela and took place before significant deposits had accumulated in the western courtyard.

Let us briefly address these arguments. The first is invalidated, as it does not take into account the fact that, as in the case of Stela 2, the Aksumite constructors had created an enormous foundation formed of a mechanically resistant artificial substrate; in addition, we see neither technical reason nor stratigraphic evidence to suggest the existence of a ramp. The second argument attributes the fall to the maladroitness of the Aksumite constructors who had buried only a small portion of the total length of the stela. However, we have demonstrated that Stela 2, which was erected with success, was in fact set up totally above the working surface.

To consider the third argument, it is preferable to re-examine the information at the source (de Contenson, 1959a). The French archaeologist evokes the discovery of fragments of Stela 1 which had exploded on impact and were found in what he designates “level II” posterior to the terrace wall M1: the latter “was thus already to a large extent masked when the rare architectural elements attested in [level II] occurred” (de Contenson, 1959a: 29). The author then goes on to point out that we must take into account the violence of the impact: the stones discovered deeply inserted into this level may perfectly well postdate it, and, in any case, “it is not possible to accurately state the period during which the collapse took place⁶” (de Contenson, 1959a: 29). In addition, far from dating this level to the end of the 4th century, the 35 coins found in “level II” (of which no more than eight can be attributed to King Ouazebas) correspond to a period running from the reign of this king to the end of the 6th century. This argument is therefore more in favour of a late fall of the stela.

The fourth argument is that of the absence of the base plates. In the case of Stela 2, we have seen that the southern plate was preserved, trapped beneath the fallen stela. We could therefore expect to find a plate, or elements of one, beneath Stela 1, or in the courtyard between the

6. Phillipson apparently failed to correctly understand the text, as he wrote that «it might imply that the fall of Stela 1 [...] had already taken place by that time [late fourth century], as proposed by de Contenson” (Phillipson, 2000: 160).

Mausoleum and the East Tomb (terminology from Munro-Hay, 1989). But this is not the case. However, if we decide to follow the reasoning consistent with imagining a stela having collapsed during erection, we must then *equally* explain the disappearance of the base plates, which would in any case have been prepared and in proximity to the stela at the moment of its aborted erection. We will also see later that we can use Phillipson's argument in another way.

Finally, the fifth argument links the damage caused to the western portal of the Mausoleum with the fall of the stela and explains the small amount of sedimentation by almost synchronous construction phases. It is simpler to imagine that this sector may have been covered, which would for a time have protected it from sedimentation.

The arguments supporting the hypothesis of the fall of the stela during its erection seem to us rather unconvincing. We propose an alternative, technical, hypothesis. For anyone having experience of setting up monoliths⁷, it is clear that the maximum lifting force must be applied at the moment at which the block is most horizontal, the forces required then decreasing proportionally as the block approaches the vertical. When the monolith is almost vertical, it is relatively easy to maintain it upright, and even to modify its vertical position by applying a minimum of force to the summit. In the case of Stela 1, we note that it fell towards the south, in a line with its erection from the north, or in other words having achieved the vertical position intended. Did it perhaps exceed this point, falling "forwards", as a result of a swaying movement? The fact that it fell perfectly in line tends to indicate that it had first been perfectly upright, sitting on its pedestal. The upright stela awaiting the construction of the locking system is perfectly maintained by innumerable ropes; a simple guying system would then secure the construction during the time necessary for its consolidation and even settling. There is no likelihood of an accident during this period: if an accident had taken place, it would have been during the erection process, and the stela would have fallen pointing towards the north. So what happened?

4.1.2 - Was Stela 1 felled?

The archaeological elements collected from the stelae field, while incomplete, enable us to propose a construction schedule conflicting with those previously proposed. Let us first imagine major preparations: sometimes between the mid-3rd century and the end of the following century, a huge working area was cleared (including any older stelae etc.) and, perhaps, levelled out. Deep foundations were dug and constructed in stone on the sites of the future stelae, substituting for the overly fragile rock a sort of very resistant artificial substrate. It is probable that the three stelae (1, 2 and 3) which are aligned formed part of the same architectural programme (figures 23 et 33), and their construction may have taken place over a relatively short duration (a few years?), benefiting from the encounter between a powerful architectural ambition and the mobilisation of both original know-how and a seasoned workforce. The three stelae, set up above the ground surface, were all maintained in place by stone podiums around 2.80 m high, topped with base plates, which acted as altars and to which access was obtained by means of staircases. In the case of Stela 1, two enormous underground structures, the Mausoleum and the East Tomb, were installed on the southern side, opposite each other, at the level of the stela foundation and at the

7. The author of this article has undertaken the experimental erection of more than 150 monoliths and has experimented with transporting megaliths of up to 32 tonnes in a variety of contexts and using archaic techniques (Poissonnier 1995, 1999, 2000).

same time as the terrace wall M1. This latter delimits, exactly parallel with the three monoliths, a great terrace whose upper level must have been somewhere between the construction level of the stelae and that of the base plates; perhaps 1.50 or 1.80 m below their surface. It should also be noted that the axis of another monument, the Nefas Mawcha, is the same as that of this wall and thus of the alignment of the three stelae, which reinforces the impression of a coherent organisation, at least for some time, of the architectural assemblage (figure 34). The funerary assemblage was used, the pit graves were dug at the base of Stela 2, and the Mausoleum received funerary deposits, perhaps for a short period, while the tomb seems to have remained if not incomplete at least unused, as also seems to have been the case for the Nefas Mawcha.

Next, at an unknown date, perhaps concomitant with the abandonment of the Mausoleum, Stela 1 collapsed (figure 35). And this is where we can re-examine Phillipson's argument concerning the absence of the base plates: if the stela collapsed without a plate, at least on the southern side, and perfectly in line with its original erection, it is because this securing mechanism was removed before the monolith was deliberately felled by being pulled towards the south. This explanation has the merit of taking into account the technical observations linked to the current position of the stela and of explaining why some or all of the remains had not been removed. These remains are perhaps not the indicators of a great architectural failure, but those of a destructive motivation, whether political or religious.

Later, during the 7th century, at the end of the Aksumite period, Stela 2, mined by thieves in search of precious objects from the underground tombs, collapsed accidentally and only Stela 3 remained upright until the recent return of Stela 2, no doubt fatigued from its Roman holiday.



Figure 33 – Looking east; the three stelae in alignment. Stela 3 is perfectly hidden by Stela 2 (photograph A. Daussy).



Figure 34 – View of “Nefas Mawcha”, the enigmatic megalithic structure, in the foreground. In the background, the reconstructed terrace wall M1 and great Stela 3 (photograph: B. Poissonnier, 1996).



Figure 35 – Assemblage of the three stelae 1, 2 and 3 after the re-erection of Stela 2. Stela 3, which is leaning, is guyed (photograph: A. Daussy).

Acknowledgments

This article depends in large part on a communication by the author entitled “Rethinking Aksum” which was presented during the 14th *International Conference of Ethiopian Studies* at Addis Ababa in 2000. The text remained unpublished, but was also presented on the occasion of the summer school in preventive archaeology organised by the CFEE and INRAP at the University of Aksum in November 2008. A preliminary version was finally presented at the seminar “African archaeology and history” at the University of Toulouse-le Mirail in 2011, and has benefited from the comments of those colleagues present.

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Bertrand POISSONNIER

Archaeologist in charge
INRAP Grand-Sud-Ouest, FRANCE
bertrand.poissonnier@inrap.fr

Permanent member
CNRS, Traces (UMR 5608),
Toulouse, FRANCE

Article outline

**THE SUPERIMPOSED CEMETERIES OF TUTO FELA
IN GEDEO COUNTRY (ETHIOPIA), AND THOUGHTS
ON THE SITE OF CHELBA-TUTITTI**

Roger JOUSSAUME

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THE SUPERIMPOSED CEMETERIES OF TUTO FELA IN GEDEO COUNTRY (ETHIOPIA), AND THOUGHTS ON THE SITE OF CHELBA-TUTITTI

Roger JOUSSAUME

Abstract

In Gedeo Country, southern Ethiopia, the tumulus of Tuto Fela has yielded two groups of steles, some phallic and some anthropomorphic. The latter belong to a monument formed by the successive addition of the tombs of which they are the markers. The phallic steles, which could have been re-employed for this use, originate from an earlier period of the monument characterized by tombs dug into the substratum. This first period has been dated to between the 11th and the 13th centuries AD. It was possible to verify some of the hypotheses proposed for Tuto Fela through the study of the neighboring site of Chelba Tutitti, which has phallic steles only.

Keywords

Africa, Ethiopia, megalithism, phallic stele, anthropomorphic stele, Tuto Fela, Chelba Tutitti.

In southern Ethiopia, the tradition of standing stones upright probably goes back more than a thousand years (figure 1). Most peoples of this region gradually abandoned this custom when they adopted Islam or Christianity between approximately the 13th and 14th centuries. Others, however, such as the Konso and their neighbors to the south, the Gewada, or the Arsi and Hadiya on both sides of the large lakes of the Rift Valley, continued this practice until recently in association with the death of certain individuals (Joussaume, Cros, in press).

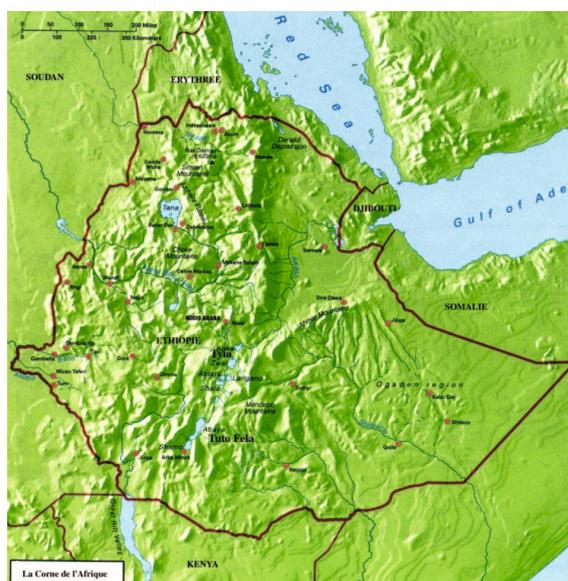


Figure 1 - Map of Ethiopia and the location of Tuto Fela.

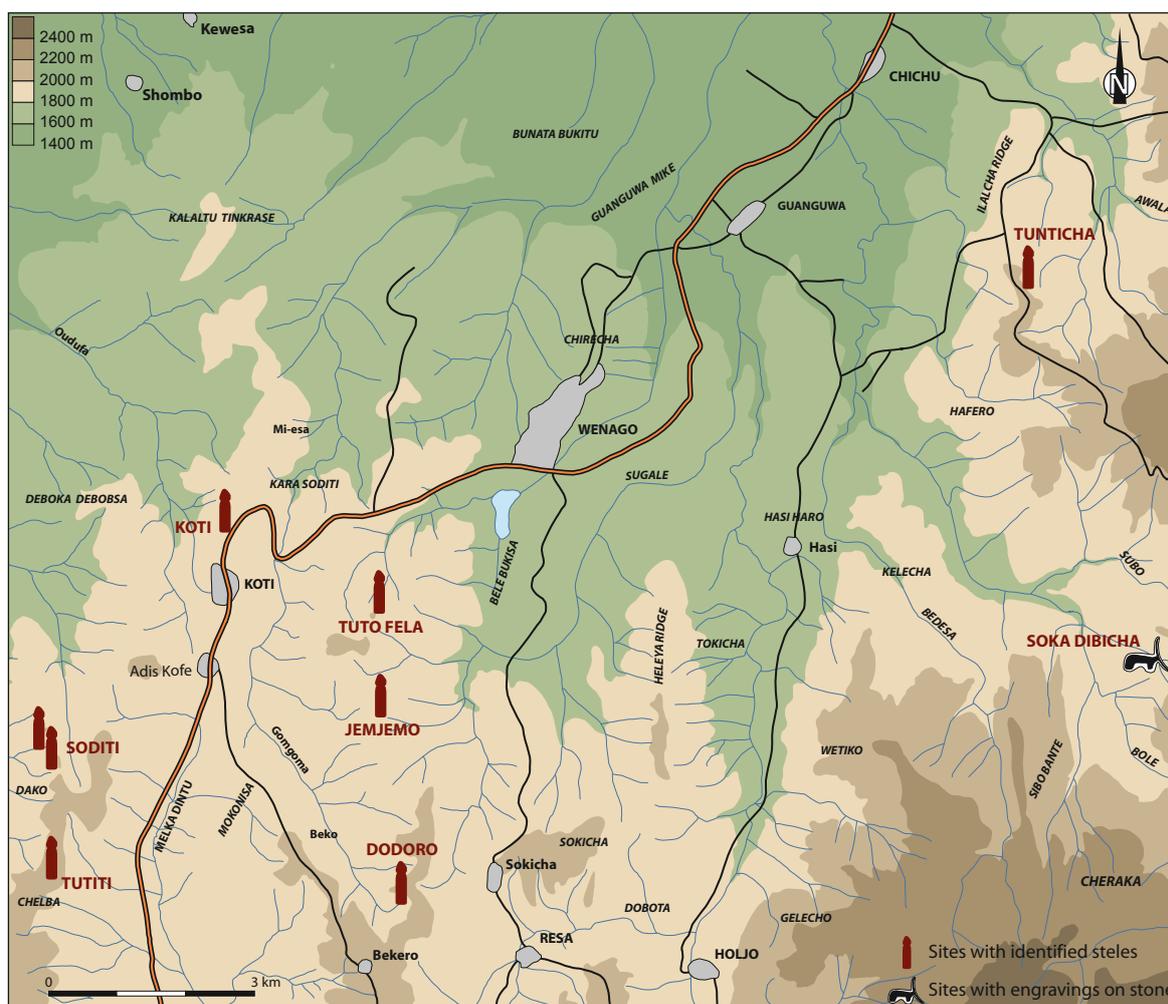


Figure 2 - Location of Tuto Fela and Chelba-Tutitti in Gedeo Country, to the east of Lake Abaya (CAD: R. Bernard, INRAP).

During the last thirty years, we have studied several stele sites in southern Ethiopia, each chosen for its specific nature: Tiya in Soddo, a cemetery with steles with engraved swords, today designated as a UNESCO World Heritage Site (Joussaume, 1995); Tuto Fela, a tumulus with steles with crossed lines; and Chelba-Tutitti, a site with many phallic steles. These two latter sites are located in Gedeo Country (figure 2). Ethnoarchaeological studies have also been made among the Konso and Gewada peoples.

Here we present only the raised stones of Gedeo country, and in particular, the tumulus of Tuto Fela, which has been published in a monography (Joussaume, 2007), and which was already the subject of studies conducted in 1925 by F. Azaïs and R. Chambard (1931), and in 1935 by the Frobenius mission under the direction of A.E. Jensen (1936).

1 - The tumulus of Tuto Fela

The tumulus of Tuto Fela, located at 2 000 m altitude on the eastern border of the Rift Valley, is more or less oval shaped and approximately 40 m long and 20 m wide, with a maximum thickness of 1.5 to 2 m. It is situated on a slight north-east / south-west incline (figures 3-4) and is composed

of numerous rhyolitic stones buried in the vegetation with a few emerging raised stones that are sometimes decorated with an engraved face above superimposed crossed lines. Most of the steles were in fact broken. Seventeen of the most representative ones were collected by the Frobenius mission and transported to Frankfurt, Germany, where they remain today (Joussaume, 2007).

The excavation of a surface of 150 m² of the approximately 800 m² occupied by the tumulus was realized during five sessions between 1993 and 1997. The excavation team was composed of around twenty persons, including two anthropologists (C. Bouville and J.-P. Cros), one pottery specialist (S. Barbier), one topographer (R. Bernard) and three archaeologists (B. Poisblaud, B. Poissonnier and R. Joussaume), with help from representatives of the Ethiopian administration and local workers. The complementary studies were realized in the following years at the National Museum of Addis Abeba.



Figure 3 - Tumulus of Tuto Fela before its excavation (photograph:R. Joussaume).



Figure 4 - Tumulus of Tuto Fela after its excavation (photograph:R. Joussaume).

The monument was formed by the lateral and vertical amalgamation of small, juxtaposed stone tumuli that protected the bodies of one to four adults, which were more or less stacked up in a contracted flexed position. These bodies sometimes appear to have been tied up or even possibly placed in a sack. They were successively deposited in the tombs, which were thus sometimes reopened several times. It therefore appears that there was a space arranged in the pile of stones, with a corbelled cover or enclosure of branches, to receive the corpses.

The deceased were accompanied by grave goods, including several stereotypical ceramic vases with a rounded bottom and a neck. These vases were often decorated with dots or lines on the upper part (figure 5). There are very clear differences between the forms and decoration of these pottery items (figures 6-7) and those of the site of Tiya in the Soddo region, which is another cemetery, this one with steles with swords, that we have also studied (Joussaume, 1995), and which appears to be contemporary with the Tuto Fela tumulus (12th-14th century). It thus appears that these two sites are associated with two different populations with different funerary customs. At Tiya, the bodies were deposited in more or less deep cylindrical pits located toward the back of the decorated stele that indicates the merit of the person who is buried there, and who was sometimes joined by his wife (?) in the tomb. Here, children were usually not buried with the adults.

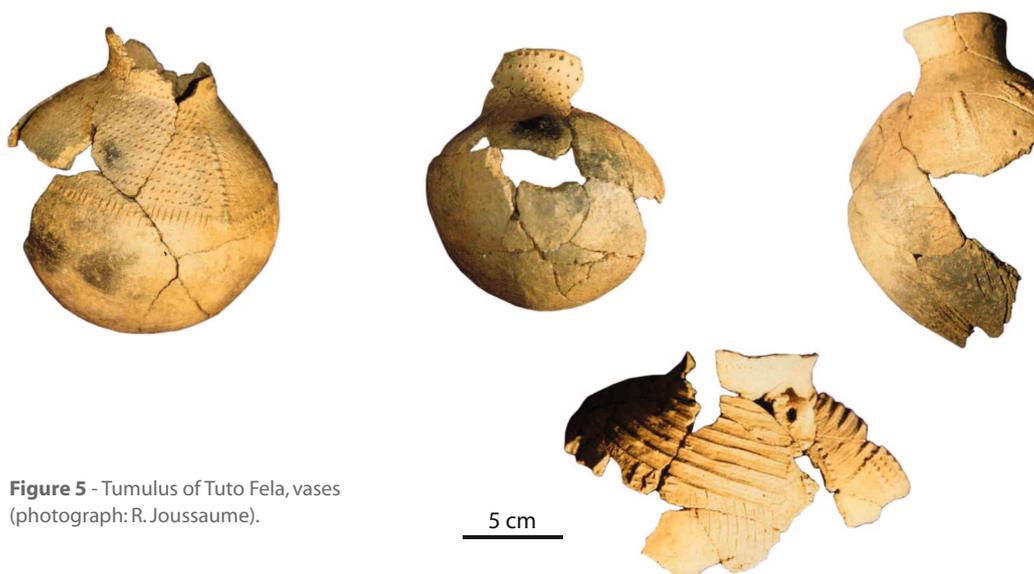


Figure 5 - Tumulus of Tuto Fela, vases
(photograph: R. Joussaume).

Among the other remains recovered around the Tuto Fela tombs are a few small multicolored glass beads, spiral copper alloy rings, iron bracelets, a few fragments of polished stone axes and numerous obsidian artifacts (segments, trapezes, scrapers and flakes), whose direct association with the burials cannot be confirmed, though it is probable. Moreover, we find this same assemblage of obsidian tools, especially segments and trapezes, in association with the phallic steles of the site of Chelba-Tutitti, located a few kilometers to the south-west of Tuto Fela.

Probably more than a thousand bodies were deposited in this tumulus. They were mainly adults, but the comparatively small surface area studied prevents us from knowing if children were excluded from this vast group of tombs, or if they were placed in another part of the cemetery: because our excavations were limited to the central part of the monument, we do not know if our observations apply to the entire site. There could have been social distinctions in the distribution of bodies, with some sectors reserved for a particular type of person. These are the types of questions that remain to be answered.

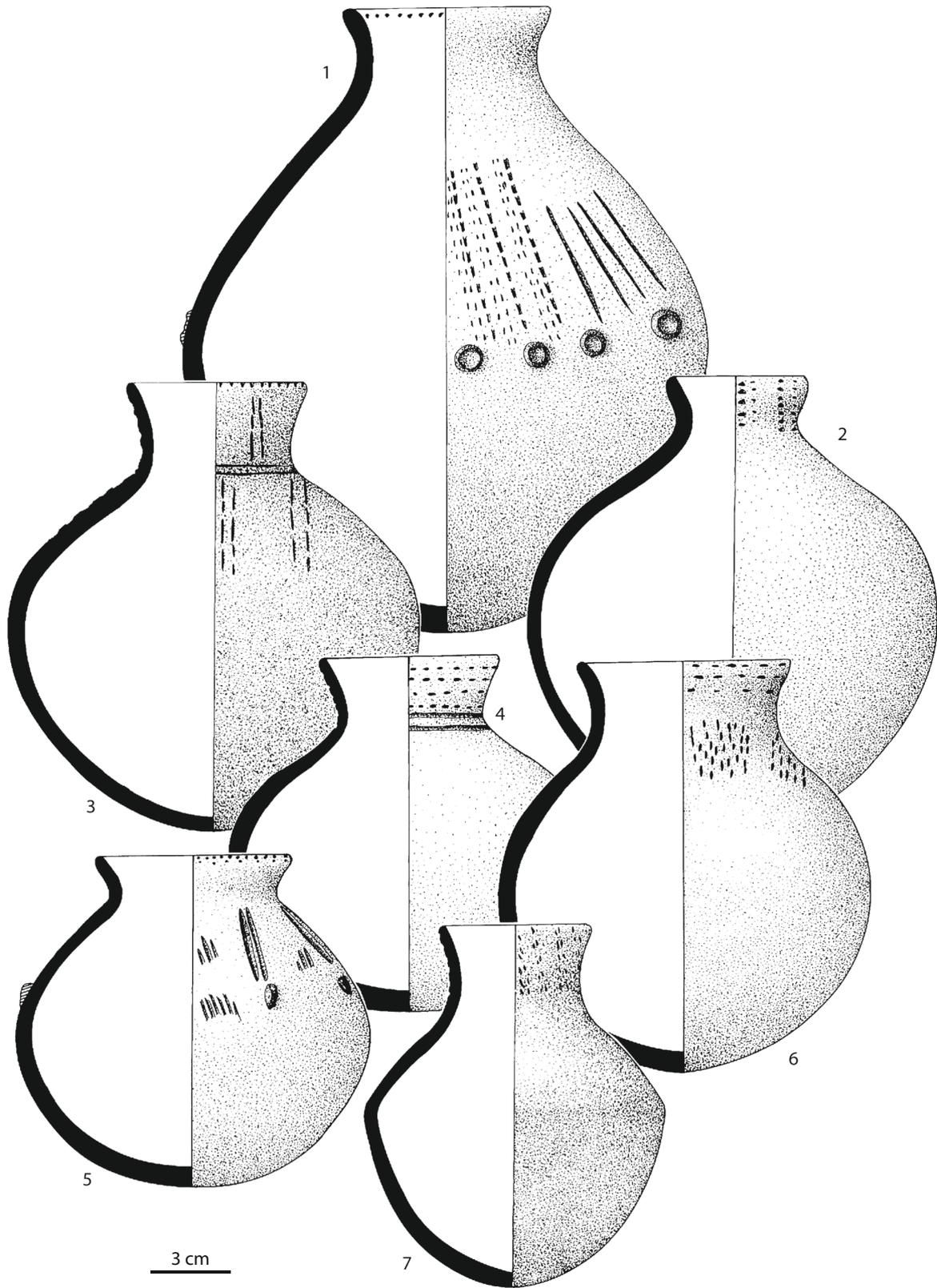


Figure 6 - Tumulus de Tuto Fela, poteries
(drawing: S. Barbier, INRAP).

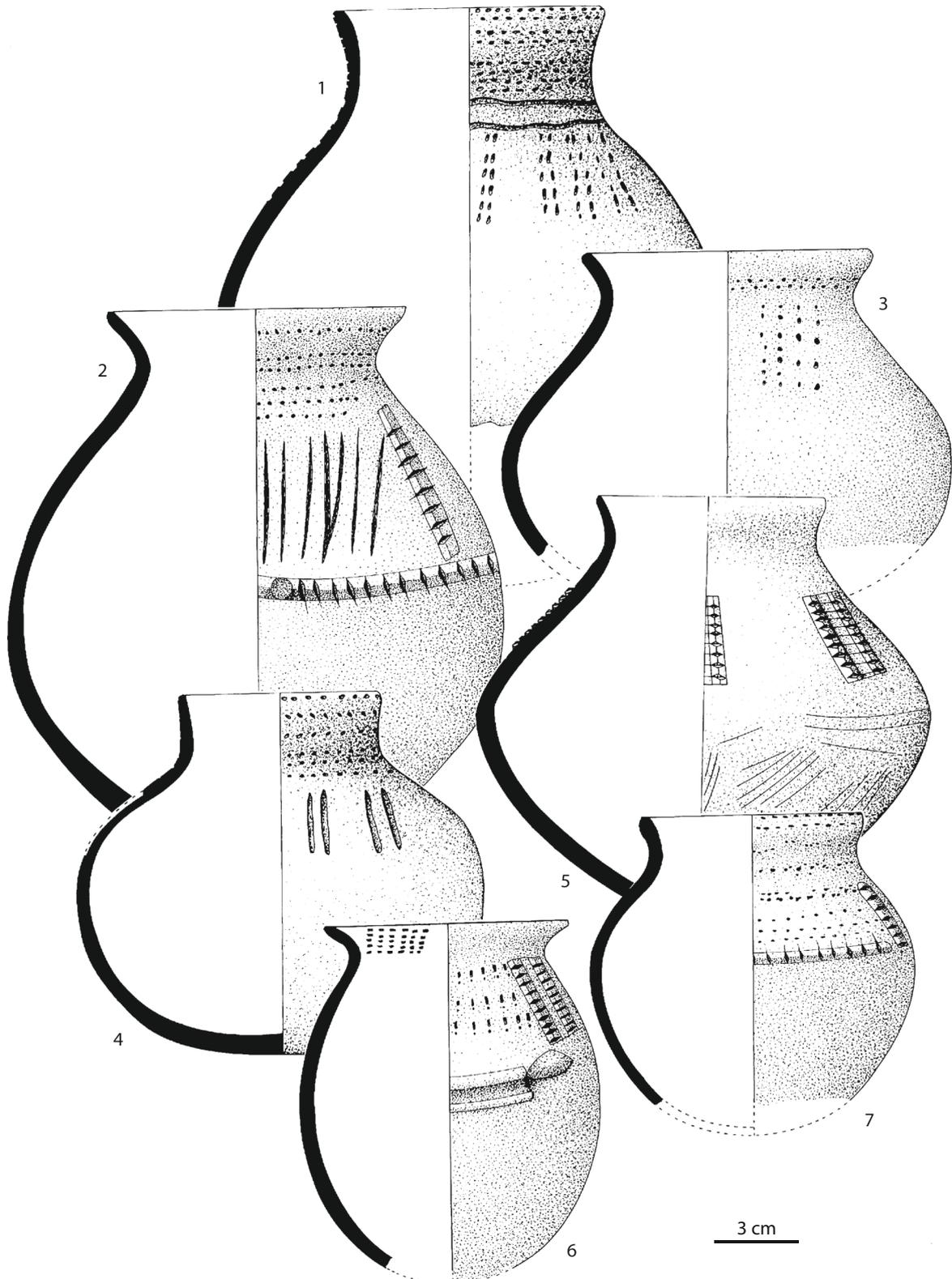


Figure 7 - Tumulus de Tuto Fela, poteries
(drawing: S. Barbier, INRAP).

2 - The steles

Several tombs located in their own small tumulus were indicated by a stele, but this was not generally the case, either because the stele has disappeared, or because there never was one. Not all the burials had the right to a stele, so to say, but we were not able to identify the required criteria for having one (figure 8). Due to the development itself of the tumulus by horizontal and vertical accretion, the steles located lowest on the slope have sometimes been completely buried under a mass of stones (figure 9). It is therefore impossible to know the exact number of steles that were erected here.

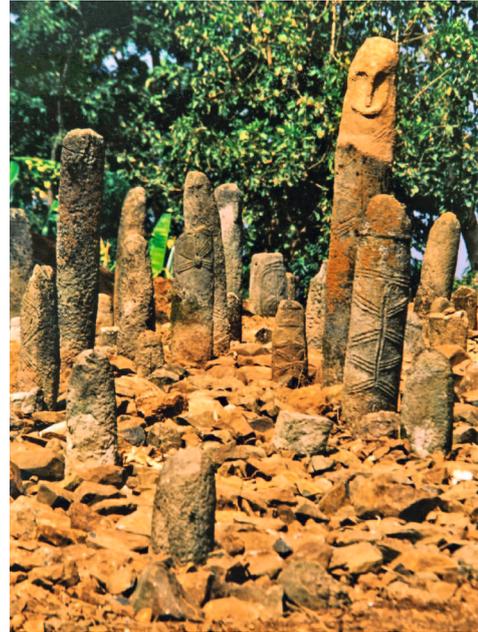


Figure 8 - Tumulus of Tuto Fela, standing stones (photograph: R. Joussaume).



Figure 9 - Tumulus of Tuto Fela, section. The presence of steles at different levels indicates that the tumulus grew through vertical and horizontal accretion (photograph: R. Joussaume).

Some steles are nearly 2.50 m high. Many others are smaller, between 1.50 and 2.10 m, and some are very small, only 0.70 m high.

Our inventory of stele fragments and whole steles visible on the surface confirms the presence of 320 steles, in addition to the 17 specimens kept in Frankfurt. Two hundred and thirty were plotted on map with the location where we found them (figure 10). A brief description sheet accompanied by a photograph and a number corresponding to that on the plan was given to each of the 337 steles or fragments, which obviously constituted only part of the total group that was associated with the tumulus. This file was recorded on a CD-rom and deposited at the Heritage Service of the Ethiopian Ministry of Culture (ARCCH) in 2003.

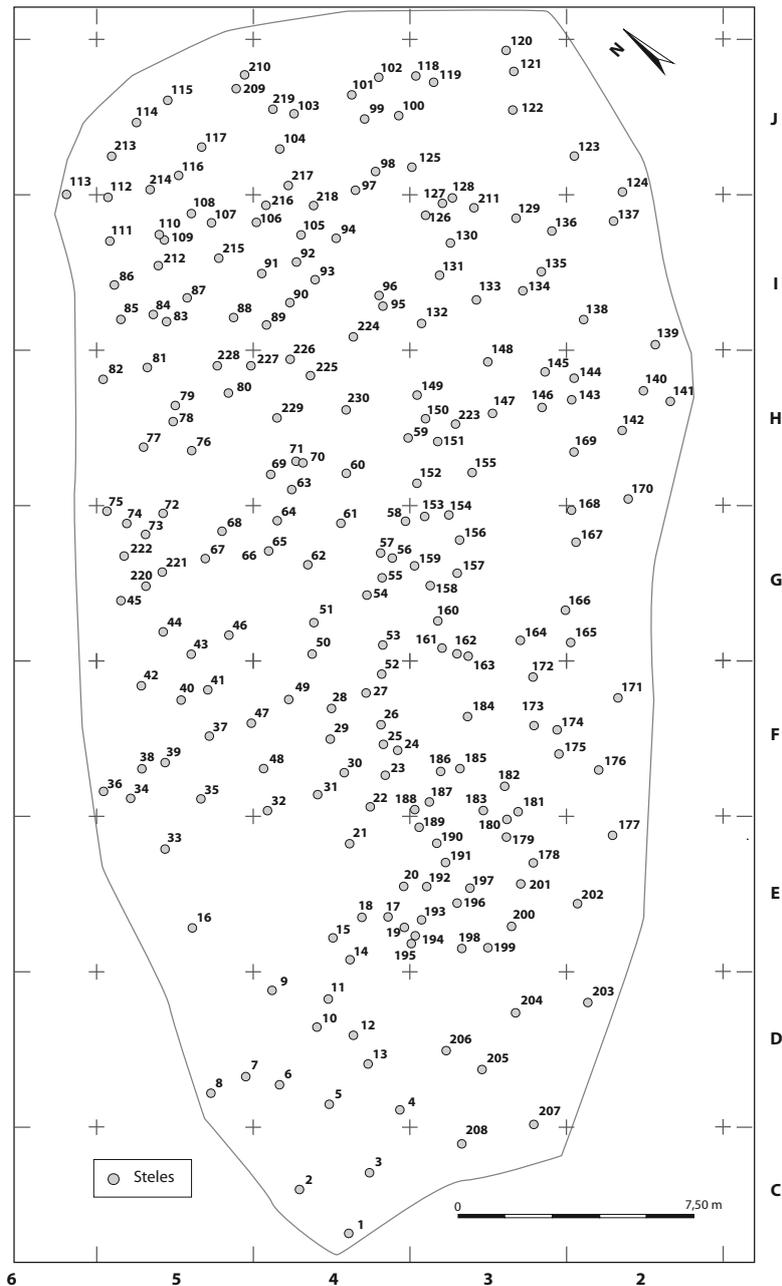


Figure 10 - Tumulus de Tuto Fela, plan of the locations of the steles (mapping: R. Bernard).

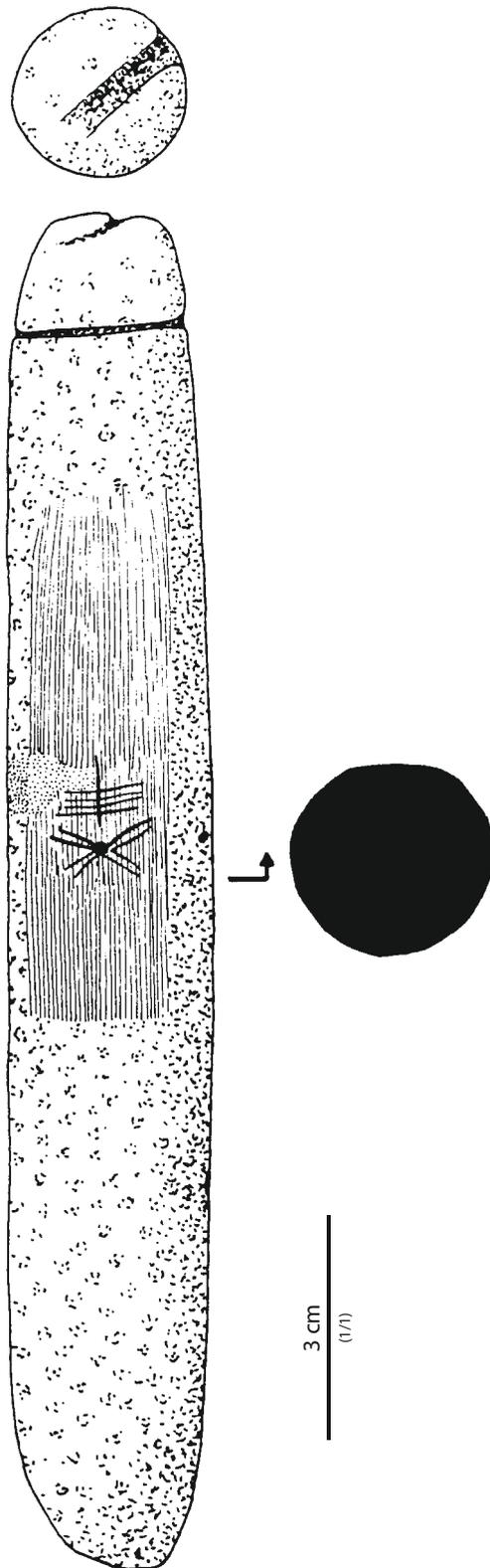


Figure 11 - Tumulus of Tuto Fela, phallic stele (drawing: B. Poissonnier, INRAP).

The steles were typologically classified as follows:

- the phallic steles, which are cylindrical with a hemispherical top delimited by a groove or ring (figure 11). They appear to have been collected from a deconsecrated site and then re-used in the tumulus. Others belong to the lower cemetery that we will discuss below. The height of some was greater than that of the tumulus and thus showed above its surface:
- the steles with engraved crossed lines, which can be subdivided into three sub-groups:
 - those with simple crossed lines and no phallic features or faces. A central, vertical groove cuts through the center of two or three superimposed sets of crossed lines (figure 12).
 - those with crossed lines and phallic features. These steles were made from a phallic stele with a groove or ridge (figures 13-14). They have no face.
 - those with crossed lines and a face. Some have phallic features and some do not. These are anthropomorphic steles sometimes made from an ancient reworked phallic stele (figures 15-18). These are the most numerous steles.

Among the reused steles, there are several phallic ones reworked with the head on the bottom, as well as one phallic stele transformed into a stele with crossed lines and a face, onto which a *quebeta* game was added between two periods of use as a standing stone. For the game to be playable, the stele had to be laid down (figure 19). A certain amount of time thus passed between the two periods of use of the stele.

On a few of the steles at Tuto Fela there is also a typical radiating decoration, obtained starting from a cupule on the phallic steles at Sidamo. Finally, a few of the steles of the tumulus are slabs of unworked stone placed in an upright position.

It is interesting to note that the oldest phallic steles were shaped by heavy pecking (figure 20), while the anthropomorphic steles with faces were shaped using a metal adze (figure 21).

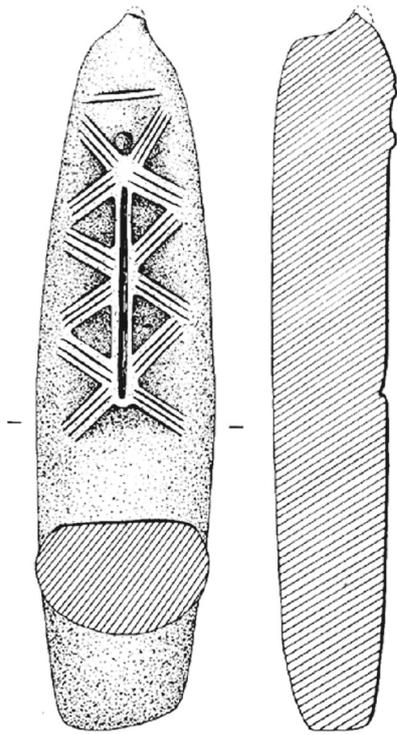


Figure 12 - Tumulus of Tuto Fela, non phallic stele with superimposed crossed lines and no face (drawing: R. Jousaume).



Figure 13 - Tumulus of Tuto Fela, phallic stele with crossed lines (photograph: R. Jousaume).



Figure 14 - Tumulus of Tuto Fela, phallic stele with crossed lines (photograph: R. Jousaume).

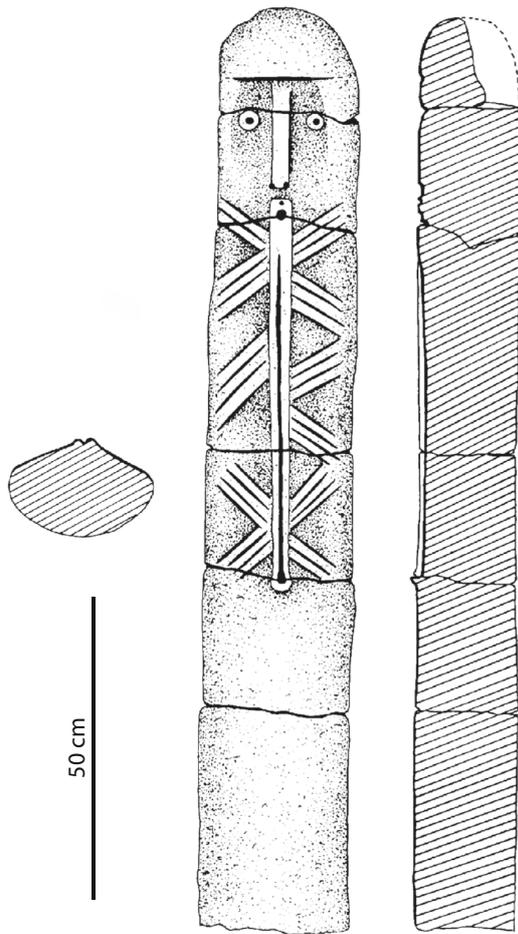


Figure 15 - Tumulus of Tuto Fela, phallic and anthropomorphic stele with three superimposed crossed lines (drawing: R. Joussaume).



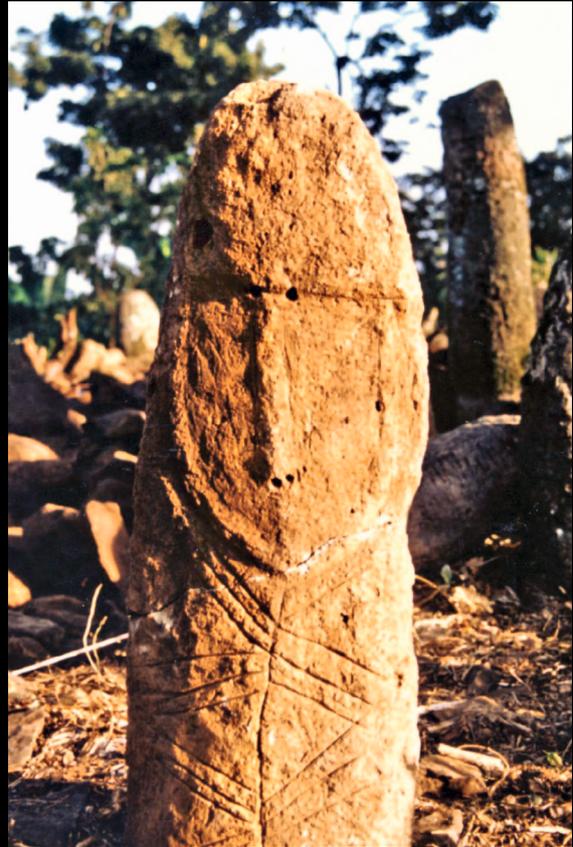
Figure 16 - Tumulus of Tuto Fela, phallic and anthropomorphic stele. This is one of the highest steles of the site (photograph: R. Joussaume).



Figure 17 - Tumulus of Tuto Fela, phallic stele with crossed lines and a face (photograph: R. Joussaume).



a



b



c



d

Figure 18 - Tumulus of Tuto Fela; a, b and c: faces represented on three phallic steles with crossed lines; d: face represented on a non phallic stele with crossed lines [see also figure 22] (photographs: R. Joussaume).

Figure 19 - Tumulus of Tuto Fela, phallic stele knocked down. A *guebeta* game was engraved on the shaft of the stele while it was lying on the ground. The stele was then stood up again and a face was engraved on a side that had been shaped with an adze. The face is composed of two eyes and a nose above two sets of superimposed crossed lines that may represent the ribs of the individual (drawing: R. Joussaume).

