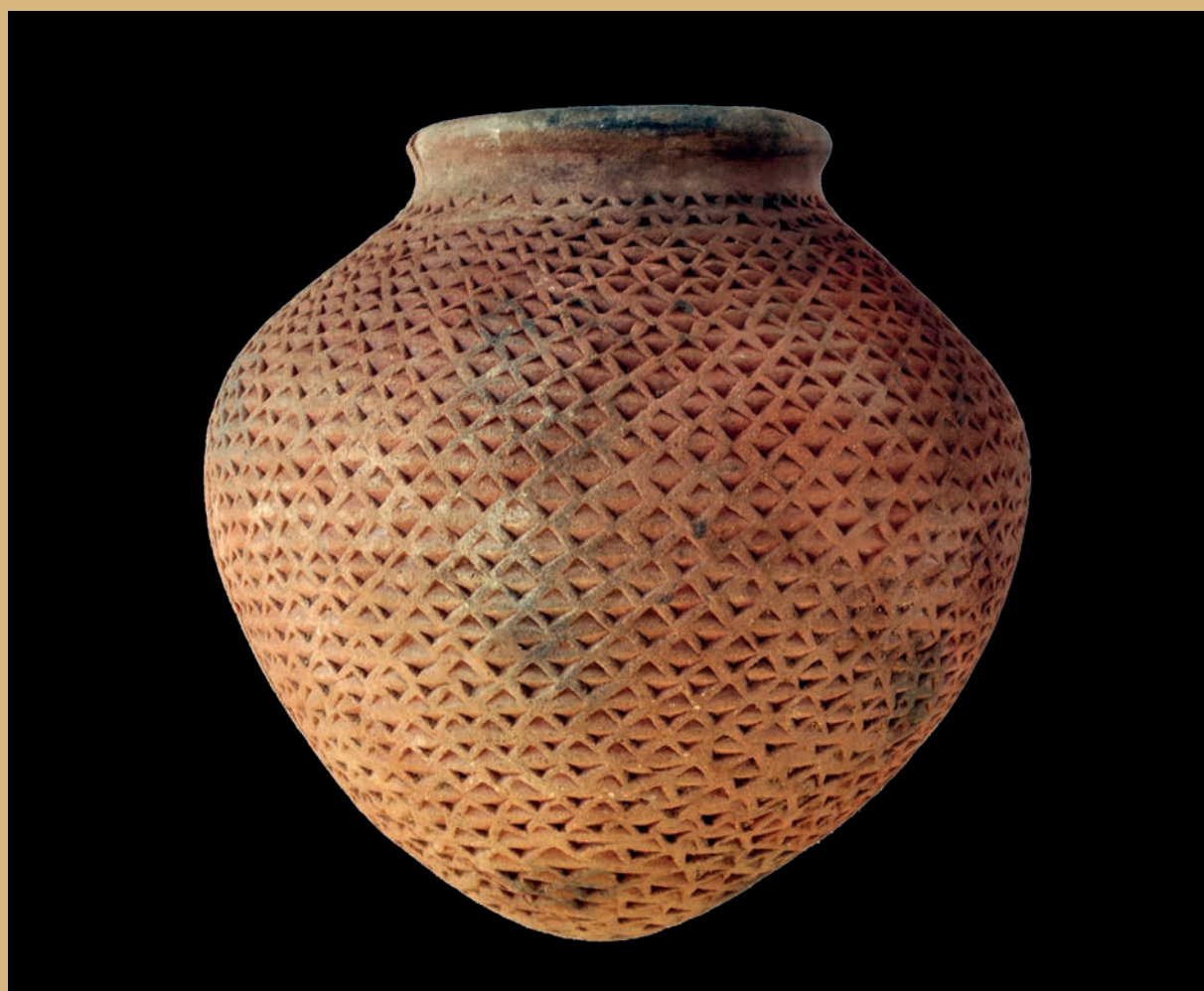


K E R M A

2015-2016 and 2016-2017

SOUDAN

Matthieu Honegger • Léonard Kramer • Marc Bundi • Marie-Kristin Schröder • Agathe Chen
Louis Chaix • Bastien Jakob • Jérôme Dubosson



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Cover figure: Early Kerma pottery found in the tomb T672, Sector CE29 (ca. 2100 BC).
Photo: Matthieu Honegger

ARCHAEOLOGICAL EXCAVATIONS AT KERMA (SUDAN)
PRELIMINARY REPORT OF THE 2015-2016 AND 2016-2017 SEASONS

We present in this report the activities of the Swiss Archaeological mission covering two winter seasons. These two archaeological seasons allowed us to concentrate on the excavations of the Early Kerma area of the Eastern Cemetery. The objective is to publish next year a monograph of the site, to include the original occupation of the site (Neolithic and Pre-Kerma) as well as the initial phase of the necropolis, covering the Early Kerma period. At the same time, we continued the work of protecting the necropolis, enhancing the visible remains and putting the finishing touches to the Kerma Museum. Finally, a special effort has been made to study the remains prior to publication.

In 2015-2016, the investigations of the Swiss Archaeological Mission began on December 7, 2015 and were completed on January 28, 2016. The first part of the season was supervised by Marc Bundi and Leonard Kramer. With the help of a Sudanese team of 10 workers supervised by the gaffir, Khidir Magboul, they extended the excavated area of Sector 8 in the Eastern Cemetery, which was first investigated by Charles Bonnet some 30 years ago. A 500 square metres surface was cleaned and the pits of 30 graves were emptied. The second part of the season started on January 4, 2016. The team, directed by Matthieu Honegger, was reinforced by five Swiss students (Maria Smoljan, Delphine Schiess, Florence Gilliard, Sandra Gubler and Christian Kny), a specialist (Daniel Conforti), as well as a zooarchaeologist (Louis Chaix), who stayed for a week to study the sheep and dog remains found in the graves. The team worked on the excavation and analysis of the 30 graves, and studied a part of the material found during the previous seasons.

A Swiss delegation visited the Kerma excavations, stopping for a day of official meetings in Khartoum (figure 1). The delegation was made up of the State Secretary for Education and Research (Mauro Dell'Ambrogio), two ambassadors (Mauro Moruzzi and Martin Strub), the director of the Swiss Universities (Martine Rahier), the president of the Human Sciences Commission of the Swiss National Fund (Paul Schubert) and a professor in Egyptology from the University of Basle (Susanne Bickel). They stayed three days in Kerma and met the director of the National Corporation of Antiquities and Museums (Abdelraman Mohamed Ali). On this occasion they officially donated to the Sudan National Museum, four museographic objects conceived by the Swiss Mission, which had been exhibited in the Laténium Museum in 2014-2015: the mummy of the archer, the small scale models of the town of Kerma and of the huts of Wadi El-Arab, and the copy of the statue of Tanutamon. In Khartoum, the Swiss delegation also met Osama Daoud, director of the DAL group, who expressed his wish to support the costs of the rehabilitation of the Kerma museum.

Figure 1 / Swiss delegation to Kerma in January 2016.



In 2016-2017, the fieldwork of the Swiss Archaeological Mission began on December 12, 2016 and ended on January 31, 2017. As during the previous season, this first part of the campaign was supervised by Marc Bundi and Leonard Kramer. A part of the work, which was supported by Swiss funds, concentrated on the excavation of graves from the early sectors of the Eastern Cemetery. The other part of the activities was supported by the Qatar-Sudan Archaeological Project (QSAP) funds, and consisted in the protection and valorisation works of the Eastern Cemetery, as well as rehabilitation work of the Kerma Museum. A new sector in the Eastern Cemetery (Sector 29) was opened with the help of a Sudanese team of 15 workers under the supervision of the gaffir Khidir Magboul. It is a easterly extension of Sector 23 (*Kerma Ancien* II, ca. 2300-2100 BC). The objective was to try to understand the end of *Kerma Ancien* (III and IV) and the beginning of Middle Kerma, which is characterized by the appearance of large tumuli of about 20 metres in diameter. Moreover, we wanted to better understand the ancient excavations of George Reisner in Cemetery N, which was published by Dunham in 1982. In this publication, 170 graves are documented but only 35 are located on a map. Our objective was to try to locate the larger graves, in order to update and compare Reiner's findings with our own. A surface of 1200 square metres was cleaned and the pits of 51 graves were emptied. At the same time, Marc Bundi began, with 15 other workers, the final protection works of the Eastern Cemetery. They cleared sand and vegetation from some parts of the site, rebuilt some sections of the 5 km-long wall, covered with earth (liaza) other sections, and manufactured 500 cement posts 120 cm long, to erect along the edges of agricultural fields, in order to prevent their extension.

The second part of the season began on January 2, 2017. The team, directed by Matthieu Honegger, was reinforced by seven Swiss students (Delphine Schiess, Lauriane Vieli, Déborah Locatelli, Nathalie Grenon, Sandra Gubler, Jean Montandon and Nathanael Sordat), a field specialist (Daniel Conforti), a bioanthropologist (Agathe Chen) and a ceramologist (Marie-Kristin Schröder). Fifty-one graves in Sector 29 were carefully excavated and we opened a new sector (Sector 30) 40 metres to the south, in order to better-understand the extension of the Early Kerma cemetery. In this new sector, only four graves were excavated because their infill was composed of hard silt which made for difficult digging. Part of our time was spent studying the remains found in the graves during previous seasons. Marie-Kristin Schröder studied the C-Group pottery from Sectors 27, 28 and 23, made up of 180 sherds and pots. Agathe Chen studied the skeletons from Sector 8, excavated the previous year (34 individuals), as well as those from Sectors 29 and 30 (61 individuals). Matthieu Honegger studied the Kerma pottery found in Sectors 23, 27, 28, 29 and 30, made up of 1425 complete or fragmentary pots.