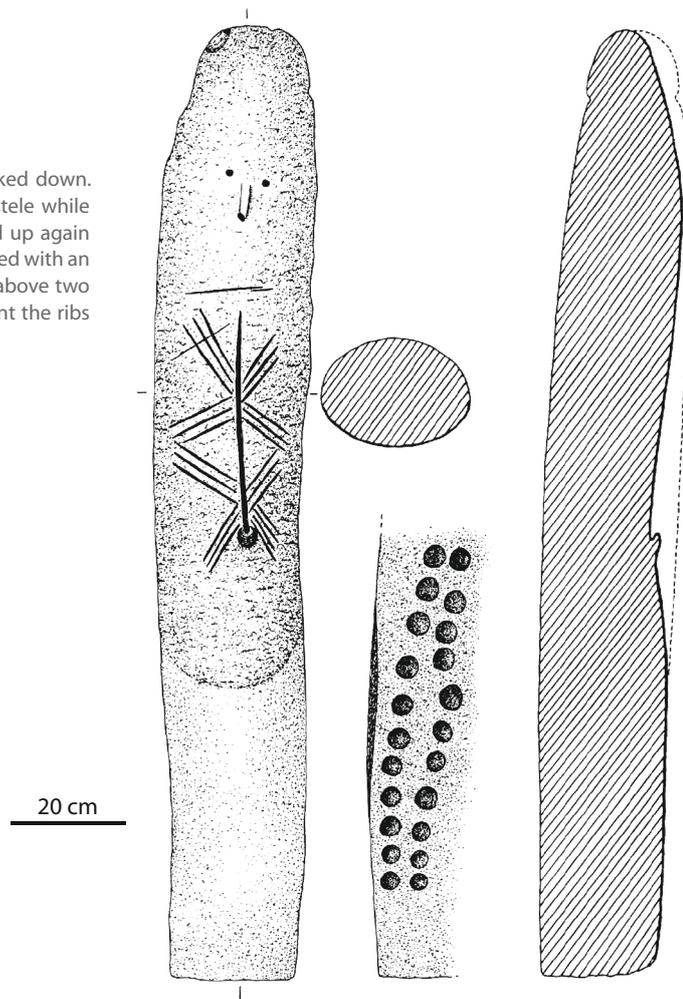


Figure 20 - Tumulus of Tuto Fela, close-up of the "heavy pecking" used to shape phallic steles (photograph: R. Joussaume).



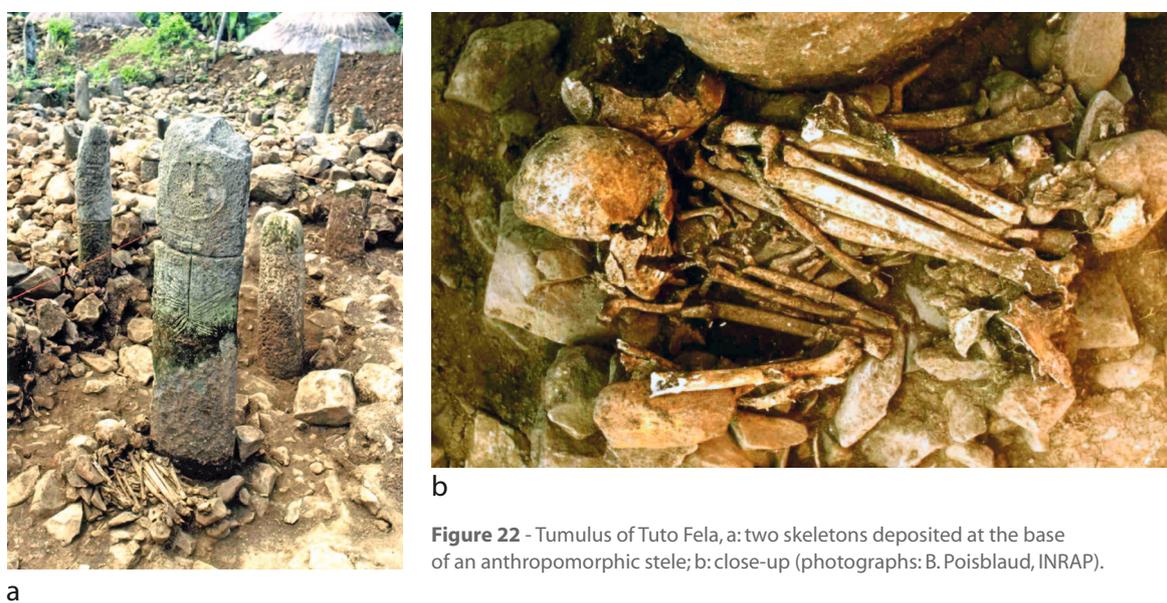
Figure 21 - Tumulus of Tuto Fela, traces characteristic of the shaping of anthropomorphic steles with an adze (photograph: R. Joussaume).

3 - The humans of the tumulus

The data presented below result from the anthropological studies of C. Bouville and J.-P. Cros.

In the cairn that supported the anthropomorphic steles and the reused steles, 54 burials (figure 22a) were studied. They represent at least 86 individuals. Single burials are the most numerous (63%), followed by double burials (20%; figure 22b), triple burials (11%) and quadruple burials (6%). This shows that many individuals were deposited in multiple burials (figures 23a-b).

Due to time constraints, we could not excavate the entire surface of the Tuto Fela tumulus, which contains at least a thousand burials. We thus decided to concentrate on a specific sector and to study its entire depth, thus forgoing demographic analyses.



a

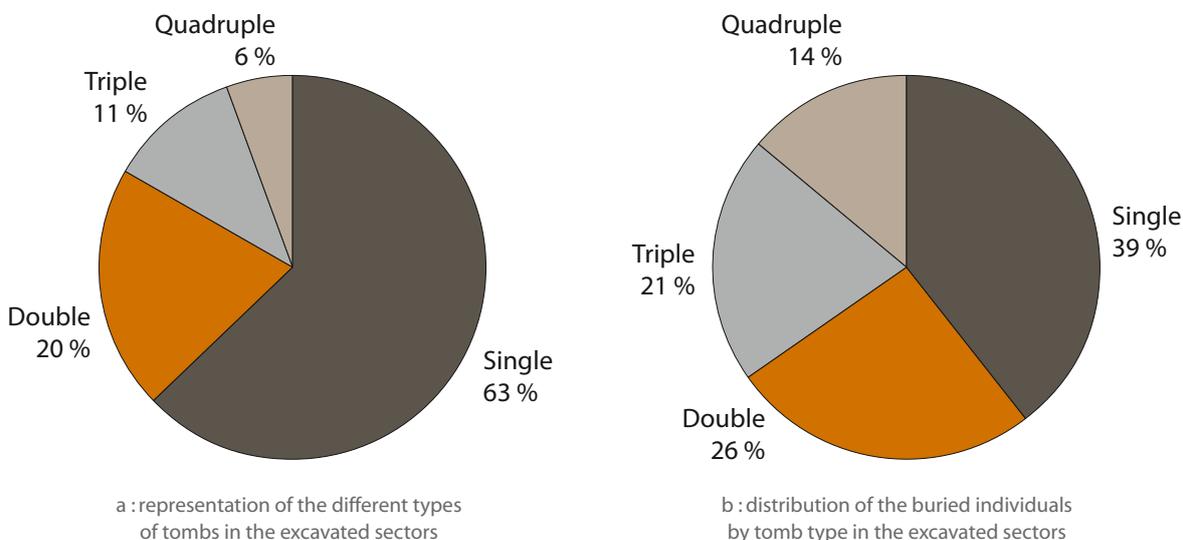


Figure 23 - Tumulus of Tuto Fela (study: J.-P. Cros).

There is relatively little data pertaining to the physical anthropology of the subjects studied due to the poor preservation of bone remains. The stature of 24 subjects was evaluated based on the length of long bones using the Manouvrier table corrected by G. Olivier, indicating 16 men, 6 women and 2 undetermined individuals. The height of both sexes varies from 1.74 m to 1.52 m, with an average of 1.64 m for the men and 1.63 m for the women. This slight difference, which is unusual between men and women, is probably due to the small size of our sample. At Tiya, the men attain 1.68 m and the women 1.59 m, which is a more common difference.

Based on cranial data, the physical anthropologists concluded that “the skull of Tuto Fela is much longer and wider, as well as being lower with a slightly lower face than that of Tiya. Morphologically, we observe a strong inter-orbital separation [...]. A main feature thus becomes evident: the two populations differ in that the Tiya specimens are generally more gracile than the Tuto Fela specimens, while these latter are more similar to those of the Somalis and Oromos” (Joussaume, 2007: 146-147). This is not surprising given the historic and linguistic elements available for these two regions.

4 - The lower cemetery

The first tombs of the cemetery were placed in small depressions in the ground and then covered with stones. Others were then put on top of these. We were nonetheless surprised to observe that on the ground of the excavated area, two unmodified phallic steles, one of which was decorated with the radiating motif typical of this type of stele, were placed vertically in the opening of a cylindrical pit filled with stones to maintain the steles upright (figure 24). We deduced from these that the primary role of phallic steles was to mark the tombs of certain individuals. Other pits dug into the ground nearby were closed by slabs of horizontal stones or wood planks that had become black with age. There was thus another cemetery located in the ground itself (figure 25).



Figure 24 - Tumulus of Tuto Fela, phallic stele in place in the “sock-shaped” pit of a tomb dug into the ground under the tumulus (photograph: R. Joussaume).

It consisted of cylindrical pits of varying depths, each of which led to a lateral, sloping cell (a “sock-shaped” tomb), at the bottom of which the flexed body of an individual was placed (figure 26). The few tombs of this type that were excavated contained only one skeleton, but this observation cannot be generalized. Once the body was deposited in its cell with no accompanying objects, we can imagine that the cell was closed with a wooden partition that protected it from the stones used to fill the pit. The skeletons were indeed surrounded by fine sediments that probably resulted from an infiltration that gradually filled the empty space above the body. Due to their very poor state of preservation, it was not possible to obtain ^{14}C dates from the bones, and no archaeological artifacts were recovered from near the bodies or in the pits. Only one date obtained from a wooden plank covering one of the pits, between 1050 and 1280 AD (Gif-10725: 850 ± 40), indicates that the cemetery was used sometime during the 11th to 13th centuries, obviously earlier than the construction of the tumulus with anthropomorphic steles.

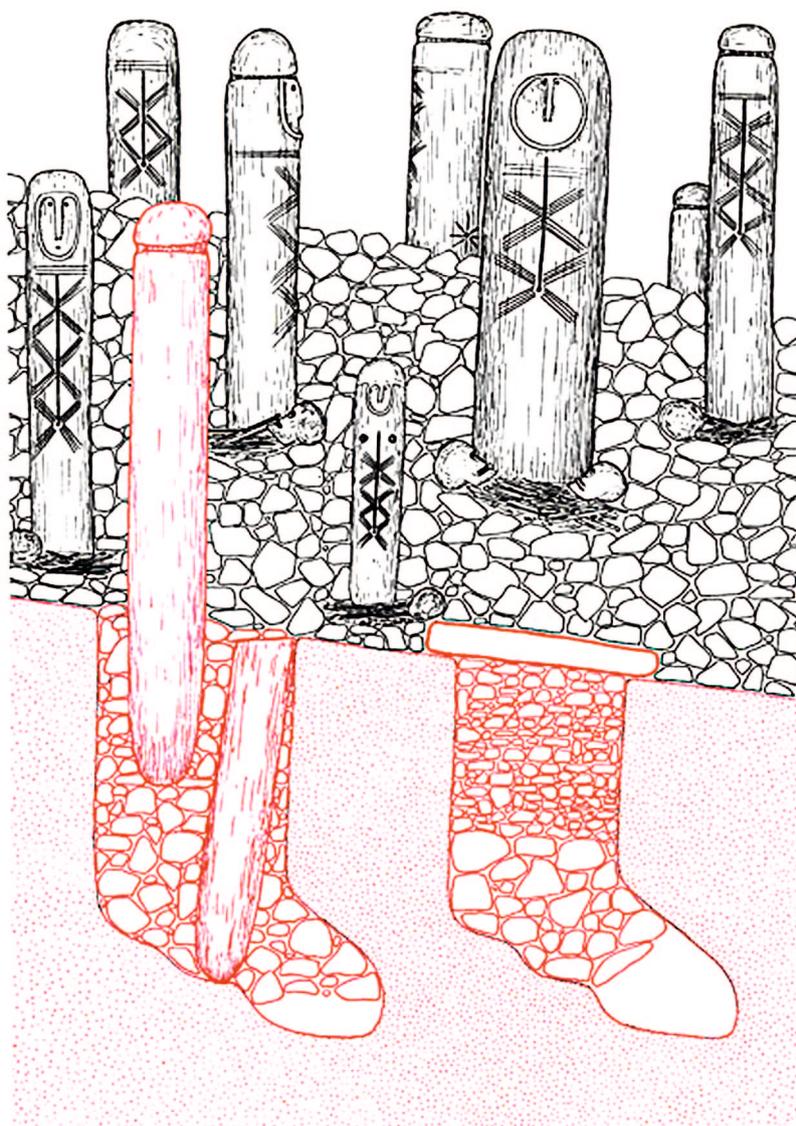


Figure 25 - Tuto Fela, schematic representation of the superposition of the two cemeteries (drawing: R. Joussaume).



Figure 26 - Tuto Fela, a skeleton on its side in a flexed position, placed in the bottom of the cell of a “sock-shaped” tomb (photograph: R. Joussaume).

5 - Chelba-Tutitti: an example of a site with phallic steles

It was necessary to verify our hypothesis of tombs in pits marked with phallic steles by looking at a site with phallic steles that had not been contaminated by more recent steles. We chose to study the site of Chelba-Tutitti, located approximately ten kilometers away. According to divergent estimations, this site could have contained between 1300 and 1700 standing stones (figure 27). The largest one, on the ground, was 11 m long (figures 28a-b).

The first test pits made in 2009 yielded very curious results since none of the stones among the fifty studied was associated with a tomb in a pit similar to those of the Tuto Fela cemetery. We were thus forced to acknowledge that at Chelba-Tutitti, the phallic steles must have had a different function.

This is when we remembered the excavation conducted in 1925 by F. Azaïs and R. Chambard (1931) at Waheno, in Sidama Country, north of Gedeo. This was a long earth tumulus covered with phallic steles over a surface well beyond the perimeter of the mound. Under the earth composing this mound, the explorers discovered a pit dug into the lateritic soil; this pit contained a few very poorly preserved bones, along with a few pot sherds, a “beautiful” whole polished axe and many obsidian objects. At the northern extremity of Chelba-Tutitti, however, a mound hidden under coffee bushes was covered with truncated steles whose *in situ* bases appeared on the surface.



Figure 27 - Site of Chelba-Tutitti, plan of the whole group of phallic stelae (recorded: R. Bernard).



Figure 28 - Site of Chelba-Tutitti, standing phallic steles
(photograph: R. Joussaume).



The excavation of this entire tumulus, around twenty meters long, allowed us to uncover around one hundred steles (figure 29), one of which, painted with vertical and horizontal bands, was installed at the extremity of a pit dug into the ground (figure 30). Unfortunately, only a few traces of what could have been a skeleton remained in this pit. Two fragments of polished stone axes, a few obsidian objects, including one segment, and a large decorated pottery fragment were recovered in the sediment that filled this pit, which was more than 50 cm deep. As at Waheno, this could be the burial of an important person. This tomb would have been worshipped through time with an occasional installation of new steles. Indeed, we observed that the size of the standing stones increases toward the south, which seems to be the direction of the development of this particular site, which constitutes the largest group of standing stones known in Africa. What remains in the collective memory of this first event? It is very difficult to say, though we can note that while our excavations incited no particular manifestation on the part of the local population in 2009, the chief of the clan came in full dress with his assistants in 2010, on the first day of our intervention, to perform a small ceremony on the tumulus to ensure that the spirits would accept our presence.

6 - Conclusion

Our studies have contributed new information on the stele sites of Sidamo. Two periods of use of the steles were identified:

- The oldest period is associated with phallic steles, which are more or less numerous and have multiple functions. They mark the individual tombs of specific persons who could have been, for example, the founder of the clan whose tomb is worshipped over the long term, or which served as a territorial marker, as we have shown for an occupation site in the Wolayta region at Ofa Sere (which we did not discuss here). These phallic steles occupy a vast territory centered in the Gedeo, Sidama and Wolayta regions, and the earliest ones could date to the 10th or 11th century AD.
- The latest period is associated with anthropomorphic steles with crossed lines that mark tombs contained within a stone tumulus, which increases in size over time. They belong to a human group whose territory is much smaller, covering part of the Gedeo region. This group succeeded those who erected the phallic steles and often re-used the steles of their predecessors. Though they modified these steles, they usually maintained their phallic nature. This symbol of power, associated with fertility, is still used by modern Gedeo, Borana and Konso groups in the form of the *Elesha*, a metallic phallus worn by worthy persons on their forehead.

Over the past thirty years, we have devoted fifteen years of fieldwork and laboratory analyses to the subject of standing stones in southern Ethiopia. And a lot remains to be done! While we are certain that no one will again dare to suggest that these peoples, who erected the earliest of these standing stones barely one thousand years ago, are the ancestors of the Egyptians (on this subject, see the film by P. Cazes, *La route des millions d'années*, shown on Arte in 1998), we have above all realized that a long road must still be travelled in order to obtain a deeper understanding of these steles and their authors. To achieve this goal, we must first make efforts to ensure that they are not destroyed (or sold), as we have witnessed time and again over the past years.



Figure 29 - Site of Chelba-Tutitti, phallic steles uncovered under the mound (photograph: R. Joussaume).



Figure 30 - Site of Chelba-Tutitti, pit located under the mound and its painted stele (photograph: R. Joussaume).

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Roger JOUSSAUME

Research Director emeritus, CNRS

Joussaume.r@orange.fr

Article outline

OF SHELLS AND MEN:

the Economy of Coastal Populations on the Bay of Luanda (Angola) Throughout the Last Two Millenia

Nicolas VALDEYRON, Sonia Ludmila DA SILVA DOMINGOS

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the Economy of Coastal Populations on the Bay of Luanda (Angola) Throughout the Last Two Millennia

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Abstract

*In this paper, we present archaeological and ethnographic observations of several shell middens located near the Luanda lagoon in Angola, focusing on the evolution of the use of one mollusk, *Arca senelis* L., over the past two millennia. Known in the literature, the site of Cabolombo has been the subject of recent research (test pit 1) that supports the hypothesis that the site was first occupied by shellfish collectors, probably of the Bantu tradition. The sites of Kamabanga and Kitala suggest the existence of populations, between the 8th and 14th centuries, that were still collectors but who also took part in regional exchange networks. They may also have been specialized in the production of discs from shell test that could have been used as coins during the formative period of the Kingdom of Kongo. Test pits 4 and 14 at Cabolombo yielded indications of a colonial context (locally manufactured pipes) in an economic environment still oriented toward predatory activities. Test pit 9, on the other hand, revealed the use of mabangas as the raw material for lime production, probably under strict control by the Portuguese. Finally, though the major stages in the history of the peopling of the region can be reconstructed through archaeological research and though oral enquiries document the formation processes of the sites, the socio-economic and cultural status of the populations remains unclear.*

Keywords

Angola, Bay of Luanda, shell middens, Late Stone Age, Iron Age, Bantu, Khoesan, Kingdom of Kongo, *Arca senelis*, ethnology.

1 - Conditions of this intervention and resulting limitations

From late 2004 to 2007, the Service de coopération et d'action culturelle of the French Embassy in Luanda (Angola) funded, for one of us (N.V.), three field sessions for a total duration of approximately one month. This work constituted part of the doctoral dissertation of S. Domingos, then working with a grant from the French government and enrolled at the University of Toulouse-Le Mirail to realize, after a Masters degree (Domingos, 2003), a doctoral thesis under the direction of M. Barbaza (Domingos, 2009). As one of the original aims of this research was to contribute to our knowledge of the process and pace of the acquisition of food production and craft techniques by the coastal populations of the capital region, it was necessary to verify and possibly revise the existing data. In addition to this essential objective, it was also a priority to strengthen the relationships between the two parties, requiring the signature of conventions with the University Agostinho Neto in Luanda and the Instituto Nacional do Património Cultural. Due to the time

necessary for the negotiation and signature of the conventions, which did not occur until 2009, we were not able to develop a complete research program, which could have been funded by the French ministry of foreign and European affairs through the consulting committee of archaeological research abroad. The research thus conducted during these sessions had only limited funding that did not permit us to form the multidisciplinary team originally planned. Some data – in particular on the coastal paleoenvironment and its evolution, or on absolute dating elements – are thus missing or are insufficiently recorded. Therefore, some of the results presented, as well as some of the hypotheses formulated, will need to be verified through future work. Despite these absences and reservations, we believed it is useful to present at least part of our results, focusing on the recurrent use of *Arca senelis* throughout the last two millennia. Through time, this bivalve mollusk played a changing, but always unique, role in the economy of the populations of the region. These variations more or less reliably illustrate the socio-economic transformations of the associated human groups. We will demonstrate this by travelling through both time and space across the whole of the Luanda lagoon to present the main results of our excavations and oral investigations. The order of the succession of the sites corresponds to the chronology that we believe best fits the data.

2 - The Luanda lagoon: a clear window of observation

The zone concerned by our research, which is mainly coastal, is located approximately 10 km to the south-south-west of the Angola capital. It extends around a large lagoon (35 km long and 3 km wide where it meets the ocean, with a maximum width of 4 km) delimited by a continuous series of thin sandbars (maximum width less than 1 km) called “*restingas*”, which form the Mussulo peninsula. Between the continent and Mussulo, and at an equal distance from the two shores, a relatively large island (5 × 1.6 km) occupies the north-west part of the lagoon, reducing the marine flow between the open sea and the more southern zones, whose shoals are largely silted up, as is seen in aerial photographs (figure 1). The contact between the sea and land takes different forms on the eastern shore of the lagoon, depending on the sector. In the north, in the direction of Futungo, more or less abrupt cliffs reach 10 to 20 m high. These cliffs have been strongly degraded by run-off, which has sculpted the variably hard sand and sandstone layers into “badland”, or tower-like, reliefs (figure 2). Further to the south, toward Praca do artesanato and beyond, the same process occurred but with less intensity. The resulting coastal relief developed more gradually, forming small beaches in some locations. These are usually very small, sometimes even just a tidal zone, and thus visible only at low tide. In these sectors, we must search for potential sites at high points that have been spared from rises in sea level and gulying. Toward the end of the lagoon, and in its direct extension toward the south, we find the same processes as those observed in the north, but with a much greater intensity. Here the cliffs are several tens of meters high in some locations (figure 3). Along the 35 km length of the lagoon, the only really flat and relatively large zones that come into contact with the sea correspond to small coastal depressions. These are located at the outlets of thalwegs saturated with silts and with streams running through them. These streams are rarely perennial, but in humid periods can dig deep into and remove portions of the alluvial plain on which they are located. These zones are thus easily recognizable since there are usually no occupation sites on them, or at least no modern ones.

Though we do not know the date and exact conditions underlying the formation of this global configuration, it is probably the result of a gradual development during the Holocene. It constitutes a complex ecosystem that probably favored the development of abundant and varied resources. Almost all of the wild mammals and birds have disappeared due to the high human population

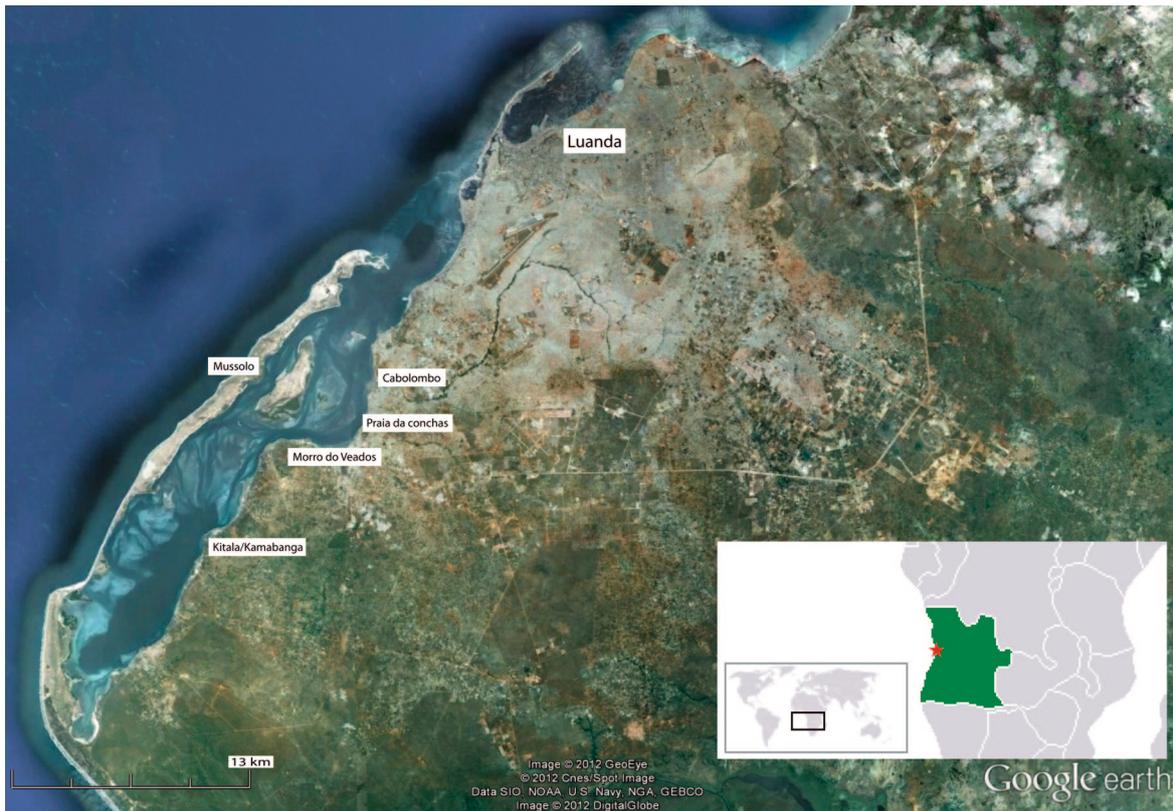


Figure 1 - Location map (map background: Google Earth; CAD: N. Valdeyron).



Figure 2 - The sandy-gravelly cliffs of Futungo, a few hundred meters north of the site of Cabolombo (photograph: N. Valdeyron).



Figure 3 - Kitala, view of the lagoon from a high point. In the background, the sandbars forming the Mussulo peninsula (photograph: N. Valdeyron).

density along the coast. The marine resources (fish, crabs, shellfish, crustaceans, etc.) are very rich, on the other hand, despite collection practices that are far from fitting the definition of “sustainable”. Among these food resources, one shellfish, *Arca senelis* (locally known as “mabanga”), plays a major role. Nonexistent in zones with a strong current, this bivalve is naturally found in shallow waters with a salinity level greater than 10‰ and in which diurnal and seasonal fluctuations are minimal. *Arca senelis* is particularly well adapted to coarse sand and black ooze zones

(Gofas *et al.*, 1985). It is common on all the Atlantic coasts of Africa (in Senegal it is called “pagne”), from Mauritania to Namibia. Considering the conditions described above, it is easy to understand why it is present in high quantities in the Luanda lagoon, probably throughout the past several millennia, even if the available data (see below) do not permit us to go back further than our current era (AD).

3 - Before the Europeans

3.1 - Cabolombo: test pit 1

Since it was first explored in the 1960s (Santos Junio, Ervedosa, 1970), the shell midden of Cabolombo in Benfica has been considered as the reference site for recent Prehistory in Angola¹. It is regularly cited in the literature on the penetration of southern Africa by cultures of the Bantu tradition who introduced the agricultural and ironworking economy (Ervedosa, 1980; Clist, Lanfranchi, 1991; Abranches, 1992; Mitchell, 2002; Sadr, Sampson, 2006; Huffman, 2007). The site, located around fifteen kilometers to the south of Luanda, opens onto the largest coastal depression of the lagoon, that of Rio Cabolombo. It currently consists of a low humid zone forming a sort of large quadrilateral (approximately 400 × 300 m) limited to the north and south by more or less pronounced reliefs. An oval, sub-horizontal platform – probably a fossilized dune – located around one hundred meters from the coastline, occupies the western part of this depression. It is around ten meters high and covers a surface of approximately 6 500 m² (130 × 50 m). Towards the north, it is separated from a small knoll that extends it to the Rio Cabolombo bank by a tide channel that interrupts the continuity between the two surfaces (figure 4). The 1960 excavation probably concerned this platform, though we were unable to find its location. This is probably due to the partial destruction of the platform by a developer in 2001 during the creation of a sand quarry; the zone explored by our predecessors appears to have disappeared at this time. Between 2006 and 2007, we made 14 test pits (figure 5) on the platform and the surrounding area (Valdeyron, Domingos, 2009).

Test pit 1 was made on the top of the platform 1, covering a surface of 4 m². It enabled us to observe a sequence of compact sand composing a simple and clear stratigraphy with no significant slope, around forty centimeters deep (figure 6). At the base (layer 8), we found a thin accumulation of *Arca senelis* shells associated with numerous fish remains (vertebra, brachial system bones, ribs) and fragments of crab shells. The layer also yielded a few wild mammal bones [including a lower first molar and a 4th metacarpal of a canid (perhaps a fox), as well as the sesamoid of an equid (perhaps a zebra)], a few thick-walled pot sherds (hand-made with no decoration) and a tiny fragment of iron. Rubefaction rings indicate the presence of probably flat hearths, and one hollowed-out structure around fifteen centimeters deep and filled with shells, which probably also functioned as a hearth (figure 7). The overlying sedimentary units (layers 7 to 1) did not contain shell accumulations and starting with layer 6, they yielded abundant tile and brick remains, indicating the beginning of the colonial period. These remains likely originate from the “fazenda de Bellas” factory located in the sector since at least the 18th century and specialized in the production of clay bricks, tiles and dishes, in addition to rope (Domingos, 2003).

1. Three radiocarbon dates indicate a significant chronological duration for the formation of the shell midden [Pta 212: 1810 ± 50 BP; Pta?: 1770 ± 55 BP and Pta?: 600 ± 65 BP (we do not know the laboratory codes of the last two dates)], even if the authors of the excavation attribute most of the artifacts to a single phase, the Early Iron Age.



Figure 4 - Cabolombo, in Benfica, satellite view (source: Google Earth; altitude 695 m). To the north, the Rio Cabolombo and the steep slopes lining the two banks. In the center, the fossil dune divided into two parts (PFP: main platform; PFS: secondary platform) by a tide channel. The dotted lines and white background show the foundations of demolished buildings of the "fazenda de Bellas" uncovered by A. Vasco Rodrigues in the 1960s.



Figure 5 - Cabolombo, in Benfica, satellite view (source: Google Earth; altitude 712 m). Location of the test-pits realized on the left bank of the Rio Cabolombo in 2006 and 2007 (the letter "F" corresponds to test pit 9, associated with the lime kiln).



Figure 6 - Cabolombo, view of test-pit 1 in the process of excavation. Part of the midden – here more a bed than a midden – of *Arca senilis* shells appears in the square located in the top of the photo (photograph and excavation: N.Valdeyron).



Figure 7 - Cabolombo, close-up of test pit 1: probable combustion feature, filled with shells, bones and a few pot sherds, after it was emptied. The date of the layer 8 was obtained from a charcoal fragments collected in the bottom of this feature (photograph and excavation: N. Valdeyron).

The first occupation of the site would thus have been by an exclusively predatory population living in an open-air habitation whose nature and exact size remain to be determined. The presence, even slight, of thick, hand-built pottery (with no clear form or decoration), a metal fragment within a reliable stratigraphic position, and the absence of pieces suggesting contacts with the Portuguese, indicate that this first occupation can be attributed to a pre-colonial phase, but post-LSA. The AMS date of layer 8 – 1715 ± 30 BP [or 246 to 401 AD; Lyon-4028 (OxA)] – realized on a charcoal fragment recovered at the bottom of the small combustion feature, concords perfectly with this estimation. It is moreover very similar to the two dates obtained by C. Ervedosa (1980), leading us to think that we found part of the midden that he explored. The data collected in test pit 1, in accordance with those that he published (Ervedosa, 1980), provide evidence for a high dietary specialization on the part of these coastal populations that seem to have turned their backs on a production economy in favor of a broad scale predatory economy, associating collecting, fishing and hunting in a manner that probably implied a high degree of residential mobility. For populations that appear to have belonged to the Bantu tradition (which would confirm C. Ervedosa's attribution of decorated pottery to the Early Iron Age, despite clear mixtures with more recent artifacts), these data might contradict classic scenarios that claim the primacy of itinerant agriculture in their subsistence economy. Similar situations have nonetheless already been described in comparable chronological contexts, such as at the site of Oveng in Gabon (Van Neer and Clist, 1991), which shows that during their expansion, Bantu populations integrated variable techno-economic models, often depending on the nature of the environments in which they lived. Another interpretation could be that the situation identified at Benfica could be the result of an acculturation by Bantu tradition groups of indigenous coastal populations, to whom the newcomers would have transmitted the use and manufacturing of pottery and, to a lesser extent, metal. The acceptance of such a scenario, which is possible in theory, is nonetheless hindered by a general lack of knowledge of contexts predating the Iron Age across all of this part of Angola, contexts for which the data has barely advanced over the last twenty years (Clist, 1992).

3.2 - Kitala and Kamabanga

Discovered in the 1970s, the Kitala and Kamabanga shell middens (*Kwa-mabanga* means “that of the shells” in the Kimbundu language) are located in the southern part of the Bay of Luanda, around fifteen kilometers south of Cabolombo. They extend on either side of the road that runs along the coast, at the top of a hill (65 m altitude). Their proximity to the sea (less than 500 m) is not very significant because in this sector the point of contact with the intertidal zone consists of a more or less vertical precipice several tens of meters high. It is easiest to reach the site from the coast by following a small valley that opens below and to the south of the site. This route considerably increases the distance to be travelled, but facilitates movements between the two zones. This unique topographic setting, which appears to have been intentionally chosen, clearly prohibits a direct access between the beach and the shell midden. This situation seems paradoxical given that this is the largest known shell midden known in Angola, in terms of both its thickness (in some locations nearly 1 m deep) and its surface area (the archaeological site covers several hectares and in fact encompasses several sites, including Kitala and Kamabanga). It is certain that the choice of this location was influenced by factors other than that its proximity to the beach, and we can imagine that the dominant position responds to two needs: to control this part of the lagoon and to protect the site (figure 8).

The site of Kamabanga, the closest to the shore, was partially excavated in 1982 by H. Abranches. He made several test pits, but information is available only for that of Kamabanga I-A (Abranches, 1982). This latter covers a surface of 9 m² and contains an apparently thin deposit of *Arca senilis*.

Several hundreds of potsherds were found in the different layers. Among these, Abranches distinguished a particular type with thin walls, a red slip and temper containing mica. This assemblage was accompanied by two very particular vases (no precise details were given): one anthropomorphic vessel and one “cosmetic vase”. Both were made with a fine clay and were probably imported: the anthropomorphic vase would have come from Cabinda, north of Angola, approximately 500 km from Luanda. H. Abranches (1992) asserts that these data could indicate the existence of three levels of specialization in pottery manufacturing: a domestic production, an artisanal production, and a more specialized production implicated in the diffusion of luxury objects. Terrestrial mammal bones, including zebra, wharthog and domestic ox, were found in large quantities (Clist, Lanfranchi, 1992). A fishnet weight accompanied numerous fish remains. These different elements suggest a complex economy oriented toward both sea and land resources, based on both predation and production, and taking part in a long distance exchange network. No metal objects were mentioned, which is odd given the date obtained from this test pit (Clist, Lanfranchi, 1992), which situates it between the end of the 8th and the first half of the 12th century AD (Gif 6182: 1120 ± 60 BP, or 782-1140 AD after calibration with a two-sigma interval). We attempted to find the location of the site in 2007. Though we are not certain that we succeeded, in one field lying fallow that could correspond to the site, we collected a rather large quantity of pottery from the surface. This included several sherds that belonged to the same recipient, and made of a clay containing mica (with a lip and neck curved toward the outside, and with decoration realized by impression with the edge of a shell). The technical characteristics of these pieces (reddish slip on both faces)



Figure 8 - Kamabanga, view of the lagoon from the probable location of the sector tested by H. Abranches in 1982. The beach, several hundreds of meters away, is reached through abrupt slopes that are difficult to access. The site, which extends onto one of the high points of the edge of the lagoon, occupies a location that is both relatively well protected and has an unobstructed view of the surroundings (photograph: N. Valdeyron).

are identical to those described by H. Abranches for some pottery from Kamabanga I-A. This type of decoration and treatment (figure 9), which is unknown at Kitala, as well as at the other sites identified on the Bay of Luanda, could thus be a chronological indicator.



Figure 9 - Kamabanga, pot sherd with a thin-wall, clay with mica, red slip, decoration shell impressions (probably *Arca senilis*) and incisions. Found on the surface (survey: S. Domingos and N. Valdeyron; photograph: N. Valdeyron).

The site of Kitala, discovered in the 1970s during the construction of the coastal road (figure 10), was first explored across a small surface by C. Ervedosa and J. R. Santos Junior. The dismantling of the midden, composed almost exclusively of *mabanga* shells (along with a few oyster shells), also revealed the presence of terrestrial mammal (no other details provided) and fish bones, as well as



Figure 10 - Kitala, view of the profile on the edge of the coastal road. We see accumulations of shells (photograph: N. Valdeyron).

charcoal, pottery and shell beads, probably *Arca senelis*, some of which were perforated and calibrated (Ervedosa, 1980). The pottery is of the Bantu tradition, with a varied typology and decoration: incised or stamped pottery with motifs in relief, in the form of crescents, zigzags or chevrons (figure 11). In 1982, H. Abranches and his team from the National Museum of Anthropology conducted excavations in several sectors of the site, extending the test pit of C. Ervedosa (Abranches, 1982). They explored a total of 83 m² and found the same types of remains as those identified by their predecessor. In this case, the faunal data (Van Neer, 1990) indicates the simultaneous presence of zebra and domestic ox. In the same sector, and in association with a probable polisher in arenite, they also found several dozens of non-perforated, shell disks, with a diameter varying from 3 to 20 mm. H. Abranches interpreted these pieces as archaic coins, observing that the form of some of these beads was “irresistibly” similar to *zimbos* (or *nzimbos*), a shell (*Olivancillaria nana*) collected in the Luanda sector that was used as coins in the Kingdom of Kongo. A radiocarbon date (Gif 6011: 720 ± 60 BP, or 1229-1400 AD after calibration with a two-sigma interval) obtained from a “caramel” recovered from the bottom of a recipient found in test-pit Iib (de Maret, 1985), dates the occupation of the site to between the early 13th century and the end of the 14th century.



Figure 11 - Kitala, pot sherds (edge fragments). One of the fragments is decorated with “fishbone” incisions, the other with two imprinted zigzag lines associated with a horizontal groove that delimits the decoration under the lip (photograph and survey: S. Domingos).

After reading the excavation reports by C. Ervedosa and H. Abranches, it seems possible to associate the shell middens at Kitala and Kamabanga with permanent occupation sites. The abundance of artifacts (especially pottery and bones), the fireplaces observed by two excavators, the shell disks – which could be the coins used by the Kingdom of Kongo and could thus indicate the presence, at the site, of the delegates of *Mani* (title of the sovereign) Kongo installed at Luanda – along with the anthropomorphic vase that perhaps originated from the Cabinda region – and which thus indicates the same geographic zone – are all elements that suggest an occupation pattern different from that of Cabolombo. In addition, the chronological interval obtained through radiocarbon dating (13th to 15th century) of the Kitala Iib test-pit corresponds to the formation period of the Kingdom of Kongo, thus supporting the interpretation of the shell disks as coins. In this chronological and economic context, the absence of iron objects and objects linked to agricultural practices (adzes, grinding stones, etc.) is surprising. It is thus possible that Kitala and Kamabanga were sites specialized in the collection and transformation of these shells that served as coins in the Kingdom of Kongo. As H. Abranches imagined, the agricultural activities would thus have

been practiced at other sites. It is thus likely that the relationship of these populations to shellfish cultivation resource evolved. While the flesh of these mollusks was probably consumed, it is possible that the shell had acquired a different status and entered, in the form of small disks considered as coins, into the trade networks of highly valued goods.

4 - The time of the colonies

4.1 - Cabolombo: test pit 4

Our chronological journey brings us now to Benfica, located on the easternmost part of the platform, on the left bank of Rio Cabolombo, approximately 200 m to the north-north-east of test-pit 1. Test pit 4 was interrupted when it covered only 1 m² and was explored to only around 40 centimeters in depth. The data obtained must thus be considered with caution (figure 12). While no structured layer was found, the upper part of the fill, layer 3, which was only slightly uncovered, yielded a relatively large quantity of archaeological artifacts. These objects were lying flat at a nearly identical altitude (-35 cm), suggesting the existence of an accumulation level, perhaps a true archaeological floor in the strict sense of the term. The pottery, mixed with a few scattered *Arca senelis* shells, is characterized by fine, hand-built walls, a well-controlled firing and a fine, shiny temper. Some sherds have a stamped decoration that could have been realized with a roulette or thin cord. In addition, two fragments (that refit to each other) of a clay pipe bowl were found in this level. Being of an indigenous tradition, they indicate that layer 3 – and therefore



Figure 12 - Cabolombo, view of test-pit 4 in the process of excavation. The top of layer 3, visible in the lowest quarter, yielded relatively abundant archaeological remains. The date was obtained from charcoal fragments collected in the layer (photograph and excavation: N. Valdeyron).

the decorated pottery that it contained – occupies a very interesting chronological position, forcibly later than the arrival of the first Europeans (figure 13). The AMS date obtained from a few charcoal pieces collected in the archaeological layer fully confirm this position: 375 ± 25 BP [Lyon-4029 (OxA)], or after calibration an interval of 1465 to 1631 AD, corresponding to the first centuries of the colonial presence (first Dutch, then Portuguese) in the Luanda region (founded in 1575 by the Portuguese).

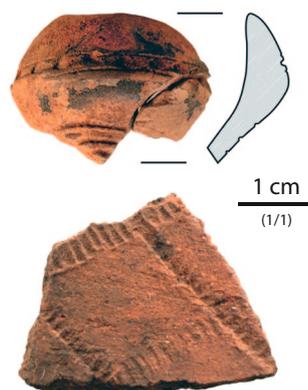


Figure 13 - Cabolombo, archaeological materials recovered in test pit 4: pot sherd with orthogonal impressions and a clay pipe bowl decorated with impressions and incisions (photograph and excavation: N. Valdeyron).

The results obtained from this test pit remain to be confirmed since the very small surface area of layer 3 that was excavated excludes any definite conclusions. We can nonetheless retain a few important elements for our understanding of the local pottery sequence. The decoration realized with a roulette (or small cord) and organized in a rectangles or squares may be a chronological marker and thus complete the pattern (though still very loose) of the stylistic evolution of indigenous productions between the beginning of our era and the first colonization episodes. On the other hand, the data collected from test pit 4 do not clarify the role, during this period, of shells in the economy of the populations. Neither the economic status (hunter-gatherers? food-producers?), nor the social status (what were their relationships with the colonists, who rapidly turned the Luanda region into a central hub for the commerce of slaves?) of these populations can be addressed, moreover.

4.2 - Cabolombo: test pit 14

Test pit 14 is located fifteen meters to the north of test pit 4, on the edge of the Rio Cabolombo. It allowed us to uncover, over approximately 2 m² and under around twenty centimeters of superficial sediments (layers 1 and 2), the top of an *Arca senelis* midden (layer 3), perfectly *in situ* and covered with archaeological artifacts (figure 14): numerous quartz cores and flakes, diverse faunal remains (fish and crab, as well as terrestrial mammals, probably zebra) and fragments of several clay pipes, associated with a probable fireplace in a small depression. The absence of pottery, even if the exploited surface is small, is remarkable, as is the presence of an abundant lithic industry, until now never encountered in our test pits. We did not have the time to realize several vertical excavation units; therefore only the upper part was explored. The profile visible on the bank shows that we are on the edge of a lenticular accumulation several meters long and a maximum of at least thirty centimeters deep (figure 15). Even if no direct association could be made, the stratigraphic position of the deposit suggests a chronological position intermediary between the archeological layer identified in test pit 4 and that of test pit 9 (see below). We are probably within a range between the 16th and mid-19th centuries.



Figure 14 - Cabolombo, view of test pit 14 in the process of excavation. The top of the midden appears in only half of the test pit; the front part of the photo, which has no shells but where a glass bottle fragment was found, corresponds to a recently disturbed zone (photograph and excavation: N. Valdeyron).

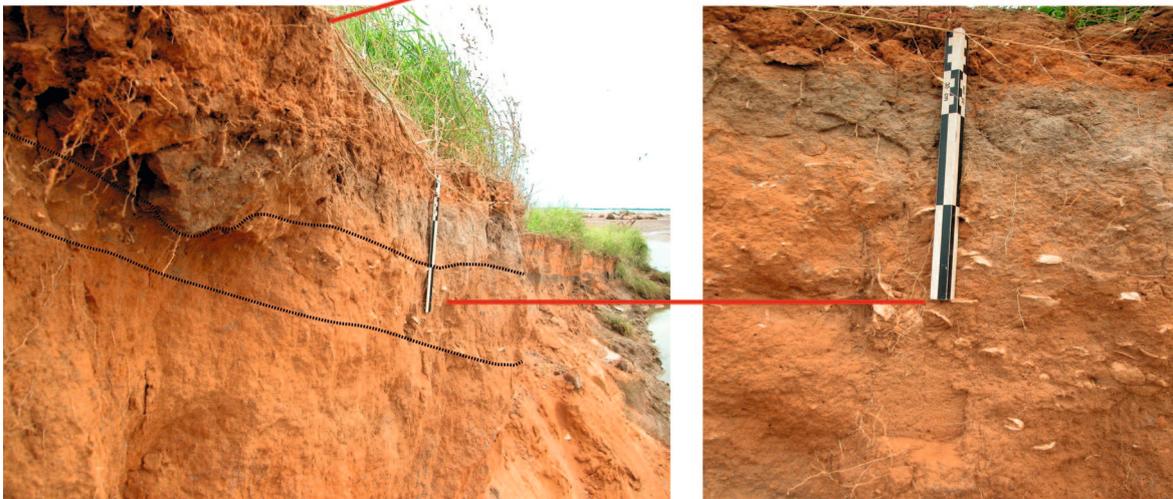


Figure 15 - Cabolombo, midden discovered in test pit 14 observed on the section offered by the right bank of the Rio Cabolombo. The midden is situated under a grayish layer of overflowing silts with a high organic material content. This sedimentary unit extends across several hundreds of meters and constitutes an excellent stratigraphic reference point in this sector (photographs and excavation: N. Valdeyron).

Despite the limited nature of our work, this is an essential discovery that indicates the presence of indigenous populations (based on locally manufactured pipes) that were forcibly in contact with the Portuguese, but who maintained a traditional way of life based at least partly on a predation economy and on a technical toolkit that included the use of stone. It is of course too early to propose any hypotheses concerning the origin of these groups, their association with any particular cultural trend, or even their exact chronological position. We can nonetheless remark that their lithic industry (absent in the other test pits), composed exclusively of small white quartz flakes often made by bipolar percussion on small pebbles (figure 16), is very similar to the “unformal” industry of the Late Wilton in South Africa. This latter is present during the same period and in archaeological contexts that may be similar (i.e. shell middens) in association with Khoesan populations, whether pastoralists (among which these productions are dominant) or hunter-gatherers (Deacon, 1984; Mitchell, 2002; Rivat, 2006; Smith, 2006). This similarity is perhaps in large part representative of technological convergences linked to the use of an identical raw material, which limits possible variations. It is nonetheless troubling since this is not the only factor that suggests (much) more southern contexts. For instance, a pot sherd collected on the surface near the platform is very similar to fragments of recipients found by C. Ervedosa more than



Figure 16 - Cabolombo, test-pit 14: flaked elements (broken pebble, flakes, and core) in white quartz (photograph and excavation: N. Valdeyron).

800 km to the south of Benfica, at the site of Macahama, which appears to have been occupied by Khoesan-like populations. This small painted rock shelter in the Namib desert yielded, in association with a quartz flake industry, pottery with small volumes and apparently simple forms decorated with impressions usually located on the edge of the lip (Ervedosa, 1980). At least two recipients are decorated with undulating grooves (Ervedosa, 1980, p. 181, plate XXXV, A and B) identical to that observed at Cabolombo. One of the recipients at Macahama even has a horizontal decoration, like our specimen, of brush impressions made with a comb or roulette, at the base of the grooves (figure 17). These latter are less regular, and perhaps less undulating, than on our sherd, but the pattern is unique since no other sherd found at Cabolombo has this type of association. Moreover, the morphology of the lip, which is also unique, is identical on the three sherds. It consists of a flat, thick lip with a termination nearly perpendicular to the neck. More than a vague resemblance, this is almost certainly the same decorative theme, using the same techniques on the upper part of recipients with similar forms, making it difficult to imagine a simple convergence. The site of Macahama has not been dated and the associated ornaments are very evocative: out of 14 beads, only two were manufactured locally (one ostrich egg shell bead and one snail shell bead), and the 12 others were imported European glass beads. C. Ervedosa (1980) believes that the paintings, which represent various large mammals (elephant, zebra, lion, perhaps giraffe, etc.) and a few anthropomorphs, are contemporary with the archaeological artifacts and attributes the ensemble – industries and paintings – to the direct ancestors of the Cuíssi (or Kuisi), a Namib desert hunter-gatherer population characterized by the use of a “click” language of the Khoesan family.

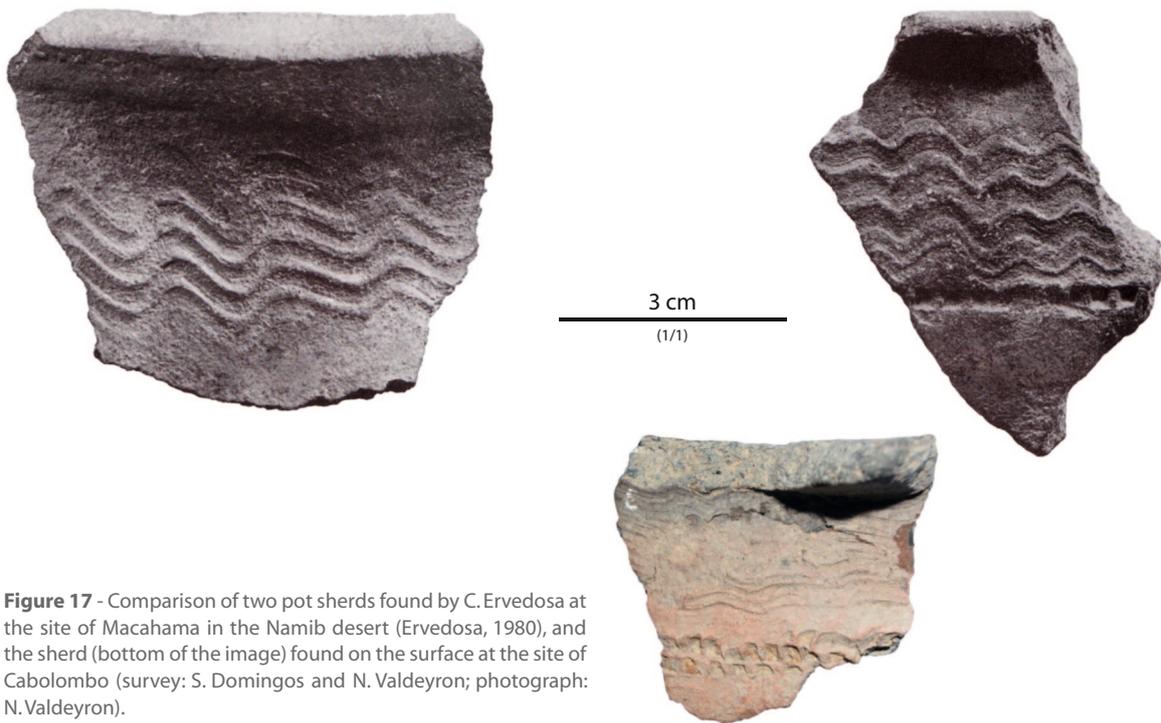


Figure 17 - Comparison of two pot sherds found by C. Ervedosa at the site of Macahama in the Namib desert (Ervedosa, 1980), and the sherd (bottom of the image) found on the surface at the site of Cabolombo (survey: S. Domingos and N. Valdeyron; photograph: N. Valdeyron).

Though, based on only a few quartz flakes and one pot sherd, it is obviously not possible to reliably associate two sites and conclude that they were occupied by populations of the same cultural tradition, and though it is also impossible to directly associate these populations with modern groups, all of these similarities indicate a research direction that should be further developed, especially since the Cuíssis themselves claim a more or less mythic origin in the Luanda region (Domingos, 2009). Whatever the geographic and exact ethnic origin of the populations responsible for the midden found in test pit 14, the dietary economy attested by this midden is based exclusively on predation, and the use of shells appears to be limited only to this dietary dimension. Except for the pipes, which were locally manufactured (figure 18) and clearly indicate a low chronological position, nothing distinguishes, in socio-economic terms, the archaeological indicators recovered from the midden in test pit 14 from those left more than one thousand years before by the groups responsible for the midden in test pit 1; as if nothing occurred in the meantime, not even the arrival of European colonists.

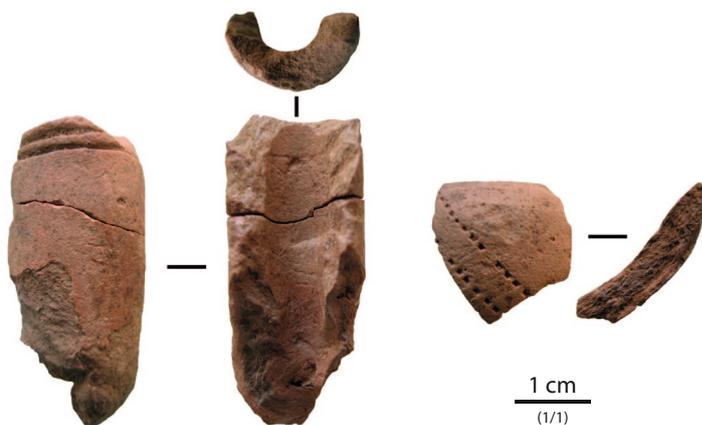


Figure 18 - Cabolombo, test pit 14: fragments of a ceramic pipe bowl with grooved decorations for the specimen with a long and narrow chamber, and decoration with impressions for the hemispherical specimen (photograph and excavation: N. Valdeyron).

4.3 - Cabolombo: le test pit 9 (or “f”)

Test pit 9 was made to the north of the platform in a depression where numerous archaeological remains were observed in the slope, including tiles and wheel-turned pottery associated with a large quantity of often burned shells. The sedimentary features suggested a rapid deposition linked either to collapses or discard (figure 19). The creation of a profile perpendicular to a partially exposed wall allowed us to observe, along more than 5 m and 1.5 m in depth, the remains of an ancient lime kiln in which *mabanga* shells were used as the raw material (figure 20).



Figure 19 - Cabolombo, view of the eastern slope of the main platform, in the sector with the lime kiln. Tiles, wheel-turned pot sherds and often burned *mabanga* shells are scattered over the ground, accompanied by bricks sometimes joined together with mortar (photograph: N. Valdeyron).



Figure 20 - Cabolombo, view of the lime kiln in the process of excavation. In the eastern corner (right side of the photo), the fill lies up against a brick and stone wall, constructed with mortar. A detailed observation of the stratigraphy enables the identification of at least two phases of operation of the kiln, each represented by more or less thick layers of intensively burned shells. In the upper part of the sequence, a nearly continuous bed of tiles probably corresponds to the roof (photograph and excavation: N. Valdeyron).

This feature once again indicates the status and function of the site of Cabolombo after the beginning of the Portuguese colonization and the establishment of the “fazenda de Bellas” factory. The site, known to have produced bricks and tiles, would thus also have furnished lime².

2. Diderot speaks explicitly of this practice in his *Encyclopaedia*, in the section devoted to the city of Luanda (at the time, Saint-Paul-of-Loanda).

This would be a minor detail if it did not demonstrate that the collection and use of shells at the site did not cease with the arrival of the Portuguese. While the presence of shells appears to have been exclusively associated with the dietary activities of the indigenous populations, a large part of them, and maybe the majority of those visible on the surface or on the edges of the mound, in fact served as the raw material for the fabrication of lime (figure 21), which has no connections with a “Mesolithic” lifestyle. Lacking radiocarbon dates, the date of the kiln is deduced from a clay pipe half-bowl discovered in the sediments. The fabrication of this object is mediocre (significant transverse and longitudinal asymmetry) and its decoration simple, realized by impression before firing (figure 22). According to D. Duco, expert at the Pijpenkabinet Foundation of the National Pipe Museum of Amsterdam, to which we showed photos, this pipe has a local origin and was probably made sometime between 1750 and 1850.



Figure 21 - Cabolombo, close-up of one of the burned shell layers in the lime kiln (photograph and excavation: N. Valdeyron).



Figure 22 - Cabolombo, half-bowl of an indigenous clay pipe with grooved decorations, found in the backfill of the kiln (photograph and excavation: N. Valdeyron).

With the chronology established, it remains to be determined how and by whom the shells were collected. We suggest two scenarios, the first of which could have two versions. If we first accept that the shells are strictly contemporary with the functioning of the kiln, they could have been collected either with the goal of producing lime, directly by or for the Portuguese, or for dietary purposes by the locals; the shells resulting from this latter collection then being integrated in the cycle of brick production. This second version seems even more likely given that the populations of the Luanda sector were specialized in the collection of *zimbo*, a shell that was used as coins until around 1850³. It is feasible that these two collections (*mabangas* and *zimbos*) went hand in hand. This version, among other advantages, would explain the presence of fish and crab remains in the accumulations of shells found in the kiln, along with a few fragments of mammal bones. We see only one explanation for the presence of these latter remains: they resulted from the dismantling of anthropogenic accumulations at which the domestic activities of preparing and consuming these animals were carried out. It is difficult, for the moment, to favor one of these versions over the other (even if the second one would explain the presence of culinary remains other than the shells) since we know almost nothing of the relations between the colonists and the locals, especially since these relations could have changed through time as the Portuguese hold over the Luanda region was strengthened. It is possible that in the beginning, the factory simply benefited from the opportunity to exploit the remains of shells collected by local groups. It is also possible that in the face of an increasing demand for the raw material, the traditional collection rapidly became insufficient, making it necessary to increase the gain, possibly by force.

In the second scenario, which does not exclude the first, the collection of shells and the use of the kiln would have occurred at different times. It is entirely possible that the shells from the ancient middens were used for the production of lime. The progressive dismantling of these middens would thus resemble the exploitation of a quarry. This scenario, like the second version described above, would explain the presence of faunal remains in the kiln.

It will be necessary to consult the historical texts, especially the accounts of the first colonists, to find information on this aspect and to see whether indigenous populations lived on the coast during the period during which the factory was in use and if they practiced large scale collections of food resources. According to J. Rudner⁴ (1976) citing J. Vansina (1970), it appears that this was the case in the beginning of the contact period, but we still have no indication for the more recent periods, unless of course, the midden of test pit 14 occupies this chronological position. In this case, it could attest to the coexistence near the factory of human groups with very different socio-economic statuses (at least the indigenous populations with statuses that are difficult to define, and perhaps not homogeneous, and the Portuguese colonists), all of whom benefited from the exploitation of *mabangas*.

5 - Modern data: between tradition and modernity

In parallel with these excavations, several surveys were organized in the southern part of the Bay of Luanda in order to discover new shell middens and to identify the location of sites already known. They resulted in the discovery of a large number of middens, most of which are relatively recent and often provide more ethnographic than archaeological information. These middens illustrate the permanence of the practice of collecting *mabangas* in the Bay of Luanda and provide an opportunity to extend our diachronic inquiry to the present.

3. The Portuguese kingdom profited from the collection of *zimbos* by using them to buy slaves.

4. "We know from early Portuguese writing that the Luanda peninsula was inhabited by a tribe of Bantu fishermen and shellfish-eaters" (Rudner, 1976: 102).

5.1 - Mussulo

When we learned of the existence of middens or scatters of shells in the process of being formed in the southernmost part of the Mussulo peninsula, we went there in 2005 to verify this information. In effect, clearly recent middens extend almost continuously at the bottom of a small sandy cove, some in immediate contact with the shore and others more inland (figure 23). Their location is explained by the massive presence, in this part of the bay, of *Arca senilis* L. shells, which are easy to collect by hand at low tide or to bring to the surface using diverse instruments when they are deeper below the water. The transport of shells to the shore is easy and these accumulations, in immediate proximity to the procurement source, indicate a rapid transformation in place of the products collected at the time when they were needed, in the context of a collection that appears to correspond more to domestic needs than to commercial ones.



Figure 23 - Mussulo peninsula, view of the eastern bank of the peninsula, facing the lagoon. The circles of red dotted lines indicate shell middens scattered along the shore in this sector (photograph: N.Valdeyron).

The first midden observed is also the most informative one in terms of function. It is located right on the edge of the water, the first shells even being touched and moved by the surf. It is oblong in shape and spreads over at least 200 to 300 m², though the vegetation that encroaches on its margins does not facilitate an accurate estimation of the surface area (figure 24). To the extent that we can judge, the average thickness of the midden is 30 to 40 cm: at least this is what is regularly measured on its edges, but it is probably much thicker in the center since it is slightly convex. In a few cases, the accumulation is locally much thicker, attaining nearly 1 meter. These situations most often seem to correlate with the presence of combustion features, around which the shells appear to have been discarded after cooking their contents. These features (figures 25, 26) are always rudimentary. They are generally circular with a diameter of 50 to 60 cm. They lie flat, directly on top of the midden, with no preliminary digging. A few stones or bricks sometimes line



Figure 24 - Mussulo peninsula, view of one of the middens found on the edge of a beach. The average thickness of the shells (the *mabangas* only) is only a few centimeters on the periphery. In the center of the midden, it can be up to several tens of centimeters. At the center of the photo, there is a metal container that served as a brasero (photograph: N. Valdeyron).



Figure 25 - Mussulo peninsula, close-up of a midden with a simple and nearly complete system of operation: an elementary cooking structure composed of a few bricks on which a grill was probably placed, the old burlap sack in which the shells were carried, a stock of small branches and roots used as stock of fuel and, mixed with the other shells, those whose meat was consumed in place. The only things missing are the tools used to open the shells, which were probably taken away from the site. The operating time of the system was definitely very short (photograph: N. Valdeyron).



Figure 26 - Mussulo peninsula, another "station" on another midden. The system is nearly identical to the preceding one (shells, bricks around a small circular fireplace, burlap sack, stock of fuel), but the brasero, which was not used to cook the *mabangas*, along with the plastic plate and tongs, add a touch of modernity (photograph: N. Valdeyron).

the edges, probably to delimit the fireplace and perhaps to support a cooking grill, though none have yet been discovered. Inside the feature, there are gray ashes, a few charcoal fragments, numerous partially burned twigs, and a variable number of shells. The latter are usually entirely and intensively burned and often reduced to small fragments (figure 27). It is possible that they accidentally fell into the fireplace or that they were already present on the surface of the midden when the combustion feature was constructed. There is little chance, on the other hand, that their state reflects an intentional act linked to the preparation of the flesh of the mollusks: if this were the case, all of the shells in the accumulation would display the same degree of alteration and ustion, and therefore, the same gray color, which is far from the case. Through cooking experiments at different degrees of heating and tasting sessions, we could easily test and model these different parameters and identify some of the conditions of the functioning and constitution of this type of midden. Moreover, the alteration of the shells appears to correspond to processes other than those induced by cooking: probably as a result of their exposition to the sun, the dark color of the shell fragments at the moment of their collection is progressively lost. This observation provides new elements that can contribute to our understanding of the formation of these middens, as well as that of their older counterparts, by making it possible to identify during excavation the different phases of shell accumulation, and perhaps even to determine its pace and intensity. The alternation between more or less thick layers of white shells, with a phase of abandonment of the midden during which the upper part of the accumulations was subject to atmospheric agents, and layers of darker shells, could thus compensate for the very low sedimentation rate and facilitate the vertical exploration of these accumulations.



Figure 27 - Mussulo peninsula, close-up of part of layer of shells belonging to the preceding midden. We can see a small concentration of totally burned *mabangas* near the charcoal and ashes, all of which is more or less covered with non burned shells: this is likely an old dismantled cooking structure, covered over with new waste (photograph: N. Valdeyron).

We were not able to make detailed observations of the other middens. They nonetheless appear to follow the same general pattern as the preceding midden, indicating regular human occupations, but of a short duration and low intensity. At this stage in our research, this is what seems to be indicated by the small size of the fireplaces, the rudimentary nature of their construction, and the lenticular form and thinness of the deposits. The constitution of these middens would thus correspond to domestic dietary activities.

5.2 - Praia da conchas

In 2007, the surveys realized in the southern part of the lagoon, in the Morro dos Veados sector, revealed a group of *Arca senelis* middens located on both side of the road. Of a variable size and shape (figure 28), they appeared to us to be less recent than those of Mussulo (none displayed traces of recent use), though not very old either. A local fisherman confirmed this impression and informed us that these accumulations were in fact only a few dozen years old. They are apparently situated on a zone that was once rich in shells, and were exploited for as long as it was deemed profitable, before being abandoned for more interesting sectors.

Among these latter sectors, the appropriately named Praia da conchas beach constituted both the highpoint and the end of our expedition around the lagoon. This small locality is occupied by the natives of Cacucaco, the island of Luanda and Benguela, these latter having journeyed 1000 km to escape civil war. Starting in 1996, after the former fishing spot, Soba beach, had to be abandoned due to urban expansion; this beach became both one of the main locations for traditional fishing and *mabangas* collection, as well as one of the largest markets on the lagoon. The collection and processing of shells, which was intensive and seasonally organized due to the difficulty of preserving mollusk meat (two days at most if it is not cooked), lasted throughout the cold season, called “Cacimbo”. The collection is represented in a spectacular manner: the ground is covered with shells over thousands of square meters and dozens of centimeters in depth (figure 29) and, at least at the time of our first view of the site in 2006⁵, a shell midden of nearly 50 m³ spread to the edge of the beach (figure 30). This “archaeological” signature is much different than what we had observed until now for recent middens, such as that of Mussulo. The existence of these



Figure 28 - Morro dos Veados, series of more or less recent *mabanga* shell middens literally carpeting the edge of the lagoon. No fireplaces, traces of charcoal or burned shells were found. All of the white areas in the background correspond to middens (photograph: N. Valdeyron).

5. In 2007, it had completely disappeared, being sold to a public works company who used it to pave roads and parking lots.

immense and continuous layers of shells and the absence of combustion features directly associated with them indicated that the traditional and commercial nature of this collection went well beyond the domestic sphere, even if the unit of production was the family. Several inquiries (Domingos, 2009) provided information on the technical, economic, and even social conditions surrounding this activity.

- The exclusively male fishermen arrived at around 5:00 or 6:00 in the morning and embarked in their crafts powered by oars, sails or, much less often, a motor. To reach the island of Mussulo, it took two hours for those with no motor. When they arrived at the island, they waited for low tide and free-dove, with no equipment except for a mask or glasses, to hand-collect the shells and put them into a bucket called a “bunker” or “cabetula” (figure 31). Some fishers dove with a backpack full of sand that served as a ballast; they then emptied it into the water so that they could fill it with shells. When the tide began to rise, they stopped working.



Figure 29 - Praia da conchas, the beach in one of the shell processing zones. *Mabanga* shells cover the ground. The sand is visible in only a few places where they were pushed into it by people walking (photograph: N. Valdeyron).



Figure 30 - Praia da conchas, shell midden in the process of being formed. It was photographed in April 2006, and then disappeared in 2007 after the shells had been sold to a contractor to be used in road construction (photograph: N. Valdeyron).



Figure 31 - Praia da conchas, return from a fishing trip. The wooden boat is half filled with shells. In the foreground we see the *cabetula*, a perforated plastic bucket used to lift the shells to the surface (photograph: N. Valdeyron).

- In the case of “plunder” fishing, they returned to Praia da conchas the same day, at around 14:00. If it was a “batida” fishing expedition, they left on Monday and did not return until Wednesday afternoon: the morning was devoted to shellfish, and the rest of the day to fish. When they returned, they sold their catch, fishes and *mabangas* separately, to the female merchants waiting for them (and with whom they often made arrangements in advance). The “bunker”, which constituted the unit of measure (between 5 and 10 liters) for the shellfish, was sold for between 35 and 40 kwanzas (Kz), or approximately 1 US dollar; for each daily expedition, they earned approximately 2500 Kz.
- The women (among which there was a strict hierarchy distinguishing the “boss”, who bought the shellfish, from the workers paid by her) then processed the shellfish (breaking, sorting and washing) to remove the flesh (figure 32). One of them, usually the “boss”, placed a shell on a stone (granite?) anvil and, using a stone hammer or a metal lag-screw (the latter, possessed by only a few women, was probably taken from the rails of a railroad) that was used as a hammer, struck the point of intersection between the two valves to open the shell (figure 33). Once a good quantity of shells was opened, two other women extracted the contents by hand using a still articulated shell in the manner of tongs. The flesh was then placed in a resistant sack (figure 34) that they then beat with a stick to remove the sand still adhering to the mollusks. The flesh was then washed and placed in another sack. This operation was repeated three or four times before the mollusks were stored in plastic tubs. The raw flesh was then ready to be sold. It was sometimes dried in the sun on plastic or fiber sacks. The empty shells were discarded near the woman who broke them, as they were being processed, in a very mechanical manner. They rapidly accumulated at the feet of the woman and a large continuous pile was formed, joining the workstations together.
- The next day, at their home, the women prepared the *mabangas*; they used an aluminum pot (not ceramic, which is rarely used for cooking). The raw *mabangas* were sold by the kilo (1 kg for 200 Kz). The cooked ones were placed in a tub and sold by the spoonful at the following prices: 1 coffee spoon = 10 Kz; 1 soup spoon = 20 Kz; 1 kg = 250 Kz. According to the merchants, they did not make a good profit, mostly due to the price asked by the fishers: one bucket of shells is not equivalent to a bucket of mollusks and the fishermen sold the shells at what were considered to be very high prices, with the justification that they risked their lives every day (oral communication, D. Mariana, mollusk merchant). This activity thus paid barely enough to survive. The earnings were irregular: when the demand was high, the activity was relatively profitable, but when the weather was hot and the shellfish died very fast, the demand decreased and the situation became difficult. The money earned was used to satisfy daily needs, especially feeding the family (oral communication, D. Margarida).

The inquiries made at Praia da conchas thus provided much information, showing that shellfish collection methods respected certain traditions (at least in technical terms⁶), but that the practice was also necessarily integrated into a changing world, which swayed further and further from these same traditions. Ten or twenty years ago, the collection of shellfish around Mussulo island was preceded by a ritual meant to protect the fishermen and ensure the success of their expeditions. The traditional authorities of Mussulo, Barra do Dande and Luanda Island gathered together for the ceremony and, once the shellfish were collected, they began the ritual itself, accompanied by

6. “This sea trade, our parents also practiced it in this way. Meaning we saw them do it this way and that is how we do it also, in the way that we have explained it to you” (oral communication M. João Camuenho).



Figure 32 - Praia da conchas, women working in groups of two to three to remove the meat from the shells. Young boys and girls sometimes participate in the operation (photograph: N. Valdeyron).



Figure 33 - Praia da conchas, the equipment used by the women who open the *mabangas*, consisting of a stone (apparently a pavement stone, perhaps in granite), which serves as an anvil, a stone hammer (probably an old anvil, as is indicated by the deep grooves on its sides), or a metal hammer (here a lag-screw of a railroad), is both simple and sufficient (photograph: N. Valdeyron).



Figure 34 - Praia da conchas, once the shells have been opened, the meat of the mollusk is temporarily stored in burlap sacks (photograph: N. Valdeyron).

chants and offerings to Kianda, a mermaid who lived at the bottom of the ocean and whose goodwill had to be solicited. Today, this ritual has been completely abandoned; the mixing of populations, encouraged by the civil war, as well as the increased exploitation of shellfish, probably contributed to making it obsolete. Moreover, the low profitability of shellfish collection today leads us to wonder why the practice is continued at all. Beyond any economic reasons, it may serve a different function, which is to contribute to maintaining, or establishing, the social cohesion of poor, heterogeneous

groups – a cohesion that is probably disturbed by the long and fratricidal armed war – by encouraging the establishment, or maintenance, of strong hierarchies and a sexual division by establishing a sexual distribution of labor that resulted in a strict separation of men and women. A certain social violence in the social relations could argue in this sense. We detected on the beach, where we had the impression that the men, who were quiet and not very friendly, clearly supervised the work of the women to the point that we wondered if this behavior was not somewhat forcefully imposed.

From an archaeological perspective, what links can be drawn between the collection and fishing of mollusks as it is practiced today and how it was done on the Bay of Luanda a few centuries, or even millennia, ago? How can we use shell middens still in the process of formation to try to reconstruct how archaeological middens operated? The main midden of Praia da conchas, which we observed during its development, was formed very rapidly and within a very short time-span it attained 4 meters in height. The fishers and shellfish merchants associated this practice with other activities in the center of town, and were thus not present «full-time» at the site. Therefore, even if we do not know the size of the groups that constituted the old middens, it appears that relatively little time was needed to form a middle sized midden. Those explored at Cabolombo, for example, limited to a few shell thicknesses, could have resulted from a short, or even very short, occupation by a small group. The modern reference base that could be constituted by the recent middens found at Mussulo even with only a small number of test-pits, would allow us to clarify these points rather easily.

6 - Conclusion

In three field seasons, which represent only slightly more than a month in the field, we were able to collect a significant amount of information from both archaeological and ethnological sources. These data, most as yet unknown, show the strong potential of the Bay of Luanda to provide relevant information. It is thus a favorable area for observing the long and complex history of the settlement of this part of Angola. This settlement was established in a manner that was probably more or less transferable to all of the zones concerned, first by the Bantu expansion, and then by European colonization. *Arca senelis*, under its vernacular name “*mabanga*”, played an essential role in this inquiry, not only because its name was given to one of the largest archaeological sites in the sector, but also because it enabled us, due to its continuous collection, to explore the evolution of the cultural and socio-economic contexts in which this practice operated, and the capacity of archaeological research to reconstruct them.

From the perspective of broad cultural trends, and despite the scenarios that remain to be confirmed, we can consider the mission on which we embarked to be a success: the evolution of the use of *mabangas* indeed mirrors that of the communities by which it was collected. Whether we consider the shell collectors, probably belonging to the Bantu tradition, encountered at Cabolombo in test pit 1, or the Portuguese factory, which, at the same site, used *mabangas* as a raw material, or those at Kitala/Kambanga who made beads from them, probably for the Mani Kongo, the main stages of cultural history and peopling have been satisfyingly reconstructed. Nonetheless, due to their more ambiguous archaeological record, the cultural and socio-economic status of some of the populations is more difficult to apprehend, as is the case at Cabolombo, in test pit 4. This is even truer for test 14 at the same site, in which the simultaneous presence of indigenous groups and Portuguese colonists, given the known practices of the latter, raises the question of possibly servile condition of the indigenous populations, which is difficult to determine here. In this case, at least based on the type of remains considered here, we must recognize that the archaeological method appears to be rather ineffective.

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Nicolas VALDEYRON

Senior lecturer in Prehistory
University of Toulouse, Traces (UMR 5608)
Toulouse, FRANCE
valdeyro@univ-tlse2.fr

Sonia Ludmila DA SILVA DOMINGOS

Doctor of Prehistory
National Institute for Cultural Heritage.
Luanda, ANGOLA
tasonia2000@yahoo.fr

Article outline

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Proposed Models for Settlement Pattern
and Technological Signature
of a Neolithic Population in Southern Africa

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Abstract

The Khoekhoe pastoralist populations of South Africa are well documented in historical sources. Their archaeological remains nonetheless seem to differ very little from those of contemporary hunter-gatherer groups. Based on the discovery of a probable kraal at Kafferskuitje (KFS 5), on the Vredenburg peninsula, and on a geomorphologic study of the alluvial terrace system of the Berg River, we suggest that Khoekhoe groups made selective choices in their settlement on the lower terraces located inside the meanders. If we follow this predictive model, the discovery of the site of Volstruisdrif (VSD) enables us to propose the hypothesis of an archaeological signature based on the diagnostic association of ceramic remains and distinctive lithic productions.

Keywords

South Africa, Khoisan, Khoekhoe, pastoralism, Neolithic, lithic technology, ceramics.

1 - Introduction

Is it possible to understand the lifeways of Khoekhoe pastoralists, a nomadic population in South Africa, through the sole intermediary of European sources? Would their historic depth then be limited to only a few centuries, those during which they were observed by Western peoples before their demise. These pastoralists – richly documented in the writings of the first colonists and voyagers who reached the area near the Cape of Good Hope starting in the late 15th century, and made famous under the name “Hottentots” – indeed disappeared in a rather brutal manner starting in the 18th century (Smith, 1993; Fauvelle-Aymar, 2002). Their descendants were then integrated into south-African society and were gradually replaced in our representation of indigenous populations in this part of the world by San hunter-gatherers (or Bushmen) only. These nomadic Khoekhoe pastoralist populations nonetheless played a very important, or even determinant, role in the Neolithization of southern Africa. They embody a form of socio-economic, and perhaps political, organization that must be taken into account in attempts to reconstruct the complex mosaic of situations that intervened between Bantu speaking agro-pastoralists and San hunter-gatherers.

Despite their importance, the demise of this population was so definitive that they ended up having no specific archaeological identity. Once their sheep and oxen herds were reduced to a few scarce bones, and their *kraals* (term designating both animal pens and human campsites) reduced to ashes, their material remains – a few pieces of flaked quartz and a few pot sherds most often found in small rock shelters or in association with large shell middens on the coasts – are easily confused with those of hunter-gatherers, so much so that their very existence has been questioned. For this reason, their study – perhaps like that of other prehistoric pastoralist populations in the world – presents a real challenge for our discipline.

The identity of these different populations – pastoralists and hunters – is the subject of recurring debate in archaeology and south-African history (for a synthesis of these issues, see Fauvelle-Aymar, Sadr, 2008). While for some authors, these groups are culturally clearly distinct (Smith, 1986; Yates, Smith, 1993), for others, the Khoekhoe and San represent two parts of the same cultural entity at different stages in its social organization or disorganization (Deacon, 1984; Schrire, 1992). This of course leads to opposing opinions concerning our ability to clearly distinguish these two populations in the archaeological record. These positions then give rise to very different scenarios to explain the origins of the pastoralist economy in this part of the world: if we are unable to define the cultural baggage specific to the populations by which it was practiced, it becomes impossible to go back in time based on archaeological remains to determine if the “historical” Khoekhoe are the descendants of the migrant populations that would have settled in the Cape region only a few hundred years before the arrival of European colonists, or of San populations that gradually adopted this economy as the diffusion of livestock and breeding practices extended over increasing distances. Though these two scenarios are opposed, they could operate together if we recognize that the two processes could have succeeded one another (Fauvelle-Aymar, 2004). The introduction of sheep starting at the beginning of our era could thus be the result of a phenomenon of diffusion within autochthonous hunter-gatherer populations (Sadr, 2003), and the Khoekhoe pastoralists could have appeared in the landscape of the Cape region later, during, or at the transition of the 1st millennium, perhaps instigated by the Bantu agro-pastoralist migration that occurred in the eastern part of Southern Africa.

We must nonetheless recognize that the archaeological data currently available are not sufficient to significantly contribute to such a discussion. In particular, as noted by C. Arthur (2008), we lack information on the types of settlements most often described by western voyagers: *kraals*, which are open air camps that constituted the itinerant settlements of these pastoralist populations (figure 1).

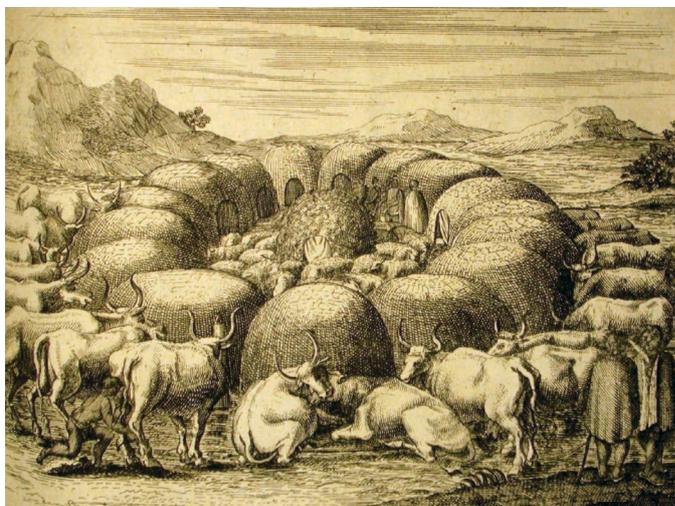


Figure 1 - An historical Khoekhoe *kraal* depicted by the illustrator of Peter Kolb's *Caput Bonae Spei Hodiernum* (1719). The habitation units, huts made of branches and woven mats, encircle a central space where the sheep and calves were kept.

On the contrary, most of the archaeological data thus far collected concern cave and rock shelter sites, or shell middens on the coast (Parkington, 2006). Like the research conducted in the Breede River sector (Arthur, 2008), our goal in organizing surveys between 2004 and 2006 was to search for traces of the Khoekhoe in the areas where they are historically documented, first on the Vredenburg peninsula, in order to return to the source of a rich archaeological record, and then on the banks of the Berg River (figure 2).

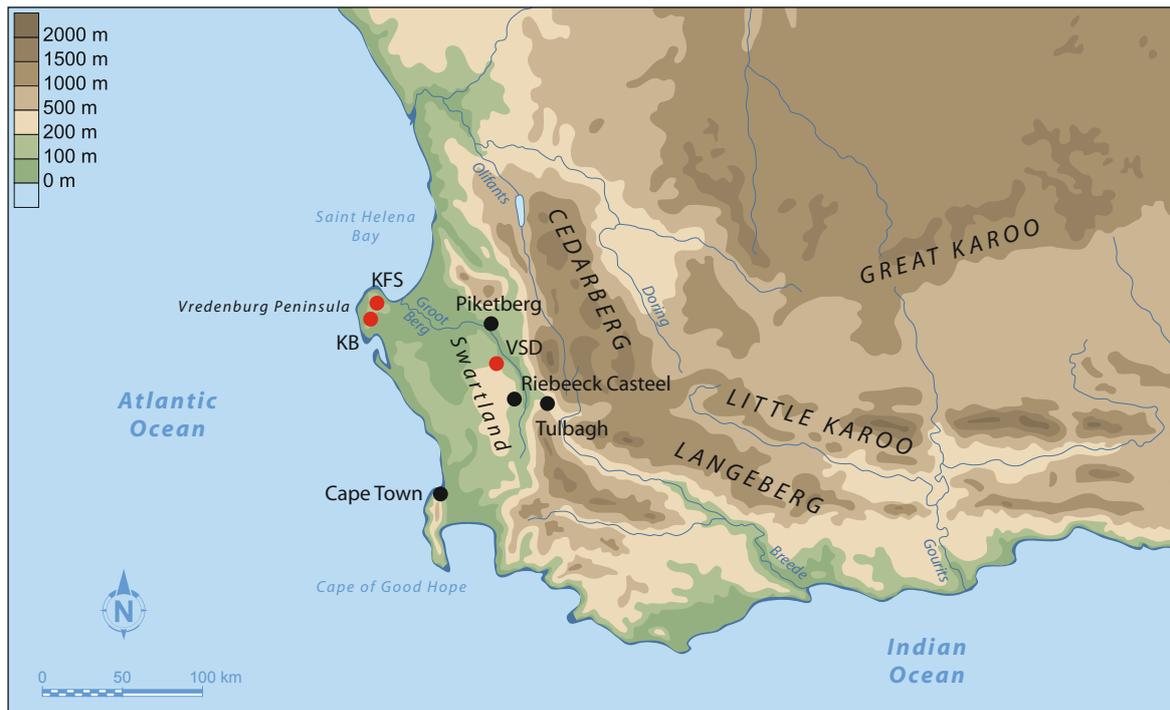


Figure 2 - Map of the sites mentioned in the text. KB: Kasteelberg. KFS: Kafferskuitje. VSD: Volstruisdrif (CAD: F. Tessier).

2 - Kafferskuitje 5: a *kraal* on the Vredenburg peninsula

We began our inquiry with an analysis of the site of Kafferskuitje 5 (KFS 5), previously identified by one of us (K.S.) during a systematic survey conducted in 1991 and 1992 on the Vredenburg peninsula (Sadr *et al.*, 1992; Sadr, Gribble, 2010), near the famous site of Kasteelberg. This latter site, located on a small granite relief overlooking the nearby sandy plain, yielded to A. Smith, who conducted research here, numerous remains of prehistoric occupations, and in particular, the remains of large occupations during the last two millennia. Belonging to this latter chronological phase, the sequence of the Kasteelberg B (KBB) locus constitutes one of the main references for the introduction of a pastoralist economy (in this case based on sheep) in this part of southern Africa. This site was one of the first to yield elements (ceramic and lithic remains, ostrich egg shell beads, etc.) enabling a more precise definition of the archaeological identity of pastoralist populations (Smith, 2006). Nonetheless, this occupation situated at the foot of a rock outcrop in a tangled heap of boulders, differs significantly from the descriptions of *kraals* found in the literature. As we shall see below, the site KFS 5 more closely corresponds to this type of site.

KFS 5 is a large open-air settlement located at the mouth of a small valley containing dispersed marine shells brought in from the nearby coast, indigenous pottery and lithic artifacts similar in many ways to the artifacts of the levels attributed to the 2nd millennia of our era found at KBB. A German pot sherd (of the Bartmann type) dating to the first half of the 17th century concords with the radiocarbon dates (mostly concentrated within the 14th to 17th centuries) obtained from shells, thus confirming that the site was occupied at the junction of the pre-colonial and colonial periods, during the period for which there is evidence (historic records) of the presence of Khoekhoe pastoralists in this region. In addition, our interpretation of KFS 5 as a true *kraal* is supported by the identification of a large spread of vitrified cow or sheep dung that appears to indicate the location of an animal pen (Fauvelle-Aymar *et al.*, 2006).

With KFS 5, we thus have one of the first sites on the Western Cape that appears to correspond to a *kraal* from the so-called “contact” period. As we will discuss below, KFS 5 thus contributes to defining the archaeological signature of a “historical” pastoralist population. Nonetheless, the integration of these archaeological data with written sources remains limited since KFS 5 is located in a geographic zone that was not precisely described by Europeans until the early 19th century. We thus decided that it would be necessary to make our observations in the zones with the most historical documentation. To do this, the second step of our work consisted of conducting a survey along the Berg River (figure 3). The choice of this zone, whose landscape was often described in the 17th and 18th centuries because it was then one of the main routes taken by the settlers toward the inland regions, was also useful for challenging the model proposed by A. Smith, according to which the Khoekhoe would have moved seasonally between the coast and the fertile plains of Swartland (figure 4; Smith, 1984).

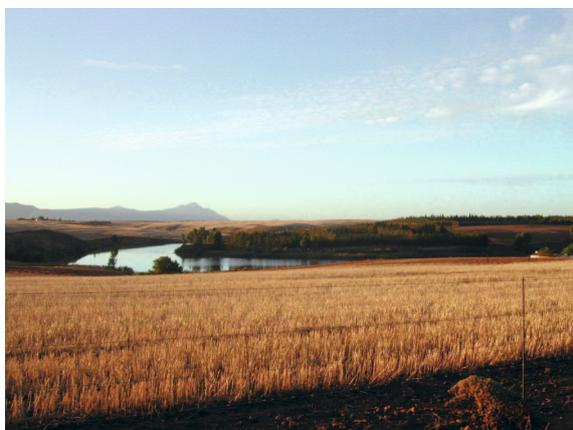


Figure 3 - View of the Berg from the area near Volstruisdrif (VSD) and Toorkrans (photograph: F. Bon).



Figure 4 - The Swartland plains near the Heunigberg massif (photograph: F. Bon).