During the second part of the season, Marc Bundi, with his team of workers, continued the protection works of the Eastern Cemetery. At the same time, we decided to construct an open structure close to the cemetery, in which to place five large panels with pictures and explanations in English and Arabic for the visitors. The rehabilitation of the Kerma Museum was begun during this season, consisting of different maintenance projects as well as improvements (reconstruction of some walls and the creation of new rooms, updating the electric installations, transformation of the podium for the statues, etc.).

The Swiss Mission is supported by Dr Abdelrahman Ali, director of the National Corporation of Antiquities and Museums of Sudan (NCAM) and his collaborator, Mr El-Hassan Ahmed Mohamed. Shahinda Omer of the NCAM was the inspector of the mission during the two seasons, and followed our fieldwork. The project is supported by the Swiss National Fund (SNF 100011_163021/1), the State Secretariat for Education, Research and Innovation of the Swiss Confederation, the Kerma Foundation and the University of Neuchâtel (Switzerland). After a year of interrupted work between 2015-2016, we have once again benefitted from the support of the Qatar Sudan Archaeological Project for the protection and valorisation of the Kerma archaeological heritage, and in particular that of the Eastern Cemetery and the museum.

Our aim during our study of the initial phase of the development of the Eastern Necropolis (Early Kerma, 2500-2050 BC), has been to excavate given sectors systematically, with the objective of having a global vision of the relationships between tombs attributed to each period, and be able to apply both a quantitative and qualitative analysis of the evolutionary tendencies. To achieve this, the strategy has been to re-examine areas already excavated by Charles Bonnet, who had only selected those tombs for excavation, which he supposed to have been less robbed than others. We then proceeded to excavate all those tombs which had not been previously examined. In some instances, the sectors previously excavated were enlarged, and the excavations furnished additional data regarding the evolutionary stages of the cemetery (figure 2). If we consider the 1915-1916 excavations undertaken by George Reiner in Sector N, covering the end of Early Kerma, those tombs excavated by Charles Bonnet between 1979-1999, and those excavated by our team since 2008, we dispose of an ensemble of 702 known tombs from the earliest phase of the cemetery (figure 3). The quality of the documentation is of course variable, and the most detailed analysis is only possible for those tombs excavated since 2008, when certain types of observation have been made in a more systematic manner. However, the tombs excavated prior to our programme do supply important complementary data. Thus, Sector N, excavated by Reisner, furnishes interesting information regarding the appearance of the earliest large tumuli at the end of Kerma Period, subject to our being able to locate these precisely, since this was not done at the time; the graves studied by Bonnet supply essential information regarding the typological evolution, given that the numerous sectors excavated in different parts of the necropolis informs us on the period in which they were in use.

Prior to 2014, our efforts were focussed on the ancient Sectors CE27 and CE23, supposedly corresponding to the first two phases of Kerma, as had been defined by Béatrice Privati (Privati 1999), as *Kerma Ancien* I and II. Surface observations led us to open a new area, called CE28, which harboured stage earlier than those previously recognised (Honegger 2013a). If we had previously considered this stage as belonging to Pre-Kerma, we now believe it should be considered as a stage involving the earliest use of the cemetery, and as such should be denominated *Kerma Ancien* 0. This appellation allows us to be relatively unspecific about the cultural attribution of this early ensemble, which yielded pottery without the most typical elements associated with Early Kerma, which is to say red vases with black top, finely decorated with impressions or incisions below the rim. We did however identify the presence of C-Group Ia sherds, accompanied by numerous vases, most often decorated with horizontal combed impressions, which evoke in some respects the terminal Pre-Kerma, but which are also present in phase Ia of the C-Group, as defined by Bietak (1968). If we consider the numerous remains

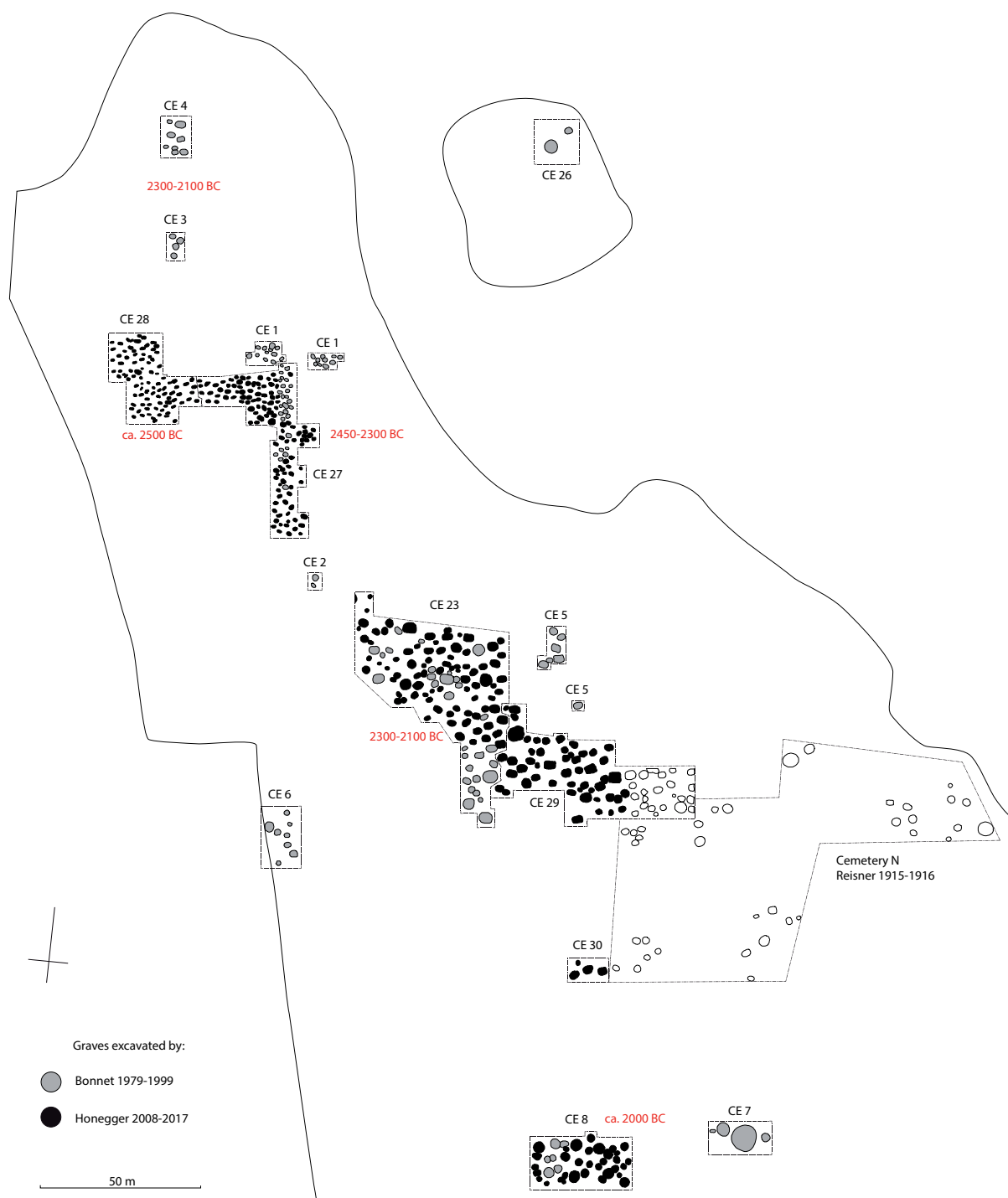


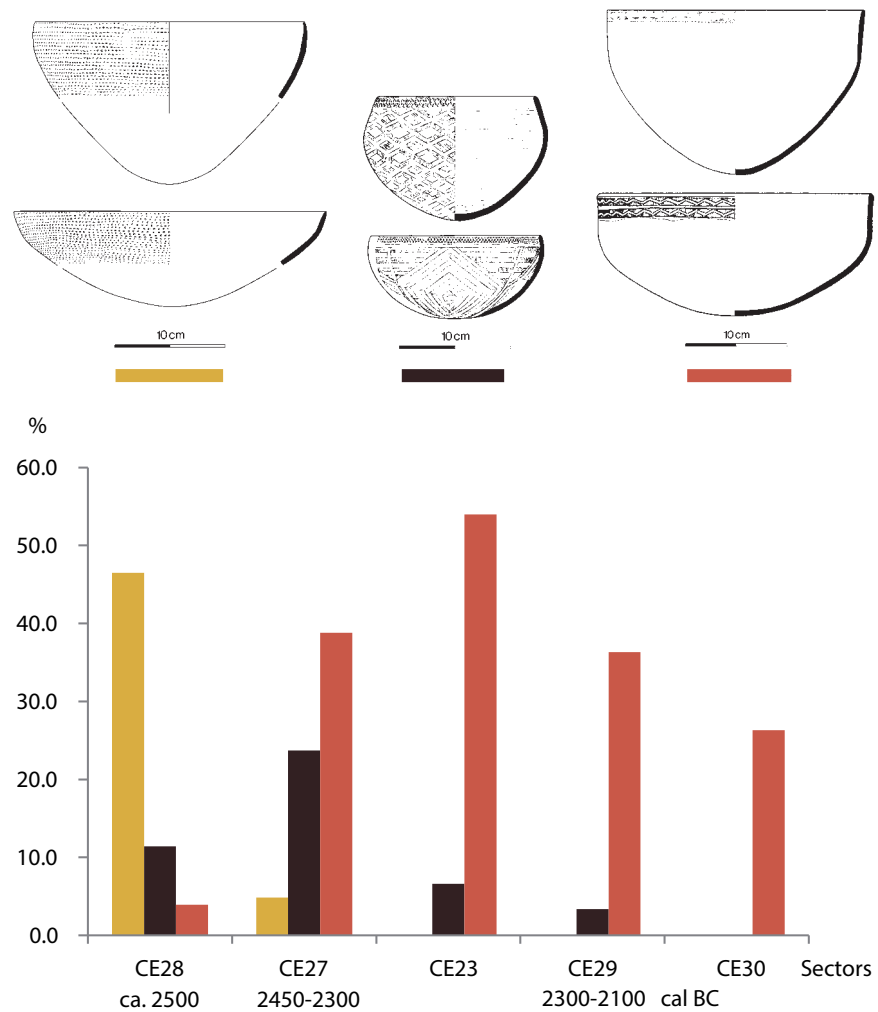
Figure 2. Map of the early phase of the Eastern Cemetery with suggested dates for each sector.