3 - Historical context and archaeological environment of the Berg River

Several accounts from the late 17th century or early 18th relate, with more or less precision, the expeditions conducted in the surroundings of the Berg River and the encounters made with indigenous groups. Some authors, such as J. Danckaert in 1660 or P. van Mierhoff in 1661, describe their meetings with Sonqua (or Soaqua) groups in different places, while others speak of the presence of “Hottentots”. While the former do not appear to have possessed animals and could thus be considered as hunter-gatherers (Parkington, 1984), the latter were evidently nomadic

pastoralists, with whom the Europeans sought to establish contacts in order to acquire part of their livestock. Several *kraals* are thus mentioned, such as those of the *kaptein* (the Dutch name for the indigenous chiefs) Goereman somewhere along the banks of the Berg between Heunigberg and Misverstand (according to the account by Governor S. Van der Stel in 1685-1686; [figure 5](#)), or that of *kaptein* Bootsman, first near the Vier-en-Twintig-Riviere (“twenty-four rivers”), then a bit later downriver from the confluence of the Berg and the Matjiesrivier (according to the text by J. Starrenberg in 1705; accounts of these voyages in Mossop, 1927; Thom, 1952-1958; Valentyn, 1971).

This historically well documented zone was thus well adapted to testing our ability to identify the tangible archaeological remains of these pastoralist populations. A similar enterprise had in fact already been attempted around twenty years ago by T. Hart (1987) who conducted a survey with the same objective – to identify the remains of Khoekhoe settlement in the zone where their presence is historically documented. However, he himself admits that he failed due to the relative scarcity of archaeological remains that could be attributed to the Late Stone Age (LSA) in general and to the pastoralist populations in particular (Hart, 1987).



Figure 5 - Map of the Cape colony, published in 1726, shows the state of knowledge at the time of the voyage of Governor Van der Stel in 1685-1686. All of the Khoekhoe groups then known by the Dutch are indicated. Curiously enough, the hydrographic system of the Berg is duplicated on the map, indicating that at least two sources of information were consulted and combined. Nonetheless, despite these errors, the survival until today of the toponyms shown on this map allow us to precisely localize some of the places in the field (Valentyn, 1971; CAD: F.-X. Fauvelle-Aymar).

The method he employed, however, which consisted of surveying a sample of test zones with no previous geomorphological analysis of the landscape, could partly explain this result. In contrast, the approach that we applied in the two surveying sessions realized during the months of April 2005 and 2006, was based on a preceding description of the geomorphological conditions that could have dictated the settlement choices made by these populations across the landscape, as well as an understanding of the factors influencing the preservation of their remains. The zone that we selected was essentially the same as that of T. Hart, consisting of the portion of around twenty kilometers where the Berg runs along, from the west, the Heuningberg massif, between the Vier-en-Twintig-Riviere to the south, and the Matjiesrivier to the north (figure 6).

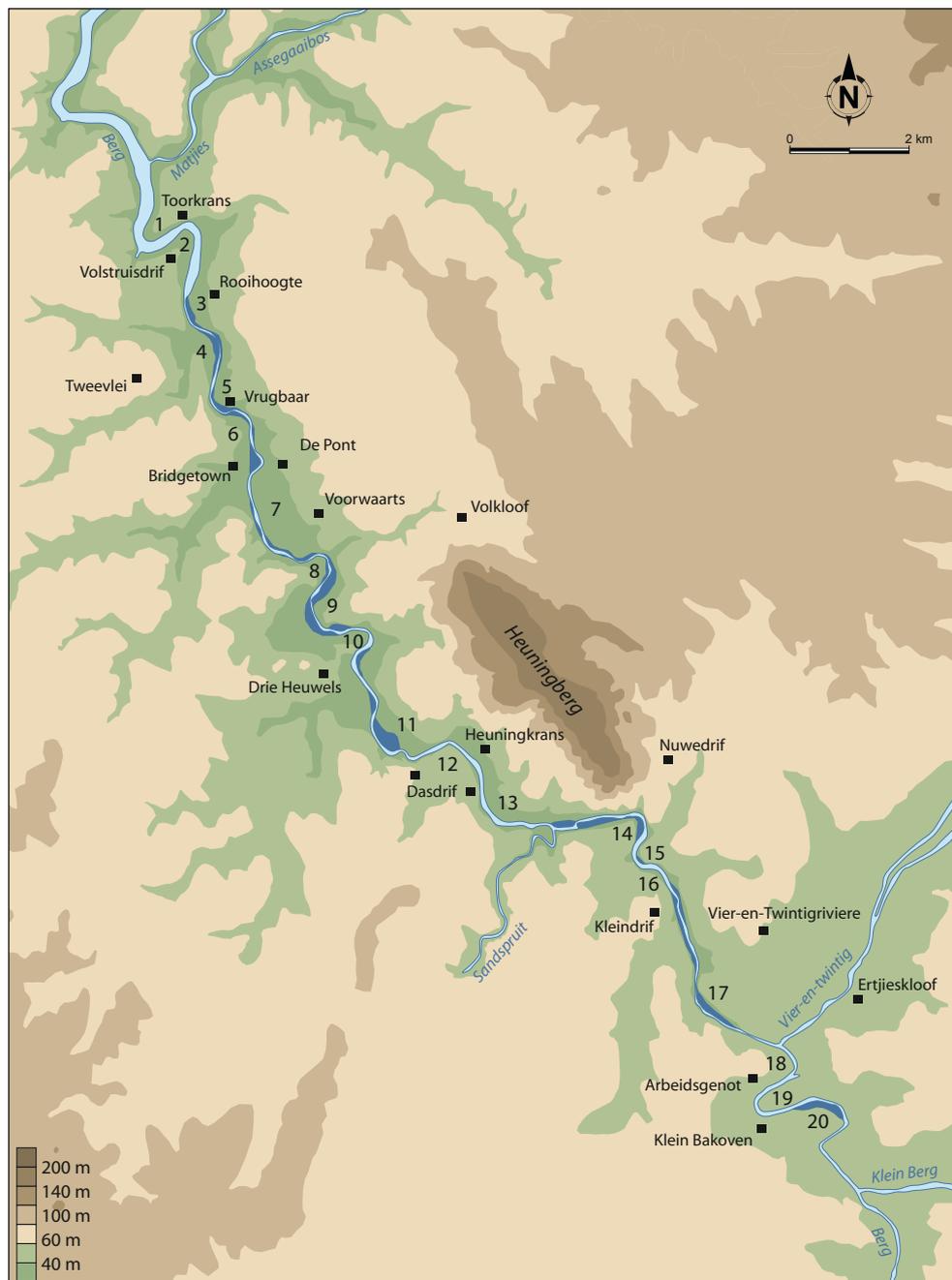


Figure 6 - Topographic map of the sector of intervention along the Berg (CAD: F. Bon).

4 - The alluvial terraces of the Berg: geomorphologic description and archaeological contents

Our study enables us to describe a system of alluvial terraces that includes three main levels.

- The oldest level corresponds to a wide alluvial terrace overlooking the current bed of the Berg from 30 to 40 m above (T3). Consisting mainly of gravels, it is largely composed of quartz and quartzitic sandstone pebbles in a reddish, sandy-clayey matrix produced by the alteration of the *Malmesbury shales* that form the main geological substratum of the Swartland. This high terrace is strongly dissected by erosion and is significantly altered.
- The intermediary level (T2) is much less visible. This terrace, whose rare bands are located around 20 meters above the river, forms occasional small breaks of slope that are partially hidden by colluvial formations, some originating from the T3 superstratum.
- The visibility of the low terrace (T1) is variable in different sectors. While it is poorly visible in the straight parts of the valley, it forms large sandy, well preserved, plateaus in the convex banks of meanders, 5 to 15 meters above the current bed of the Berg. These morphologies, characteristic of rivers with meanders, are nearly always found along the studied portion. The sediments are composed mostly of sand and correspond to channel bar deposits accumulated as the meanders were widened.

Comparisons with the data associated with other rivers in the Cape region (Theron *et al.*, 1992) indicate that T3 was formed during the Pliocene, before the hydrographic system was incised due to the uplifting of the entire region – the old alluvial deposits thus being found in perched positions. The scarcity of alluvial terrace remains during the Quaternary can then be explained by the narrowness of the valley, as well as by a relatively modest incision. In fact, with the exception of the insides of meanders, the different alluvial levels were successively eroded by the Berg (as is the case of terrace T2), and only the latest deposits (T1), probably dating to the last cold phase of the Quaternary, were locally well preserved.

Everywhere that we made observations, T3 is associated with industries attributable to the Early Stone Age (EAS), which T. Hart had already reported in abundance (figure 7 a-b). Middle Stone Age (MSA) remains are much less numerous, on the other hand: though Levallois productions (most often made from a coarse-grained silcrete) were sometimes found in association with T2, the erosion of this latter explains the scarcity of industries attributable to this period. Finally, from our first identifications of T1, we observed that it contains concentrations of artifacts attributable with certainty to the LSA.

This observation was made in the following manner: along the 20 km portion defined as a test zone, the concave parts of seven meanders were studied from a geomorphologic and archaeological perspective; in six cases, T1 was highly visible and in all cases, it contained LSA industries distributed across surfaces of over 10 000 m² and contained large artifact concentrations (table 1). This geomorphological analysis thus permitted us to identify a context yielding numerous indications of LSA occupations, evidently representing a preferential settlement pattern near water courses and on the inside of meanders covered by the sands of the low terrace. Regardless of this positive result, however, it remains to be seen whether we can identify the LSA phase and the populations with which these remains are associated.



Figure 7 - Early Stone Age lithic industries associated with T2 (Ertjieskloof, 7a) or T3 (Toorkrans, 7b) (photographs: F. Bon).



Table 1 - Inventory of the surveyed meanders and zones along the Berg.

Meander (cf. map figure 6)	Toponym	Archaeological observations	Presence of T1	LSA occupation indices	Surface covered by the LSA occupation indices
1	Toorkrans	1980' (T. Hart) ; 2005-2006	yes	yes	> 10 000 m ²
2	Volstruisdrif	2005-2006	yes	yes	> 10 000 m ²
3	Rooihoogte	1980' (T. Hart)	?	(T. Hart)	
4	Tweevlei	not surveyed			
5	Vrugbaar	1980' (T. Hart)	?	(T. Hart)	
6	Bridgetown	not surveyed			
7	De Pont-Voorwaarts	not surveyed	yes		
8	Drie Heuwels 1	2005	yes	yes	> 10 000 m ²
9	Volkloof	not surveyed			
10	Drie Heuwels 2	2005	yes	yes	> 10 000 m ²
11	Heuningkrans A	not surveyed			
12	Dasdrif	not surveyed			
13	Heuningkrans B	not surveyed			
14	Kleindrif B	2006	yes	yes	> 10 000 m ²
15	Nuwedrif	not surveyed			
16	Kleindrif A	not surveyed			
17	Vier-en-Twintigriviere	not surveyed			
18	Arbeidsgenot	2006	no	no	
19	Ertjieskloof	2006	yes	yes	> 10 000 m ²
20	Klein Bakoven	not surveyed			

All of the archaeological contexts concerned have abundant industries in white or smoky veined quartz, associated with the flaking of quartzitic sandstone pebbles. The flakes made from these raw materials are rarely retouched. Depending on the sector, we nonetheless observe some significant differences:

- the production of blades and/or bladelets in fine-grained silcrete sometimes accompanies the two productions described above; when it is present, this production makes up most of the retouched pieces (mostly retouched blades and bladelets, scrapers and adzes);
- while the production of flakes from quartzitic sandstone displays little variation, the quartz productions show much clearer differences. These latter are mostly realized on an anvil, but their execution is associated with two different modalities, resulting in very different cores and flakes (figure 8). Each of these modalities is accompanied by its own type of hammerstone: either classic specimens (in terms of volume), or flat hammerstones, identical to the anvils themselves (figure 9).

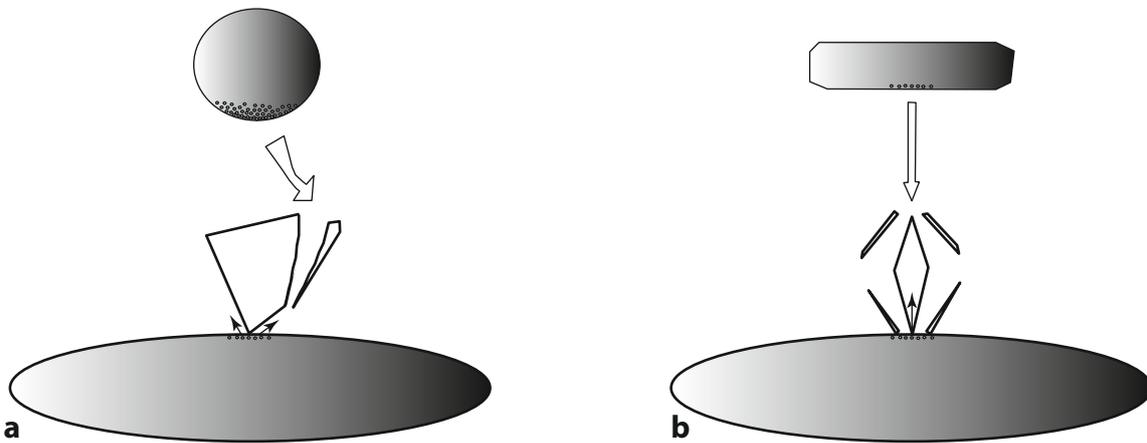


Figure 8 - Quartz exploitation modalities observed in the industries of the LSA sites surveyed along the Berg (CAD: F. Bon).



Figure 9 - Anvil-flat hammerstone, VSD sector Aa, square 1 (photograph: F. Bon).

3 cm
(1/1)

The industry dominated by quartz debitage using Modality B (figure 8) turns out to also be the one in which the blade-bladelet productions in silcrete are the least numerous, thus confirming the existence of two distinct technological facies (table 2). Other material features, such as the frequency of ceramic remains, support this observation. Now, as we will see in the example of Volstruisdrif (VSD), the criteria that allow us to distinguish it from all of the other contexts explored along the Berg are exactly those that indicate its similarity to KFS 5.

Table 2 - Industrial features recorded in the main sites surveyed along the Berg, compared with the artifacts of KFS 5.

	KFS 5	VSD Aa (square 1 and surroundings)	VSD Ab (square 3 and surroundings)	Toorkrans Aa Ab	Drie Heuwels 1	Kleindrif B	Ertjieskloof
Quartz production > other stones > silcrete	×	×	×	×	×	×	×
Retouched tools in silcrete	×	×		×	×		×
Quartz production Modality B > A	×	×					
Quartz production Modality A > B			×	×	×	×	×
Significant bladelet production in silcrete			×	×	×	×	×
“Classic” hammerstone	×	×	×	×	×	×	×
Flat hammerstone / anvil	×	×					×
Groove recycled as a hammerstone / anvil	×	×					
Flattened bored stone	×	×		×			
Narrow groove (“canoe shaped”)	×						
Wide groove (“boat shaped”)				×	×		

5 - Volstruisdrif: a Khoekhoe *kraal* on the banks of the Berg?

The site of Volstruisdrif has all of the topographic features described above. It is located on the inside of a narrow meander (meander 2 of our study sector; figure 6) composed of a band of sand (figure 10). Here, terraces T3 and T2 are highly eroded, but the industries attributed to the ESA and MSA, as well as the laminar productions in silcrete reminiscent of the earliest phases of the LSA, are contained in colluviums dispersed across the slope overlooking the sandy terrace T1. It is at the foot of this slope, where the topography is horizontal, that most of the archaeological remains attributable to the LSA were found.



Figure 10 - View of VSD from Toorkrans, on the bank opposite the Berg (photograph: F. Bon).

As in all of the other contexts, these remains are composed of abundant white or smoky quartz objects, along with flakes and cores in quartzitic sandstone (figure 11). However, their association here with numerous pot sherds led us to make a more detailed survey, which revealed two spatially distinct archaeological components (figure 12).

- One part of the site (sector Ab, or square 3 and its surroundings) yielded an industry very similar to those in the other contexts explored along the Berg, except for the presence of ceramic artifacts, which elsewhere remain scarce or are absent. We thus find a quartz production of the Modality A type, accompanied by a significant proportion of blade-bladelet industries in silcrete, with the other stone instruments being limited to “classic” hammerstones (without counting the ubiquitous production of flakes from quartzitic sandstone pebbles).
- Approximately fifty meters to the south-east (sector Aa, or square 1 and its surroundings), the density of ceramic remains increases, while the composition of the lithic industry changes: silcrete products become less numerous and the quartz production is mostly of the modality B type. Several anvil and flat hammerstones are associated with the latter (figure 13), including specimens corresponding to the recycling of polishers/ grinding stones or *grooves* (figure 14). One fragment of a flattened *bored stone* completes the assemblage (figure 15).

Figure 11 - Flake core in quartzitic sandstone, VSD sector Aa, square 1 (photograph: F. Bon).



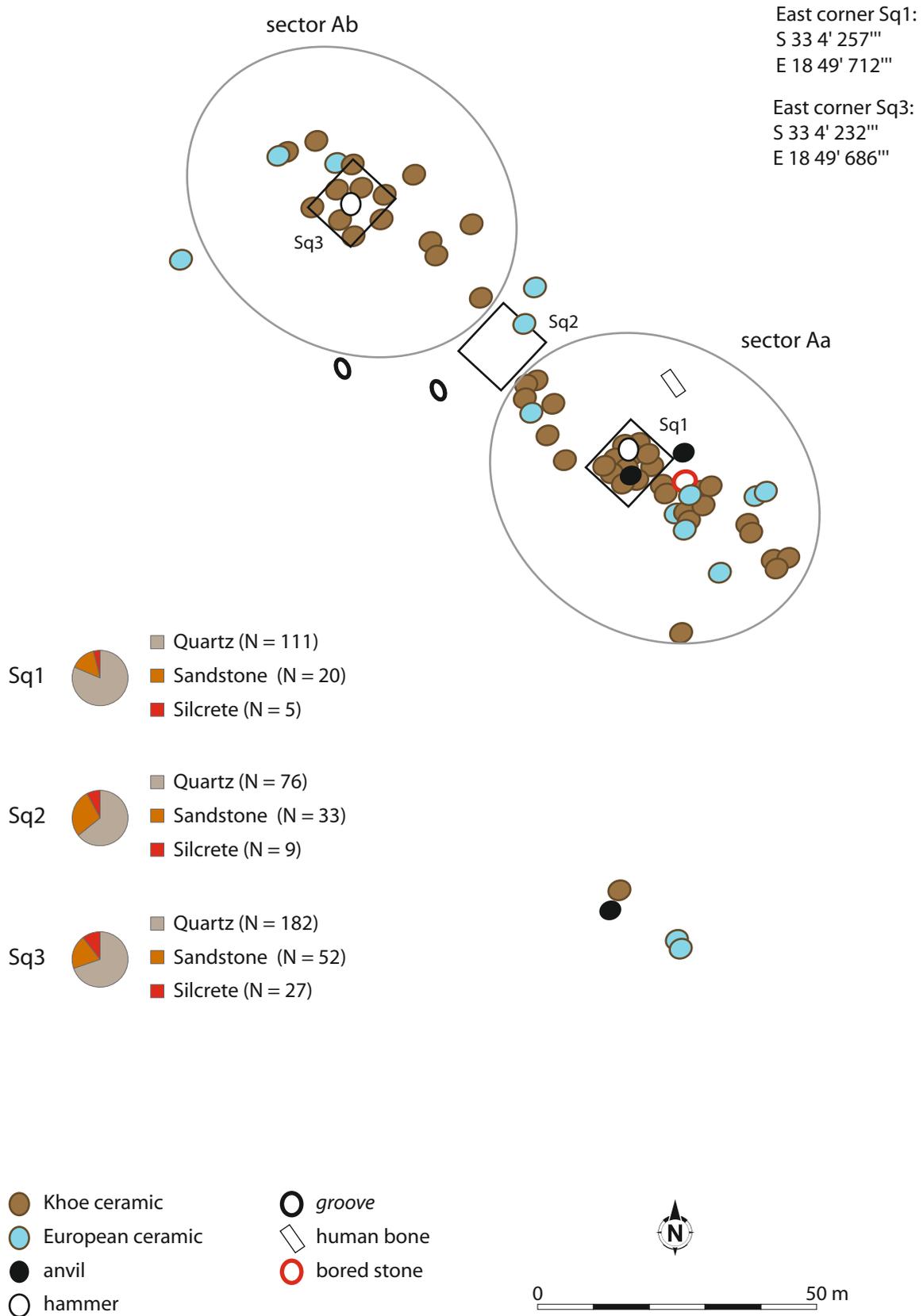


Figure 12 - Distribution map of the artifacts at VSD, and the different sectors studied (CAD: F. Bon).



Figure 13 - Anvil-flat hammerstone, VSD sector Aa
(photograph: F. Bon).



Figure 14 - A *Groove* recycled into a flat hammerstone-anvil, VSD sector Aa (photograph: F. Bon).

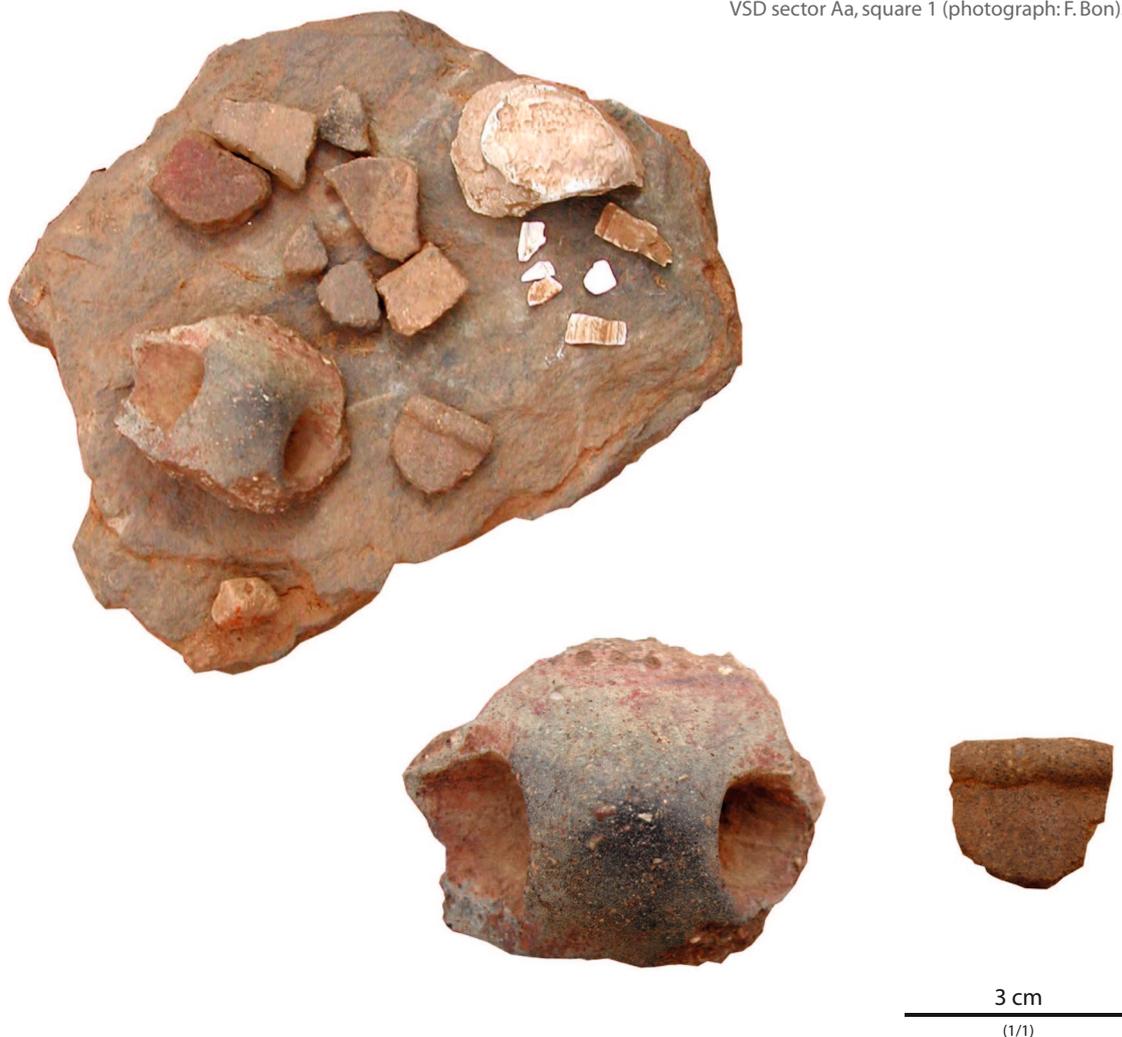
3 cm
(1/1)

Figure 15 - Fragment of a flattened *bored stone*, VSD sector Aa (photograph: F. Bon).



As we have just described, the ceramic remains are more numerous in this latter zone (around 30 sherds distributed over approximately 500 m²). All of the sherds have a thin wall, which is characteristic of the pottery of the LSA in southern Africa (Sadr, Sampson, 2006). Among these sherds, we observe the presence of a lug typical of the production of the 2nd millennium CE (figure 16; Sadr, Smith, 1991). The remains of a line of dots imprinted above the lug, meaning at the junction of the neck and the shoulder of the pot, enable us to associate this piece with the “Lugged Incised” (LINC) type, from the middle of the 2nd millennium EC (Sadr, Sampson, 1999). The only other diagnostic piece is a fragment of an edge with a thick lip rounded toward the outside, a type of lip that is found mainly in pottery assemblages from the middle of the 2nd millennium. The other elements consist of undifferentiated sherds with no decoration, even if several are covered with a wash of red ocher.

Figure 16 - Indigenous pottery and limpets, VSD sector Aa, square 1 (photograph: F. Bon).



This combination of these features shows many similarities between this part of the site of VSD and that of KFS 5. For the lithic industry (table 2), we can emphasize the use, in association with the same dominant modality of quartz reduction (modality B), of shaped hammerstones / anvils, some of which correspond to the recycling of grooves (figure 17).

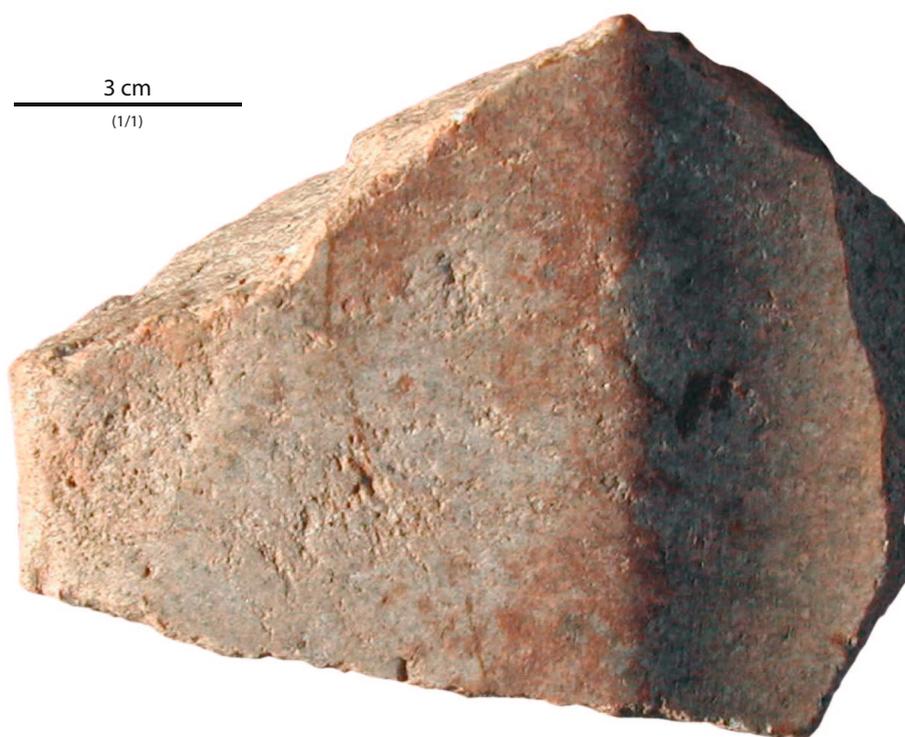


Figure 17 - A Groove recycled into an anvil-flat hammerstone, KFS 5
(photograph: F. Bon).

In addition, a geographic relationship between the VSD site, located inland, and the coastal zone is suggested by the presence of marine shells (of the *limpet* type: *Scutellastra argenvillei* or “patella”; figure 16). We should nonetheless note that the only dated shell gives an age of 4460 ± 80 BP, or 3370-2900 cal BC (Beta-204535), which appears to be far too old relative to the rest of the artifacts. We can nonetheless propose the hypothesis that “old shells” were collected and transported over such a long distance. If we accept this possibility, it would support the hypothesis of a nomadic itinerary between the coast and the plains of the Swartland, compatible with the model proposed by A. Smith (1984).

This cultural, and perhaps geographic, link between VSD and KFS 5 suggests that the former may at least partially (sector Aa) correspond to a settlement attributable to the same populations as the latter: according to our conclusions for KFS 5, these would be pastoralists, even if the absence of faunal remains at VSD prevents us from confirming this assertion.

If we accept this hypothesis and we reconsider the questions that served as the starting point of this inquiry, can we go as far as to consider that VSD is one of the *kraals* recorded by the written sources on the Berg, in other words, those of Goereman or that of Bootsman? It is obviously not that simple! Even if we could precisely date the remains found at VSD, which is far from the case, it would be illusory to then attempt to materialize the historical accounts in this way. A few elements nonetheless suggest that this installation is indeed contemporary with the colonial period.

In sector Aa of VSD, a fragment of a Dutch clay pipe bowl of the Gouda type, attributable to the early 18th century (figure 18), could thus constitute evidence of the contacts and exchanges so often described between European colonists and African populations. In the iconography of this period, pipes in horn or clay, materials relics of the addiction to tobacco so often attributed to the colonial Khoekhoe, have almost become a visual emblem of the “Hottentots” (figure 19). We should also note the presence of a few sherds of European ceramics at VSD (figure 20), though their dating is more indicative of the later establishment of the first farms, starting in the 19th century.



Figure 18 - Dutch tobacco pipe, VSD sector Aa (photograph: F. Bon).

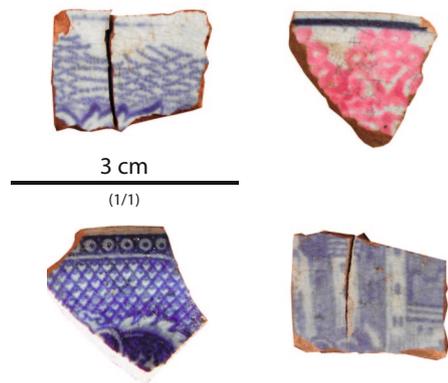


Figure 20 - Sample of European ceramics, VSD sector A (photograph: F. Bon).



Figure 19 - Watercolor from the end of the 18th century (ca. 1780) showing *strandlopers* or “beach skimmers”, who were degraded Khoesan living on the margins of the Cape colony society. The illustration shows a sample of the material culture of the group: huts of weaved mats, whale bone, ostrich eggs, bows and arrows, shells on the ground. The man seated on the left is smoking from a cow horn; the man in the center is holding a clay pipe (this illustration accompanies the account of the voyages of R.J. Gordon, edited by Raper, Boucher, 1988, pl. 52).

6 - Conclusion and perspectives

We believe that the confrontation and integration of data collected at all of these sites, meaning all of the elements that link KFS 5, VSD and KBB, contribute to the definition of an archaeological facies attributable to the Khoekhoe pastoralist populations. Though there are many similarities between pastoralists and hunter-gatherers, this result strengthens the archaeological identity of the former, building on propositions already made by several authors in this region (Smith *et al.*, 1991; Bollong *et al.*, 1997) and elsewhere (Beaumont, Vogel, 1984; Sampson, 1986; Beaumont *et al.*, 1995; Parsons, 2007, 2008). Let us be clear, nonetheless, that in the domain of lithic industries, the technical criteria underlying our arguments concern more than just the relative proportions of raw materials and end product categories (quartz flakes / silcrete bladelets), which could have been interpreted not as the signature of several contemporary populations, but as a chronological (Sadr, Gribble, 2010) or functional (Schrire, 1992) variations within the same population. One of our main criteria is the different methods, or modalities, used to make tools from quartz. Even if this is a common denominator in most of the late LSA of the Western Cape, our objective is to go beyond the notion of “unformal” so often applied to these productions by revealing distinct skills and ways of working this material. Our analysis thus stresses the importance of axial flaking on an anvil and the instruments (flat hammerstone / anvil) that are associated in sites such as KFS 5, VSD and KBB (Rivat, 2006). Future research will tell us whether or not a feature that could appear to be a simple technical detail actually represents a “true” technological signature of the south-African pastoralist Neolithic. It will also be useful to continue analyses of instruments such as *grooves* (figures 21, 22) and *bored stones* (figure 23; Sadr, Fauvelle-Aymar, 2006; Morin, 2006; Sadr, Gribble, 2010), which might also prove to be clear material signatures.

To achieve this, it is necessary to increase our knowledge and to gather more examples that will enable us to link larger geographic spaces and a greater depth of time. Only then will archaeology be able to contribute to the question of the origins of the Khoekhoe pastoralist populations. In view of this enquiry, VSD provides us with not only its industrial signature, but also a predictive model of settlement in the landscape. It will be particularly interesting to test the validity of this model on a larger scale and, with this goal in mind, we can already underline that similar observation have been made on the banks of the Breede (Arthur, 2008) and the Orange (Smith *et al.*, 2001) rivers. In addition to other recent discoveries (Jerardino, Maggs, 2007), these *kraals* located on the banks of rivers and streams can enrich a typology of sites that will enable us to imagine the landscape from the perspective of the practices and behaviors of these pastoralist populations, rather than solely through the regard of western travelers.

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We wish to thank our colleague Detlef Gronenborn, as well as Teresa and Jacobus Van der Merwe, owners of the Volstruisdrif farm, who granted us all that was needed to facilitate our work. These missions took place in the framework of the “Archives Khoisan” program, supported by the French Institute in South Africa (IFAS); our thanks to this institution and to Aurelia Segatti, its director at the time. We are also grateful to Jane Klose, Antonia Malan, Annette Schmidt, Jaco Boshoff and Heather Coleman for their informed opinions on the Dutch pipe.



Figure 21 - Fragment of a *groove*, large model ("boat shaped"), VSD sector A (photograph: F. Bon).



Figure 22 - Fragment of a double *groove* double, narrow model ("canoe shaped"), KFS 5 (photograph: F. Bon).

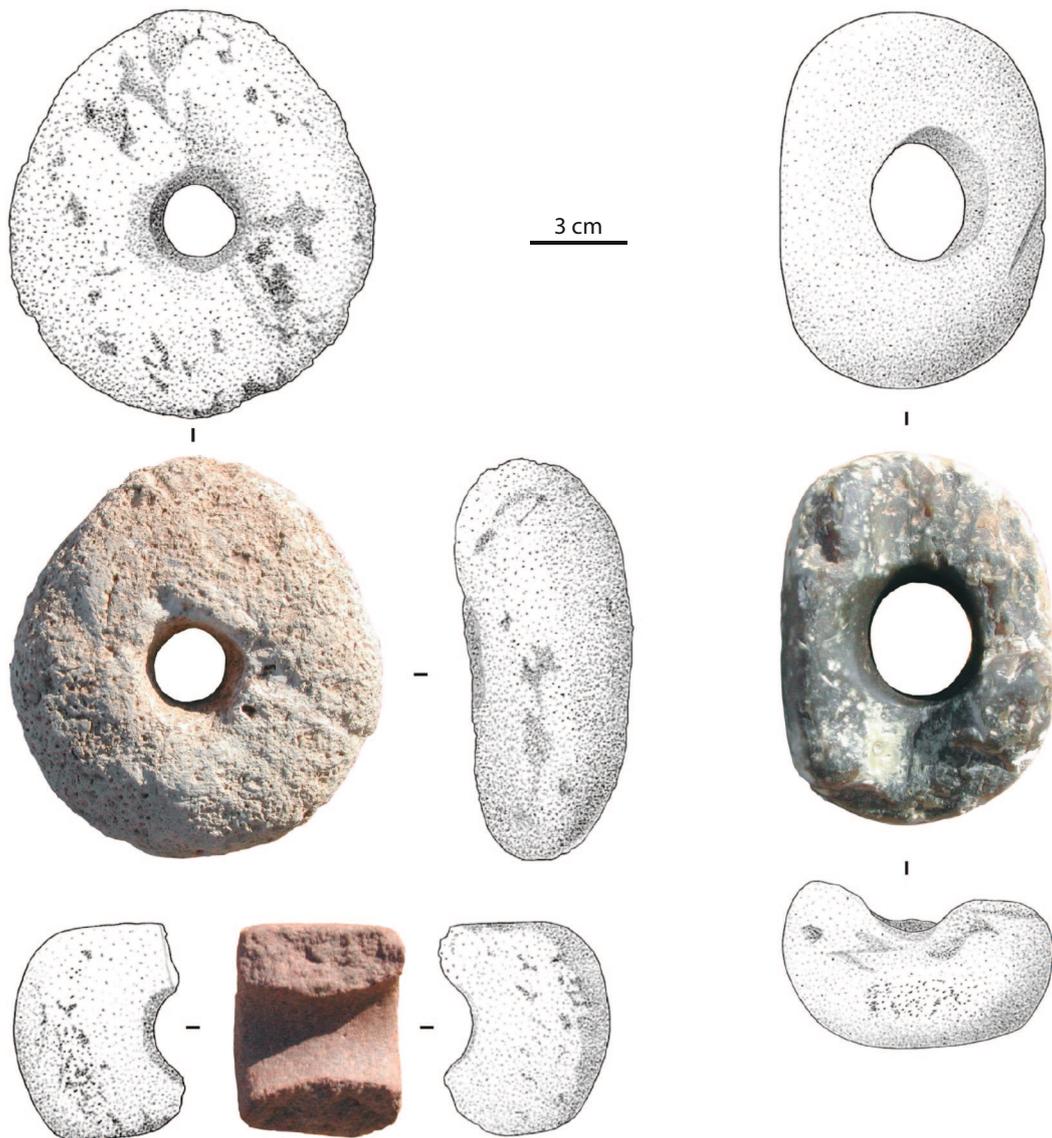


Figure 23 -Sample of flattened *bored stones*, whole and broken, KFS 5 (drawings: J. Morin ; photographs: F. Bon).

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François BON

Professor of Prehistory
University of Toulouse, Traces (UMR 5608)
Toulouse, FRANCE
bon@univ-tlse2.fr

Honorary Research Fellow
School of Geography
Archaeology and Environmental Studies
University of the Witwatersrand
Johannesburg, SOUTH AFRICA

Laurent BRUXELLES

Geomorphologist
INRAP, Traces (UMR 5608)
Toulouse, FRANCE
laurent.bruxelles@inrap.fr

Honorary Research Fellow
School of Geography
Archaeology and Environmental Studies
University of the Witwatersrand
Johannesburg, SOUTH AFRICA

François-Xavier FAUVELLE-AYMAR

Director of Research
CNRS, Traces (UMR 5608)
Toulouse, FRANCE
francois-xavier.fauvelle@univ-tlse2.fr

Honorary Research Fellow
School of Geography
Archaeology and Environmental Studies
University of the Witwatersrand
Johannesburg, SOUTH AFRICA

Karim SADR

Head of the School of Geography
Archaeology and Environmental Studies
University of the Witwatersrand
Johannesburg, SOUTH AFRICA
karim.sadr@wits.ac.za

Associate Researcher
Traces (UMR 5608)
Toulouse, FRANCE

Article outline

LIBYCO-BERBER ROCK ENGRAVINGS: From One Shore of the Sahara to the Other

Michel BARBAZA

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LIBYCO-BERBER ROCK ENGRAVINGS:

From One Shore of the Sahara to the Other

Michel BARBAZA

Abstract

Based on recent observations of Libyco-Berber rock representations (mainly engravings), I propose new elements concerning their nature, chronology and meaning. Current studies, while part of a general inventory, are also involved in the implementation of an analytical approach without which the final corpus is likely to be lacking in eloquence, as are the many representations already identified and published. A number of sites with Libyco-Berber engravings distributed between the great bend of the river Niger and the Maghreb, when considered in the light of the work carried out by the research community, will facilitate solid commitment to this analysis.

Keywords

Africa, Sahara, Sahel, Markoye (Burkina Faso), rock art, rock engravings, Libyco-Berber.

1 - The Libyco-Berber engravings

1.1 - General information and research orientation

While well known to all Saharan archaeologists, the informational potential of Libyco-Berber engravings that can be attributed to late Saharan Protohistory is still underestimated. These numerous engravings, often characterised by small horsemen and small horses, constitute a documentary source that may contribute to the study of this period across an area covering the Sahara. Currently, while an inventory is essential, it seems equally necessary to construct a framework that will stimulate and structure analyses and studies. With this in mind, the study of these engravings will involve the examination of their geographic distribution, both in terms of latitude and longitude, their chronology, and above all the concrete arguments that support their analysis and interpretation.

1.2 - Definitions

The diversity of definitions proposed to characterise these Libyco-Berber engravings to some extent reflects the lack of in-depth studies of these types of images. Without entering in detail into the literal meaning of a designation resulting from the history of our discipline, it should be noted that the expression refers on one hand to a geographical area contained, according to the Greek understanding of the term “Libya”, between the west of Egypt and the Columns of Hercules, and on the other, to an early indigenous African population, the “Berber” anthropological roots of which stem from the beginning of prehistory (Camps, 1987; Hachid, 2001) and whose descendants have maintained all or part of that population’s traditions for thousands of years in the face of external influences. It is accepted that these engravings represent the most recent works

of Saharan rock art, dating from between 500 BC and 500 AD, during the Caballin and Camelin periods with, according to some authors, a possible continuation of this artistic production until the beginning of the second millennium AD.

The rock art figures themselves are most often engravings produced by a rather basic, sometimes cursory pecking technique to depict the generally sketchily-drawn figures of single, pairs or groups of horsemen (armed with a lance, a throwing stick or a shield; figures 1-2), scenes of pursuit or duels, numerous lone horses, hunting scenes featuring ostriches, gazelles, antelopes, sheep etc.), decorated circles or a variety of symbols (figure 3). The style of the representations is figurative, generally geometric, simplistic and sketchy. Even where the engraved rock is particularly hard and tough (granite, gabbro, etc.) some isolated engravings provide perfect counterexamples of artistically successful works. Dromedaries and Tifinagh script are sometimes associated with these engravings.



Figure 1 - Markoye [Burkina Faso], group of horsemen (photograph: M. Barbaza).



Figure 2 - Markoye [Burkina Faso], group of armed horsemen, lone horses and diverse circular signs (photograph: M. Barbaza).



Figure 3 - Markoye [Burkina Faso], oryx and ostriches (photograph: M. Barbaza).

1.3 - Distribution: a Saharan area

While perhaps not constituting evidence of political, social and cultural homogeneity in this very varied geographical space, the presence of these engravings both in the heart of the Sahara and also on its north and south “shores” at least indicates a minimum level of coherence, demonstrated by the common use of symbolic forms of representation. This is one of the main objectives of this study. The idea of the Saharan unit during Protohistory and of the maintenance of exchanges despite the aridity of the region are now established facts (Hachid, 2011).

2 - The South and the North

2.1 - Elements of Sahelian Protohistory

2.1.1 - *The Sahel: an attractive but restrictive environment*

In this article, the main argument is that the constraints of the Sahelian climate and a dense population played an important role in the creation of “rock art” in this area. Another effect of these constraints is envisaged by the theory according to which the end of the kingdom of Ghana was provoked, not directly by the Almoravid conquest in 1076, but by a severe dry period incompatible with urban life (Conrad, Fischer, 1982, 1983).

Here we will anticipate our argument by envisaging that, in Sahelian Antiquity, the stresses that resulted from these constraints may have in part been formalised in stone. This is suggested indirectly by D. Diakit  in his examination of the early Sudanese empires, when he indicates that, during a persistent dry spell, the ancestor of the *men of iron tapped a rock* with his club, whereupon *the water fell from the sky and filled the pool* (Diakit , 1989). This entire region had access to at least two essential resources: omnipresent iron ore, and wood for heating, available in the sandy-clay valley bottoms.

2.1.2 - *Markoye: Protohistoric metal-working establishments at the heart of a multi-purpose terrain*

To date, our research has concerned a zone of 600 km² around Markoye (Burkina Faso). The engravings are concentrated on the volcanic outcrops (gabbroic rock) close and to the north and east of the village. The remains of early habitations are evident in this area, together with traces of metal-working activities. Beyond to the north, i.e. towards the Beli, a tributary of the river Niger, research carried out from 1998 onwards has revealed many workshops for the reduction of iron ore, with the bases of several thousand reduction furnaces and associated specialised installations (see J.-M. Fabre, this edition).

The results of the chronological evaluation of residual radiocarbon play a fundamental role in the development of a general model which places the majority of Markoye’s archaeological territory at the transition between the first two millennia AD. The relatively homogeneous chronology, but also the absence of any true habitation linked to the workshops, confirms the idea that these establishments reflect a genuine functional complementarity: permanent habitations in Tondo Loko, a camp linked to pastoral activity in Zigb ri, and iron ore reduction workshops near the Beli thus add together to constitute a homogeneous and complex “terrain” with several systems for the acquisition of goods and resources (iron, finished or semi-finished objects, food resources etc.). The rock formations near which the main habitations were found demonstrate, mainly by means of engravings, some of the spiritual characteristics of the population (Barbaza, 2005, 2006, 2011).

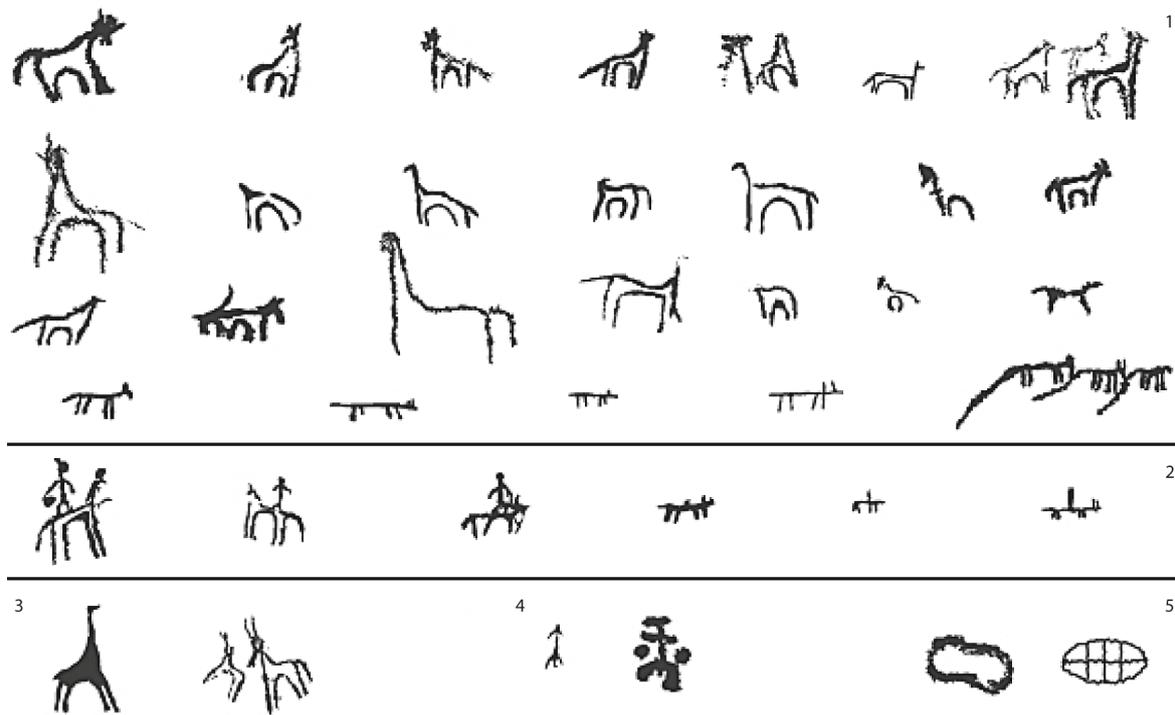
2.1.3 - Rock data art

2.1.3.1 - Nearly 10,000 engravings

The examination of all of the iconographical motifs has enabled the engravings to be divided into two groups, characterised by the sites of Sorbaia (Assemblage 1) and Tondiédo (Assemblage 2). The second of these “reference” sites in fact constitutes a vast and complex assemblage (Barbaza, Jarry, 2004). Sorbaia, on the other hand, is an isolated site with some few points of comparison in the context of rock art in West Africa. The iconographical themes, with “beaters”, “dumbbells”, “curviline”, hooked, spiral or “floral” motifs, and turtles in varying degrees of realism (figure 4), vary clearly from those of Tondiédo, which are of clear Libyco-Berber inspiration (figure 5). More occasionally, this “Saharan” assemblage contains wild animals (lions, lines of bustards, antelopes and gazelles, giraffes, lizards, jackals, etc.), anthropomorphic figures – sometimes reduced to the level of an elementary outline of the body or given a supernatural dimension by the addition of specific attributes such as “winged man” or anthropomorphic androgynous “beings”. “Sandals”, isolated weapons, decorated circles (figures 6-7), and various geometrical and abstract motifs (Barbaza, Jarry, 2002, 2003) also appear.



Figure 4 - Markoye [Burkina Faso], “floral” motifs, tortoises and signs (photograph: M. Barbaza).



Figures 5 - Markoye [Burkina Faso], "Saharan" motifs of Tondiédo (tracing: M. Barbaza).

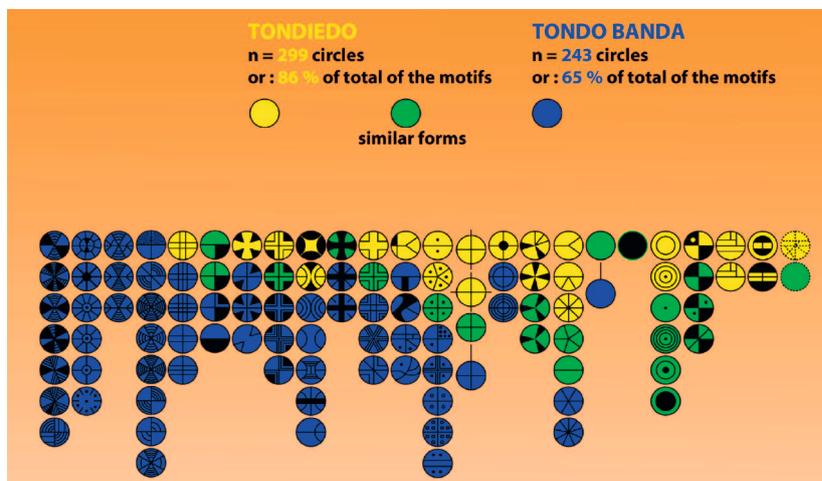


Figure 6 - Markoye [Burkina Faso], variety of decorated circles from the sites of Tondiédo and Tondo Bando (CAD: M. Jarry).



Figure 7 - Markoye [Burkina Faso], decorated circles at Tondo Bando (photograph: M. Barbaza).

The documentary interest of the rock engravings in Assemblage 2 is obvious, both as a result of the similarities with the assemblages from the Sahara and the Maghreb, and because of the position of Markoye to the south of the river Niger. These similarities pose a question on the nature of the relationships that may have existed between these regions in the past, with the corollary issue of the settlement of the Sahel by the creators of the "Libyco-Berber engravings", which are undoubtedly similar to a large proportion of the iconographical resources found at Markoye. It should be noted that the engravings found in the Saharan massifs contain few, or most often, no circular symbols, while these are found in the north.

2.1.3.2 - On the age of a Berber presence in the Sahel

With the tens of thousands of engravings at Markoye, the assemblage formed by Kourki in Niger (figure 8; Rouch, 1949), and Markoye, extended by at least part of the engravings at Aribinda and Pobé Mengao, confirms without doubt its belonging to this area. It extends the set of similar, well-identified engravings in the southern Sahara, starting with Taouardéi in Mali, on the Adrar des Ifoghas plateau (Calegari, Simone, 1993; Muzzolini, 1995). As at Taouardéi, Markoye presents characteristic horses, “posed” on ground lines (figure 9). Further to the north, the stations of Oued Tamokrine and Kori Mammanet, in the Air (figure 10), constitute relay posts leading to the numerous stations of the central Saharan massifs, where engravings appear sporadically (Ouan Tahar and Oued Ahor in the Teffedest mountains; Oued Tafarakrak and Oued Anaserfa in the Immidir mountains) and innumerable others in Tunisia, Morocco, Algeria, Mauritania, Mali and Niger.



Figure 8 - Kourki [Niger], armed horsemen (photograph: M. Barbazza).

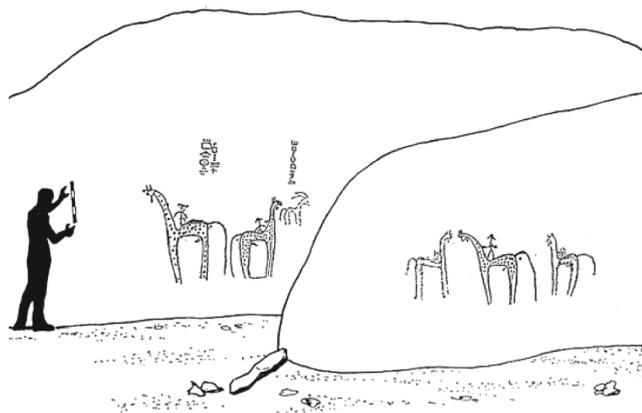
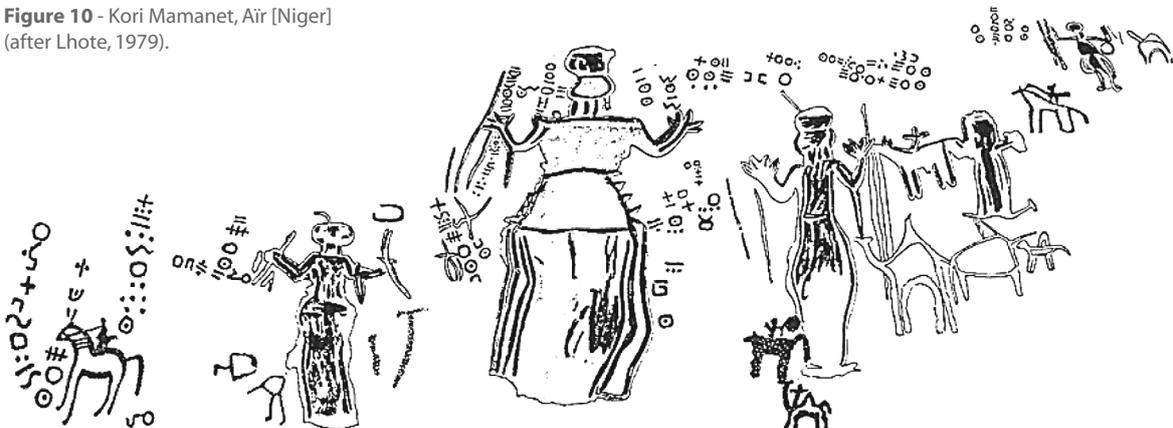


Figure 9 - Taouardei [Mali] (after Calegari, 1993).

Figure 10 - Kori Mamanet, Air [Niger] (after Lhote, 1979).



2.1.4 - The iconology of a representation: the Scriptures and other tales

2.1.4.1 - From Tuareg stories to the Bible

Within the theme of the horseman which is so common in the area considered, there exist several examples of the representation of two figures, of different sizes, mounted on horses proportional to their stature (figure 11¹⁻³). It is impossible to resist the notion that this association refers to a pair well-known in the Sahara: the *mythical figure* – uterine nephew of Ammamelen (Hoggar), Aniguran or Aliguran (Aïr), avatars of Almeroquis – called, depending on the location and the Adelasegh groups, “Abatis” (“fatherless one”), or “Elias” and his servant, Abou (Claudot-Hawad, 1993, 2001). The rocks around the Aïr (Lhote 1975; 1979, pl. 40; 1983, 1984) and the Adrar des Ifoghas (Dupuy 1991, 1992) offer numerous representations of this theme, in a variety of forms.

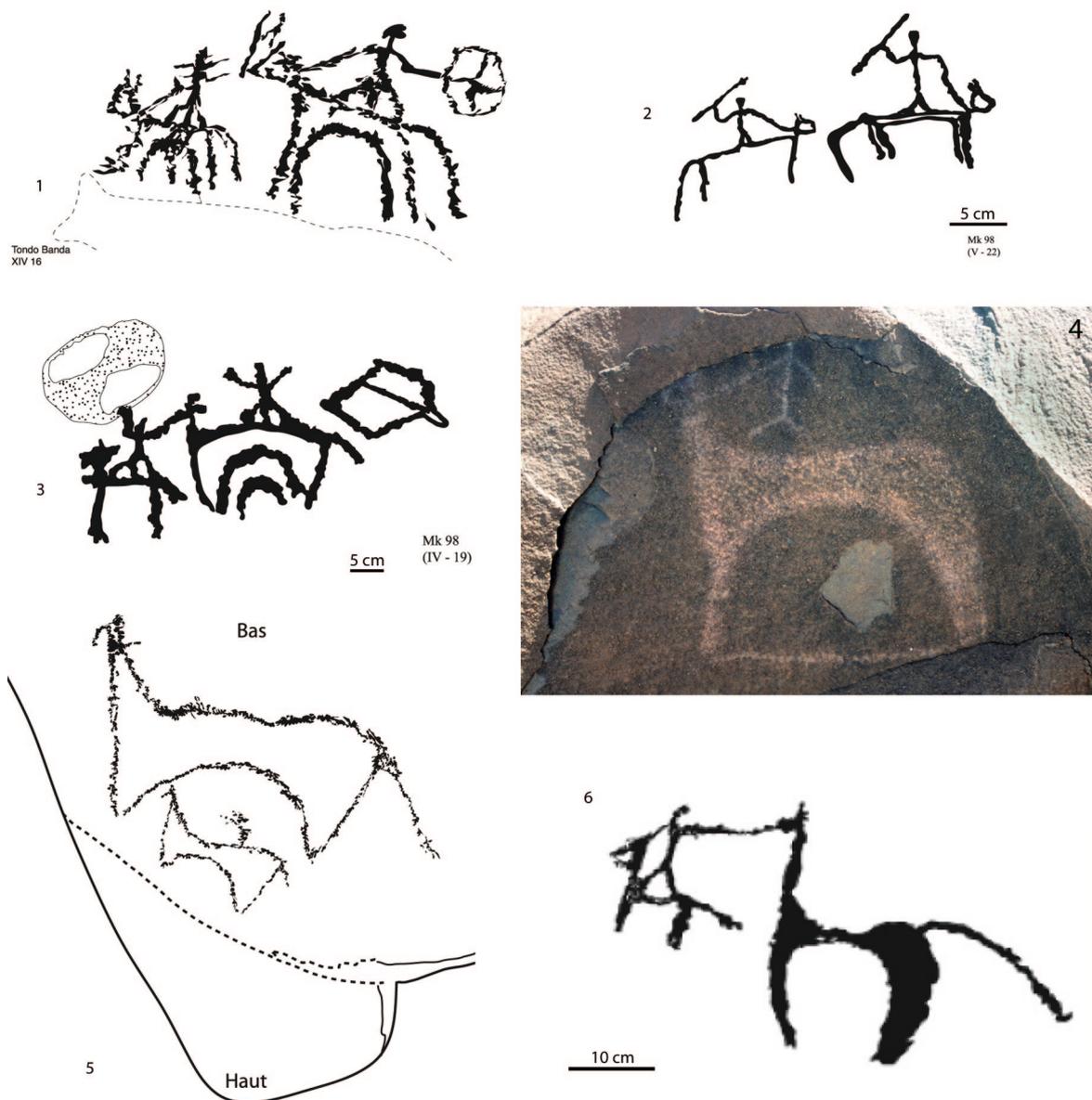


Figure 11 - Markoye [Burkina Faso], 1 to 3: couple of horsemen; 4: horse on the ground level and levitated horseman; 5 and 6: small horseman and large horse (photographs and tracings: M. Barbaza).

It seems that the representation of Elias has become mentally superimposed onto that of Adelasegh, providing the latter with an aspect whose origin can be found in Muslim mythology in the prophet Ilyas, for whom the Quran re-employs the biblical figure of the prophet Elijah (Book VI). Elijah, desirous of punishing the priests of the temple of Baal installed by King Ahab, had obtained from God the power to stop the *rain*. The ensuing struggle concerned the mastery of the waters of the sky and the earth, because Baal was himself, according to a very long Semitic tradition from Syria and Canaan, the god of fertility, *riding* the clouds and causing storms. According to some sources, he may also have been an ideal substitute for Zeus /Jupiter. The confrontation is thus well characterised. The first Book of Kings is very explicit in its references to drought and famine (1 Kings 18, verses 1 and 2), to water sources and brooks, and to the pastures that were essential for avoiding having to slaughter the animals (1 Kings 18, verse 5). The Biblical Ahab supported the cult devoted to Baal, while Elijah turned towards God, who manifested himself by *fire* (1 Kings 18, verses 24 and 38) and enabled his prophet to make rain (1 Kings 18, verses 41, 42, 44 and 45; Duchet-Suchaux, Pastoureaux, 1994: 137-138). Elijah-Elias-Ilyas, whether an interpreter of God's word or simply a legendary hero, is the intercessor to invoke and call upon in order to obtain rain. He is also named in Hebrew characters close to the engraving of a mounted horseman at Pigeon Rock in the Ouled Naïl mountains, in the Saharan Atlas (Oliel, 2009).

The events punctuating the duration of his earthly sojourn are fundamental to his identification – whether in the Bible, in which Elijah, after having climbed Mount Sinai, as did Elias on the mountain of Azrou, is taken up to Heaven in a whirlwind, or in the Quran, where Ilyas, after having attacked the idols (sura 37, The Arrangers, verses 120 to 130) is *taken up* by Allah. His ascension removed Elias from the death threatened by his pursuers. According to H. Claudot-Hawad, mount Azrou is “reputed to be the location of Ilyas; in other words, according to Muslim mythology, the place where Ilyas entered into the *world of the invisible* (figure 12), the immaterial...” (Claudot-Hawad, 2001: 88). According to other versions in which Elias appears, the hero of Tuareg mythology (Claudot-Hawad, 2001) ascended into Heaven following the miraculous emergence of the rock of mount Azrou beneath the feet of his horse; in this way he was saved from the hostile intentions of his pursuers. In this situation, Elias once again dominated the fire by means of which his aggressors attempted to destroy him (Roset, 1990). In the Nigerian Tuareg tradition, Elias was half angel and half human; he is not dead, which explains his many reappearances, but has been “transported to heaven on a *fiery horse* and transformed by God into a being of light *covered in feathers*, at once

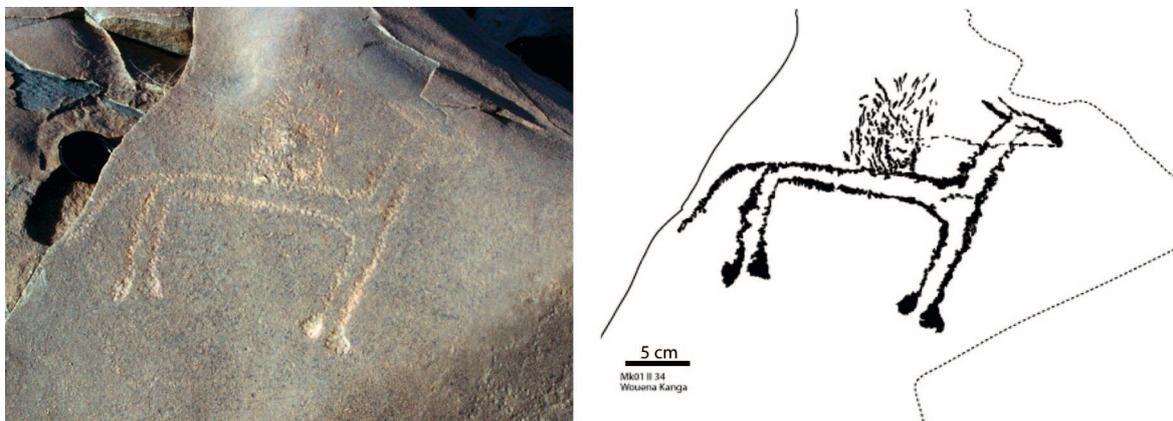


Figure 12 - Markoye [Burkina Faso], horse with a curved ventral line and a desintegrating horseman (photographs and tracing: M. Barbaza).

terrestrial and celestial” (Aghali-Zakara and Drouin, 1980: 99-100). Do the engravings from Kira Bora at Markoye represent a detail from this tradition? Foreshadowing the hornbill – the mythical bird of West Africa – they may also herald the arrival of another (figure 13).



Figure 13 - Markoye [Burkina Faso], winged “humans”, circular signs and a horseman (photograph: M. Barbaza).

2.1.4.2 - From Tuareg stories to the Markoye engravings

While it seems relatively easy, as has been seen above, to insert a significant number of the images from Markoye into the mental universe of the Tuareg from around AD 1000, an interpretive approach is stimulated by some figures found close to the summit of Wouéna Kanga, above the valley of Tondo Banda. They contribute both to the attempted connection discussed above and the reading of the numerous figures of *solitary* horses.

The first figure is essential, both in terms of its content and the quality of the representation. An engraved image that is homogeneous and consistent, it possesses a brief but undeniable diachronic dimension (figure 14). It was executed by light pecking of the eastern face of a large

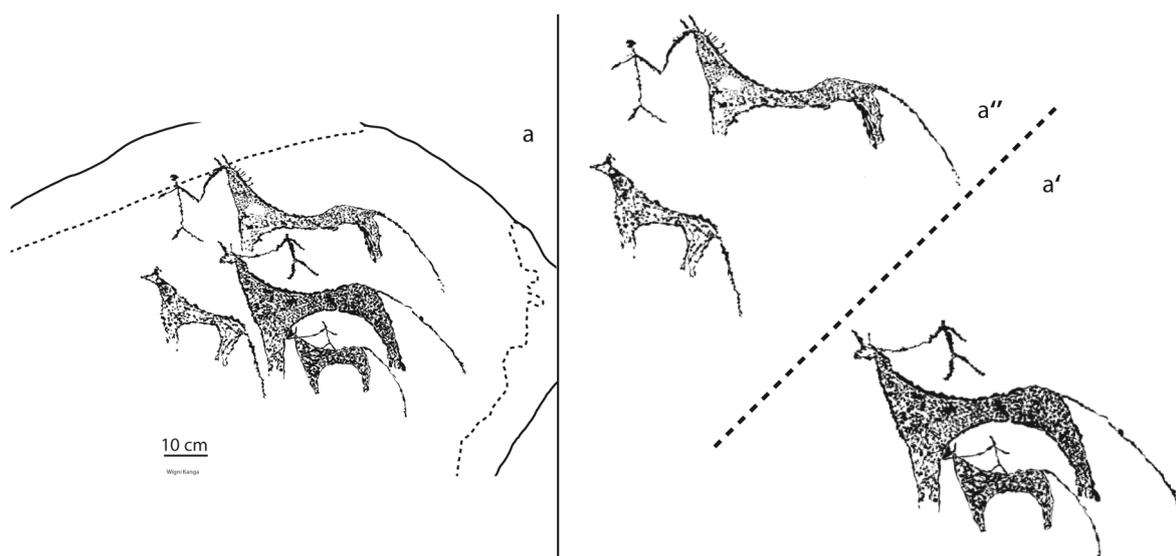


Figure 14 - Markoye (Burkina Faso), diachronic sequence of Wigni Kanga at Tondo Banda. a: complete tracing of the engraved panel; a': arrival of the two horsemen and beginning of the greatest ascension (large horse); a'': the servant (small size and small horse) is holding his master's mount after his disappearance into Heaven (tracing: M. Barbaza).

rock, on which there is an association of three figures and four horses, two large and two small, the whole divided into two parts. The first part of the sequence, constituted of a horseman mounted on a small horse and by a second figure suspended above the back of his large horse, depicts the exact instant of the ascension of Elias, who is still visible. This is the first “snapshot”. The second part is constituted of a small solitary horse and a figure on foot, holding a large horse by the bridle. The small horse belongs to Abou, and has remained in the lower part of the composition while Abou holds the bridle of the mount of his master, who is now in Heaven.

Examination of the hills at Markoye has shown this figure appearing several times, varying from a mounted horseman holding a second horse by the bridle (figure 11⁵⁻⁶) to a figure on foot also holding a lone horse by the bridle. The same is true throughout the Sahara. In the same way, lone horses, dispersed on numerous stone blocks scattered throughout the hills, may represent in minimalist form the idea of the precise, sacred instant of the disappearance of Elias: the accomplishment of his ascension being expressed through the solitude of his horse. How else can we understand the numerous engravings, very stiff, simplified and cursory in execution, totally inexpressive in their isolation and in the extreme simplicity of a representation that is limited to the evocation of a single horse?

2.1.4.3 - For a syncretic interpretation between magic and mythology

It seems simple to admit that a work of artistic and religious rock art may contain dimensions that are at the same time both magic and mythological, with the desire to set the voluntaristic action in a sacred discourse through which, in very variable proportions, spirituality, superstition, mythology and magical practice are able to blend their complementary contributions in order to shape religious feelings that are extremely diverse, and cults which are even more so. The engravers of the “Libyan warrior” or “Libyco-Berber horsemen” school, whose final works we are analysing, were certainly not exempt from this principle.

2.1.4.4 - Elias, master of fire and rain

Among the various iconological readings which have been proposed, that suggested by J.-L. Le Quellec (2004) is particularly interesting. This author proposes that the Biblical myth of Elias as transmitted by Islam is one of the foundations of the late rock art of the Aïr. According to an interpretation that we have also employed, Elias is “master of the rain and guardian of the desert [...], appearing to lost travellers to indicate the correct way” (Le Quellec, 2004: 17), which undoubtedly justifies the position of the figures along the edges of communication routes. At Markoye, the unusual use of the figure of Elias is in no way contradictory with that employed in the Aïr; rather, they complement each other, each containing as it does different properties.

The existence alongside the figurative images, of shapeless, coalesced or disjointed areas of impacts, also suggests that the primary significance was placed on the percussion itself rather than the motif which it produced. The latter may have taken shape and consistency during the percussion, with the intention of reinforcing the action and setting it in a sacred context. The scansion and the accompaniment of a chant with percussion would also be satisfied by an explanation of this type. The assemblage is entirely compatible with the account (see above) of an early practice according to which the “men of iron” in the Mandingo region *struck a rock* with their clubs to make it *rain* (Diakit , 1989). The many lithophones known in proximity to the engravings support the same idea (figure 15).

A text by the Arabic geographer al-Bakri (11th century) shows another face of the same phenomenon by means of a story which is a retelling of the Biblical myth of Elias, with the struggle between adherents to the magical solicitation of the stones and a marabout who had caused the rain to fall on the country in exchange for the king's conversion to Islam. The ancestor of the iron producers was also therefore a maker of rain and possessed mysterious powers employing animist practices which were contrary to the spirit of Islam (Devisse, 1990). This ideological confrontation may contain the “root of the never refuted hostility between Muslims and the men of iron” (Devisse, Sidibé, 1993: 148).



Figure 15 - Markoye [Burkina Faso], lithophone of Fondiso at Tondo Banda (photograph: M. Barbaza).

Striking the rocks was therefore also a means of attracting attention to the ills of the world, particularly to the anxiety linked to the quality of the next rainy season after a long and painful period of drought. The invocation of Elias, or Ilyas, by means of the spontaneous and unremitting percussion of stones, or through engravings regulated by audible rhythm and sacred representation, appears therefore to correspond to a coherent set of data and behaviour. The presence at Tondo Banda of a horse with a triple ventral line in the form of an arch may be a reference to a rainbow (figure 16).



Figure 16 - Markoye (Burkina Faso), horse with a triple ventral line assimilated with the rainbow (photograph: M. Barbaza).

2.1.5 - Materials for constructing the history of the Sahel: from rock art to History

2.1.5.1 - Two populations in a single territory or one group undergoing transformation

The almost perfect juxtaposition of the areas of distribution of the two iconographical assemblages suggests the existence of two populations, originally sharing a single territory with some functional complementarity. An alternative hypothesis is that a single population underwent a transformation of its representation system in a relatively short period at the same time as its habitations were moved towards the uplands.

2.1.5.2 - The Protohistoric Sahel perceived by archaeology and linguistics: area of Berber influence and cradle of the Songhai empire

It seems possible to admit that between the 8th and 13th centuries, the area of the bend of the river Niger, penetrated at an early date by Berber and Islamic influences, as at Gao, may have played an increasing economic role in a circuit of exchanges dominated by the north. Some time later, when the Arab-Berber expansion began to reach its limits, great kingdoms were created on the base of activities stimulated by dynamic and prosperous commercial currents. In this context, it is tempting to see the Songhai language (Nicolai, 1981, 1990) as a “pidgin form of Tuareg” (Nicolai, Creissels, 1993: 258), the concretisation of a cultural phenomenon rather similar to the processes of acculturation indicated by the engravings (Barbaza, 2006).

2.1.5.3 - The Sahel: southern bank of the medieval Mediterranean world

The non-native character of Assemblage 2, which is clearly of “Berber” inspiration, but also the history of this region in this period, suggest that the influence was imposed from the north to the south, in line with a hypothesis proposed by J.-P. Roset (1993). While it is possible to imagine that the incentive of this cultural movement was economic, it remains impossible given the current state of the archaeological data to specify in detail the methods employed: membership and participation in a generalised economic and cultural phenomenon or assimilation, conversion or subjugation to some extent voluntary, forced or violent.

A living environment probably forming part of the economic sphere of influence of the medieval Mediterranean and Near Eastern worlds, the Sahel of Burkina Faso, long penetrated by complex pre-Islamic influences, entered into Islamic culture in a variety of ways at the transition of the 1st and 2nd millennia AD.

2.2 - The classical Libyco-Berber field

2.2.1 - Libyco-Berber representations in the Sahara

There are countless Libyco-Berber representations in the Sahara in the form of engravings – and a few paintings – to the extent to which, even when they are mentioned, their presentation is often extremely cursory and limited to a very brief description. There are, however, some remarkable works on the subject (Chasseloup-Laubat, 1938; Lhote, 1979, 1983; Dupuy, 1991; Hachid, 1992; Muzzolini, 1995; Le Quellec, 2004).

Regarding the Sahara itself, there is no question of attempting a summary here. References to a few sites (figure 17), other than those that have already been mentioned, are simply intended to demonstrate the complete lack of discontinuity between the two “shores” of the Sahara, from the

Atlas mountains to the area of the bend of the Niger. The site of Taouardéi constitutes a milestone on the route to Markoye.

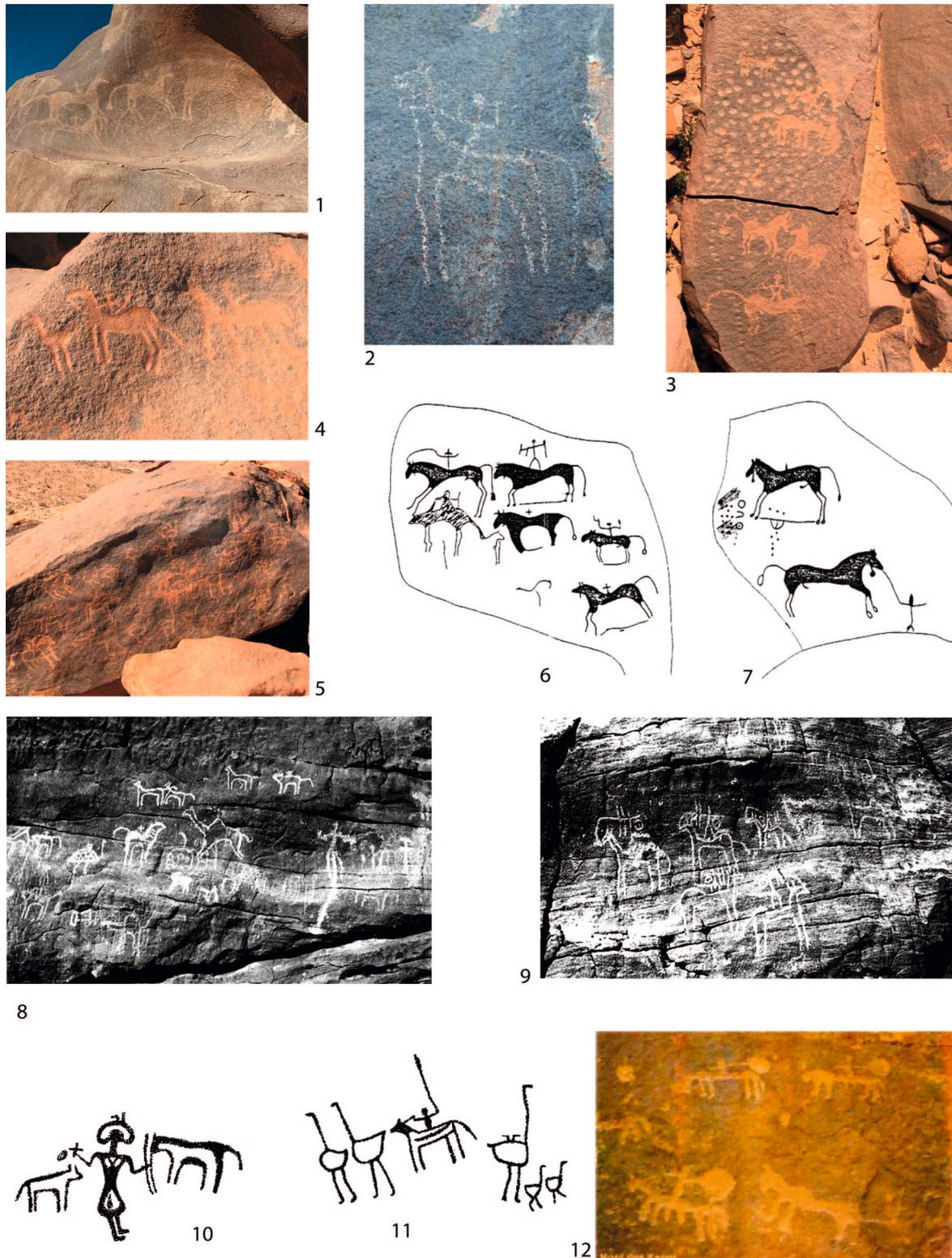


Figure 17 - Central Sahara, 1:Tit, Hoggar [Algeria] (photograph: M. Barbaza); 2: oued Ahor, Téfedest [Algeria] (photograph: M. Barbaza); 3: near Hirafok, Hoggar [Algeria] (photograph: M. Barbaza); 4 and 5: Wadi Tahart, Téfedest [Algeria] (photographs: M. Barbaza); 6 and 7: Afara Valley, Adrar of the Ifoghas [Mali] (after Dupuy, 1991); 8, 9 and 10: Wadi Tamokrine, Air [Niger] (after Lhote, 1983); 11: Seroka, Air [Niger] (after Lhote, 1983); 12: Mont des Ksours, Saharan Atlas [Algeria] (after Lhote, 1984).

2.2.2 - The Maghreb

The mountains of North Africa were the initial site of the identification of Libyco-Berber engravings (Flamand, 1892, 1921). The majority of later authors have used this expression with variable content in terms of detail, but in general conformity with the original definition. It concerns “the central Saharan camel period and, in addition, like the period with recent tfinars and their accompaniments: horsemen, swords, javelins, round shields, sometimes high cantle saddles” (Muzzolini, 1995: 377). Among the latter publications, the work of A. Bravin, while describing the somewhat heterogeneous nature of the representations, recognises a “Libyco-Berber kernel that, according to the majority of specialists, consists of figures of horses with horsemen, alongside which [...] the other themes develop” (Bravin, 2009: 31). It could not have been better stated, as the formula corresponds both to the chronological and regional characteristics expressed as a function of the environmental determinants of time or place, but also to the use of models common to the Abrahamic religions.

An annotated bibliography of works and articles is irrelevant here. A few summary works can be mentioned by means of complementary orientation (Malhomme, 1950, 1959, 1961; Lefebvre, Lefebvre, 1967; Lhote, 1970, 1975, 1984; Simoneau, 1977; Camps, 1987; Hachid, 1992, 2001; Rodrigue, 1999, 2009; Amara, 2001; Salih, Heckendorf, 2002; Jelinek, 2004; Searight-Martinet, 2009; Yahia-Hachèche, 2009).

3 - Conclusions and prospects

3.1 - Markoye, or the encounter between two worlds

The rocky hills of Markoye and their engravings illustrate the contact between two different mental universes around the end of the 1st millennium AD. They constitute a remarkable milestone of the southerly expansion of the Saharan and North African Berberising influences which confirm observations in the field at two other sites in Burkina Faso: Pobé Mengao (figure 18) and Aribinda (figure 19), which are further south by around one hundred kilometres. At this point, a border begins to take shape that remains unaltered by what follows, between on one hand, a sort of “distant Mediterranean” of Islamic lands and, on the other, the Africa of animism; not between desert and steppe in the north of a populated Sahel, but between steppe and savannah.



Figure 18 - Pobé Mengao [Burkina Faso], horsemen sitting astride and ostrich hunt. Upright mounted horsemen are also represented on this granitic stone (photograph: M. Barbaza).



1: horsemen



2: lance

Figure 19 - Aribinda (Burkina Faso). Aribinda ("beyond the water" in Songhay) is the southernmost site attributable with certitude to the Libyco-Beber group (photographs: M. Barbaza).

The lines of connection that it is now possible to trace from one side to the other of the Sahara certainly pass via the Air and the Adrar des Ifoghas; perhaps also from the Moroccan south through the regions close to the Atlantic, as iconographical similarities between the two regions – particularly in terms of decorated circles – would lead us to believe. As a result, it is tempting to associate the metal-working engravers of Markoye with those of the Atlas, even though it is likely that the engravers of Tizi n'Tighist, near Yagour, were not themselves metal manufacturers (figure 20). According to suggestions that have already been clearly expressed, connections remain to be established between the mines and the great sites of Libyco-Berber rock art, as at Foug Chenna,



1: group of armed horsemen



2: decorated circles and lances

Figures 20 - Tizi n'Tighist, High-Atlas [Morocco] (photographs: M. Barbaza).

in the upper valley of the Draa (figure 21), close to Tainant or Akka, or at Taouz in the valley of the Ziz (Rosemberger, 1970a, 1970b); sites close to which are generally noted the presence of very numerous tumuli and fortified establishments of variable size, the nature and chronology of which are yet to be clarified. As a result of greater chronological and cultural accuracy, the connection of the study of rock art with these conventional archaeological approaches will enable the organisation of the study of this protohistoric rock art, disconcerting in its crudity, monotony and general inexpressiveness, but so promising due to the importance of its area of extension.



1: ostriches and circles



2: group of armed horsemen

Figures 21 - Foug Chenna, high valley of the Draa [Morocco] (photographs: M. Barbaza).

3.2 - Chronology and geographic limit to the north

The Atlas mountains constitute a clear limit to our area in the north. Libyco-Berber engravings barely extend beyond the latitude of Marrakesh, and do not concern the Middle Atlas. They are present in Tunisia, in the mountainous areas where research has illuminated the existence of a phase of Libyco-Islamic rock representations posterior to the main body of Libyco-Berber figurations (Yahia-Achèche, 2009). It would be interesting, however, to ask, as in the South, the question of contact between, on one hand, the successive establishments of early colonisation which have, to put it simply, introduced into history a margin of fertile plains bordering the Mediterranean Sea and the Atlantic Ocean and, on the other, a practically infinite, mountainous and arid hinterland which was protohistoric until the Almoravid unification of the 11th century. The particularly difficult access to this area was undoubtedly one of the reasons why it was kept isolated from the early Mediterranean world. Another cause is perhaps also to be sought in the defence of the mineral wealth produced by its subsoils.

3.3 - And towards the east?

3.3.1 - *The Arabian peninsula: extension or origin of the myth?*

At Pobé Mengao, the presence of a number of horses with their legs depicted as “quotation marks” is noteworthy. Here, among the very numerous engravings similar to those at Markoye, appear some horsemen represented astride their mounts. The manner of handling the horses’ legs is strangely similar to that of Yemeni engravings (Garcia, Rachad, 1997: 74-75 and cover illustration). Of course we cannot exclude a simple similarity of forms, but the resemblance becomes disturbing when we remember that some Tuareg consider one of their possible origins as the Arabian peninsula (Hureiki, 2003), and still further when we observe that the episode of Elias can be perfectly applied in reading the panel in question (figure 22). Naturally, prudence is required,

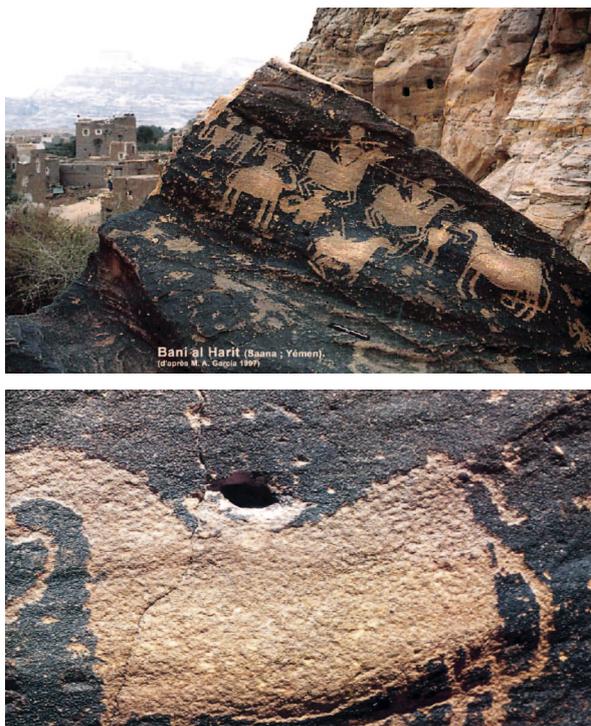


Figure 22 - Bai Harit-Shibam Magras [Yémen]
(after Garcia, Rachad, 1997).

since stories and tales travel much more easily than those who tell them. Wherever they are located, however, the theme places its users in a pre-Islamic cultural environment which, moreover, appears well established, to the extent that it was possible to use Elias in the form of his various avatars and aspects of his biblical personality: guide to travellers in the Sahara, master of the rain in the Sahel, master of fire etc. In the engravings of the village of Bani Harit-Shibam Magras in Yemen, one detail deserves special notice, because on one hand it validates the interpretation and on the other it provides a rare example in these contexts of the use of a particular natural feature. We observe here that the saddle of the supposed horse of Elias has been placed at the precise location of a natural orifice in the rock (Hureiki, 2003: 74), by which, according to this interpretation, the prophet would have been able to escape from particularly aggressive pursuers. Here also, Abou, his servant, holds his horse and that of his departed master.

The information available for the rock art of Saudi Arabia, while somewhat minimal and extremely localised, allows us to perceive, amidst an obviously vast documentary background, a set of representations on the theme of the horseman, of a style and organisation very similar to the Saharan and Maghreb figurations (figure 23; Arbach *et al.*, 2010). We recognise in particular equestrian clashes, charges, pursuits, scenes of hunting with dogs, and a duo of horsemen – one large and one small – which would not be out of place in the Sahel or the Maghreb. Numerous representations depict animals (horses or dromedaries) with arched ventral lines, similar in style to the engravings of these same regions.