Figure 3/ Eastern Cemetery.
Inventory of Early Kerma
excavated tombs since the
early 20th century.

Excavation	Sector	Number of graves
Northern Sector excavated by Reisner in 1915-1916	N	197
Graves excavated by Bonnet between 1979 and 1999 total=124 graves	CE1	22
	CE2	2
	CE3	4
	CE4	8
	CE5	7
	CE6	8
	CE7	4
	CE8	6
	CE9	6
	CE23	30
	CE27	27
Graves excavated since 2008 by Honegger total=381 graves	CE8	30
	CE23	84
	CE27	118
	CE28	94
	CE29	51
	CE30	4
Total	15 secteurs	702

of steles found in the sector, and that the grave pits are most often rectangular, we have to recognise that the cemetery was initially established by the C-Group. It was only in the subsequent period, represented by Sector CE27, that the red vases with black top, finely decorated with impressions or incisions below the rim, typical of Early Kerma, make their appearance. The tombs are generally circular and the Kerma tumuli decorated with black and white stones are well-represented. But this *Kerma Ancien I* is intermingled with pre-existing C-Group traditions. Steles continue to be numerous in Sector CE27, with a continuing important proportion of C-Group pottery. This imbrication of the two traditions becomes more tenuous in the later Sector CE23 (figure 4), with a more discreet presence of C-Group pottery and the absence of steles and rectangular pits. Sector CE23, already known from 30 tombs excavated by Charles Bonnet in 1996-1997 (Bonnet 1997), was totally excavated by our team and is the subject of initial analyses (Honegger 2013a, Honegger and Fallet 2015). Let us note that this sector is in marked contrast to the previous periods, which yielded rather small tombs, without much differentiation and with limited grave-goods, if we consider how few had been visited by grave-robbers. In Sector 23, the tombs show greater inequalities, already discernible by the differences in their diameters. On average they are larger, yielded more pottery and are better furnished with grave-goods, particularly those made of metal, as evidenced by their almost systematic plundering. The deposits of animals make

Figure 4/ Evolution of three categories of pottery during the Early Kerma: pottery with horizontal comb impression, C Group pottery and red vases with black top finely decorated with impressions or incisions below the rim.



their appearance, with dogs and sheep placed in the tombs, or the first deposits of bucrania. The accompanying dead become more frequent and Egyptian imports more abundant. Furthermore, the differential treatment between men and women appears in the funerary rites, with the men almost systematically associated with the attributes of archers (bow, arrows, quiver), whilst the women hold a stick in their hand.

At present we have 14 C14 dates for Sectors 28, 27 and 23, which allows us to establish the chronology with relative accuracy, even if some questions subsist. On the basis of three dates, Sector 28 was in use ca. 2500 BC. The pottery typology, and especially the presence of combed horizontal decorations, clearly places this sector at a date prior to Sector CE27. The date is however only partially confirmed by the C14 dates. Two dates obtained from tombs in Sector CE27 are in fact contemporaneous with Sector CE28, whilst four other dates are clearly more recent. These dates allow us to place Sector CE27 in the *Kerma Ancien I* ca. 2450-2300 BC. Thanks to five C14 dates, Sector CE23 is on the other hand reasonably clearly

dated between 2300 and 2100 BC.

The first three phases of the cemetery thus show important cultural contrasts, as well as differences in the funerary practices. The temptation is there to interpret this situation in historical terms, and to consider the C-Group and Kerma as two distinct entities, which could correspond to tribes, since their differences are not only based on differences in pottery typology, but also in their distinctive traditional funerary rites. The C-Group, which is usually associated with Lower Nubia, between the First and Second Cataracts, was also present in Upper Nubia during its formative period. It is only later that the Kerma Culture appears, initially interwoven with the C-Group. As from 2300 BC, the situation changes with the C-Group influence disappearing whilst they settled in Lower Nubia, although long-distance contacts may have been entertained, as demonstrated by the presence of their pottery in the Gash Delta (Manzo 2016:33-54). It is at that period that the Kerma society became organised in a more stratified manner, with the systematic expression of certain values, such as domesticated animals, arms and luxury goods, whether imported from Egypt (the contents of jars, bronze and alabaster objects, and pieces of cloth), or objects whose provenance is to be sought in Nubia or beyond (gold, ivory and incense). We believe that these changes have to be seen against the backdrop of the expeditions related in the tomb of Herkouf, a dignitary from Aswan, who initiated a new period of more systematic interactions and exchanges between the Egyptian Empire and Kerma (Török 2009: 60 ff). It is possible that Nubian tribes competed for the control of this commerce, which could explain the warlike values expressed in Sector CE25, with the demise of the C-Group to the benefit of Kerma.

Sector CE8

During the two excavation seasons undertaken between 2015 and 2017, we sought to understand how this situation, which continued until the beginning of Middle Kerma, evolved. We wanted to clarify how the social hierarchy was reinforced up to the point in time when large tumuli, of more than 10 metres in diameter, made their appearance, and to clearly understand the changes which led to the transition to Middle Kerma. It needs to be borne in mind that the division of the Kerma Civilisation into three phases was proposed by Brigitte Gratien, on the basis of the grave-goods from the necropolis on the Island of Sai (Gratien 1978, 1986). Based on the Egyptian imports, she proposed that Middle Kerma starts ca. 2050 BC, at the beginning of the Middle Empire.

It is for these reasons that the 2015-2016 season focussed on the re-excavation of Sector CE8, which had been initially undertaken by Charles Bonnet, who had analysed six tombs (Bonnet 1984). Based on the study of the pottery, this sector had been dated to the end of *Kerma Ancien* IV and the transition to Middle Kerma. This sector is located somewhat on the periphery, if we admit that the central axis becomes clear after Middle Kerma, with the concentration of large tumuli. It is therefore possible that at this time, when social distinctions became more

pronounced, specific sectors came into use, some of which grouped the tombs of those at the top of the hierarchy, whilst others contained the tombs which were possibly less prestigious.

Thirty tombs were excavated over a surface of 550 m², which have been studied in detail (cf. figure 20). Most of these had been seriously pillaged, which is common for this period. The largest ones were most probably the most richly endowed, and were surrounded by smaller tombs, which might have been subsidiary ones. The average diameter of the graves is larger than during previous periods. When looking at the plans, they cover a larger surface, given that they average 4.83 m², as against 3.57 m² in Sector CE23, 1.31 m² in Sector CE27 and 0.82 m² in Sector CE28. With a view to determine a precise chronology, we obtained two C14 dates, which gave dates ranging around 2000 BC.

Overall, the surface of this sector was eroded, and we only discovered a single instance of 25 bucrania to the south of a tomb (T584). The infill of other tombs informs us that there must have been other similar alignments around the edges of the tumuli covering the funerary pits. Several areas were charred, proving that there had been fireplaces, and a few postholes were identified, although these probably date from previous periods in the Pre-Kerma or the Neolithic, given the surface erosion. Most of the tombs contained the remains of a single individual. In three instances, two individuals were buried together at the same time. The deceased were laid out according to a well-established ritual, on ox-hides and lying in a decubitus lateral position on the left side, with flexed lower limbs. By way of grave-goods, we discovered numerous pots, sacrificed animals, boxes and diverse tools. Adornments were relatively rare in terms of quantity as well as diversity.

Pottery disposed on the surface next to the tombs was not common, and comprised essentially small red undecorated bowls with black top, which was a custom which became current during Middle Kerma. The vases, finely decorated below the rim, became rare, and C-Group pottery was absent. In fact, most of the pottery was deposited in the sepulchral pit, and placed to the north and east of the deceased, near his head (figure 5). This marked a notable change from the surface deposits found in the Early Kerma sectors. Small depressions dug into the silt of a few sepulchral chambers at the bottom of the pits were probably destined to hold round-based pots (T598). Other than red vases with black edges, whose decoration was more summarily executed, the most common type was taller examples, with more or less marked necks. A large number of these are Egyptian imports, particularly the 'false Kena', wheel-turned and polished, made of a pink clay and covered with a white wash (Gratien 1986, type EII).

Sector CE8 differed from CE23 as regards the number of sacrificed animals. These were placed to the south of the sepulchral chamber, at the feet of the deceased, and could attain as many as 15 in the largest tombs (figure 6). Dogs become rarer, since the excavations only brought 7 to light, as against some 50 sheep (cf. Chaix,

Figure 5/ Excavations in progress of the tomb T601 from Sector CE8 dating from Early Middle Kerma (ca. 2000 BC)



this volume). This had already been noticed during the 1983 excavations, when a number of instances were found of sheep decorated with discs made of ostrich feathers and beads (figure 7). It was often a large sheep, sometimes of two colours, and in some cases with a lead around its neck.

Small perforated faience or ostrich-shell spherical beads are the type of body ornament most often found in the graves. A few tombs yielded perforated pearly shells of large bivalves (oyster-shells, *Avicula margaritacea*), elongated stone pendants with a perforation at one end and a cutting edge at the other, as well as ivory bracelets and rings. The excavation of the largest tombs brought to light three goat-skin sewn boxes, held together in the past by wooden pins. Similar ones had already been found in the context of tomb T186, dating from Middle Kerma (Bonnet 1990). Compared to Sector CE23, we found little evidence for the presence of archers (Honegger and Fallet 2015). A single tomb produced arrowheads and the remains of string (T610). A stick found in a second tomb might have been a bow (T592). In an instance similar to tomb T81, where a dagger was found, a fragment

Figure 6/ Sheep placed in tomb T607 of Sector 8.



Figure 7/ Tomb T586: Details of the decorations of a sheep (disc of ostrich feathers and pendants with beads).



Figure 8/ Tomb T599: Detail of potter's tools.



of the bronze hilt of a dagger was discovered in the disturbed levels of tomb T586. The remains of potter's tools were found in the tombs of two women (T604 and T599), one of which contained a small assemblage made up of a polisher, combs, a lump of hematite, a palette, a polished axe-head, a polished pebble and spherical ostrich-egg beads; the whole placed on the eastern side of the tomb, close to the head of the deceased (figure 8).

Compared to the Early Kerma sectors located further to the north, Sector CE8 presents numerous differences, whether they be at the level of the fineness of the pottery decorations, the quality of the Egyptian imports, the scarcity of surface-deposited vases, or the abundance of animals placed in the tombs. All these elements, as well as the C14 dates place this sector at the beginning of Middle Kerma, at a time when Lower Nubia came under Egyptian control, and when direct exchanges with Upper Nubia are disproportionate when compared to previous periods.

Sectors CE29 and CE30

Having achieved in Sector CE8 the chronological objective of the present study, the excavations was focussed during 2016-2017 towards older sectors, and more precisely, the prolongation of Sector 23, in the direction of Sector N, excavated by George Reisner a century ago. The objective was to trace the evolution discerned in Sector CE23, namely the emergence of the social stratification and follow its evolutionary stages until the construction of the large tumuli over 10 metres in diameter. These tumuli marked an important milestone in the concentration of power. We therefore opened a new sector covering more than 1000 m² (Sector CE29), which allowed us to excavate 51 tombs (figure 22). This sector was extended eastward to ensure its junction with Reisner's N Cemetery, in the hope

Figure 9/ Sector CE29, tomb T659. Intact grave of a child aged 1.5, with a bow, a cushion made of vegetable matter and a pot.



of being able to locate the large tombs excavated a century ago during the forthcoming 2017-2018 campaign. It needs to be borne in mind that at the time, 197 tombs were excavated in the N Cemetery, the majority of which he did not witness. If the first 37 were precisely located, we have no information regarding the location of the 160 other ones. As it happens, the first tumuli over 10 metres in diameter are amongst the 160 unlocated tombs, of which there were two of particular interest: the first with a pit almost 10 metres wide, and the other almost 7 metres. The idea is to better exploit the information collected at the time, even though their publication highlights the fact that numerous details were not noted, such as the detailed contents of the filling of the pits, which, whilst listing the pottery discovered, is often silent as regards the number of human and animal skeletons, as well as the other material contents (Dunham 1982).

Figure 10/ Sector CE29, tomb T631. Triple burial of three females aged over 50. The principal deceased, in the centre, who would very likely have been accompanied by ornaments and metal objects, pillaged in antiquity, holds a stick, whose traces can be seen. The accompanying deceased have no grave goods, unless it be the stick to their right.



So as to have more precise chronological markers, a further sector, limited to 75 m² (Sector CE30), was opened up, allowing four tombs to be excavated. Unfortunately, the four tombs in this sector, located 40 metres to the south of Sector CE29, on the western edge of the N Cemetery, were in a very poor state of conservation, with limited grave goods and only 14 items of pottery. Nevertheless, the typology confirmed that they dated from Early Kerma at a date close to that of Sector CE29 and quite different to that of Sector CE8.

The 51 tombs excavated in Sector CE29 can be dated in the continuity of what had been observed in Sector CE23. The graves are relatively richly furnished, although almost systematically pillaged, with men and even boys endowed with a bow (figure 9), whilst the women hold a stick in their hand. The deceased are always laid out in the same manner, and are accompanied by their personal effects, pottery and sacrificed animals (dogs and sheep). Most of the pottery found was on the surface, upside down and on the edge of the tumulus. Notwithstanding the similarities, the average size of the tumuli was slightly larger than in Sector CE23 (surface area of 4.97 m², as against 4.22 m²), and some were substantially larger than the rest. This differentiation is particularly marked in two instances, which are the only two

to be accompanied by an alignment of bucrania placed on the southern side of the tumulus (T616 with 50 bucrania and T656 with 15). The occupants were doubtless individuals who had been endowed with political, religious or military power. In both instances, the individuals were adult males, one aged between 20 and 50, whilst the other was over 60. The number of vases associated with the tombs was also larger than normal, having respectively 38 and 18 pots. The intensity with which the tombs were pillaged does not allow more details to be discerned regarding these two assemblages, although the remains of the handle of a dagger was found in tomb T616, which was a first for these early sectors. As for tomb T656, a curious stick, buried with the over 60 years-old individual, had a mass of baked clay fitted at its top end, which was impregnated with incense. It is tempting to see an attribute associated with rites or a religious function.

Of the 51 tombs excavated, 45 are individual, four are double, two are triple (figure 10) and one quadruple. This phenomenon of accompanying deceased (Honegger 2017) is the expression of servile relations within a society. According to Alain Testart (2004), it is an indication of a hierarchical society heading towards statehood. It is therefore not surprising that the number of tombs with accompanying deceased be in constant increase since its first manifestations in Sector CE27 (figure 11).

In a similar manner to tombs T227, T234, T569 and T572 in Sector CE23, motifs painted in red ochre were observed on the upper surface of the ox hide in tomb T617 (figure 12). The painting of these hides was an integral part of the funerary rites. The paintings from tomb T617 are the best-preserved of those known to date. Rows of cells with rectangular bases can be discerned, with an apsidal shape at the top. These elements are connected to each other by means of lines connecting the bases of the apsidal shapes. Charles Bonnet interpreted them as representing steles,

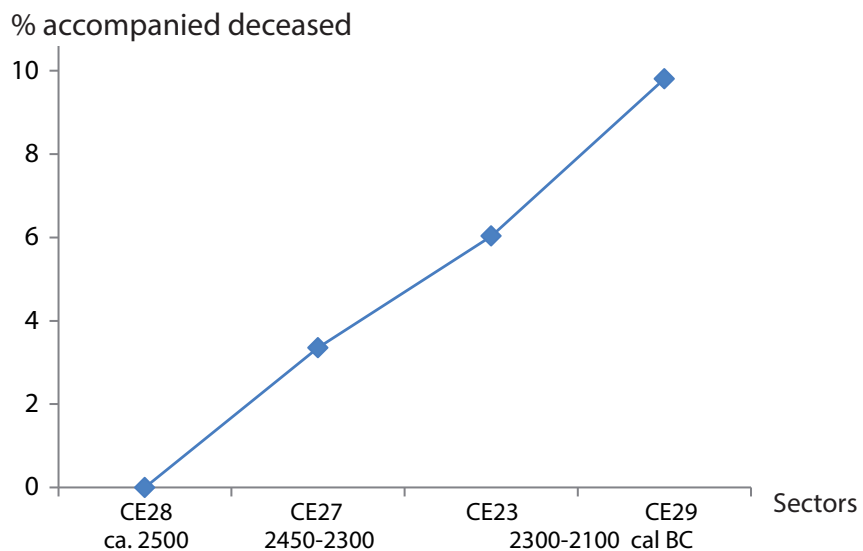
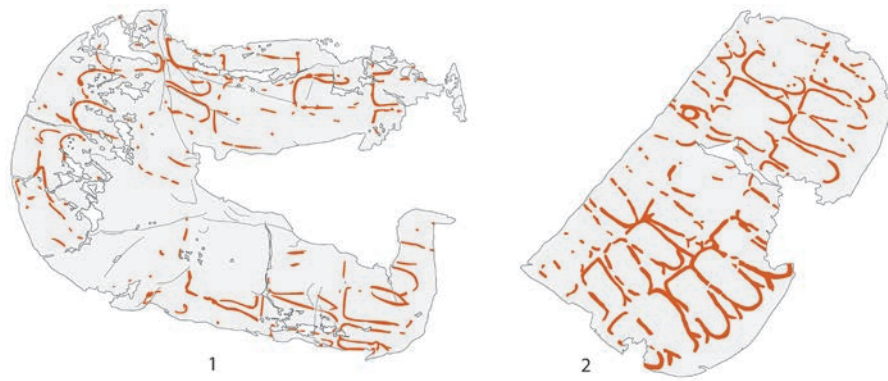


Figure 11/ Proportion of tombs with accompanying deceased in the various sectors of Early Kerma.

Figure 12. Ox hide decorated with painted red motifs. 1. Sector CE23 tomb T569; 2. Sector CE29 tomb T617.

referring to those used in the C-Group tradition and found in the earliest sectors of the necropolis (Sectors CE28 and CE27). It would appear that this hypothesis needs to be abandoned, since steles were no longer attested in the later Sectors CE23 and CE29. Furthermore, comparisons with the rock engravings at the Third Cataract indicate that there as well, small lateral lines were unambiguously representations of sandals with their attachments. It is known that in Egypt, the wearing of sandals was a sign of a certain rank.