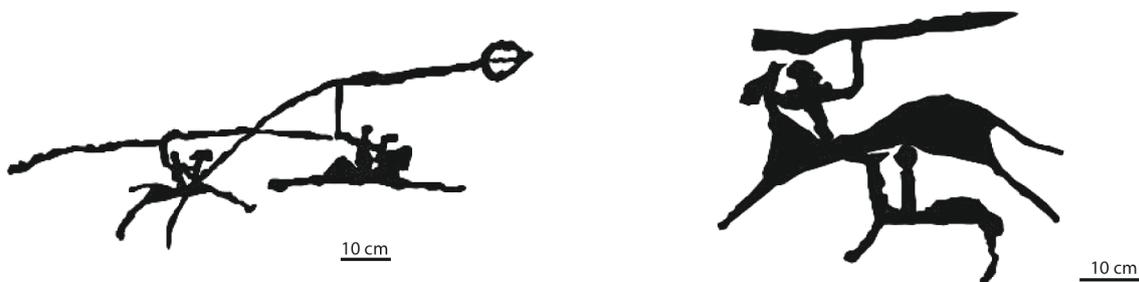


Figure 23 - 'An Jamal, Najran [Saudi Arabia]
(d'après Arbach *et al.*, 2010).

3.3.2 - An open world

Far from the received idea of a world cloistered by the harshness of the desert, an image is gradually revealed of a vast open landscape, crossed in all directions by powerful economic and cultural currents ensuring its coherence, functioning in its own right for several centuries before its subjugation and division. There is no doubt that the Berber language currently used in its various dialects across this vast territory is a distant reflection of this unity.

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Michel BARBAZA

Professor emeritus

University of Toulouse, Traces (UMR 5608)

Toulouse, FRANCE

barbaza@univ-tlse2.fr

Article outline

THE BELI VALLEY (MARKOYE, BURKINA FASO): an Important Siderurgical District in the Time of the Great Empires

Jean-Marc FABRE

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THE BELI VALLEY (MARKOYE, BURKINA FASO):

an Important Siderurgical District in the Time of the Great Empires

Jean-Marc FABRE

Abstract

The surveys carried out in the valley of the Beli in the north of Burkina Faso enabled to identify numerous metallurgical sites. The uniqueness and specialisation of the area, together with the intensity and standardisation of the production, seem to characterise a siderurgical district from the late 1st and the early 2nd millennium AD. With the exception of the excavations carried out on the neighbouring sites of Kissi and Oursi, the chronocultural regional contexts are little known and do not yet enable the identification of the actors or sponsors of the metallurgical activity. We identify here the various avenues of investigation provided by the comparison of the different written and oral sources.

Keywords

Burkina Faso, Markoye (Burkina Faso), archaeology, metallurgy (low furnaces), Protohistory, Middle Ages (10th-13th century).

1 - Introduction

Africa at last has a history! The French Ministry of Education has added the teaching of this subject to the secondary syllabus, and this is one of the reasons why the Centre Régional de Documentation Pédagogique de Marseille has produced a work intended to assist teachers, who have received little training in the subject (Simonis, 2010). The synthesis produced by F. Simonis was a particularly difficult and awkward task, and the author, broadly comparing the written and oral sources, offers particularly interesting commentaries and contextualisations of the traditional narratives. However, one aspect seems to have been neglected: the archaeology. How frustrated the archaeologist feels when reading the few lines dedicated to his / her field (Simonis, 2010: 20)! And while the bibliography provided is not quite complete, this does not explain why, in a general manner, the contribution of archaeology to historical construction still remains marginal. In the current article, taking the example of the Markoye region ([figure 1](#)), we will examine some of the reasons why archaeology remains almost ignored. In a recent article (Fabre, 2012), several aspects of issues regarding the research methodology and metallurgical technology involved have been partially developed; in a previous publication (Fabre, 2009), the cartography of the workshops and the scale of metallurgical production had also been presented. Consequently, these points will just be touched on here to leave space for a broader vision of the siderurgical production and its historical context on the regional scale.

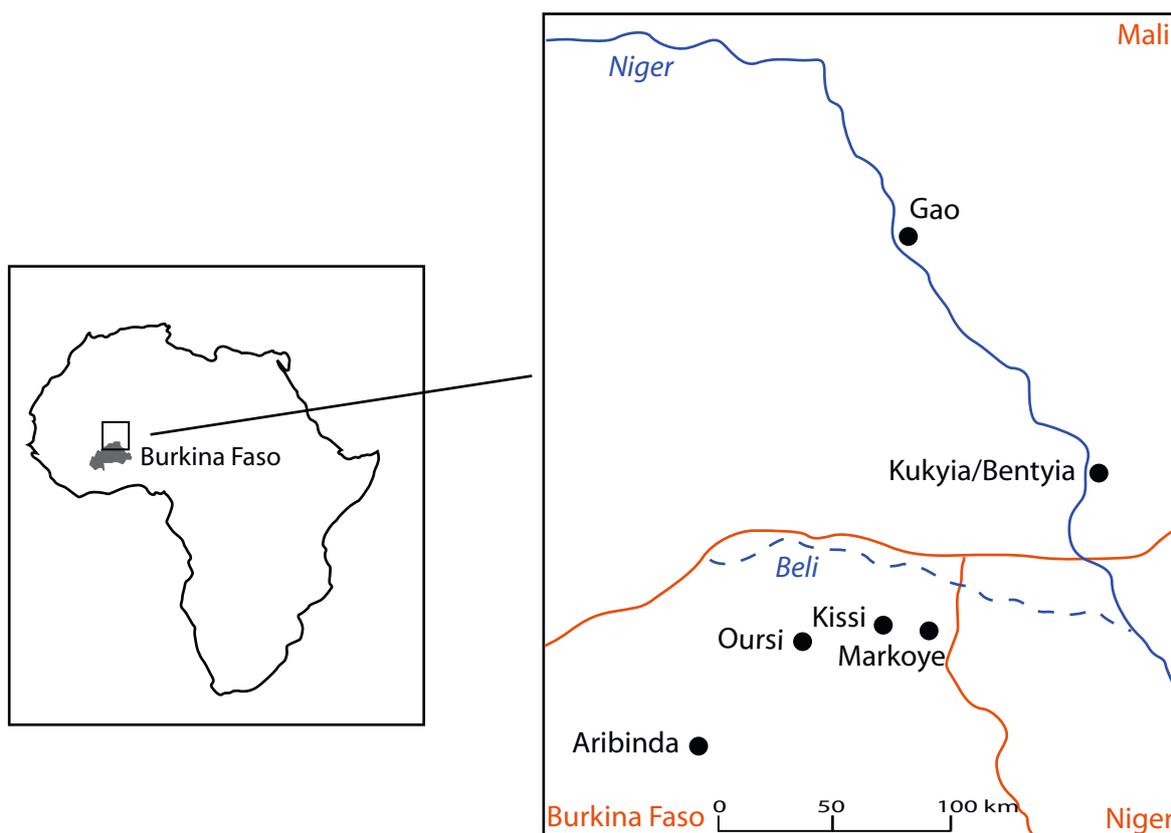


Figure 1 - Location map of the main sites mentioned in the text (CAD: J.-M. Fabre).

2 - Uniformity and specialisation

Designating a territory, the term “district” has, during the medieval and modern periods, taken on legal and then administrative meanings, all the time retaining the sense of an “uniform territorial subdivision”. In the mining field, where the term is commonly used, the uniformity is emphasised, the legal and administrative aspects being defined by the concession. In this way, a mining district is often characterised by the uniformity of some geological or metallogenic data, such as an identical association of minerals. For metallurgy, the parameters are slightly different because the supply of ore to be processed may result from different sources, as several examples have clearly demonstrated it (Martinelli, 2002). If, as for the mining district, the physical uniformity of the region may sometimes be emphasised, the anthropogenic parameters such as the choice of a technology or the organisation of production are the main key.

In the Markoye region, we are not currently aware of the sources of iron ore supply. The deposits are numerous, but have not yet been the subject of in-depth research. Therefore, it is not possible to examine this parameter. However, the three other resources necessary to the functioning of a metallurgy workshop – fuel, clay and water – are available in considerable quantities, which is one of the unusual features of this Sahelian region. While the region as a whole is characterised by the presence of bands of dunes running east-west and punctuating any northward progress, the metallurgical production area is found at some distance from these features. To reach the workshops from any direction needs to cross huge sterile spaces (clay plains and *regs*), briefly but regularly interrupted by numerous marshes which are tributaries of the river Beli, itself a feeder of the river Niger that runs around 50 km to the east. In these marshlands the early

metallurgists found all the resources necessary for their workshops to function (figure 2). Water and clay are found here in abundance; they were necessary in great quantities for the construction of the low furnaces, which thousands of remains are found in close proximity. Today, some of the watercourses, while not permanent, still retain relatively significant pockets until the end of the dry season. During the production phases, the entire orographic system ensured – seasonally but on a large scale – the supply of the workshops. At least 100 litres of clay were necessary to make the pit of a low furnace, the only part now preserved (Fabre, 2009). The elevation of the structure is difficult to reconstruct, but was probably even more massive than the pit, and it is easy to understand the reason why the workshops were settled along the margins of marshlands.



Figure 2 - Tin Sawas west [Burkina Faso], metallurgy site on the edge of the Kuna marshland (photograph: J.-M. Fabre).

The transport saving also applies to fuel, which is rather abundant on the site. A substantial gallery forest runs along the edge of the marshes, in depressions which are regularly flooded during the rainy season. Acacias are common, particularly the *bani* (*Acacia nilotica*), the metal-workers' tree according to local Songhai tradition (personal communication from Kouni, Markoye). It was not the mass of charcoal, the most common fuel for early siderurgy, which created the transport problems, but rather its volume and fragility. In the Sahel, some oral traditions mention the direct use of wood without prior carbonisation (Kiethéga, 2009). This is a possibility here, but the remains studied do not enable the hypothesis to be confirmed¹. In any case, whether charcoal or wood were used, it would have been unnecessary to transport it as water and clay were found in the same location.

1. For B. Eichorn, an anthracologist at the University of Frankfurt specialized in these issues, the use of wood in siderurgy has not been clearly demonstrated in West Africa (personal communication).

Far from being ideal, as we will see it later, the region does offer – with a relative uniformity – the conditions necessary for the establishment of a number of workshops. Undoubtedly, this juxtaposition of resources constitutes one of the characteristics of this sector, that its inhabitants seem to have employed in an almost systematic manner (figure 3).



Figure 3 - An important siderurgical site on the bank of the Beli [Burkina Faso]. In the foreground can be seen the pits of the low furnaces from the second production phase, with diameters between 0.9 and 1.1 m (photograph: J.-M. Fabre).

The surveys carried out in the valley of the Beli and along its tributaries have enabled about one hundred metallurgy sites to be located², but the technologies used, indicated by the architecture of the low furnaces and the nature of the waste left on site, are surprisingly uniform. In the neighbouring regions (Kiéthéga, 2009), many different metallurgy traditions are found alongside or succeed each other, and the archaeologist attempting to disentangle these technological spillikins must use multiple datings in order to reconstruct the metallurgical history of the region. This is not at all the case in the region of Markoye. With just one exception, in which three large diameter combustion structures have been observed, a single type of trapped slag single-use low furnace was used (figure 4). While attested in the neighbouring regions (Kiéthéga, 2009), the technology of tapping the slag, which constitutes progress insofar as it enables the reuse of the furnace and thus avoids its continual reconstruction, has not been used here³. Only two variants

2. The field works were carried out in collaboration with L. Koté (University of Ouagadougou) and some of his students, to whom I express my deepest thanks

3. In the sub-region, there exist several models of trapped slag low furnaces, with their characteristic waste tip, but few examples are dated accurately. However, we consider the coexistence of these two types of structure as highly likely.

of a low furnace with trapped slag were used (Fabre, 2009). Studying them from a technological viewpoint has demonstrated the desire of the metallurgists to improve the capacity of the structure for processing ore by slightly modifying its architecture without this leading to additional work during its construction. The few radiocarbon dates obtained from the two variants attest to their succession in time and confirm the idea of a search for productivity gains. In consequence, we can only note the remarkable technological uniformity of this region of siderurgical production.

The reasons of this technological uniformity are difficult to establish, as the cultural contexts in which they developed are poorly understood. However, since more technologies existed in neighbouring regions, we must presume that the metallurgists here did not have access to these technologies. Was this isolation simply geographical, or rather ethnic or political? We cannot currently say for certain. This model of low furnace, of which tens of thousands of examples exist in the region, was completely satisfactory to the metallurgists or their sponsors, who had reproduced it for several centuries. Even if the model has been improved over its long history as we have seen above, this type of structure requires significant construction work, which is far from specialised but which requires a lot of hands to carry it out. This can be seen as an indication of low value being placed on labour, or as an evidence of the presence of menial workers.



Figure 4 - N'Tongom [Burkina Faso], on the bank of the Beli. Section through the pit of a trapped slag single use low furnace (photograph: J.-M. Fabre).

The technological uniformity, which implies some production standardisation, may also be considered as an evidence of the metal-workers' specialisation; a specialisation leaving no scope for originality. All of them using the same recipes, they probably belonged to a single society, certain complex cultural characteristics of which have been defined by the study of rock engravings carried out by M. Barbaza (2005 and this volume). There are many of these engravings in the region, indicating a close connection between populations issuing from different cultural contexts, whose origins are located at opposite ends of the Sahara. This society, which we can easily imagine to be sedentary through at least a large part of the year, has contributed by means of its metallurgical activity to the specialisation of an area.

In the 1980s and the 1990s, teams of German researchers from the University of Frankfurt have carried out a large-scale programme of surveys and test excavations in the north of Burkina Faso, as a result of which they were able to propose an archaeological map of the province of Oudalan (Vogelsang *et al.*, 1999). This work constituted a genuine advance for the region, that was previously considered as an archaeological no man's land. The first observation resulting from this map is the relative density of habitations, diagrammatically represented (figure 5) by a pot.

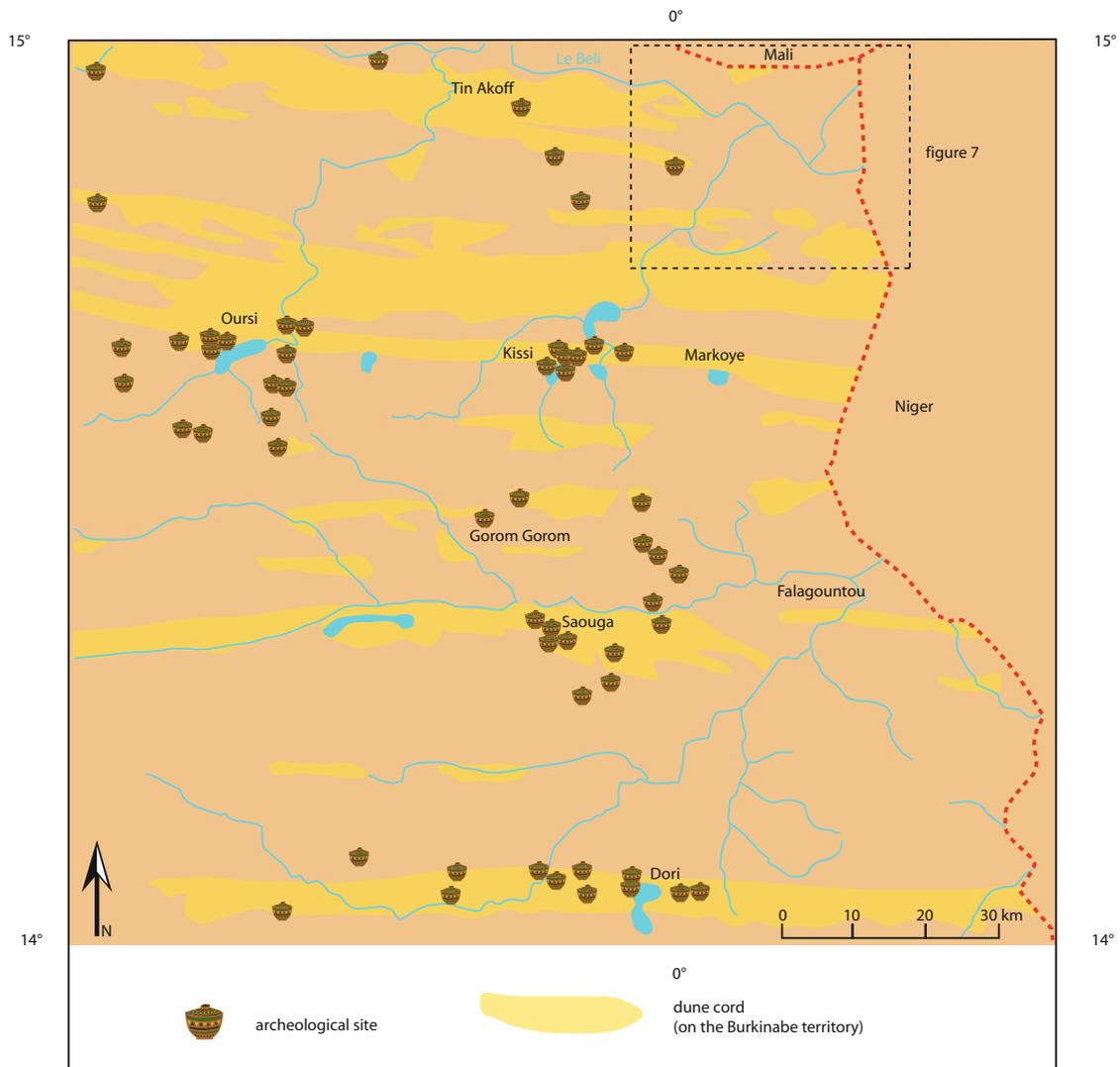


Figure 5 - Archaeological map of the Oudalan [Burkina Faso]
(CAD: J.-M. Fabre, after Vogelsang *et al.* 1999: 53).

They mainly are hill top sites, called “anthropogenic mounds” and dated to the early 2nd millennium AD (figure 6). The second, equally evident observation, concerns the spatial organisation of these habitation sites, arranged in lines from east to west and in close correlation with the dune system. There are two principal explanations for this organisation. On one hand, these lines of dunes prevent the circulation of water, which is concentrated into a number of depressions forming



Figure 6 - Anthropogenic mound on the bank of the Beli [Burkina Faso], close to the metallurgy sites (photograph: J.-M. Fabre).

permanent pools. On the other hand, the accumulations of sand constitute one of the rare landscapes in the region with sufficient capacities in terms of hydric retention to allow the cultivation of crops using rainwater and to promote the growth of vegetation (Barral, 1977). Consequently, the dunes and pools offer both farmers and shepherds an exploitable land. Given the rarity of inventoried sites, there were few other organisational possibilities. This is particularly remarkable in the north east angle of the map (figure 7), in the neighbourhood of Mali and Niger, where the dunes are almost absent. In the 2000s, it was in this sector that the majority of metallurgy sites were observed. This implantation, closely linked as we have seen above to the presence of the resources necessary for metallurgy, deviates from the rules for the installation of habitations that we have just described. The most revealing aspect for the most of these workshops is the absence of any opportunity for growing crops for several kilometres all around. Naturally, the local populations could reckon with on the few resources offered by fishing, hunting and probably also extensive animal raising. But it seems highly probable that a significant complement to their diet came from outside the siderurgical production area.

This is an indication of a high degree of specialisation in an area where the activity was essentially, if not exclusively, siderurgical. The valley of the Beli therefore constituted an important metallurgy district.

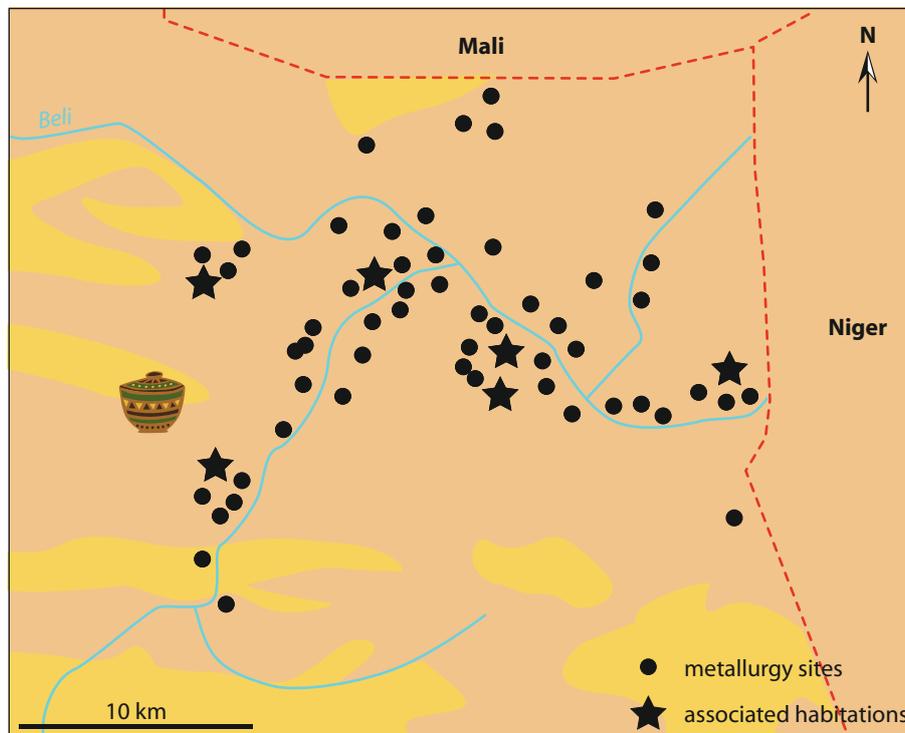


Figure 7 - Beli siderurgical district [Burkina Faso] (CAD:J.-M. Fabre).

3 - Problems of time and space

As we have seen, the characterisation of the siderurgical district, though incomplete, provides us with significant information. From a chronological point of view, the few dates obtained for low furnaces indicate two production phases, each one corresponding to a technological variant, the first one from the end of the 1st millennium AD, and the second one around the 13th century. The district is also rather well spatially circumscribed, over an area of around one hundred square kilometres, even though we can easily imagine that it overlapped the neighbouring territory of what is now Nigeria, where the conditions for the implantation of workshops are identical to those described above⁴.

Within the northern confines of what is now Burkina Faso, and a little more than 200 km south of Gao – the Kaw-Kaw of the early Arab texts (Cuoq, 1975) – the valley of the Beli formed the industrial epicentre of the region, belonging to the Songhai empire which, under the Askia dynasty in the 16th century, extended across a large part of the Sahel. Unfortunately, such a statement is, from our point of view, anachronistic. In fact, the current state of research provides no evidence for metallurgical production after the 14th century. And this is where the problems begin! For the earlier periods, including the most well-known, the region which interests us has been isolated from the identified major territorial entities, and consequently we cannot connect this economic

4. An expansion of the survey work towards the Niger has been considered, in collaboration with O. Idé (IRSH, Niamey), but unfortunately the political and security situation in the area prevents any such project.

phenomenon with any political power. In addition, the historical cartography of western Africa is based to a large extent on medieval Arab sources which were not written for this purpose and which as a result are somewhat vague on the subject. For example, it is currently impossible to propose a serious cartography for the area of influence that may have belonged to the kingdom of Gao at the end of the 1st millennium AD. Nor do we understand the socio-economic or political realities of the period.

With of so many uncertainties, given the scale of the district's production and the contribution of M. Barbaza's studies on the rock art of the area, we have developed the hypothesis of a trans-Saharan iron trade (Fabre, 2009). This must not, however, supplant the possibility of major local markets justifying production on such a scale; indeed this possibility has already been evoked for the supply of the town of Gao (Insoll, 1996). Our lack of knowledge of early local populations and their daily practices prevent any evaluation in terms of iron needs, particularly for agriculture. However, the oral traditions and chronicles of Timbuktu describe a great number of events, particularly in the martial context, which might justify siderurgical production on such a scale. But recent research, particularly in the field of epigraphy, demonstrates how it is difficult to exploit these sources, which remain above all highly politicised historical constructions (Moraes Farias, 2003). In addition, the region studied is located at a distance from the great centres of tradition, at the crossroads of many cultures: Mandé culture in the west, Songhai or pre-Songhai in the north and east, but also Tamasheq in the north and, finally, Mossi in the south. In studies dedicated to these great ethnic or cultural entities, it has been possible to note some elements directly concerning our region. This information gathering is not yet completed and shall be followed by a process of analysis; meanwhile, we present here some aspects of this work.

The only research work taking into account the Oudalan region is that of C. Pelzer who, while studying the history of the current populations and their oral traditions, has examined those preceding them (Pelzer, 2003). He demonstrates how the early populations, settled on anthropogenic mounds, were sedentary, and that 'nomadisation' is a relatively recent phenomenon. According to the oral traditions, these were Gourmantché people, except in the area of Pobe Mengao and Aribinda, which were inhabited by the Kurumba⁵. C. Pelzer states that these two ethnonyms have the same meaning: "those of the Gourma", i.e. the right bank of the Niger. This is not, therefore, a true exception, but rather simply a distinction in the way these early local populations were designated. However, this fact seems interesting to us as the two locations present another particularity: that of being – other than Markoye – the two only sites with rock engravings in the whole northern Burkina Faso⁶ (figure 8). According to local oral tradition, the sedentary Songhai, who are now the chief component of the population of Markoye, have no links with the populations who carried out these engravings and exploited these metallurgy sites, both of them being attributed to "those from before". Were these the Kurumba who, according to Mossi oral tradition, are associated with iron working? It is not impossible, as the trail of the Sudanese savannah peoples does not end there. On the basis of the chronicles of Timbuktu, M. Izard, a specialist in the study of the Mossi, evokes incursions by the Mossi into Songhai territory from the 13th century (Izard, 1997). He sees these as evidence of a well-organised military society, whose objective was to control west African trade, providing us with an impression of the role that these populations may have played in the Sahel from the first half of the 2nd millennium AD.

5. C. Pelzer has since called into question the age of this oral tradition (Pelzer *et al.*, 2009). For Aribinda, the fact has already been discussed by J. Rouch (1954) during his enquiry into the early populations of the Niger in which he associated the Kurumba with iron working. In the neighbouring Yatenga, the Kurumba, or Fulse, constituted the population predating the Mossi, who arrived in the 15th and 16th centuries (Izard, 1985).

6. This is, of course, the same type of engraving, most probably attributable to the same population.



Figure 8 - Aribinda [Burkina Faso], engraving representing a rider armed with a sword (photograph: J.-M Fabre).

Prior to the second Mandé expansion and the taking of Gao in the 16th century, the district of Markoye thus appears to have been relatively isolated from the centres of power and of Malian tradition. The Mandé oral tradition does contain two constants which may be of interest to our examination: the omnipresence of the figures of the blacksmith and the recurring problem of slavery. These constants would also be at the source of the empire forming. We find these two themes in some versions of the astonishing story of Sumaworo Kanté and his nephew Fakoli (Simonis, 2010). It is difficult for a non-specialist to distinguish between what is commonplace in different oral traditions and the information or historical interpretation which may be derived from them. But it is important to emphasise that the Sahel has been the reservoir of slaves that supplied a flourishing trade for several centuries. The numerous raids, which are also mentioned in Songhai traditions, were probably regular local events. We must then pose the question of the conditions for the success of the metallurgical activity over such a long period. How could permanent, sedentary production intended for a particular market be guaranteed in such an insecure context? The other recurring element in the region's traditions, the figure of the blacksmith, symbolises the metal necessary, both in terms of quality and quantity, to manufacture the tools and/or weapons which ensured the prosperity of a society and/or the supremacy of a power. On the quantitative level, at least, we can be certain that the district of Markoye could play this role, but for whom?

In Songhai tradition, with the exception of the legendary kingdom at Kukyia (today Bentyia, in Mali), the majority of the events took place at Gao. We have already seen that it was difficult to connect our sector with this latter area, despite its relative geographical proximity. The famous Kukyia (figure 1) is located much closer to the district in question, less than 100 km away, but tradition and the Arab texts contain few references to the city and, in any case, the reported facts predate the activity in our district. However, in his epigraphic study, P.F. de Moraes Farias (2003; Triaud, 2005) observes a chronological discrepancy on the subject – and not the only one – between the oral traditions and the inscriptions discovered at Bentyia. The corpus contains 63 inscriptions dated from 1182 to 1489, with an absence of epigraphic data at times which can be explained by doctrinal reasons such as Ibadi or Sunni influences⁷. However, P.F. de Moraes Farias notices a paradox: the Za, the first Songhai dynasty mentioned by the chronicles, left no traces at Kukyia, where they are nevertheless said to have ruled, while they are evoked in inscriptions at Gao. Whatever the case, the element from this study that we will retain is the presence of an important economic centre at Kukyia, with a dynamic and well-established Muslim community from the 13th century. Kukyia, until now presented as an ancient pagan city of Songhai myth, was in fact an important commercial centre taking an active part in major trading activities. Its eminently strategic location, at a point of transshipment due to the impassable Labbezenga rapids on the river Niger, 50 km to the east of our study area, ensured its continued success. These new data, provided by epigraphy, encourage us to relativise the isolation of the siderurgical district of Markoye, whose production was perhaps intended for the cosmopolitan city of Kukyia, where Songhai, Tuareg and Mandé cultures co-existed⁸. The latter are mentioned in the inscriptions confirming the presence at Kukyia of a major Wangara community referred to in the chronicles. In consequence, it is now possible to reconsider the problem of the location of Kūgha – a city mentioned in numerous texts, in particular those of al-Bakrî and al-Idrîsî in the 11th and 12th centuries (Cuoq, 1975), and presented as an important trading centre under Wangara domination, somewhat surprisingly given its location far to the east, distant from the centres of Mandé power and in the heart of Songhai territory. Considering its proximity to and contemporaneity with our metallurgical district, this is another trail that we shall explore.

4 - Conclusion

We have initially attempted to characterise the metallurgical district of Markoye on the basis of a certain number of parameters collected under the theme of uniformity and specialisation. The question of the identity of the actors involved was then raised; a problematic issue, as we have seen in the second part of this study, due to our lack of knowledge of the early history of the region's populations. An additional element deserves to be taken into consideration in this research. Such a degree of standardisation and specialisation in production on such a large scale most probably indicates the intervention, of an external or local power able to organise this district, to ensure its security and probably also its trading outlets. It does not yet seem possible to identify this power; the most we can establish with certainty, at least for the second phase of

7. However, the same causes do not always lead to the same effects, as demonstrated by the comparison of the corpus from Bentyia with those from Tadmekka and Gao.

8. D. Lange (1991) favoured the hypothesis of an early Wangara settlement, from which the kings of Gao were descended. However, the new information provided by P.F. de Moraes Farias (2003) indicates rather an ancient co-habitation of several cultures: Mandé, Songhai and Tamasheq.

production, during the 13th century, is that there was an important regional market together with the possibilities offered by the proximity of a flourishing city firmly established as part of the great trading circuits. In order to do this, we must explore the many avenues of investigation previously mentioned, but above all we shall develop our understanding of the regional chrono-cultural contexts. The rare stratigraphical milestones marking this Sahelian region (Magnavita, 2009; Pelzer *et al.*, 2009) are still insufficient and only a better archaeological understanding of the early populations, through the study of pottery production in particular (von Czerniewicz, 2004), will enable us to progress with some confidence⁹. Archaeology, with its collection of original data, will then naturally find its place in the historical syntheses.

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9. The excavations carried out at Oursi and Kissi constitute excellent standards which we must now expand upon in order to make a comparison possible with the different contemporary archaeological facies and, if possible, to circumscribe the cultural areas. Unfortunately the insecure conditions in this area are likely to prevent any such project in the near future.

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Jean-Marc FABRE

Research engineer
CNRS, Traces (UMR 5608)
Toulouse, FRANCE
jfabre@univ-tlse2.fr

Article outline

THE ROLE OF ETHNOHISTORIC DATA IN RECONSTRUCTING ANCIENT SIDERURGY IN DOGON COUNTRY (MALI)

Caroline ROBION-BRUNNER

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THE ROLE OF ETHNOHISTORIC DATA IN RECONSTRUCTING ANCIENT SIDERURGY IN DOGON COUNTRY (MALI)

Caroline ROBION-BRUNNER

Abstract

Since 2002, research on paleometallurgy in Dogon Country has revealed an exceptional history of siderurgical activity. More than one hundred smelting sites have been recorded, mapped and studied for the first time. Based on technological, cultural and economic criteria, we have attributed these sites to seven different siderurgical traditions. The existence and cohabitation of such diverse metallurgical remains within a limited geographic area (15 000 km²) are very surprising. In this paper, we attempt to interpret this archaeological observation with the aid of ethnohistoric data. Based on this comparison of several sources, we propose a new historic scenario retracing the evolution of the traditional production of iron in Dogon Country.

Keywords

Africa, Mali, Dogon Country, ethnohistory, archaeology, metallurgy, iron, blacksmith, caste, settlement.

As in most regions in western Africa, iron production in Dogon Country gradually ceased during the 20th century, being replaced by iron imported from Europe. Because this relatively recent activity is still present in the memory of Dogon people, it is possible to obtain ethnological and ethnohistorical data from the descendants of metallurgists and to compare them with archaeological observations.

As part of an interdisciplinary and international project entitled “Human populations and paleoclimatic evolution in West Africa”, directed by É. Huysecom, a section dedicated to paleometallurgy was initiated in 2002. Funded by the Fonds National de la Recherche Scientifique Suisse, its goal is to study the evolution of ironworking in Dogon Country from its origins to the present day (Serneels *et al.*, 2006; Robion-Brunner, 2008, 2010).

From the beginning of this programme, our field missions have revealed the exceptional history of Dogon siderurgy. For the first time, more than one hundred extraction and smelting sites have been recorded, mapped and studied. Distributed unevenly on the plateau, the Bandiagara cliff and the Seno plain, the very well preserved siderurgical remains are also very unusual. Based on technological, cultural and economic criteria, we have attributed these remains to seven ironworking traditions. The existence and cohabitation of such a high degree of diversity are very surprising.

We will attempt to interpret this archaeological observation in light of ethnohistoric data. Based on a comparison of several sources, we propose a new historic scenario retracing the evolution of traditional iron production in Dogon Country and discuss the role of ethnohistoric data in the analysis of archaeological remains.

1 - Dogon blacksmiths: a question of caste

Dogon Country, a region in Mali located to the east of the interior delta of Niger (figure 1), can be divided into four geographic zones: the plateau and cliff of Bandiagara, the plain of Seno and the sandstone massifs of Gourma (Daveau, 1959). Mainly inhabited by the Dogon, who are sedentary farmers, this region is distinguished by its linguistic division; it has 19 recorded languages (Hochstetler *et al.*, 2004; Blench, Douyon, 2006), in association with complex cultural interactions.

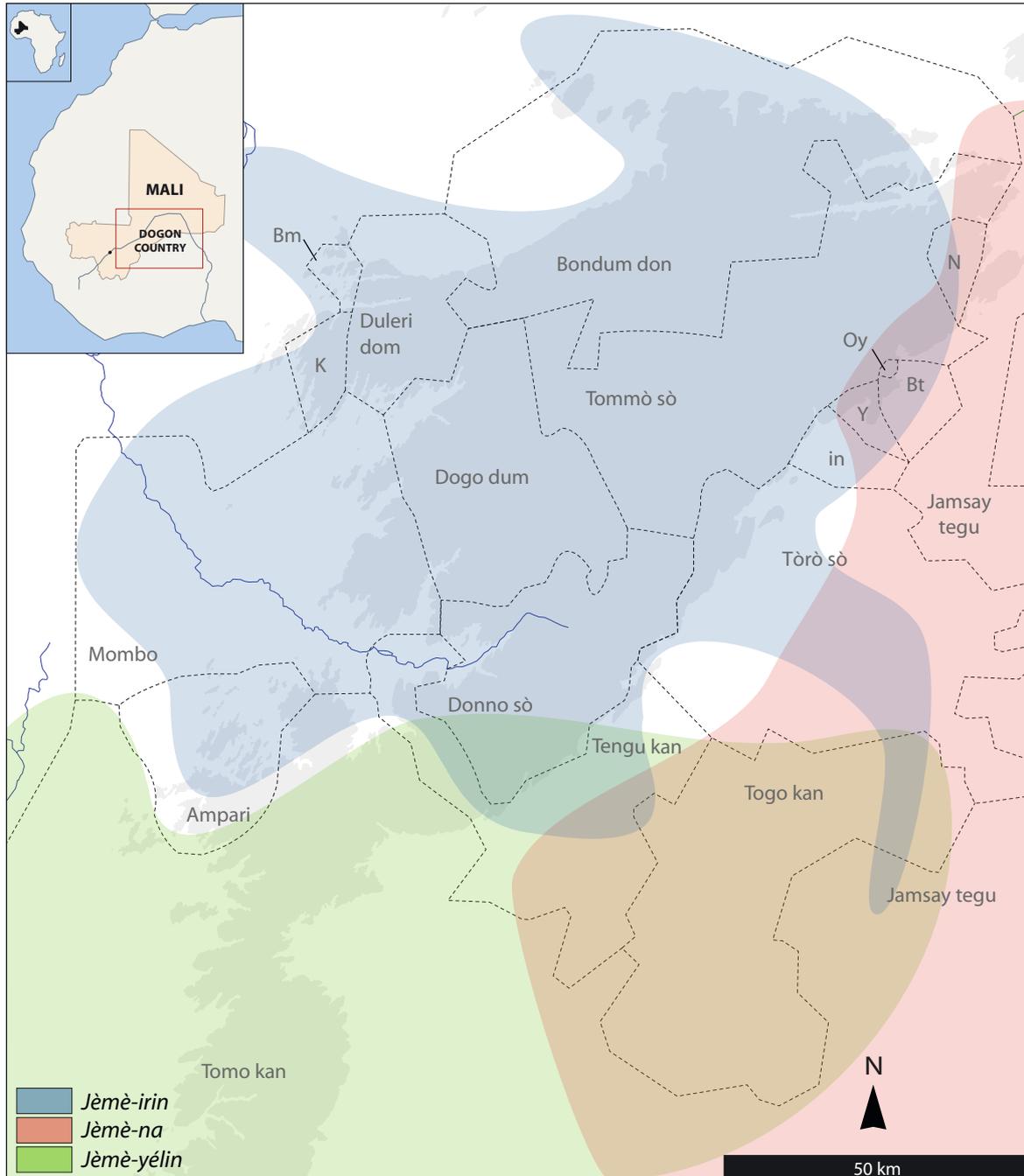


Figure 1 - Location of Dogon Country and the blacksmith castes residing in this region (CAD: C. Robion-Brunner).

Like many West African societies, Dogon society is stratified into three categories: farmers, specialised endogamous artisans, and slaves. There are currently three castes of blacksmiths: the Jèmè-na, the Jèmè-irin and the Jèmè-yélin¹. According to D. Paulme (1940), the Jèmè-na blacksmiths, located on the Seno plain, live in villages or neighbourhoods that are separated from the cultivators. They carried out the entire siderurgical production sequence, from iron ore extraction to the manufacture of finished products. The Jèmè-irin are located on the plateau and live among the farmers. They did not smelt iron ore, but bought it from the Jèmè-na to manufacture a variety of objects. The genesis of the formation of these two castes shows that the Jèmè-na peoples were the first blacksmiths in the region and that the Jèmè-irin were initially farmers, becoming ironworking specialists after an apprenticeship with the former. The third caste, the Jèmè-yélin, occupies the southern plateau and part of the Seno plain. They produced iron until the 1960s. In 1995, under the initiative of É. Huysecom, a group of blacksmiths from the Dogon village of Aridinyi restored a bloomery furnace and performed the various stages involved in siderurgy. This reactivation was the subject of a documentary film² that enabled researchers to observe and study the skills of the Dogon and to determine how beliefs and techniques interact in the process of transforming iron ore into finished products (Huysecom, 2001). Through this study, the history of the ancestors of the Jèmè-yélin was reconstructed. Originating in northern Guinea, they arrived in Dogon Country at the end of the 16th century (Huysecom, 2003).

2 - The seven Dogon siderurgical traditions

2.1 - The choice of classification criteria

Since the pioneering work of W. Cline (1937), many researchers have attempted to understand the astonishing variability of African siderurgical practices through the development of different typological systems. One of these systems is based on the morphology of the furnaces (Sutton, 1985; Martinelli, 1993; McNaughton, 1993); it takes into account the size, outline, superstructure, dimensions and shape of the furnace pit, the number of openings etc. Another system is based on the notion of technical choice and attempts to determine the technical mechanisms for iron smelting (Kense 1985; Pole, 1985; Tylecote 1987; Killick, 1991); it takes into account the presence or absence of a superstructure, the ventilation method and the type of slag produced. A third system attempts to define the social, political and economic organisation of siderurgical production (de Maret, 1980, 1985; Childs, 1991; Martinelli, 2002; Langlois, 2005-2006); it considers the social identity of the metallurgists rather than the skills developed.

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1. According to G. Calame-Griaule (1968: 122), Jèmè is applied only to blacksmiths and designates the descendants of the first mythical blacksmith. This term is probably related to the Sonhay term *zèm*, “blacksmith”. The suffix *na*, which means “great” designates the members of this caste as the only real blacksmiths. G. Calame-Griaule (1968) believes that the suffix *irin* means “iron man” and that it was formed from *inune*, *ine*, “human being”, and *inu*, “iron”. G. Holder (1992: 59) clarifies this etymological explanation: “the term *irine* appears more likely to have been formed from an association of *iru* (milk, breast) and *ine* (iron, iron tools), thus referring to a specific relationship between *dyèmè-na*, the Great Blacksmith, he who has the knowledge, and the “mother”, from which the *irimbè* would have been nourished”. As for the term *yélin*, É. Huysecom offers two etymologies: either it would have come from the female name *Yélin*, designating the little sister of the first blacksmith of the Tomo people, or from the verb *yèrè*, which means “come” in tomo kan. This second linguistic origin would take into account the late arrival of this caste in Dogon Country.
 2. Huysecom E., Agustoni B, 1996, *Inagina, l'ultime maison du fer*, Genève, Production Huysecom, Agustoni and PAVE, 52 min (VHS).

The classification criterion on which our study is based is technological in nature. Through a macroscopic and analytical analysis of metallurgical waste products it is possible to distinguish large families of furnaces based on the mechanisms of iron / slag separation and waste evacuation outside the smelting structure. Descriptions of slag are not sufficient to distinguish technical processes; a quantitative evaluation of each category of waste and the dominance of a particular type are necessary to identify the manner in which a bloomery furnace functioned. The morphological features, dimensions and types of construction can refine this classification. The architecture and the presence of certain features contribute essential elements to our understanding of the functioning of the furnaces. An analysis of their facies provides information on the cultural identity of the artisans. Quantitative criteria (waste volume, number of furnaces), in association with dates both absolute (radiocarbon dates) and relative (oral traditions), enable us to estimate when a workshop began to function, how it developed, its production level and its social and environmental impact. A reconstruction of the spatial organisation contributes to reconstructing the *chaîne opératoire* (and the spatial organisation and life of a workshop by defining the technical operations and additional structures (crushing and sorting of iron ore, fuel fabrication, raw material storage etc.). The geographic and linguistic data indicate whether the siderurgical sites are located in a restricted, large or dispersed perimeter, and whether they are integrated within specific regions.

2.2 - Description of the seven siderurgical traditions (table 1, figure 2)

Located on the western part of the Bandiagara plateau (Mombo linguistic zone), along the lower valley of the Yamé, the Fiko tradition is distinguished by its large mounds of metallurgical waste in the form of closed craters. Inside these heaps, walls are built to support the weight and maintain a cleared activity zone in the centre of which two connected furnaces are installed. These smelting structures are unusual in that they have a vast horseshoe-shaped pit (3 to 4 m³ of internal volume) and a large number of openings (figure 3). The metallurgical assemblage is mostly composed of tapped slag.

Table 1 - Summary table of principal characteristics for each of the Dogon siderurgical traditions (data: C. Robion-Brunner).