PROTECTION AND VALORIZATION WORKS IN THE EASTERN CEMETERY AND THE MUSEUM

The Swiss Archaeological Mission at Kerma received a grant from the Qatar-Sudan Archaeological Project (QSAP), which allowed it to invest in the protection and valorisation of its heritage. After having benefited from a first grant, which was used for the exhibition “Aux origines des pharaons noirs” (The origins of the Black Pharos) at the Laténium Museum in 2014-2015, and especially for the manufacture of museographic objects (copy of a statue and small-scale models), which were subsequently donated to the National Museum of Sudan to enrich their displays on Kerma. After a one-year interruption in the QSAP project, we were able to reformulate our request for 2016-2017, to cover the cost associated with the protection and valorisation of the cultural heritage. The request specifically covered the works to complete the protection of the Eastern Cemetery (5 km of walls) and finishing the installation of the museography in the Kerma Museum, whilst also renewing certain parts of the installations after almost 10 years of use.

During the 2016-2017 season, under the supervision of Marc Bundi, 15 workers finished the works protecting the Eastern Cemetery (figure 12). They cleared sand and vegetation from some parts of the site, rebuilt some sections of the surrounding wall, which is 5 km long, covered with earth (liaza) other sections, and manufactured 500 cement pillars 120 cm long, to be set up along the edges of agricultural fields in order to prevent their extension (figure 13). This additional protection was essential to avoid the encroachment of agricultural land, with its irrigation which is not always well controlled, rendering the periphery road impracticable and undermining the protective wall. The protective system is now in place, although the southern wall will need to be covered in earth (liaza) next year.



Figure 13/ Cement pillars marking the edges of the fields around the Eastern Cemetery.



Figure 14/ Visitors' Pavilion set up at the southern end of the Eastern Cemetery, where visitors arrive and park their vehicles.

Figure 15/ Works in progress in the central hall of the Kerma Museum, where the 7 statues of the Black Pharos, discovered at Dokki Gel in 2003, are exhibited.

Close to the southern edge of the necropolis, we decided to build a visitors' pavilion (figure 14). The structure is 8 metres long by 4 metres wide. Over the next few years we will attach panels inside, with pictures and explanations in both English and Arabic for the visitors. These will show the plan of the Eastern Cemetery with its chronology and the location of the main structures, the plan of the Pre-Kerma agglomeration, the evolution of funerary rituals, the evolution of the chapels and the plan of the great tumuli of the end of Kerma civilization.

Figure 16/ Central hall of the Kerma Museum once the works were completed. The wall to the rear of the statues has been rebuilt and the size of the podium has also been reduced to correspond to the original scenography, and better set off the statues.

The rehabilitation of the Kerma Museum began this year (figures 15-16). The works consisted in the removal of the wall behind the statues, which was no longer stable, and the construction of a new cement wall; the size of the podium was also reduced to correspond to the original scenography, and its surroundings were reinforced; other maintenance works were undertaken in the Museum as well as the refurbishment of the electric installations; the exhibition cases were cleaned, with their upper part protected against dust, and the podium of the small-scale models painted; finally, paving was laid (170 m² in the forecourt and 185 m² in the backyard).



During the 2016/2017 field season, the C-Group as well as Egyptian pottery found within recently excavated tombs of the Eastern necropolis in Kerma were studied, resulting in the (to-date) recording of 122 vessels of the C-Group culture and 51 Egyptian imports from the context of 76 tombs¹. Additional vessel fragments stored at the University of Neuchâtel are inventoried, but need further study².

Brief overview

During the long-term excavations in the Eastern necropolis in Kerma and in the necropolis of Saï Island, pottery with a close resemblance to the C-Group culture was identified. As shown by the studies of B. Gratien and B. Privati, early C-Group pottery occurs frequently in sites of the early Kerma culture (Gratien 1978, 1986; Privati 1982, 1986, 1999). Already in 1978, Gratien pointed out the striking similarities between pottery found in the necropolis in Saï and C-Group pottery dating to the Early Kerma and Middle Kerma³. She proposed a cultural identity of the people of Early Kerma with early C-Group people (Gratien 1986, 443). Given the short distance between Saï and the southern border of the C-Group culture at the 2nd cataract, a mutual influence can be expected. However, even further south at the 3rd cataract in Kerma, G.A. Reisner identified C-Group pottery. He stated in his publication of the Eastern cemetery, that 8.5 % of the pottery assemblage from the cemetery is ‘closely related to the C-group forms of Lower Nubia’ (Reisner 1923, 325). Further excavations in the Eastern necropolis in Kerma by C. Bonnet since 1978 showed that C-Group pottery occurs in particular in those sectors, which date to the Early Kerma. This material was studied by B. Privati in the course of her classification of Kerma pottery (Bonnet 1982; 1999, 51; Privati 1982, 1986, 1999). The occurrence of C-Group pottery at Kerma was presented and the presence of C-Group people proposed.

Since 2008, the excavations in the oldest part of the Eastern necropolis were continued under the direction of M. Honegger⁴. They focus in particular on the spatial organisation of the cemetery but also on a better understanding of the emergence of the Kerma culture. As mentioned above, the presence of characteristic pottery of the C-Group culture in the context of the Kerma cemetery is well attested; however, the parallel appearance of both pottery traditions needs further studies on the entire ceramic material. With the new material from the recent excavations, the amount of C-Group pottery has been significantly increased. But complete vessels form the minority of the assemblage and most finds are smaller sherds. Despite their size and therefore limited preservation of the decoration, these were fully recorded during the last season and the first results of their study allow a deeper understanding of pottery in C-Group tradition in Kerma.

¹ I am most grateful to Matthieu Honegger for allowing me the study of this remarkable material and for Dietrich Raue for constant advice. The recording and studying of the Egyptian pottery will continue during the next season and presented next year.

² This additional collection contains 65 C-Group sherds and 14 Egyptian ones, coming from 52 graves located mainly in sectors 27 and 28. They are not included in the present report.

³ Gratien 1978. See also: Gratien 1986, 442-443. Assigned to the C-Group repertoire can be the following pottery types: AI, AIV, AVIII, AXII, MI (fig. 303, 306, 308, 313, 315)

⁴ For an overview see the excavation reports Honegger and Dubosson 2009, Honegger 2010a, 2011a, 2012a, 2013a, Honegger and Fallet 2015

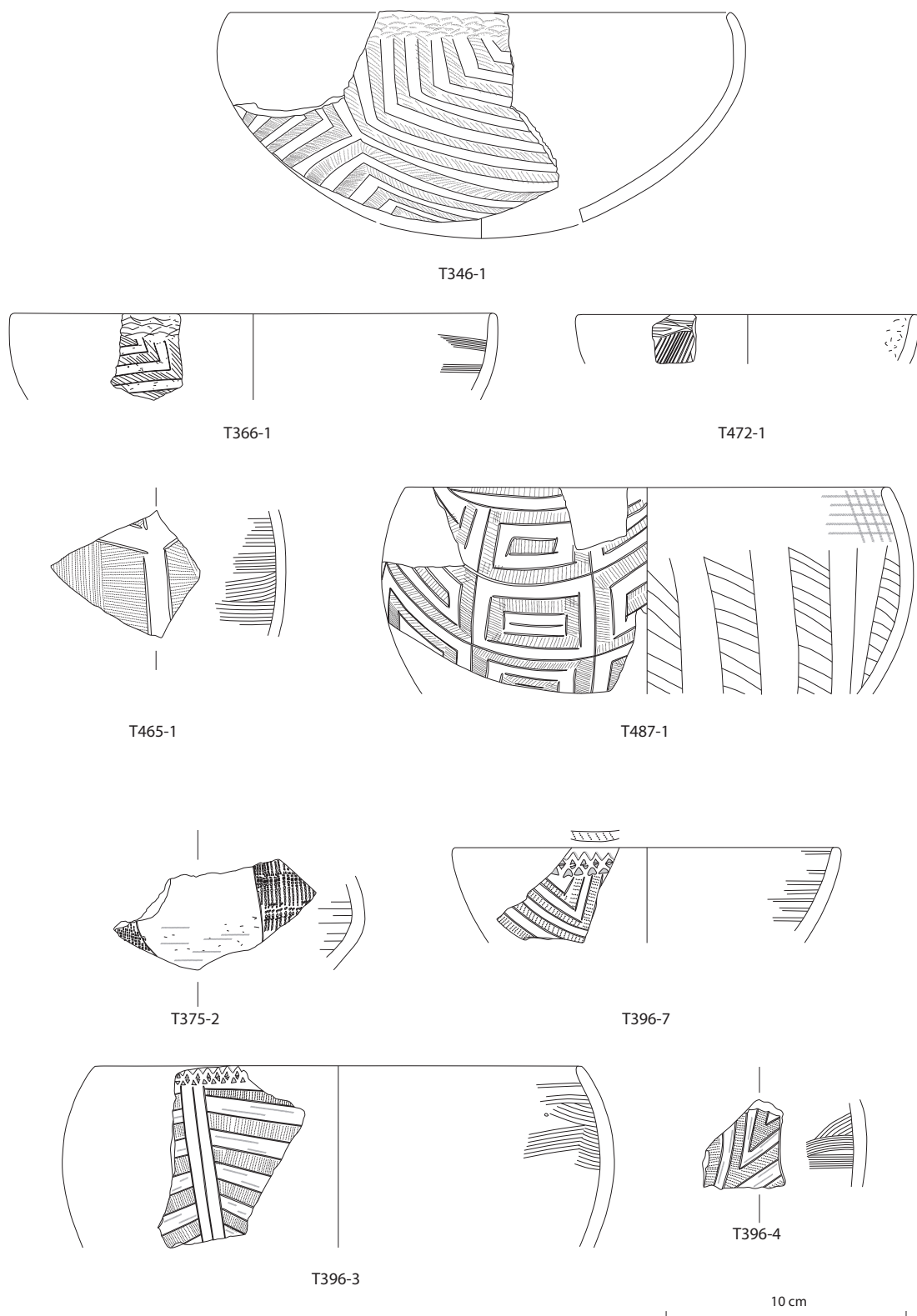


Figure 17/ C-Group pottery, Kerma, Eastern Cemetery sector CE27 and 28.

Context of pottery deposition/burial custom

The Eastern necropolis of Kerma is characterized by tumuli build up above round and rectangular tomb pits. A large number of the graves are plundered and the tumuli of the graves are usually eroded. Honegger proposed an average of four vessels per tomb, of which most are black-topped and black-topped vessels with a rim band decoration typical of the Kerma culture (Honegger 2013a, 26). In the case of the well-preserved burials, pottery was deposited around the tomb in sectors 27 and 28 upside-down. In sector 23 and during later periods, a part of this pottery is although placed in the grave close to the burial (Honegger 2013a, 22f., compare Privati 1999).

The pottery of the three sectors, CE23, 27 and 28 of the Eastern cemetery is the focus of this paper. According to the evolution of the Kerma pottery, size of the tombs and C14 dates, the oldest occupation of the cemetery is found in sectors 27 and 28 (*Kerma Ancien* 0 and I, ca. 2550-2300 BC). Moreover, CE28 appears to be older than 27 (Honegger 2013a, 20 with fig. 15; Privati 1999). Sector 23 in the south belongs to the *Kerma Ancien* II period (2300-2100 BC). Interestingly, the tomb pits in sector 28 and in the north-western part of sector 27 are rather rectangular, while the pits in the south of sector 27 and in sector 23 are more circular (Honegger 2011a, 9). Rectangular tomb pits were overbuilt by a tumulus and are common in the C-Group burial customs⁵. Another feature, apart from the pottery, is the presence of funerary stelae in sectors 27 and 28. These are not known from sector 23, the youngest phase of the area of focus (Honegger 2011a, 10 with fig. 7). Stelae are common in early C-Group culture funerary contexts and their presence as far south as in Kerma shows, together with the shape of the tomb pits, that C-Group funerary traditions are present not only regarding the pottery.

C-Group Pottery – Incised bowls

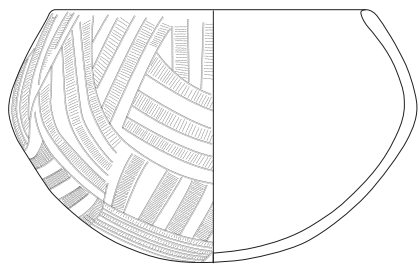
As well attested in the funerary context of C-Group culture, the incised bowls represent a high percentage of the ceramic burial gifts.

Fabric and shaping technique: the fabrics of the incised bowls are rather homogenous⁶. They were studied using a x10 hand lens. The clay is mainly fine Nile Silt, seldom with mineral inclusions. However, all vessels show a high amount of fine mica which naturally occurs in the area of the 3rd cataract. The vessels were often fired in a reductive atmosphere, resulting in black fractures. All vessels are hand-made in the Nubian tradition. Due to the high fragmentation, the shaping technique can barely be identified. The most common technique known for Nubian pottery is coiling, finished by the paddle-and-anvil method, and can be presumed to be the technique used (Nordström 1972, 47f.).

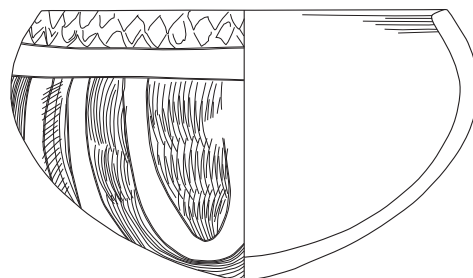
Vessel shapes and surface treatment: the variety of vessel shapes is limited. Furthermore, due to the heavy fragmentation of the ceramic assemblage, shapes

⁵ See Bietak 1968 and Säve-Söderbergh 1989 for an overview on excavated cemeteries. A recently discovered cemetery of the C-Group culture was found at Hierakonpolis 'HK27C' (Friedman 2001, 2004, 2007, 2014).

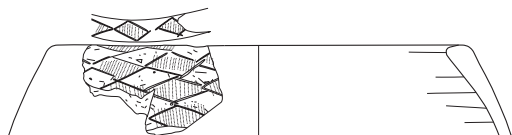
⁶ See Schröder (in print) for the C-Group culture pottery from the cemetery HK27C in Hierakonpolis.



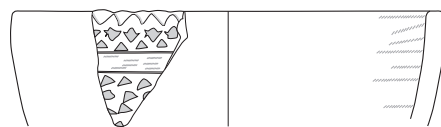
T502-2



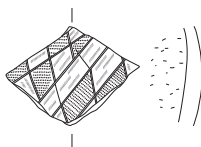
T491-3



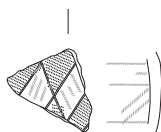
T420-1



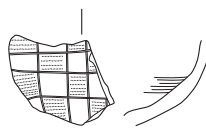
T325-1



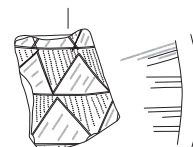
T335-1



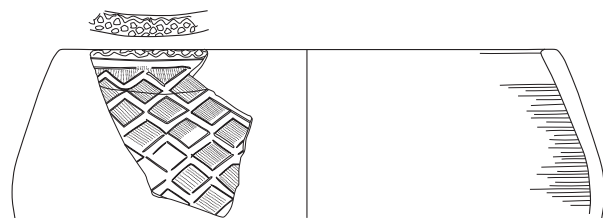
T317-2



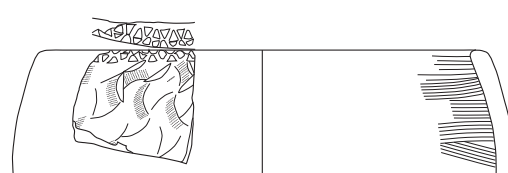
T538-2



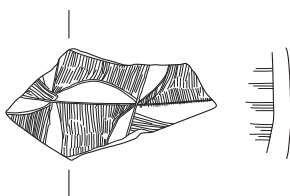
T396-2



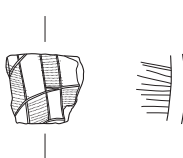
T552-4



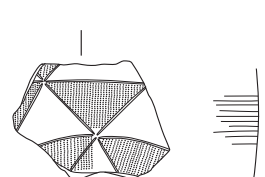
T577-5



T542-2



T533-2



T570-1

10 cm

Figure 18/ C-Group pottery, Kerma, Eastern Cemetery sector CE23 and 27.

are difficult to determine. The few examples with a complete profile show a hemispherical form. The bases are rounded; rims either direct and rounded (A1) or direct and flat (A2; Säve-Söderbergh 1989, 32f. with fig. 15). The exterior of the incised bowls has been either incised or impressed. Decorative bands were alternately hatched and burnished. By contrast, the interior surface has been combed with a serrated tool, resulting in the appearance of parallel broad channels (Nordström 1972, 46).

Decoration and chronological implication: a large number of the complete pottery assemblage is represented by the incised bowls with (to-date) 122 examples from 76 tombs⁷. Their most characteristic feature is the decoration with elaborate geometric patterns covering the entire vessel's body. In contrast, the decoration of typical Kerma pottery is mainly limited to the rim band (Gratien 1986; Privati 1999; Honegger 2013a).

Subject to the completion of recording and studying all the ceramic material of the C-Group and the imported Egyptian pottery from the Eastern cemetery at Kerma, first preliminary results will already be presented in this report. The majority of the incised bowls are black, the decoration partially accentuated with a white paste inside the incisions. The second largest group is brown incised bowls, while red incised as well as black-topped are less frequent. As mentioned above, the preservation of the vessels is rather fragmentary. Therefore, not all fragments provide sufficient information regarding the geometric pattern and consequently their possible chronological classification. Nevertheless, the decorative patterns are well enough preserved for about half of the bowls and can thus be classified to the different phases of the C-Group culture⁸. The execution of the decoration is either performed by incision and/or impression, sometimes filled with a white paste. As already proposed by Honegger, the C-Group pottery in the oldest part of the cemetery can be assigned to C-Group phase Ia and in the more recent occupation in sector 23, to phase Ib (Honegger 2013a, 28-29 and fig. 15). After studying all available fragments in Kerma, this can be confirmed. However, a discrepancy compared to other C-Group sites is noticeable and will be discussed below⁹. The characteristic C-Group pottery of the three different sectors will be briefly presented below, and a preliminary comparative study conducted.

Sectors CE27 and 28

Only eight small vessel fragments are known from sector CE28 and 81 so far from CE27. One rim sherd (T472-1, figure 17) shows an interlaced rim band decoration combined with a geometric pattern of blank and hatched bands on the vessel's body. This kind of decoration can be assigned to the early C-Group phase Ia and therefore the C14 dates of close-by tombs do approximately confirm this phase¹⁰. Two other examples with an interlaced rim band were found in sector 27 (T346-1 and T366-1, figure 17). They have a close parallel with one fragment from the Old Kingdom settlement at Buhen, which dates from the late 5th Dynasty¹¹ (O'Connor 2014, 289-

⁷ Statistics can be provided once the documentation of the pottery has been completed.

⁸ The basis of the chronology of the C-Group culture was established by M. Bietak (1968). However, through careful examination of other sites in the recent research, the phases distinguished by Bietak should be adjusted.