Metallurgical traditions	1 - Technological criteria			2 - Morphological criteria							3 - Economic criteria							
	Method	Slag		Shaft section	Opening			Stairs	Peep-hole	Construction materials	Spatial organization			Volume of waste dumps per site (order of magnitude)				
		External	Internal		Tuyere holes	Waste dump morphology	Number of furnace/dump											
												Door						
Fiko	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ouin	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ama	X	X	X	X	X	X	X	X	?	X	X	X	X	X	X	X	X	X
Tinntam	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Aridinyi	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wol	X	X	X	X	X	X	X	X	?	X	X	X	X	X	X	X	X	X
Enndé	X	X	X	X	X	X	X	X	?	?	X	X	X	X	X	X	X	X

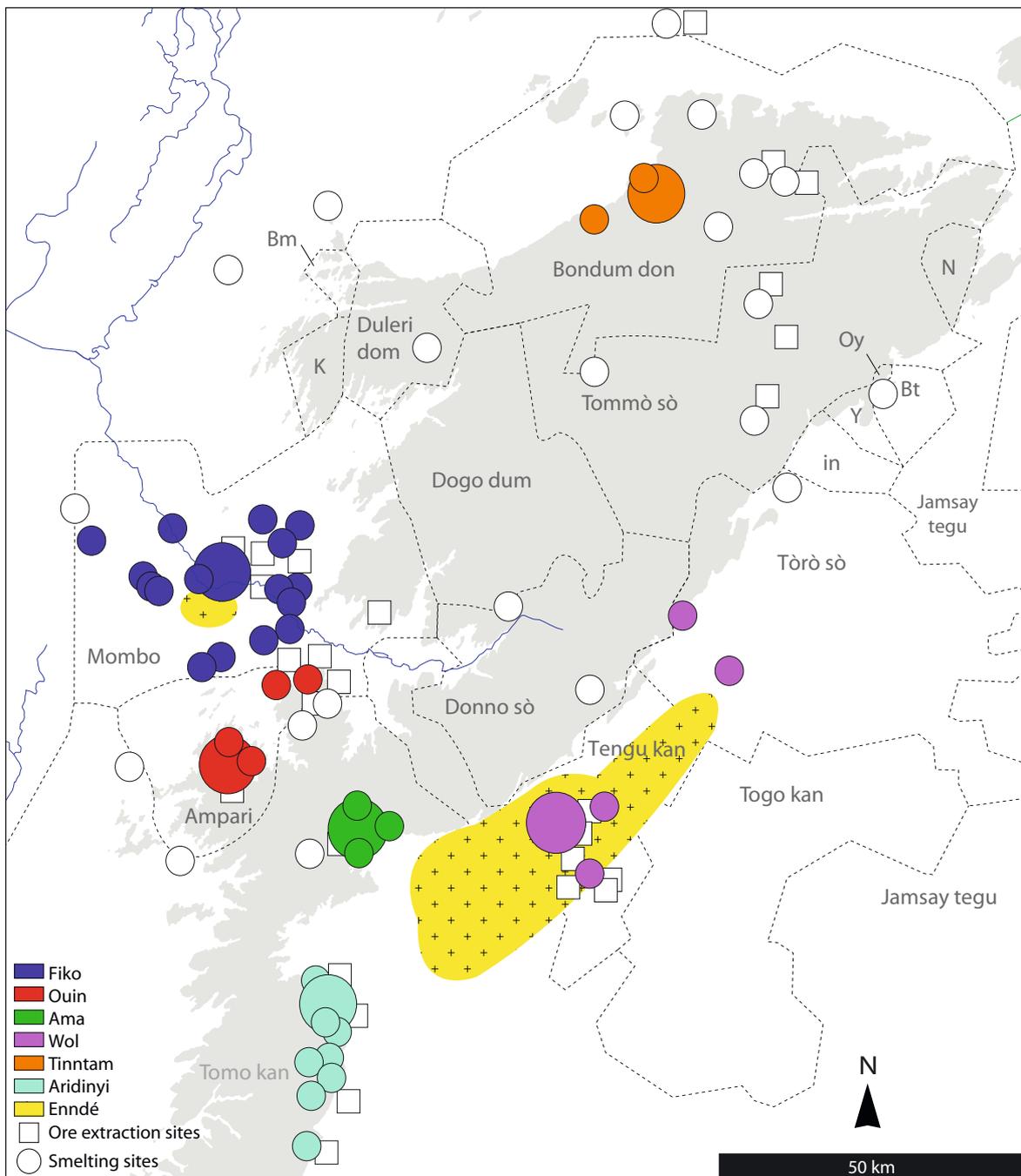


Figure 2 - Location of Dogon sites (extraction and smelting of iron ore) and siderurgical traditions (CAD: C. Robion-Brunner).

The Ouin tradition is found in the Pignari-bana region to the southwest of the plateau (Ampari linguistic zone). The metallurgical waste forms one or several low, open ring-shaped mounds, in the centre of which emerges a single furnace. This latter has walls forming a cone and a circular pit perforated at its base with eight openings and a door. The systematic use of lozenge-shaped bricks in the construction of the base of the superstructure is unique to this tradition (figure 4). The metallurgical assemblage is similar to that of the Fiko tradition, but the slag and the tuyeres are smaller.



Figure 3 - Toumpou, iron ore smelting workshop established at the foot of the abandoned village (after Serneels, 2009).



Figure 4 - Ouin, bloomery furnace (after Robion-Brunner, 2007).

The Ama tradition is located on the edge of the Bandigara cliff, west of Kani-Bonzon (Tomo kan linguistic zone). Its waste dump zones are highly organised spatially and are similar to those of the Ouin tradition. Bloomery furnaces have a circular pit pierced by five openings and a door. The walls are constructed with different types of materials (slag, re-used tuyeres and sandstone blocks). The metallurgical waste consists mostly of tapped slag whose specific morphology – hollowed slabs – indicates the formation of a gas bubble during the cooling phase.

The Tinntam tradition is found on the north east border of the Bandiagara plateau (Bondum don linguistic tradition). The spatial organisation of these sites is not standardised. They consist of one or several adjacent crater-shaped dumps with one or two bloomery furnaces in the centre (figure 5). The originality of these furnaces resides in the use of walls made of three successive layers: an internal coating composed of clay mixed with broken tuyeres, a central wall realised with the aid of thickened sandy slag, and an external pavement made of rectangular sandstone blocks. The waste products are mostly constituted of tapped slag with a slightly triangular section, suggesting that the material flowed outside the furnace, in a channel.



Figure 5 - Tinntam, mound of metallurgical waste (after Serneels, 2006).

The sites of the Aridinyi tradition are found along the cliff of the southern plateau (Tomo kan linguistic zone). The iron workers discarded the metallurgical waste around the bloomeries, sometimes constructing a network of narrow streets using the large blocks of furnace slag. The bloomeries are massive and have very thick walls made from slag. They are truncated and sit on six legs between which five openings and a door are located (figure 6). This tradition is characterised by large blocks of furnace slag that form in the furnace pit. They can weigh more than 80 kg.

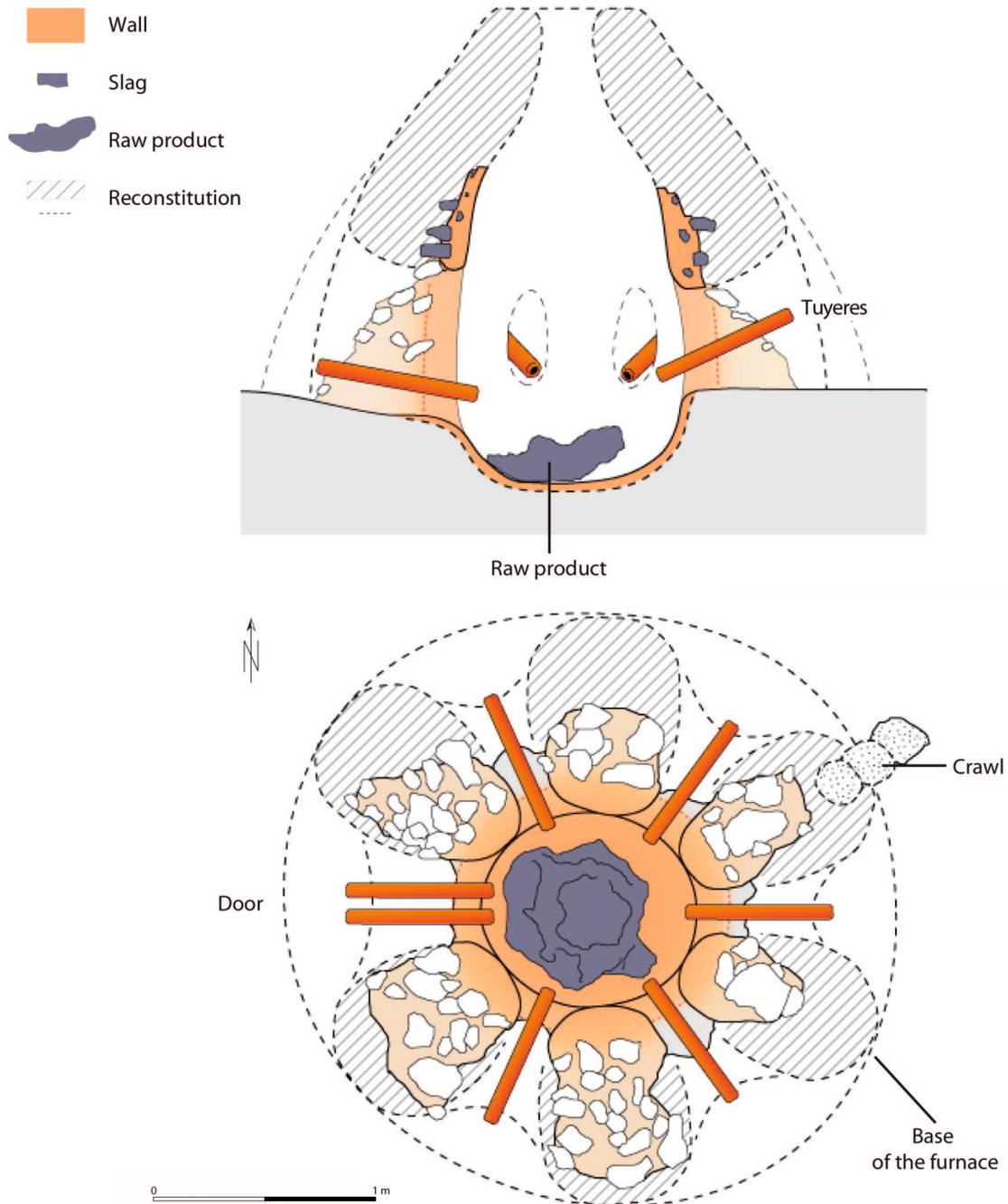


Figure 6 - Kobo, plan and section through bloomery furnace (CAD: S. Perret).

The Wol tradition, located at the foot of the Bandiagara cliff (Tengu kan and Tòrò sò linguistic traditions), is defined by the spatial organisation of waste into mounds. These are formed at the top of natural sand dunes. The architecture of the furnaces is still poorly known. These simple constructions have a cylindrical pit perforated with six openings and a door. Among the waste, slag in the form of cords is dominant; this is very similar to waste of the Ama tradition. The associated tuyeres often have a flat face.

The Enndé tradition has been identified in three linguistic zones (Tomo kan, Tengu kan and Mombo) respectively located at the foot of the cliff, in the northeast sector of the Seno plain and along the western margin of the plateau. The spatial organisation of these workshops consists of small piles of slag scattered in a thin layer, each associated with a furnace. The latter is partially buried in the ground. The thin wall of its chimney is slightly conical and composed of banco containing loose slag. It has a door leading into the bottom of the pit and five openings dug into the circulation ground level, located higher up. The slag of this tradition can be divided into two recurring facies: vertically flowing furnace slag and slag with irregular morphology.

2.3 - Similarities and differences between the seven Dogon siderurgical traditions (table 1)

From a technological perspective, all of the Dogon siderurgical traditions employ the direct method with slag and iron separation, their furnaces have a superstructure, and the combustion of charcoal is ensured by natural ventilation. A macroscopic and morphological study of the slag and a quantitative evaluation of the different types of waste products have allowed two methods for the evacuation of the latter to be distinguished. In the Fiko, Ouin, Ama, Tinntam and Wol traditions, the separation of slag and metal is lateral and tapped slag is dominant. In the Aridinyi and Enndé traditions, the separation is vertical and internal slag is dominant.

From a morphological point of view, the Dogon furnaces are architecturally very diverse. In a limited geographic zone, the siderurgists were dynamic and creative in the realisation of smelting structures. In most cases, these had a pit with a circular section, a door for the evacuation of slag and the raw product, and were constructed using slag. Nonetheless, the number of openings, the presence or absence of steps or a peephole and the nature of the construction materials differ. Finally, none of the traditions have exactly the same smelting structure.

From an economic perspective, the spatial organisation and the volume of slag indicate high variability in the rate and intensity of production. The siderurgical sites are generally composed of one or several central concentrations from which a furnace emerges. The Fiko tradition, however, is distinguished by its sites composed of enormous craters of waste totalling approximately 300 000 tons. The majority of sites from the Ouin, Tinntam, Wol, Ama and Aridinyi traditions have a volume between 1 000 and 10 000 tons. The location, spatial organisation and quantity of waste products of the Enndé tradition indicate sites with a lower degree of iron ore smelting composed of small piles of scattered slag.

3 - The identity of the metallurgists

Before attempting to interpret the variability of the siderurgical remains based on the history of human settlement in the region, it is important to define the identity of the people involved in iron production. We must first remember that metallurgy in Dogon Country was an exclusively male domain. The taboo of iron ore is with its red colour, which, by extension, touches upon all objects or materials of this colour. Since the life of a woman follows the rhythm of blood (menstruations,

loss of virginity, pregnancy), she could not take part in the extraction of ore, the process of smelting, or forging (Herbert, 1993). Women were not allowed to approach ore for fear that it would “flee”.

3.1 - The identity of the metallurgists by technological phase (table 2)

The extraction sites fell under the jurisdiction of the master of the land, who was a descendant of the village founder, and thus usually belonged to the social class of farmers. All men were allowed to work in the mine, whether they were blacksmiths or farmers. Propitiatory declarations, blessings and sacrifices, made by the master of the land, preceded the beginning of operations. These were intended to protect the miners from the numerous dangers and accidents associated with the underground extraction of iron ore. The master of the land thus had both secular and magical powers. The supervision of the work – coordination of the teams, choice of sectors, selection and sorting of iron ore – was carried out by the master of the mines. This strategic position was usually bestowed upon a blacksmith. Though technically rather simple, mining required a large number of workers that the blacksmiths, who were often few in the village, could not provide without the contribution of young farmers.

Located near the habitations, the smelting sites fell under the combined responsibility of the lineage chiefs of the village. The master of the furnaces, on the other hand, was a blacksmith who belonged to the generation of the elders. He oversaw the smelting operations, ensured the execution of sacrifices and the direction of propitiatory ceremonies. In contrast to what can be observed for the forge, there was no single possessor of technological knowledge. The mastery of the chemical and physical process by which the iron ore was transformed was acquired collectively: the master of the furnaces directed the operation from a magical perspective, while a group of elders discussed the technological procedure. The confusion between landholder and possessor of magical or technological knowledge sometimes hinders the determination of the social identity of the siderurgists. On some sites for regional or extraregional production, farmers today claim ownership of the smelting areas, but they often forget that they called upon the blacksmiths in the region to help them operate the furnaces.

During the creation of the object, magical knowledge had little impact on the skill of the blacksmith. He was completely responsible for his work, and recognised as such by all. This technical field was reserved for blacksmiths, distinguishing them from the cultivators. The transformation of iron into a finished object characterised their activity and earned them their title.

Table 2 - Social category involved according to status and stage in the siderurgical *chaîne opératoire* (data: C. Robion-Brunner).

		Farmer	Smith
Mining	Landholder		
	Possessor of magical knowledge		
	Possessor of technological knowledge		
	Labor		
Smelting	Landholder		
	Possessor of magical knowledge		
	Possessor of technological knowledge		
	Labor		
Smithing	Landholder		
	Possessor of magical knowledge		
	Possessor of technological knowledge		
	Labor		

	No evidence
	Little evidence
	Some evidence
	Much evidence

3.2 - Identity of the metallurgists' traditions (table 3)

The ethnohistoric data collected during our investigations into the identity of metallurgists from the Ouin, Fiko, Ama, Tinntam, Aridinyi and Wol traditions concern the period preceding the decline of this activity (18th and 19th centuries). For the earlier periods, it is difficult to acquire information and to transpose it onto later organisational systems.

It has not been possible to establish the link between the current Enndé populations and their siderurgical sites. It seems that the workshops have become disconnected from collective and individual memories. This perhaps indicates a tradition preceding the installation of the current Dogon villages, or a tradition belonging to siderurgists who have since left the region.

The local sources for the sites of Ouin tradition confirm that the possessors of magical and technological knowledge were blacksmiths belonging to the caste of the Jèmè-irin. The iron produced on these sites supplied primarily and almost exclusively the needs of the village near which the siderurgical workshop was established. This economy of self-sufficiency was based on the concept of non-profit exchange. This means that a part of the raw product belonged to the blacksmiths and that the other part to the landholder. The whole was transformed into finished objects, essentially agricultural tools. In return for the manufacture of these instruments, the blacksmiths received part of the harvest.

The cultivators and the blacksmiths of the sites of Fiko tradition lived close to the early siderurgical workshops, indicating that it was the farmers who operated the bloomery furnaces. The blacksmiths – Jèmè-irin – were not involved in this phase of the *chaîne opératoire*, being required only at the time of the removal of the raw product from the furnace and during the forging process. However, the blacksmiths interviewed in the neighbouring villages indicated that their forebears travelled seasonally to these sites to smelt iron ore. These apparently contradictory accounts cannot be analysed independently of the context of production and of the exchange networks. The sites of Fiko tradition are characterised by excess production intended to supply peripheral markets. The isolation of the resident blacksmiths resulted from the political and economic policy of the masters of the land. The Dogon, wishing to master the iron trade, would have excluded their artisans from this activity and called upon “external” blacksmiths for the work. In the Ama tradition, the magical and technological process was carried out by Jèmè-yélin blacksmiths. Their siderurgical activity seems to have been both regular and seasonal. It supplied the villages in which the workshops were established.

Table 3 - Social category involved according to status, the stage of the siderurgical *chaîne opératoire* and the siderurgical tradition (F: Farmer; S: Smith; data: C. Robion-Brunner).

		Ouin		Fiko		Ama		Tinntam		Aridinyi		Wol	
		F	S	F	S	F	S	F	S	F	S	F	S
Mining	Landholder												
	Possessor of magical knowledge												
	Possessor of technological knowledge												
	Labor												
Smelting	Landholder												
	Possessor of magical knowledge												
	Possessor of technological knowledge												
	Labor												
Smithing	Landholder												
	Possessor of magical knowledge												
	Possessor of technological knowledge												
	Labor												

In the Tinntam tradition, it was the Jèmè-irin blacksmiths, according to our investigations, who possessed the magical and technological knowledge. The sites that they exploited supplied a local market. To complement this production, the cultivators and blacksmiths of the region obtained iron and tools from workshops located further north (Niminiama, at the northern edge of the plateau) and to the south west (Aridinyi, Ségué, on the edge of the southern plateau cliff).

The possessors of magical and technological knowledge in the Aridinyi tradition were Jèmè-yélin blacksmiths. However, farmers could participate alongside them in all stages of the siderurgical process. At some workshops, such as that of Aridinyi, the blacksmiths and cultivators from the neighbouring villages and regions were involved. Once a year, these men produced iron, part of which was given to them in exchange for their work. The remainder was distributed between the village chief and the masters of the land, the mines and the furnaces. As the last workshops to have operated, they supplied the whole of the Dogon plateau, sometimes complementing iron from the west. In this way, the quantity of iron produced exceeded the needs of the villages in which the smelting sites were found; it satisfied a local and regional market.

In the Wol tradition, the farmers were the possessors of the spaces dedicated to the extraction and smelting of the iron ore. They also possessed the magical and technological knowledge necessary for exploitation. At no point in the different interviews has mention been made of the blacksmiths participating in the production of this metal. They are sometimes mentioned when we ask about the social identity of the people who transformed the raw iron into finished objects. The world of siderurgy was thus exclusively in the hands of the farmers, while the blacksmiths were marginalised. As in the Aridinyi tradition, the workshops of Wol tradition are among the latest to have been in operation. Also supplying the villages of the Seno plain and the cliff of Bandiagara, they answered a local and regional demand.

3.3 - Inventory of socio-economic systems

Following the classification developed by B. Martinelli (1992, 1993, 2000, 2002) from his research in Togo, Burkina Faso and Mali, we have arranged the Dogon siderurgical traditions according to three socio-economic systems: the “unitary” system in which the whole of the *chaîne opératoire* is controlled by the blacksmiths; the “mixed” system, in which the extraction and smelting operations are carried out equally by blacksmiths and farmers; and the “dualist” system, in which the cultivators supervise the extraction and smelting operations, and the blacksmiths process the raw product and transform it into finished objects.

The Ouin, Ama and Tinntam traditions were regulated by the “unitary” system. The cultivators were not prohibited from the siderurgical sites, but they were not present as a labour force, except at the forge. This system seems to have developed and been maintained in the context of local or regional production with a limited area of distribution of products.

The “mixed” system has been observed only for the Aridinyi tradition. This forms part of a double network of exchanges which is both local and regional. The area of distribution was extended, but does not seem to have exceeded the Dogon Country.

The Fiko and Wol traditions fall under the “dualist” system. For the Fiko tradition, this system seems to have developed on the basis of unitary or mixed systems which have evolved towards a dualist system due to an increase in the production of iron. The reasons for this increase and organisational change are the abundance of the ore in the region concerned, together with a geographical situation favourable to long-distance exchanges. Wol oral traditions do not make mention of any development or change in the identity of the siderurgists. It seems that this situation reflects the seniority in rank of the farmers compared to the other inhabitants of the region. The possession of land – rich in ore – and of siderurgical knowledge indicates their length of their territorial occupation and the geographical anchorage of their families in the region.

4 - The history of metallurgist settlement

The study of the socio-economic organisation of iron production in Dogon Country has shown differential involvement of the farmers and blacksmiths according to the status of the actors, the stage of the *chaîne opératoire* and the siderurgical tradition concerned. The situation seems to be complex and diverse. However, we can observe that the blacksmiths have occupied a specific role in the acquisition, manufacture and dissemination of iron and iron objects. We will now examine whether the history of the settlement of Dogon Country offers information on their professional activity.

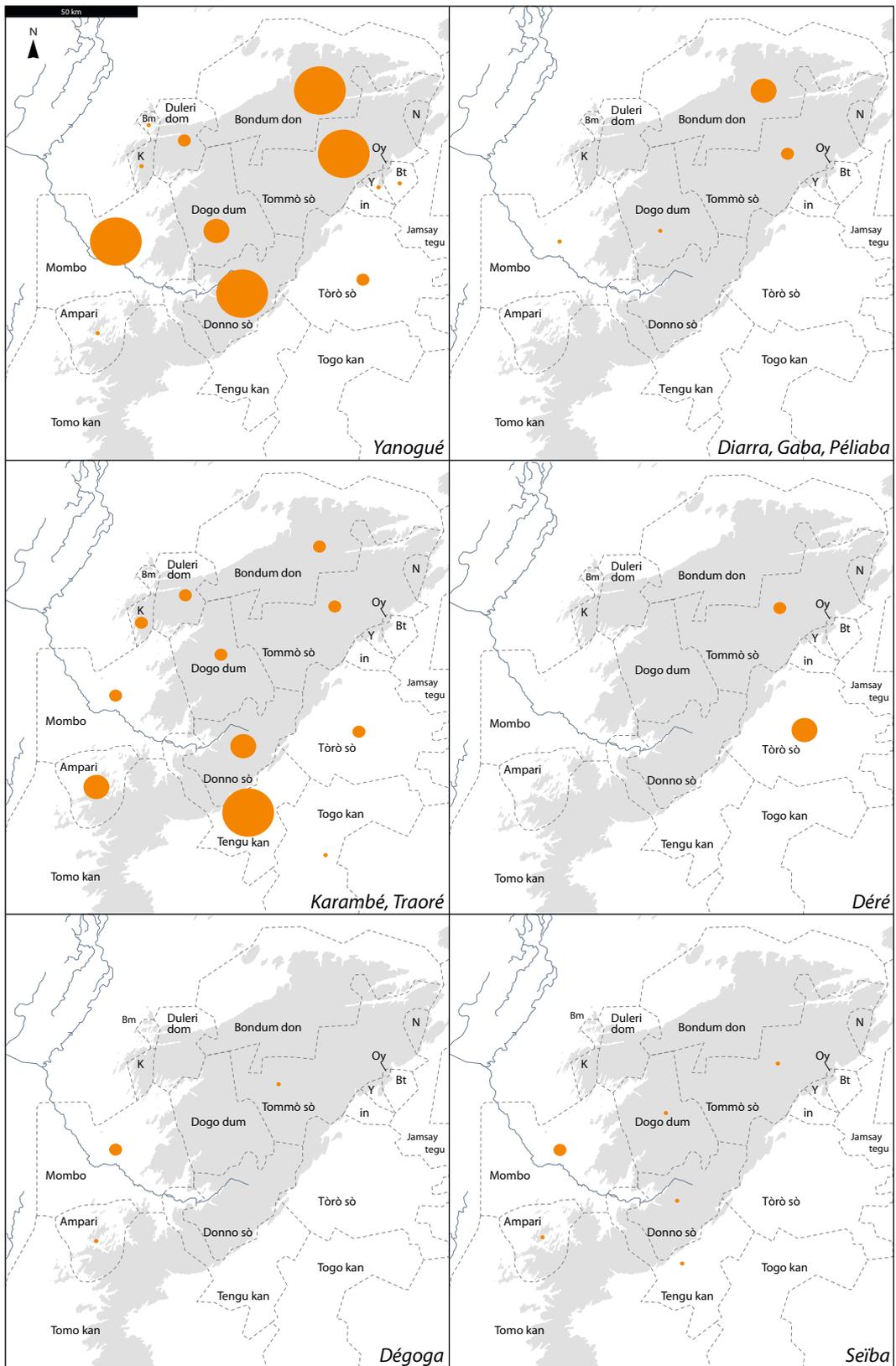
4.1 - Geographical distribution and linguistic insertion of the Jèmè-irin

The Jèmè-irin, currently established across the whole of the Bandiagara plateau and cliff, and in some villages on the plain of Seno, are not specifically associated with a linguistic zone (figure 1). They bear common patronyms which are encountered in other social categories. They obtained their family name from their farmer masters when they settled in the village. This transmission of the family name indicates an idea of matrimonial alliance and thus of an unbreakable link. A blacksmith who left his village to work elsewhere would prefer to choose an area in which a Dogon family with the same patronym was established. There is thus a close relationship between certain families of blacksmiths and farmers. However, over the centuries, changes in techno-economic partnerships have taken place and modified this initial attachment.

Eighteen patronyms have been identified among the Jèmè-irin. They occupy spaces of varying size and are distributed across different linguistic areas in very variable proportions (figures 7-8). For example, the Yanogué are ten times as numerous as the Sai. What does this numerical and geographical disparity signify?

4.2 - Implementation of a methodology enabling an examination of the migratory route of the blacksmiths

Having observed this disparity, we have attempted to reconstruct the history of each line of Jèmè-irin blacksmiths on the basis of historical accounts. According to the chronological system implemented by C. Sauvain-Dugerdil in the Dogon Sarnyéré, the duration of a generation has been estimated as thirty years (Gallay, Sauvain-Dugerdil, 1981). Individuals in generation g-1 were young adults in around 1975, those of generation g-2 in around 1945. We obtain the following sequence: g-3 around 1915, g-4 around 1885, g-5 around 1855, g-6 around 1825 etc. Genealogical memory thus enables the dating of the arrival of the blacksmiths in the villages currently occupied. The average length of residence in a village before displacement has been evaluated as 3.2 generations, with a minimum deviation of 1 and a maximum deviation of 5. Family trees and maps spatially reconstructing the dispersion of the Jèmè-irin according to their patronyms have thus been drawn up for six phases, interpreted as six centuries. This relative chronology enables us not only to trace the arrival and formation of the Jèmè-irin, but also to locate the regions of encounter of the different patronyms and to compare their age across the group. However, this approach in no way enables us to determine the date of arrival of the Jèmè-irin on the Bandiagara plateau. On the one hand, the evaluation of the gap between two generations is inexact, and on the other, during accounts of the migratory wanderings, the people interviewed mention the villages that became final destinations, but not necessarily all of the villages used as halts and/or passed through.



- Between 10 and 19 villages listed
- Between 5 et 9 villages listed
- Between 2 et 4 villages listed
- 1 village listed

Figure 7 - Maps of linguistic insertion of the patronyms Yanogué, Diarra, Gaba, Péliaba, Karambé, Traoré, Déré, Dégoga et Seïba (CAD: C. Robion-Brunner).

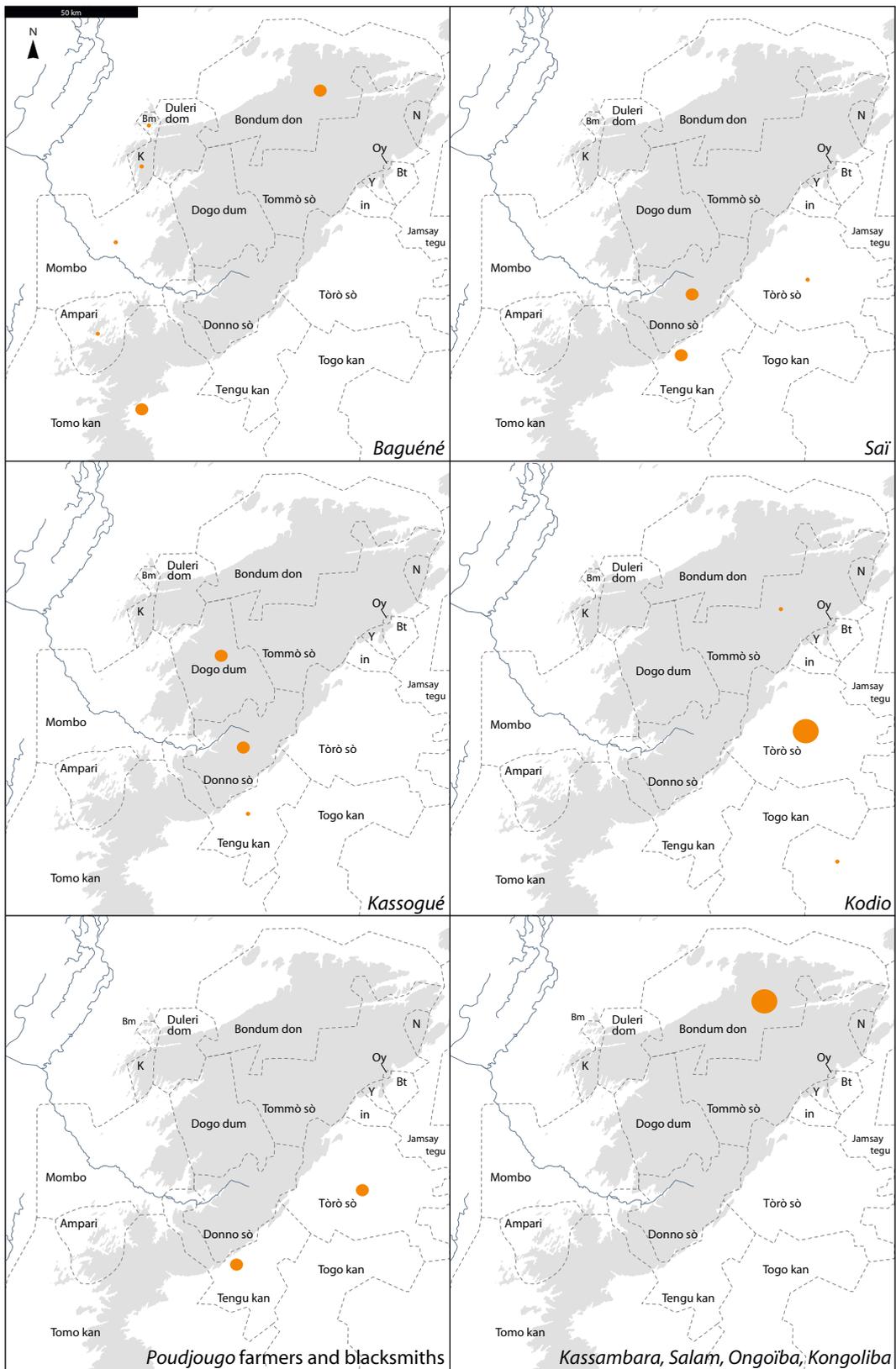


Figure 8 - Maps of linguistic insertion of the patronyms Baguéné, Saï, Kassogué, Kodio, Poudjogo, Kassambara, Salam, Ongoïba et Kongoliba (CAD: C. Robion-Brunner).

4.3 - The Yanogué, detailed history of a migration

In order to illustrate the results obtained using our method for the acquisition and processing of ethnohistorical data, we present a detailed account of the settlement history of the family of blacksmiths currently most often encountered in Dogon Country. The Yanogué, present in twelve of the linguistic zones considered, are thought to originate from a lineage having arrived in Dogon Country from the west in the early 15th century. Its members then spread out to 50 villages, following 33 migration routes. [Figure 9](#) presents their history as far as it can be reconstructed from the information collected.

Leaving the Mandé region, the ancestors of the Yanogué headed for Ségou. From there, the route followed varies according to the blacksmiths' accounts. Some relate that their forebears settled at Wadianka before travelling to the north of the Bandiagara plateau, while others mention crossing the river Bani near Sofara, then their families settling in the village of Kowa, on the western margin of the plateau. At this point, their migratory route divided into two branches. The first moved towards the northwest to found the village of Impari. This location represents the memorial heritage of the Yanogué blacksmiths. Movements then took place to the south – without crossing the Yamé – and towards the eastern part of the plateau. By settling at Kakoli, the blacksmiths found themselves in an area rich in iron ore. The second branch moved towards the plain, then from west to east along the cliff of Bandiagara. This route is less commonly mentioned by Yanogué blacksmiths and concerns very few individuals. Their progress then continued towards the east, at the foot of the cliff and on the Seno plain.

The two migratory routes of the Yanogué finally reunited in the region of Pelou. From the 19th century, and above all during the 20th century, the displacements of the blacksmiths accelerated: oral enquiries have recorded several settlements dating back scarcely one generation. This very recent expansion of iron artisans reflects the stabilisation of a postcolonial political context and coincides with the beginning of an ecologically more favourable phase in around 1945 (Mayor *et al.*, 2005).

5 - Proposed historical scenario

The analysis of the archaeological and ethnohistoric data (for more detail see Robion-Brunner, 2010) has resulted in the development of an historical scenario ([figure 10](#)).

- The archaeological investigations carried out in a variety of contexts – funerary (Bedeaux, 1972; Bedeaux, Lange, 1983; Bedeaux, 2003), habitation (Huysecom *et al.*, 2006, 2007; Mayor, 2011) and ritual (Mayor *et al.*, 1999; Mayor, 2011) – demonstrate that, between the 6th and 12th century, the plateau, cliff and plain of Seno were occupied by populations using iron objects. The excavation of several smelting sites located on the western margins of the Bandiagara plateau has shown that the technological process of iron smelting was also understood in this period (Huysecom *et al.*, 2009, 2010). The Dogon plateau has thus been the scene of early, dynamic and inventive siderurgical production. The radiocarbon dates obtained for the site of Fiko indicate a start of production in the 6th century AD, before the presumed arrival of the Dogon in the region (on this latter point, see Griaule, 1938; Dieterlen, 1966; Gallay *et al.*, 1995; Mayor, 2011).
- Today the myth of a single, large-scale arrival of the Dogon, around the 15th century, is widely contested (Bouju, 1984; Mayor *et al.*, 1999; Holder, 2001; Huysecom *et al.*, 2005, 2006 and 2007). Recent research shows several successive waves of settlement, between the 13th and 15th centuries, which led to a complex dynamic of local and external migrations. The Yanogué migratory route shows that the blacksmiths arrived on the Bandiagara plateau via the margins of the delta, without passing through the mythical village of Kani located at the foot of the cliff.

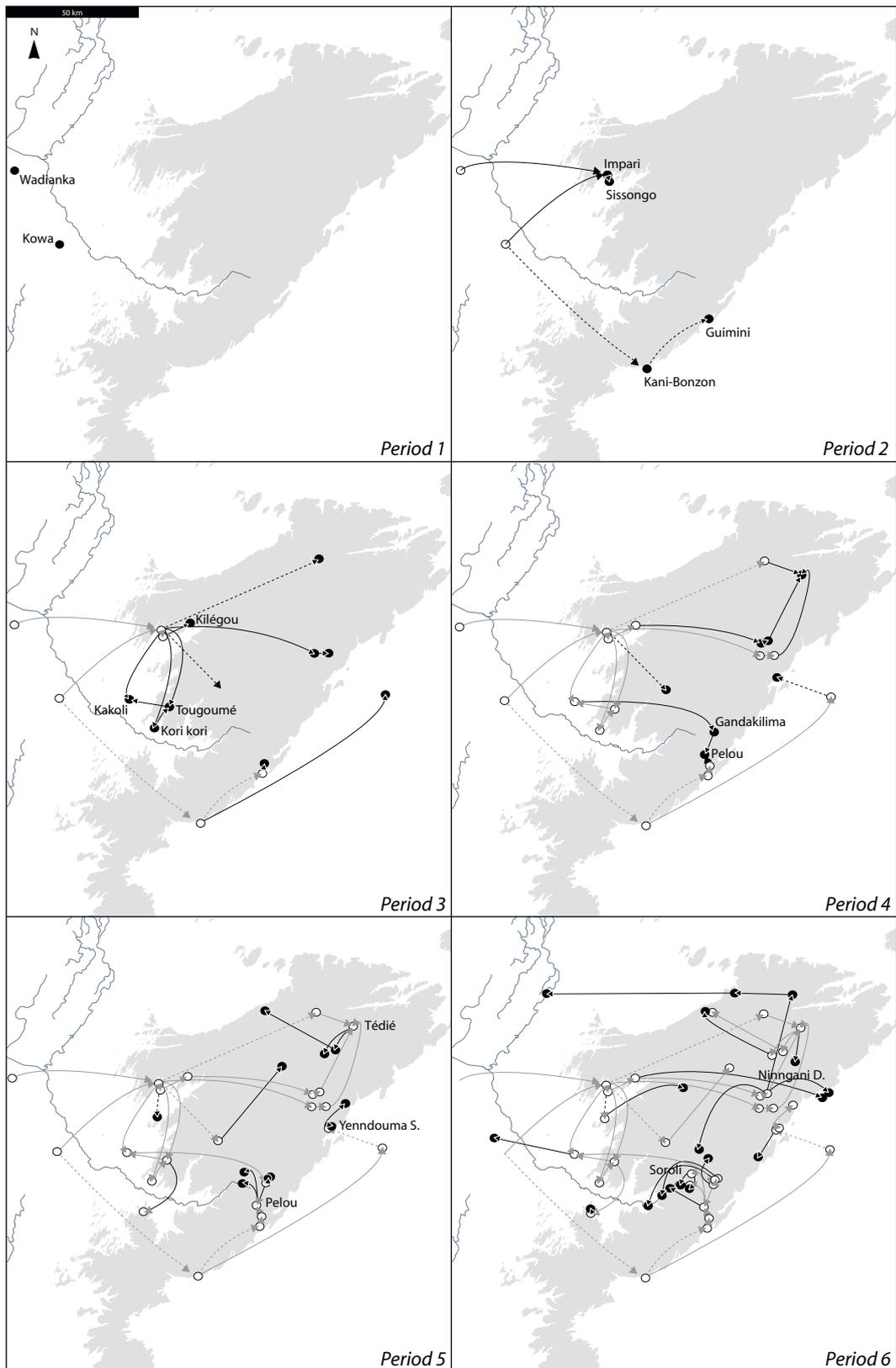


Figure 9 - Spatial and chronological reconstruction of the migratory routes of the Yanogué blacksmiths (CAD: C. Robion-Brunner).

We have not been able to determine whether they accompanied or joined their Dogon “masters”. Their settlement in this iron-producing region did not lead to any notable technological changes. They seem to have adopted the Fiko tradition set up by the native populations.

- From the 16th century, the Dogon territorial expansion over the whole of the plateau and the cliff, linked to pressure by neighbouring states and to the reconquest of certain spaces, was undoubtedly the origin of a reflux of population towards Burkina Faso, but also of the incorporation of older populations into the Dogon population. The incorporation of these peoples with the status of “iron specialists” enabled them to be distanced from political and

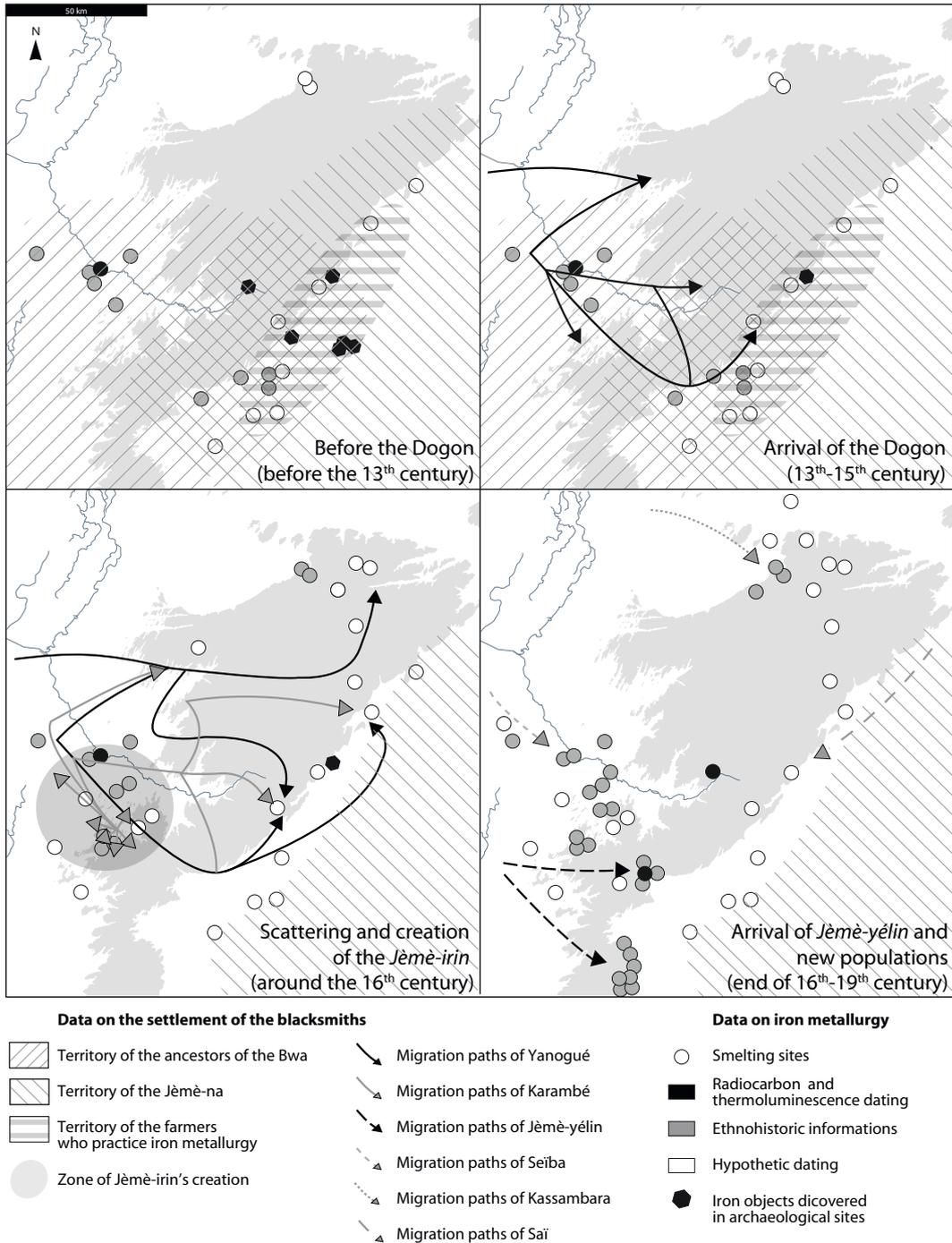


Figure 10 - Overview maps of the history of iron production on the Bandiagara plateau (CAD: C. Robion-Brunner).

economic power while granting them the ability to hold and manage particular fetishes and certain lands. The dispersion of the Dogon also had the consequence of increasing the need for iron and for blacksmiths. In order to satisfy these demands, several farmers' sons were designated to learn siderurgical techniques and to acquire the status of blacksmith. According to oral tradition, this training was carried out by the Jèmè-na. These stories of training may be interpreted as a request for authorisation addressed by the new arrivals to the native peoples, the keepers of technical and magical knowledge, but above all the holders of territory and thus of mineral resources. The social transformation of farmers into blacksmiths is certainly not a phenomenon fixed in space or time. It has probably taken place in several regions and several villages, and must have occurred repeatedly when the need for specialist artisans arose. The analysis of the migratory routes of the Yanogué and Karambé show dispersion and convergence of the routes of different families of blacksmiths towards areas of intensive production of iron (western margins). The stories evoke genuine siderurgical centres in which the blacksmiths gathered once a year to work together. These professional gatherings resulted in the constitution of the Jèmè-irin caste, or in other words in the integration within a single group of individuals with different ethnic and social profiles (native farmers, "transformed" Dogon farmers, Dogon and foreign blacksmiths etc.). This phenomenon is translated into the emergence of new siderurgical traditions (Ouin, Tinntam, Ama and Wol), which, despite a technical similarity, possess strong cultural particularities. We interpret these as the result of a process of identity individualisation.