⁹ A comparative study including the Kerma, C-Group and Egyptian pottery including their find context has yet to be conducted and will give further insights into burial customs and horizontal stratigraphy.

¹⁰ Compare Heidenreich 1935, pl. 33: 1, 3, 7; Bietak 1968, pl. 1: Ia7. At Elephantine Island interlaced rim bands (‚Flechtband‘) in the rim zone occur at Elephantine in formation Elephantine 5A/B, which dates to the late 5th to late 6th Dyn. (2450-2250 BC, see Raue in print, 220, fig. 48:1-4).

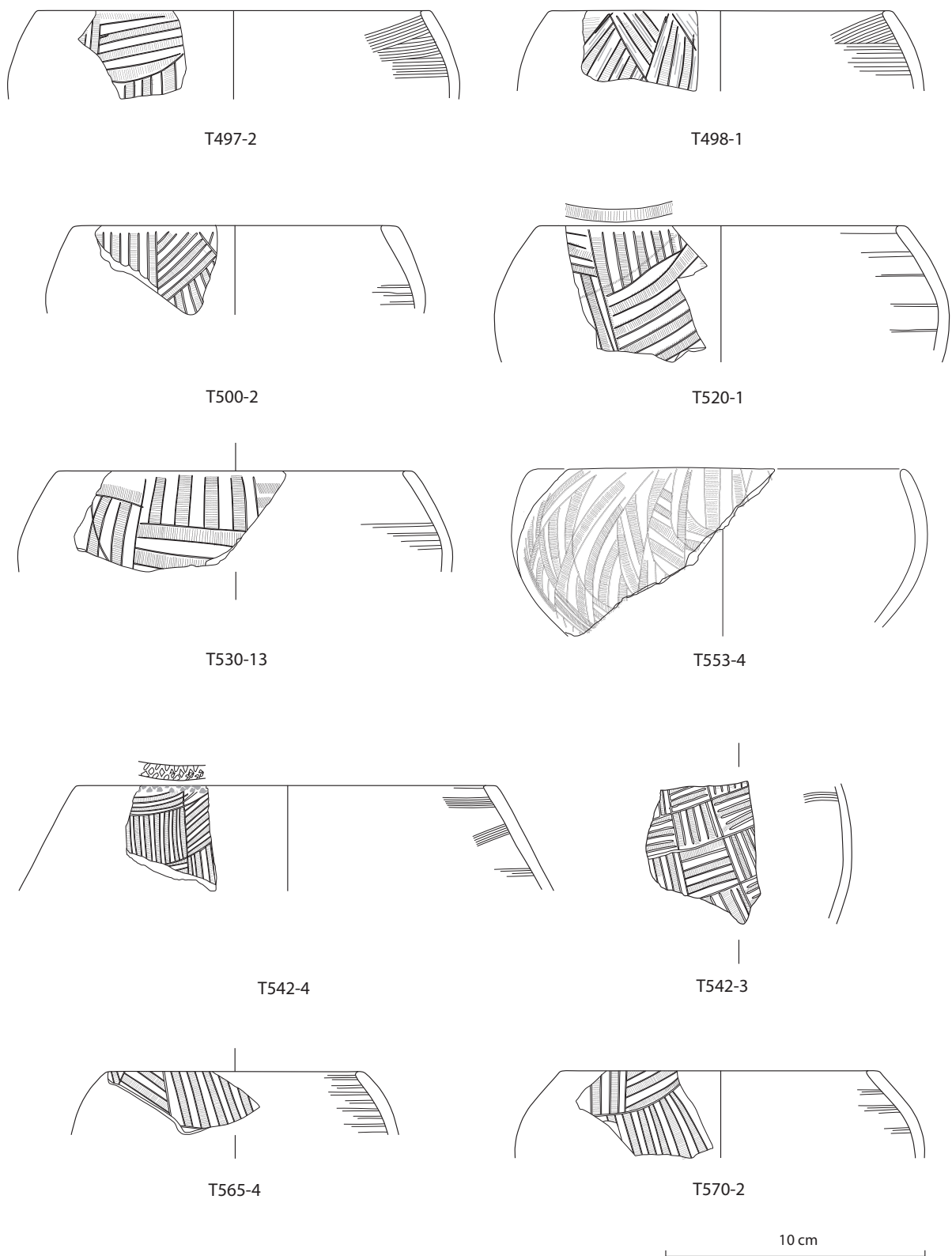


Figure 19/ C-Group pottery, Kerma, Eastern Cemetery sector CE23..

317; Gratien 1995, 52, fig. 1: UC20239; also, Raue in print, 456). Another type from CE28 is a red incised body sherd from tomb T465 (T465-1, figure 17). Despite its small size, the decorative pattern can be reconstructed. The entire vessels body is hatched with single incised lines, subdivided by blank burnished bands. This type is also common in the late 5th to 6th Dynasties (Raue in print, fig. 39-II). From the excavations in the mastaba of Neferiretenes in Dahshur, an incised bowl of C-Group phase Ia was discovered. The tomb dates to the late 5th Dynasty and the decoration of the bowl is quite similar to the fragment from Kerma (De Morgan 1903, pl. XXVII; Raue in print, 415; Bietak 1968, pl. 2: Ia11).

One bowl with an almost complete profile can also be assigned to phase Ia with its pattern made of rectangles (T487-1, figure 17; Bietak 1968, pl. I: Ia6; Säve-Söderbergh 1989, pl. 2: Ia6).

Few fragments show the typical early comb impressions (T375-2, figure 17). Interestingly, the impression on this fragment is used as filling of geometric shapes, presumably triangles, but the fragment is too small to be certain; however, Säve-Söderbergh published a vessel, which may resemble the decoration of the Kerma fragment, but dates to phase IIa (Säve-Söderbergh 1989, pl. 6: 184/17:02). Moreover, other fragments found in sector CE27 point to a more recent phase of the C-Group culture. Characteristic for phase Ib are fragments found in the context of Tomb 396 (T396-3, -4, -7, figure 17). These show geometric patterns of alternating burnished and hatched bands and date, according to Raue, not before the pottery phase Elephantine 6A, which is contemporary with the First Intermediate period and the early 12th Dynasty (2100-1950 BC; Raue in print, fig. 76). However, some vessels from sectors CE 27 and 28 are more recent and refer to C-Group phase IIa according to their geometric patterns in the form of lozenges, chessboard and pending triangles (early Middle Kingdom; T317-2, T335-1, T396-2, T420-1, T538-2; Bietak 1968, pl. 5-7; Säve-Söderbergh 1989, pl. 5-6). One rim sherd (T325-1, figure 18) is decorated with triangular impressions, not only in the rim zone but also beneath, on the vessel's body. A similar vessel has been published in Säve-Söderbergh (1989, pl. 5:179/61:03) which was likewise allocated to phase IIa. Lying lozenges are well attested in the C-Group material. A close parallel with lying lozenges was found in the governor's palace (end of phase 3) at Ayn Asil, dating from the beginning of the earlier Middle Kingdom (presumably end 11th to early 12th Dynasty, Le Provost 2013, 209, 215, fig. 20:5).

¹¹ The parallel has been pointed out by D. Raue (09/2017). O'Connor postulates a 'Proto'-C-Group in Buhen, since 'no distinctively C-Group phase Ia or b material is found' (O'Connor 2014, 317). However, the pottery shown in Gratien 1995, Fig. 1, kept in The Petrie Museum collection, UCL, is characteristic for the early C-Group phase Ia.

Interestingly, tombs T317, T325, T335 and T538 are located close to each other in the south of sector CE27. Thus, they seem to form a group within the spatial pattern by suggesting a phase IIa date. Moreover, Tomb T491 lies in close vicinity to this group. Here, another vessel worth mentioning has been found. The hemispherical bowl with a slightly pointed base shows a rather uncommon decorative pattern (T491-3, figure 18). According to Säve-Söderbergh, a similar type of decoration can be assigned to phase IIa (Säve-Söderbergh 1989, pl. 12).

Sector CE23

Also in sector 23 further to the south, a large number of C-Group vessels have been excavated (33 fragments to-date). Of these, the majority were incised with a plaited pattern with alternating blank and hatched bands organised in squares (figure 18: T502-2; figure 19; Bietak 1979, fig. 3:4,7; Heidenreich 1935, pl. 36:5-8; 37-38; Säve-Söderbergh 1989, pl. 3: Ib4). According to Raue, these occur parallel with the pottery phase Elephantine 5C/6A what is likely to be the transition from C-Group Ia to Ib (Raue in print, 449, 456, 460; late 6th Dyn. /early 1st FIP to early 12th Dyn., 2250-1950 BC). The C14 dates of CE23 confirm the date, although the plaited patterns may already appear in Kerma between the 6th Dyn./FIP (2300-2100 BC), thus earlier than in Lower Nubia (Honegger 2013a, fig 15).

As presented, the majority of vessel fragments from CE23 date to C-Group phase Ib; however, another characteristic element of CE23 are certain vessel fragments pointing not only to the early C-Group Ia (T542-2, T577-5, figure 18), but also to phase IIa (T533-2, T552-4, T570-1, figure 18). The two fragments T542-2 and T577-5 represent the crescent pattern typical for early C-Group Ia (Bietak 1968, pl. 2: Ia10; Säve-Söderbergh 1989, pl. 2: Ia10). They also appear in cemetery N in Aniba (Heidenreich 1935, pl. 33:7). Characteristic for these bowls, beside their decorative pattern, is the flat vessel shape. However, fragment T577-5 shows a rather tall, hemispherical shape. As stated by Raue, the incised bowls from Kerma as well as from Buhen do not show the typical flat and carinated shapes well known from, for example, Aniba cemetery N (Raue, pers. comment, 09/2017; Raue in print, 456). Their occurrence in Lower Nubia might be related to the mutual influence of both the Egyptian and Nubian cultures in Upper Egypt and Lower Nubia. Here, flat and carinated vessel shapes are attested both in the Egyptian as well as Nubian ceramic material (Raue, pers. comment, 09/2017). By contrast, we may presume that flat shapes do not occur that far south.