- In the late 16th century, a new caste of blacksmiths, the Jèmè-yélin, settled on the southern plateau and in the western part of the plain of Seno. They were masters of the whole of the traditional production of iron and possessed a characteristic siderurgical tradition, named "Aridinyi" (Huysecom, 2001).
- The following period, the 18th and 19th centuries, is marked by several movements of population within the bend of the Niger. They follow the territorial expansion of the Bambara kingdom of Ségou, and the installation of the Peul Empire of Maasina at Hamdallaye. Noble populations and other castes and servile ranks took refuge on the Bandiagara plateau, and some of these migrants were integrated into the Jèmè-irin caste. This addition to the population does not seem to have led to any change in the field of iron production. Peul slaves trained in the arts of the forge at Wadianka settled close to Dogon families on the plateau and at the foot of the cliff. They took the name of "Seïba". Kassambara farmers accompanied by their blacksmiths fled King Da Monzon and took refuge among the northern cliffs of the Bandiagara plateau. From the northeast, Saï blacksmiths settled along the cliff.
- The 20th century saw the end of the traditional production of iron. Local iron was replaced by recovered and imported metal. The first sites affected were those located on the axes that penetrated the plateau, particularly the route linking Mopti and Bandiagara. It was not until the 1930s that the majority of local production halted, to be replaced by European iron. Only a few isolated sites continued smelting iron ore until the 1960s. Even today these workshops often benefit from a certain level of prestige. This halt in traditional iron production had a direct and indirect influence on Dogon blacksmiths. One aspect of their professional activity and their magical power dwindled. Their work became focused on the manufacture and repair of objects and was integrated into the market economy, modifying the social relationships at the origin of the farmer-artisan interdependence. Technical advances, the appearance on the market of industrially-manufactured products and the progress of monotheisms had a strong influence on the status of iron specialists and led to a degradation of their social position. Nevertheless, these technical, economic and social transformations took place at different rates depending on the development of the regions considered.

6 - Conclusion: the contribution of ethnohistoric data to the interpretation of archaeological data

In a general manner, it can be observed that the sites belonging to a given tradition are distributed across a restricted geographical area (figure 1). In the majority of cases, these regions correspond to distinct linguistic groups. The Fiko tradition appears in the area of the Mombo language, and so on. Only the Wol and Enndé traditions are present in several linguistic areas. The great variety of technologies encountered in Dogon Country seem thus to be explicable by means of cultural factors: each group has striven to maintain its own particularities in the construction of furnaces and their function. Technology, just like language, participates in cultural identity. While all furnaces functioned by natural draught, the Aridinyi tradition is distinguished by the formation of slag inside the furnace pit during operation. The slag in Enndé tradition is also formed within the furnace, but does not constitute a compact block; instead it forms masses of vertical cords. The other traditions use the technique of tapped slag. Furnaces of the Fiko tradition possess a very particular elliptical form while the other furnaces possess pit with circular cross-sections. To distinguish the other traditions, we must take into account the morphological particularities of the slag, the tuyeres or the construction of the furnaces.

The approach based on the description of the material remains results in a reasoned classification of the different sites and enables an assessment of their diversity. The explanation for this diversity, however, remains to be discovered. This technological diversity is clearly the reflection of the cultural diversity of Dogon Country, as is demonstrated by the links with the linguistic areas. But is the process leading to it linked more to the progressive accretion throughout the history of new populations in a refuge area or to local differentiation on the basis of a shared background? The Enndé tradition, the date of which is not yet confirmed, may represent an archaic industry corresponding to earlier settlement. The Ouin, Timtam, Ama and Wol traditions share the same background and may be variants resulting from local evolutions. The Fiko tradition would represent the culmination of a technological development underlain by the research for increased productivity in the context of a long-distance market. The Aridinyi tradition would then be an example of an external contribution.

The technological methods should not be approached only from a functionalist point of view, as this cannot alone explain the variability observed. The cultural and economic factors are thus essential when we wish to study siderurgical production as a whole. However, the current independence of the families of blacksmiths in relation to the areas defined by dialects demonstrates that a correlation between dialect and siderurgical tradition is not always relevant. In order to validate our approach and our observations, it remains for us to undertake a large-scale comparative investigation in other African contexts.

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Caroline ROBION-BRUNNER

Junior Fellow
CNRS, Traces (UMR 5608)
Toulouse, FRANCE
caroline.robion@univ-tlse2.fr

Article outline

NIANI *REDUX*

A Final Rejection of the Identification of the Site of Niani (Republic of Guinea) with the Capital of the Kingdom of Mali

François-Xavier FAUVELLE-AYMAR

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NIANI REDUX

A Final Rejection of the Identification of the Site of Niani (Republic of Guinea) with the Capital of the Kingdom of Mali

François-Xavier FAUVELLE-AYMAR

Abstract

Over the last century, a considerable body of literature has asserted that the site of Niani, in the Republic of Guinea, conceals the ruins of the capital of the medieval kingdom of Mali at the height of its splendour, in the 14th century AD. This hypothesis was constructed under the influence of a number of factors, but always independently of the archaeological data. This article provides an examination of the archaeological data available for Niani, and concludes that there are no arguments in favour of this hypothesis.

Keywords

Niani, Republic of Guinea, Kingdom of Mali, archaeology, Middle Ages (14th century AD).

Niani is a small village with thatched circular houses set beside a broad river, the Sankarani, which is a tributary of the upper Niger (figures 1-2). It is a two-day car journey from the capital, Conakry. The village is located in the far east of Guinea. The watercourse marks the frontier with the neighbouring Republic of Mali.

Is it here, on the bank of the river, beneath the almost flat surface of the alluvial plain now partially inundated by the waters of a dam, or at the foot of the Koulikoro hill – the first approaches to which reveal the remains of tumuli and siderurgical furnaces among the vegetation – that are to be found the ruins of the town inhabited by the sovereigns of the kingdom of Mali at the height of its splendour, in the 14th century AD? Was it here that the famous Moroccan traveller Ibn Battuta stayed with *Mansa* (Mandinka for “king”) Sulaymân between the months of June 1352 and February 1353? Was it here that a palace was once erected, with a domed audience chamber looking over the parade ground and the Friday Mosque described by Ibn Battuta and another contemporary Arabic author, al-Umari (Cuoq, 1985)? Was it from here that in 1324, according to a number of authors, *Mansa Mûsâ*, brother and predecessor of Suleiman, set off at the head of a procession of thousands of men and slaves on a diplomatic visit to Cairo and a pilgrimage to the sacred sites of Arabia (Fauvelle-Aymar, 2013a: Chapter 28)? Was it here, in the slack season, that *Wangara* traders arrived carrying the gold from the auriferous region of Bouré, on the edge of which Niani lies? Was it from here that once or twice a year the great merchant caravans set off for Sijilmâsa (Morocco) or Cairo, bearing the precious metal that had been exchanged for bars of salt, ingots of metal, bales of cloth or sacks of cowries? If we walk on the plain, though we can observe a few hillocks with an anthropogenic appearance (figure 3), nothing leads us to think that this was once the site of the political and commercial capital of a great medieval African kingdom.



Figure 1 – Niani, Guinea: view of the village from the hill of Nianikoro. The watercourse is the Sankarani, a tributary of the Niger, which here constitutes the frontier with Mali (photograph: F.-X. Fauvelle-Aymar).



Figure 2 – Niani, Guinea: circular houses made of banco and straw (photograph: F.-X. Fauvelle-Aymar).



Figure 3 – Niani, Guinea: immediate approaches to the village (left of image). The slight topographic prominence on which the group of people is walking (right of image) is Władysław Filipowiak's mound 6M (photograph: F.-X. Fauvelle-Aymar).

1 - The Niani hypothesis

Nevertheless, the hypothesis that the capital of Mali once stood here, at Niani, has not ceased to gain currency since it was first proposed by colonial administrators (Vidal, 1923b; Delafosse, 1924). The identification of Niani-on-Sankarani (which we will call it to distinguish it from other similar names) rested firstly on the conjunction of two onomastic connections: on one hand between the toponym Niani and the name Yani' indicated in a 17th century chronicle of Timbuktu – an rather distant source both in time and space – and on the other between the name of the Sankarani and that of the watercourse (Sansara) which, according to his own account, Ibn Battuta crossed in order to reach the capital. It was also discovered a little later that the name of this village is not completely incompatible with that of the capital indicated by the Arabian authors of the 14th century, to the point that the name of Niani was sometimes substituted, through a kind of philological *coup*, for the original term in the various editions of these texts (for example Cuoq, 1985: 262, 264). This is to forget the fact that, while the restitution “Nani” is possible, the script of the Arabic manuscripts in question, unvocalised and without diacritical marks, may also be transliterated in the forms “Binî”, “Butî”, “Tatî”, and “Yity”, among a host of other possibilities (Collet, in press). While toponymic games are never risk-free, their relevance here is still more diminished by the fact that, in the absence of any accurate geographical location for the kingdom, the area in which we must search the capital is enormous: nothing less than the whole area of the Mandinka language. We might as well seek out a “Villefranche” on the map of France! But here, Niani-on-Sankarani has the advantage of being located in the heart of what is called “Vieux Mandingue”, the central region of the Mandinka area in which a chiefdom is settled which, on the basis of oral traditions, proclaims itself the heir of the ancient kingdom. In short, it is at the crossroads between complacently-sought philological sources and regional political claims that the Niani hypothesis – and soon the “Niani solution” – has taken shape.

But while oral traditions enable the reconstruction with some probability of the dynastic history of the chiefdom of Niani over the last three or four centuries (Person, 1981), it is by means of a double short cut that one has given credence to the “memory capture” in which the oral tradition indulges regarding this glorious medieval kingdom and to the “substitution of places” in which this capture becomes caught up by suggesting that the ruins of the capital of the supposed ancestors of the current dynasty are hidden beneath the current Niani-on-Sankarani. In other words, while over recent centuries our Niani could have been the location for a chiefly power laying claim to former glory, this affirmation teaches us nothing about the capital of medieval Mali. This capital is lacking an essential feature: the physical evidence for a genuine site. While it has sometimes been written that we should not seek too much of a “capital” in the usual sense of the word, on the pretext that the royal African city is sometimes multi-centred, sometimes itinerant, we must in the case of Mali repudiate this indolent argument. We are therefore seeking a site which, according to those who lived there under kings Mûsâ and Sulaymân, was a site for trade and royal display, where royal monuments were constructed and where foreign merchants had permanent residences. In other words, whatever the name that we wish to give it, it was a city which at the time had the status of capital.

2 - The lost capital of the kingdom of Mali

We will not here reconsider the history of the search for the lost capital of Mali. This has already been done (Masonen, 2000; Collet, in press). We will merely state that the geography of the hypotheses formulated to date is itself an illustration of the plasticity of the criteria that instigate

their creation. On the basis of the itinerary described by Ibn Battuta – the complete reliability of which may also be called into question (Fauvelle-Aymar, Hirsch, 2003) – several authors (Cooley, 1841; Binger, 1892; Hunwick, 1973) have proposed seeking the capital of 14th century “Imperial” Mali on the left bank of the river Niger, downstream of Bamako (in present day Mali). But on the basis of the same information, and relying no less than the others on an intimate knowledge of West Africa, another author has been able to propose a location on the banks of the river Gambia, in what is now Senegal (Meillassoux, 1972). However, none of these diverse hypotheses have ever been supported by accurate surveying in the field. On the basis of the oral sources, David Conrad (1994) identified the capital of Mali in its formative period (13th century) in another location in “Vieux Mandingue”, Dakajalan, while still retaining the possibility of a more northerly location for the imperial period itself. Still other locations have been suggested for the capitals of Mali’s successive historical phases, some of which grant Niani a place in the succession of seats of royal power. The geographical extent of these hypotheses (figure 4) is breathtaking: it covers an area almost 600 km in diameter, which says less about the coordinates of the capital of medieval Mali than about the latitude allowed the historians in the analysis of the available sources.

Within this area, Niani occupies the most southerly point. This could constitute another reason for not dwelling too long on its candidacy, as the site is several hundred kilometres distant from the Sahelian strip in which were established, from the 8th to 15th centuries, the points of contact between West African kingdoms and the trade network of the Islamic world. It is along this Sahelian strip that cities such as Takrur, Ghana, Timbuktu and Gao flourished over the centuries. Should we imagine that the capital of Mali was an exception to this historical recurrence determined by the Sahel’s centuries-long role of ecological, human and economic interface? Why not? But here we should not accept too strict a determinism, given that many of the places mentioned in the written sources are still unknown to us in the field. So perhaps we must turn to Niani to seek out the expected remains.

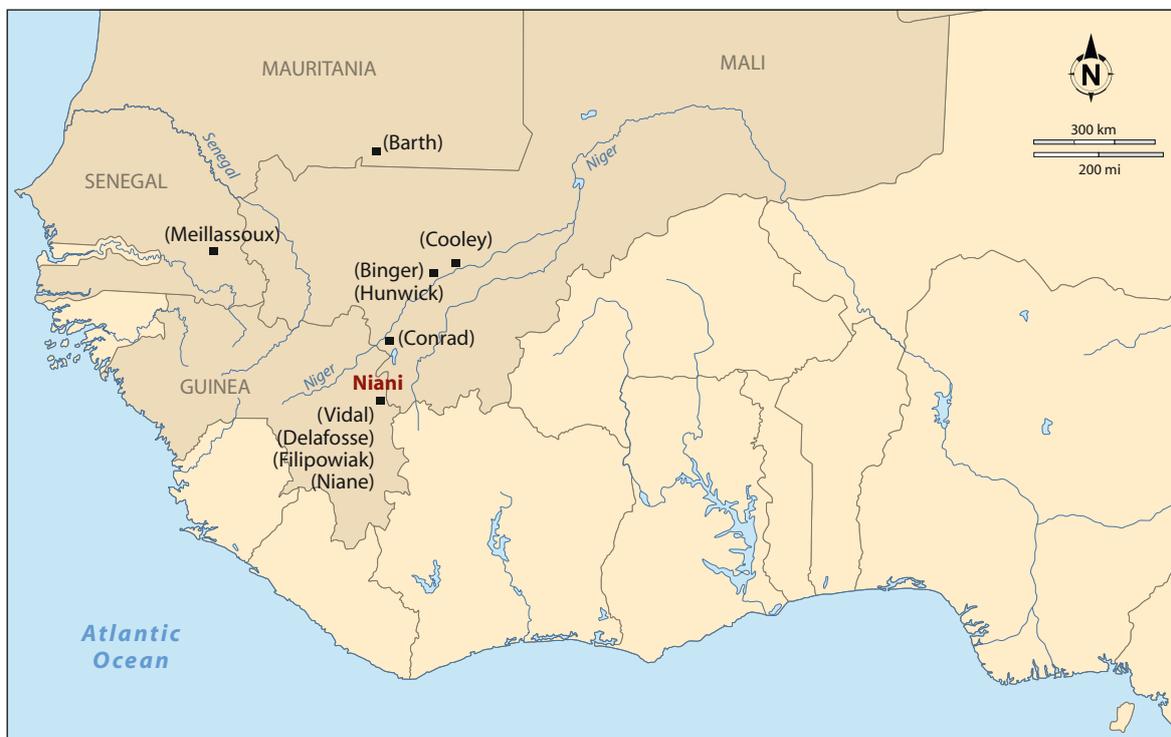


Figure 4 – Distribution map of possible locations (black squares) for the medieval Malian capital (basic map: d-maps.com. Data transferred to the map after P. Masonen, 2000: 459).

3 - Evidence open to interpretation

Here too, there are – and for a long time have been – numerous reasons to reject Niani. Raymond Mauny, the great French historian of Africa, whose *Tableau géographique de l'Ouest africain au Moyen Âge* (1961) remains a model for the integration of written, archaeological and ethnographic sources, criss-crossed the region by bicycle. His unpublished field notebooks¹ show that he was somewhat sceptical in view of the meagreness of the visible remains at Niani, which he visited in February 1958 (figures 5-7). As early as 1923, M. Gaillard, a colonial official, undertook investigations and excavations on the site (Gaillard, 1923), at the request of J. Vidal, who originated the first Niani hypothesis and had visited the site some months earlier (Vidal, 1923a). Published by his superiors in order to validate Vidal's hypothesis, Gaillard's observations are quite remarkable for their degree of historical resolution. Gaillard distinguishes four phases in the occupation of Niani (presented here from the most recent to the earliest):

- Niani 4, founded in 1877, which is the current village (in Gaillard's time);
- Niani 3, whose ruins were visible at the time, but which have been largely flattened by cultivation and the reuse of materials. These are a thick *tata* ("earth fortification") which a variety of cross-references enable to be attributed to the 18th and 19th centuries. Its enclosure preserved (in Gaillard's time – this is no longer the case today) elevations the height of a man, and the complex presented a rectangular building which "must be the great mosque [Gaillard noted the existence of a *mihrab* in the eastern wall, which seems to confirm his interpretation]" (Gaillard, 1923: 624);
- Niani 2, which he was informed belonged to a certain *Mansa Mamourou*. Gaillard could not identify any particular ruin from this phase, with the exception of the mosque which he supposed to have been in operation from this period. On the basis of the extent of the mounds on the plain, on which he observed remains of walls constructed of banco (bricks of raw earth) and a type of pottery which was not produced in his time, Gaillard posited the existence of a very large site with defensive positions and lines of communication.
- Niani 1, "founded by the ancestors", says the tradition collected by Gaillard, "who we [the informants] have forgotten" (Gaillard, 1923: 621). Not finding any trace of this first phase, Gaillard questioned "the existence of this first city about which local history provides no detail" (Gaillard, 1923: 630).

Beyond the insistence of Gaillard on the lack of continuous occupation, to which we will return, we can make several comments on the basis of his observations. Firstly, local tradition does not state that Niani had any specific role during the time of the empire. If, by extrapolation, we identified these "ancestors who we have forgotten" with the heroes of the time of Sundiata Keita, the semi-legendary founder of the empire in the 13th century, we would have some reasons to see here a claim by the current inhabitants of Niani, members of the Keita clan and holders of the chieftdom: as the seat of power, Niani would act as capital "by proxy" for the royal ancestors of the modern dignitaries. Secondly, if we take the local tradition literally, it provides no details of a historical nature until the time of *Mansa Mamourou*. We easily recognise in this character Mamoudou, or Nyaani Mansa Mamudu ("Mamudu, king of Niani"), the deepest "stratigraphic level" of the collective memory of the region (Person, 1981) who oral traditions often conflate

1. Fonds Mauny (Raymond Mauny archives), Bibliothèque de Recherches Africaines, Université Paris 1-Panthéon Sorbonne, 9 rue Malher, 75004 Paris. Some items from the collection can be found online on the site <http://mauny.hypotheses.org>.

with the other great historical figure, Sundiata. Gaillard, as a victim of this conflation, believed he could state that Mamourou reigned four generations after Sundiata (Gaillard, 1923: note 1, 621-622). It is on the basis of this contingent hypothesis that Gaillard's Niani 2 could be attributed by his successors (Vidal, 1923b; Delafosse 1924) to the imperial period of Mali without anyone later re-examining the grounds for this attribution, even when it became clear that Mamoudou and the memorial stratum that he incarnated corresponded to a level dated to the 16th century according to the historical sources (Person, 1981). Thirdly, we can state that although Gaillard's chronology has been shown to be incorrect, its sequence of Niani's archaeological phases is nevertheless accurate and should have been used as the basis for the later examinations of the site.

4 - The excavations of Niani, or archaeology as a catalyst

Until very recently, with the exclusion of several sites having been continuously occupied from the Middle Ages to today (such as Oualata and Timbuktu), no excavations had produced archaeological evidence for the kingdom of Mali in the period of its greatest glory, when it was the favoured recipient for traders from the Islamic world. In 2006, a joint American and Malian team began the excavation of Sorotomo, an archaeological tell of 72 hectares located not far from Segou and which has produced evidence for a major establishment from the 13th-15th centuries (MacDonald *et al.*, 2009-2011). According to the excavation team, Sorotomo, which has produced very little archaeological material linked to trans-Saharan trade, was more of a centre of political power than an economic centre. The authors propose the hypothesis that it was the capital of a polity that was then a vassal of Mali. Whatever the case, this discovery has emphasised one point: the largely unexplored archaeological potential of large parts of the Sahel, and in particular of present-day Mali. We must remember this when attempting to explain the success of the Niani hypothesis: it has only been able to flourish in the scarcity of archaeological data.

From this point of view, the fact that Niani possessed, *a priori*, few merits was largely unimportant, for it had a unique advantage: it was the only site to be systematically excavated. In addition to a few minor interventions in the 1920s, Niani was the subject of three excavation campaigns (1965, 1968 and 1973) by a team led by Władysław Filipowiak in the context of scientific cooperation between communist Poland and Guinea under the rule of Sékou Touré. The team included Djibril Tamsir Niane, a Guinean historian specialising in oral traditions, in particular the epic of Sundiata, an epic cycle various versions of which have been collected throughout the Mandinka region (Niane, 1960). While we lack space here to demonstrate how the archaeological data and the oral information have been employed to support the Niani hypothesis, we can point at the role played by the formidable political pressure exercised on the two men, and the nationalistic atmosphere which prevailed in Guinea following Sékou Touré's "No" to the French Union in 1958 (Fauvelle-Aymar, 2013b). At Niani today the inhabitants recall – a real or imagined memory? – that the archaeological "confirmation" of the site as the royal capital stimulated several attempts to annex the region by their Malian neighbours. We can also here designate some of the relays and amplifiers from which the Niani hypothesis benefited, at least in the Francophone world: the chapter dedicated by Niane to medieval Mali in the fourth volume (which he himself edited) of the "bible" of African history that was the *General History of Africa*, published under the auspices of UNESCO (Niane, 1985), then the Internet, and, more recently, school history books intended for French secondary schools (Collet, in press).

The paradox is that this transmutation of the hypothesis into truth has taken place without really requiring the results of the archaeology. As if it were only necessary for the excavations to have taken place to surround Niani with a historical aura, nobody has really taken the time to

examine the results more closely. Raymond Mauny gave a polite and critical account of the final monograph (Mauny, 1980); his conviction that nothing medieval had emerged from the ground of Niani had been forged throughout his correspondence with Filipowiak (Fauvelle-Aymar, 2013b). There are very few other accounts, and the work is very little quoted or commented upon (whether positively or negatively), although it is often listed in the references. Is it because the monograph is written in very poor French, which often goes beyond the limits of comprehension? Is it because a superficial reading of the work has convinced its readers that the arguments were complete or, on the contrary, that a critique was not worth the effort? In any case, it is as if the archaeological results had no place in the economy of the argument, playing in sum the role of chemical catalyst for an imaginary operation whose principle is elsewhere. This is what happens with historical myths.

5 - What the excavations tell us

And yet, because there have been excavations at Niani, there is a good chance that a large part of the answer can be found in the results from those excavations. We must be clear here: it will never be possible (unless we turn over every square decimetre of terrain) to prove that the remains of the capital of Mali in the 14th century **are not** to be found in Niani or its surroundings. But we can at least demonstrate that there is a broad spectrum of negative arguments which make it impossible, until we have proof to the contrary, that Niani can be identified with this capital. And these negative arguments are weighty: the evidence that should have been revealed during the excavation or simply discovered during surveying is **utterly** absent. As a counterpoint to the archaeological monograph on Niani (Filipowiak, 1979), the remainder of this article is an inventory of what should have been found at Niani – and which was not.

- *A bipolar urban organisation.* All of the written sources referring to West African urban sites of the Middle Ages evoke bipolar towns constituted of an Islamic settlement (the residential quarter of the North African merchant elite) and a royal city (the quarter of the West African elite) (Fauvelle-Aymar, 2013a: Chapters 7 and 8). While it is true that no excavation in this area has ever revealed a royal city recognisable as such, the absence of royal complexes at the known Islamic sites, such as Koumbi Saleh in Mauritania (Berthier, 1997), indicates that these cities must be located elsewhere. Filipowiak believed that he had observed a duality at Niani (figure 8) between what he called the “royal quarter” (or Station 1 of his excavations), because he observed there the remains of a *tata* wall and a possible mosque (no doubt the one mentioned by Gaillard) and what, employing a local designation (*larabou-so* in Mandinka), he designates as the “Arab quarter” (or stations 6A to 6M, which correspond to the mounds visible on the plain; figure 3). This apparent polarity corresponds in reality to archaeological assemblages which are not completely synchronous. The excavations carried out in mound 6D have produced a stratigraphy of around 4 m in depth, in which the majority of the sequence (layers III to VI developing over the lower three metres) is constituted of occupation remains from the 7th-12th centuries (the uncalibrated dates given by Filipowiak produce the 8th-10th centuries; on this subject, see table 1) characteristic of populations of farmers and fishermen practising pottery, weaving and metallurgy. The upper part of the sequence (layers I to II, corresponding to a few decimetres of archaeological levels beneath the topsoil) can be attributed to the same context as the upper level of Station 1 on the basis of stylistic comparison of the pottery. The excavations of Station 1 have produced an even less marked stratigraphy (of the order of thirty to fifty centimetres down to sterile sediment) characterised by a lower level (layer III) dated to around the 5th-9th centuries in calibrated results (Filipowiak: 6th century) topped by another very shallow archaeological level (layers I and II) directly attributable to the period equal to or later than the 15th century, due to the presence of clay tobacco pipes,

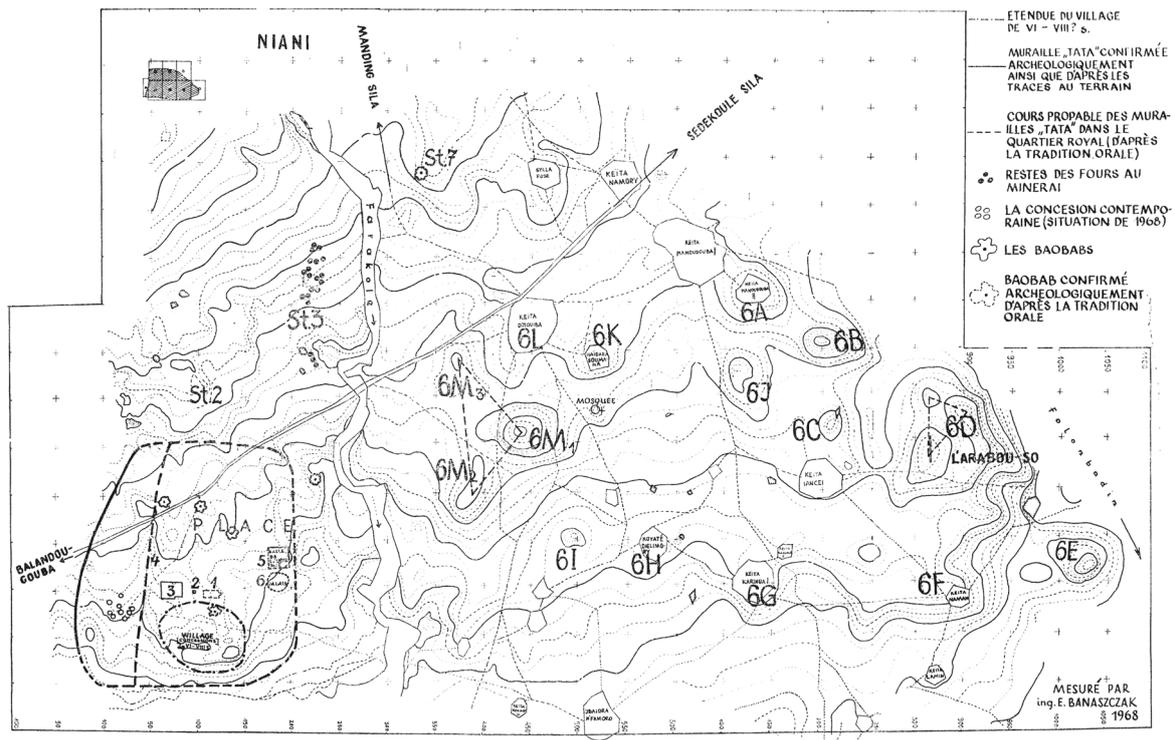


Figure 8 – Location plan for the archaeological stations of W. Filipowiak’s excavation (1979). Figures 1-6 at bottom left of the plan refers to the royal-type structures identified by Władysław Filipowiak on his Station 1. These structures are described as follows. 1: Mosque; 2: Well; 3: Huts; 4: Lower wall; 5: Audience hall of the time of Mansa Mūsā; 6: Palace.

the clear *fossile directeur* for these regions. Taking the archaeological data literally therefore, it documents two phases: initially, prior to the 13th century, an ubiquitous peasant habitat in various parts of the site, followed by one or more “modern” occupations (we will use this term for the post-14th century period) centred around Station 1 where there seems to have been a small architectural complex, possibly flanked by a mosque. The question is: was there continuity between these two phases? It is because he assumes a “yes” answer that Filipowiak asserts that the site was occupied during the 14th century. We will see that there are no data supporting this assertion.

- *Permanent quadrangular architecture.* All of the recognised medieval Islamic sites in the Saharo-Sahelian area have produced permanent habitations (constructed from slabs of shale or other local rock) with quadrangular plans. Nothing of this type exists at Niani, where all of the construction remains revealed are more or less thick layers or “lenses” of clay, identified by Filipowiak, undoubtedly with good reason, as the remains of banco, the local construction material. In addition, with the exception of two quadrangular buildings – one considered by Filipowiak as a mosque (figure 9) and the other as the audience chamber of the 14th century sovereigns – all of the clearly identifiable structures are circular houses indicated by foundations or the bases of walls in lines of pebbles (figure 10). Unless we admit that the Islamic residents borrowed the vernacular architecture here, which is possible but remains to be demonstrated, no architectural evidence indicates the presence of a North African elite. We can also note the complete absence of architectural features (paving, niches, benches, built-in furniture, mouldings, etc.) or high-status architectural decoration (fragments of painted or sculpted stucco from wall friezes or column capitals, etc.) such as are found at Islamic habitation sites from the Sahelian region (for example Oualata, see Jacques-Meunié, 1957).

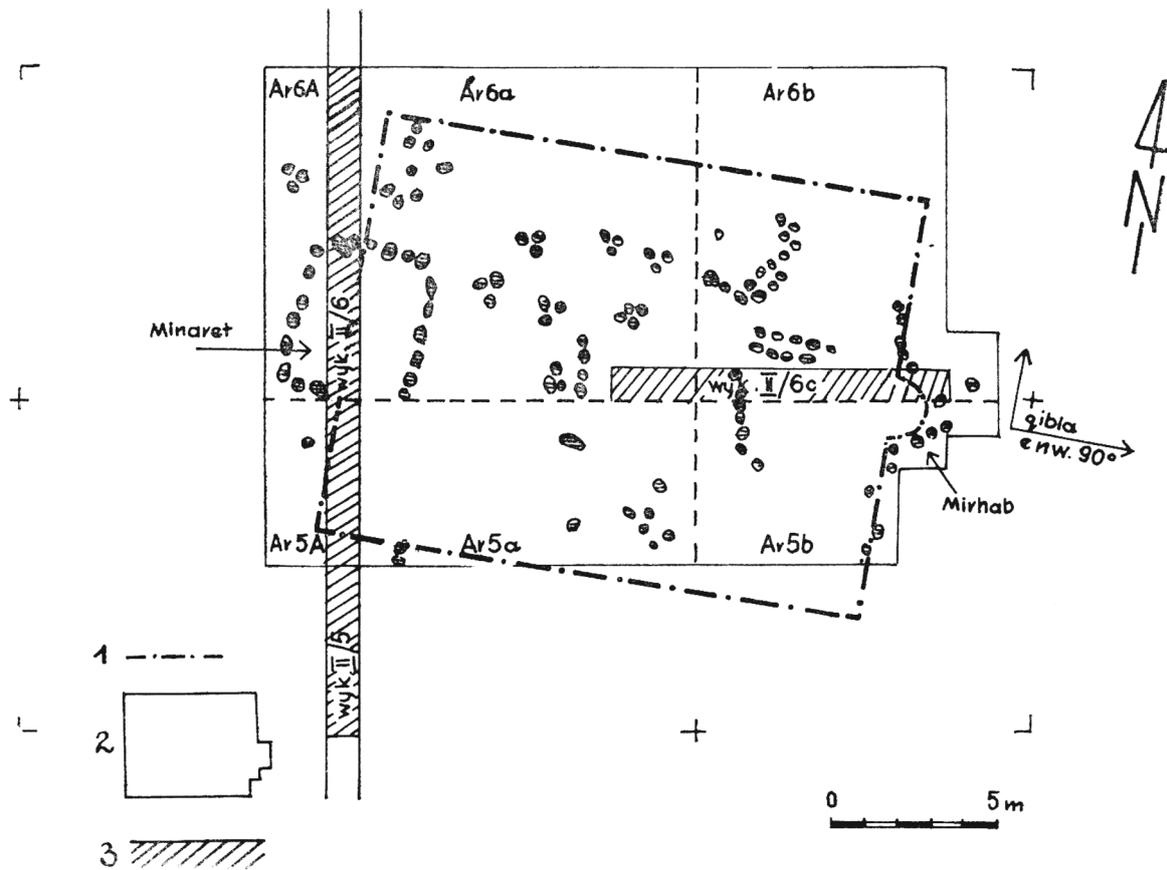


Figure 9 – Hypothetical reconstruction of the “mosque” at Niani (Station 1) by Władysław Filipowiak (1979, figure 67). Note that while the reconstruction of the minaret, in the west, could correspond to an alignment of blocks forming a substructure, the reconstruction of the perimeter of the building is not based on any reliable archaeological observation.



Figure 10 – Niani, Station 1: bases of circular houses; Władysław Filipowiak excavation (1979, figure 69).

• *Islamic artefacts.* In the absence of distinctively Islamic architectural remains, we would expect to find imported objects characteristic of the presence of Islamic merchants in the excavations at Niani, and around it for a fairly wide area. However, the excavations at Niani have produced no glazed turned pottery oil lamps of the type that are so numerous at Tegdaoust (Robert-Chaleix, 1983), no items of jewellery or copperware of Islamic manufacture, no fragments of the Islamic glass from which perfume phials were usually made, and more generally no domestic objects of Islamic origin. Still more significantly, and this time concerning the objects which might indicate the trading vocation of the site or of an activity linked to gold-working technology, no Islamic coins have been found at Niani, nor, still more unusually, any denerals, the glass tokens the same weight as a dinar which are so common at Koumbi Saleh (Devisse *et al.*, 1983), nor, finally, any pouring moulds for the manufacture of objects from gold, which are found in Africa at the interface between production areas and commercial routes (Fauvelle-Aymar, Mensan, 2011). A few imported beads have been discovered (less than a dozen; Filipowiak, 1979: 200) – in this case eye-beads and chevron beads in drawn glass probably originating in the Murano (Venice) workshops around the 19th century, together with a few products in cornelian said to be “from Cambay”, of indeterminate age (similar products are still manufactured today) – and... a single cowrie shell (Filipowiak, 1979: 199); these were gathered from the Indian Ocean and imported by the ton to Africa by Islamic traders to serve as a local coinage or for personal ornamentation (Fauvelle-Aymar 2013a: Chapter 27).

• *Glazed pottery.* A special mention must be made on the subject of glazed pottery, an Islamic product which is found, although generally in small quantities, on all of the sites in the Saharo-Sahelian area linked to trade. There was an epistolary debate on this subject between Raymond Mauny and Władysław Filipowiak, the former demanding to see the glazed samples that the latter said he had discovered (Fauvelle-Aymar, 2013b). The parcel finally received by Mauny contained only ordinary local pottery (yellow to orange in colour with a red slip and impressed decoration). Nor does the published pottery present any fragments that could be compared to Islamic pottery, with the exception of a single sherd described as belonging to “a vase or basin in faïence” (Filipowiak, 1979: 92-93, 167), to which Filipowiak reluctantly assigned a modern European origin. A re-examination of the ceramic material of Niani would certainly be welcome, but there are questions as to the current location of the collection – a part was preserved in the museum of Conakry in around 1983 (figure 11) while the other was repatriated from Poland in 1999, but none of it could be located in 2004 (personal observation, 2004; correspondence with Serge Robert and the museum of Szczecin, Poland, 2011). In short, what is revealed by the absence of any Islamic material culture or any evidence of commercial activity during the medieval period (with the insignificant exception of a single cowrie), or in the modern period (with the exception of a few beads and a sherd of European faïence) is rather an indication of the great secular isolation of the region in comparison with the areas in which exchange was practised, along the Sahelian facade or, later, along the Atlantic coast.

• *Islamic graves and funerary inscriptions.* In the absence of “proof of life” provided by the material culture, perhaps we can turn to the graves and Arabic funerary inscriptions that sometimes accompany them, indicating that Muslims were indeed on the site, since they are buried there. The distinctive character of Islamic graves is a remarkable characteristic in an African archaeological landscape, and some sites have produced significant corpus of inscriptions enabling us to specify the affiliation (ethnic, social, familial) of those involved and the precise date of their death (for several medieval Malian sites, including Gao, see Moraes Farias, 2003). There is nothing of this sort at Niani: all of the visitors to the site, even those most inclined to believe in the Niani hypothesis and to canvass the memories of the inhabitants, have emphasised the absence of Islamic tombs and epigraphic stelae in the region.

• Dates and chronological attributions to the medieval period. [Table 1](#) presents the radiocarbon dates obtained at Niani and published in the monograph (Filipowiak, 1979) or discussed in the correspondence between Filipowiak and Mauny, the latter having had carried out for his Polish colleague several radiocarbon analyses at the Gif-sur-Yvette laboratory (Fauvelle-Aymar, 2013b).

We have already mentioned the apparent hiatus in the occupation of the site between the 13th and 16th centuries, separating two fairly well documented archaeological phases. The small series of radiocarbon dates confirms this observation, emphasising a remarkable void for the 14th century (we might even say for a long “century” which runs from the middle of the 13th to the middle of the 15th century). Given the very good stratification of the sequences and the excellent resolution of the excavation, we can even observe that the level dated to the 1st millennium AD (but badly dated, due to the plateau in the calibration curve) in layer III at Station 1 is sealed by a well-defined upper level itself dated to the 16th century (Filipowiak, 1979, figure 68). These observations lead us to conclude in an interruption of the occupation, at least in the excavated areas, during the centuries that particularly interest us.



Figure 11 – Niani: sample of locally-manufactured pottery; Władysław Filipowiak excavation (photograph: Serge Robert, around 1983, Museum of Conakry).

Table 1 – Radiocarbon dates for the site of Niani (Guinea)

Station	Sample	Lab. code (Kiel or Gif)	Uncalibrated result	Uncalibrated result, presented in calendar date (Filipowiak, 1979)	2 sigma calibrated calendar result (OxCal program, IntCal09 curve), 2013
1	5	Gif-1291	1400 ± 100 BP	550 ± 100 AD	Cal AD 425-867 (95,4 %)
1	?	KI-292	380 ± 50 BP	1570 ± 50 AD	Cal AD 1440-1636 (95,4 %)
1	8	Gif-1915	300 ± 90 BP	1650 ± 90 AD	Cal AD 1431-1954 (95,4 %)
6D	9	KI-293	1090 ± BP	860 ± 65 AD	Cal AD 774-1146 (95,4 %)
6D	10	Gif-1916	?	930 ± 90 AD	Cal AD 782-1214 (95,4 %)
6D	12	KI-294	1035 ± 35 BP	915 ± 35 AD	Cal AD 896-1118 (95,4 %)
6D	13	Gif-1292	1200 ± 100 BP	750 ± 100 AD	Cal AD 658-1014 (95,4 %)

We have already suggested that it is because Filipowiak made a tacit assumption of continuous occupation of the site that he was inclined to mentally “bridge” the chronological hiatus between two perfectly distinct archaeological phases. This *a priori* assumption of the continuity of occupation (rather than its interruption) certainly results from a conceptual bias. To this bias can also be added poor understanding of the radiocarbon results. The partial publication of the correspondence between Mauny and Filipowiak demonstrates the confusion, in the mind of the latter, between the age and date of a sample analysed using C¹⁴. The Polish archaeologist thus believed that he was dealing with samples from the 14th century, while they were in fact samples 14 centuries old (Fauvelle-Aymar, 2013b). However, this confusion was quickly resolved and cannot explain the attribution to the 16th century of structures that are manifestly later. Another explanation comes from the interpretation by Filipowiak of the dating of the “audience chamber” (or building A), which he excavated at Station 1. Commenting on the result obtained from a sample of charcoal (sample 8) from the destruction level (a fire has “baked” the banco bricks, making visible a part of the structure), Filipowiak understood that the radiocarbon analysis dated the episode of the destruction of the building (Filipowiak, 1979, 204 and *passim*). This is evidently not the case, as the date obtained (calibrated result: 1431-1954 AD; Filipowiak: 1650 ± 90) is rather that of the “death” of the wood used in the construction of the said building. This confusion, probably excusable in the context of the period, is what permitted Filipowiak to antedate (all the same, by around three centuries!) the construction of a building for which he believed he had evidence of its destruction. The reality is completely different: the “audience chamber” was not erected in the 14th century, then destroyed in the 17th. Rather, it was erected at any time **after the mid-15th century**, perhaps in around the 16th century if we compare the results of the two samples dating the modern levels of Station 1; in addition, it was erected on a set of much older remains among which nothing persists of any occupation during a long 14th century.

Conclusion

We have now examined all of the archaeological data concerning Niani: they tell us of the absence of data for the 14th century, as is indeed more generally the case for the period of Malian hegemony, between the mid-13th and the mid-15th centuries. This striking absence of data is very telling: where we should encounter even some of this evidence – even fragmentary, even dispersed – of the past glory of the capital of *Mansa Mûsâ* and *Sulaymân*, we encounter only an archaeological void that tells us that the capital was not there. As for one's desire that Niani should, despite everything, be this lost capital, it undoubtedly results from the profound wish – which was that of a number of historians and archaeologists who visited and excavated this site – to believe in a mirage rather than to believe in nothing.

Acknowledgements

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Francois-Xavier FAUVELLE-AYMAR

Research director
CNRS, Traces (UMR 5608)
Toulouse, FRANCE
francois-xavier.fauvelle@univ-tlse2.fr

Research Fellow
Centre Jacques-Berque
(USR 3136 CNRS-MAEE)
Rabat, MOROCCO

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