To sum up, vessels of different phases occur in CE23. The oldest sherds can be assigned to C-Group phase Ia, while pending triangles as well as lying lozenges indicate a C-Group IIa date.

Chronological and cultural implications

As mentioned above, only after the documentation of the complete assemblage and the study of the material, in close conjunction with the Egyptian imports, the evolution of the Kerma pottery and the provenance and distribution of the pottery in the cemetery, can a final analysis of the material be presented. The shown types resemble well the known decorative patterns of incised bowls of the C-Group culture (Bietak 1968; Säve-Söderbergh 1989). To-date, the incised bowls originating from the Eastern cemetery at Kerma present a mixed assemblage, not solely regarding their many decorative patterns, clearly pointing to the C-Group culture, but also regarding their chronological implications. Some of the C-Group material of the different sectors correlates well with the dates provided by the evolution of the Kerma pottery, as well as the C14 dates. However, the distribution of some vessels

is somewhat contradictory. As discussed above, while in the oldest sectors CE27 and 28, early C-Group pottery (phase Ia) occurs, earlier material (phase IIa) is also attested, but less frequently. By contrast, decorative patterns, incised with plaited patterns of the early C-Group Ib dominate the assemblage in CE23 (figure 19). Of specific interest is the occurrence of those fragments, which point either to an older (T542-2, T577-5, figure 18) or more recent phase (T552-4, T570-1, figure 18). As a consequence, we may assume that certain types may occur earlier in Upper Nubia than in Lower Nubia. However, if this assumption cannot be verified, their presence would indicate that the cemetery does not follow a horizontal development.

Summing up, even after 100 years of archaeological excavations, the Eastern necropolis in Kerma still offers significant answers to recent research questions. The parallel appearance of both Kerma and C-Group pottery in the Eastern necropolis as far south as at the 3rd cataract, is a highly interesting phenomenon. It would appear that some types of incised bowls occur earlier at Kerma than in Lower Nubia. On the basis of an exhaustive study of the entire ceramic material more insights into this complex subject can be expected.

This study follows on from the work undertaken and organised by Camille Fallet since 2008, on the ancient Sectors of the Kerma Eastern Cemetery: Initial Kerma or *Kerma Ancien 0* (named although Late Pre-Kerma in previous paper), *Kerma Ancien I* and II (CE23, CE27 and CE28). Numerous anthropological and biological studies have been conducted on the collections from excavations undertaken in this same necropolis since the beginning of the 20th century (Classic Kerma: Reisner 1923; Early, Middle and Classic Kerma: Bonnet 2000; Early Kerma: Honegger 2009 to 2015). As part of an exhaustive and systematic archaeological research project, which also aims to describe the evolution of funerary practices, this objective of this study is to describe the osteological ensemble excavated during the 2015/2016 and 2016/2017 seasons, which focussed on the Kerma Eastern Cemetery, under the direction of Matthieu Honegger.

Material and methods

All the recordings and osteological observations are collected in an anthropological database. For each skeleton there is a detailed individual biological description: state of conservation (report card prepared at the time the skeletal remains are lifted – Courtaud 1996), determination of sex and age, estimated stature, as well as pathological traumas and particularities noted. The biological data are related to the associated archaeological remains (funerary architecture, furnishings and associated funerary deposits). Given the exceptional state of conservation of the skeletons, and the advanced state of natural mummification, the taphonomy is not discussed much in the anthropological studies. The inhumation and the original associated deposits are for the most part understood¹ (other than when there are subsequent disturbances caused by grave-robbers); consequently, the descriptions do not need to discuss at length the space of the decomposition, how the void was filled and eventual containers (Duday 1990). This information is directly available thanks to the incredible state of preservation of many organic remains (skin, leather, vegetable matter, residual remains of wood, cloth, feathers...).

The method applied follows a classic anthropological approach:

- The age at death estimate is based on the observation of the auricular surface of the atrial surface of the pelvic bones (Schmitt 2005) and degree of bone maturation and dental calcification of immature individuals (Moore et al. 1963; Schaefer, Black and Scheuer 2009).
- The sex determination of the adult specimens is based on the metric measurements of the pelvic bones (Sex probabilistic diagnosis: Murail et al. 2005).
- Estimates of stature are based on equations using the maximum measurement of the long bones of individuals (Cleuvenot and Houët 1993 for adults).

¹ The burial position is mostly standardised during all the different periods encompassing Ancient and Middle Kerma: the individual is placed in a flexed position on his right side (foetal position), oriented east-west, with the head to the east, facing north.

- Dental and bone pathologies are mentioned (Aufderheide and Rodriguez-Martin 1998; Ortner 2003; Mann and Hunt 2005), and the specifics quickly noted in the first instance (Murail 2005).

Sector CE8

² It should be noted that T600 yielded several bones in the upper levels of the infill of the tomb; these have been taken into consideration to establish (even if partially) the individual biological details of the deceased, since all the bones belonged to the same individual. By contrast, T591 yielded very few bones and little biological information, since the pelvic bones as well as the craniomandibular block were missing. T615 produced no bones. These tombs could be the subject of later excavations.

A total of 33 tombs were excavated in Sector CE8 during the 2015/2016 season. They are located on the border between the inhumations of Early Kerma and Middle Kerma. Three of the tombs were not entirely excavated, due to their size and potential richness, which would have necessitated an investment of too much time (T591, T600 and T615²). Furthermore, tomb T613 only produced three bone fragments, which were insufficient to determine the details of the occupant. A total of 28 tombs with individual primary inhumations are analysed, as well as two tombs with primary double inhumations (T587 and T598), for a total of 33 individuals, which make up the corpus of this study (figure 20). It needs to be noted that six tombs were excavated by the team under Charles Bonnet in 1983 (T80, T81, T82, T83, T84 and T85), and that whilst the skeletal remains, stored at the University of Geneva, have been studied by Camille Fallet, they are not integrated in this study. Of the 33 individuals analysed, 18 are adults (54.5 % of the group are over 20 years of age) and 15 are immature (45.5% of the group, made up the age-groups: [0]; [1-4]; [5-9]; [10-14] and [15-19]). Sex determination was possible on 15 skeletons. The skeletons of six individuals were insufficiently complete: pelvic bones missing, sex not determined, whilst two individuals in the 15-19 age-group were able to be diagnosed (T583 and T592). Six of the subjects were male, whilst nine were female, so that the sex ratio was 0.67 (figure 21)

Figure 21 / Distribution of the individuals based on age-group and sex – CE8.

	[0]	[1-4]	[5-9]	[10-14]	[15-19]	[20-99]	total
men	-	-	-	-	1	5	6
women	-	-	-	-	1	8	9
sex undeter.	1	3	5	4	-	5	18
total	1	3	5	4	2	18	33

Sector CE29

During the 2016/2017 season, 51 tombs were opened and systematically excavated. Sector 29 is located in contact with and to the south-east of Sector CE23, previously excavated by the same team. It belongs to the same *Kerma Ancien II* chronological period, although it contains a few more evolved characteristics suggesting a transition towards *Kerma Ancien III*. Out of the 51 funerary structures, three were devoid of human remains. A total of 47 tombs with individual primary inhumations are analysed, as well as two with double primary inhumations, one with triple primary inhumations and one with quadruple primary inhumations. Furthermore, the feminine specimen from tomb T624 held an unborn infant close to term on her breast. The corpus of Sector CE29 thus comprises 56 individuals (figure 22).

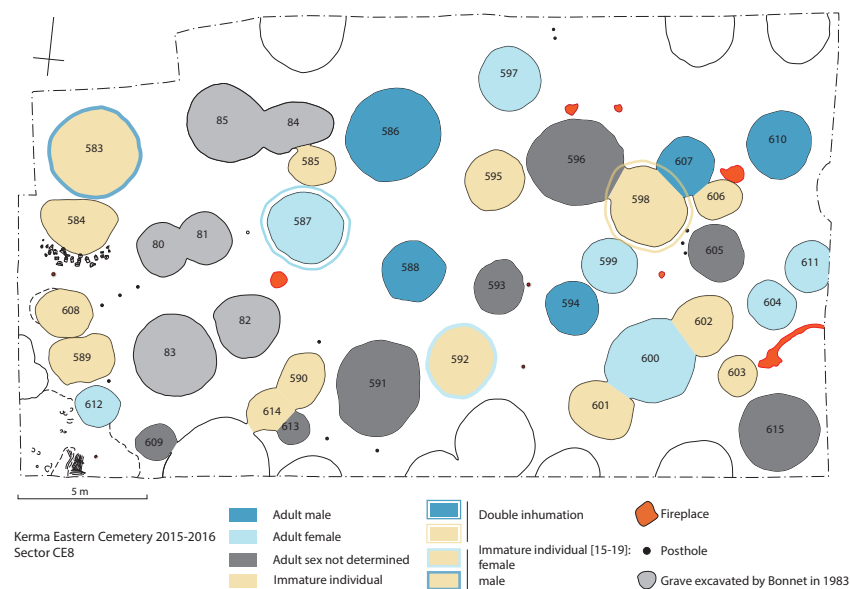


Figure 20/ Spatial distribution of the individuals by age-group and sex – Kerma Eastern Cemetery 2015/2016 – Sector CE8.

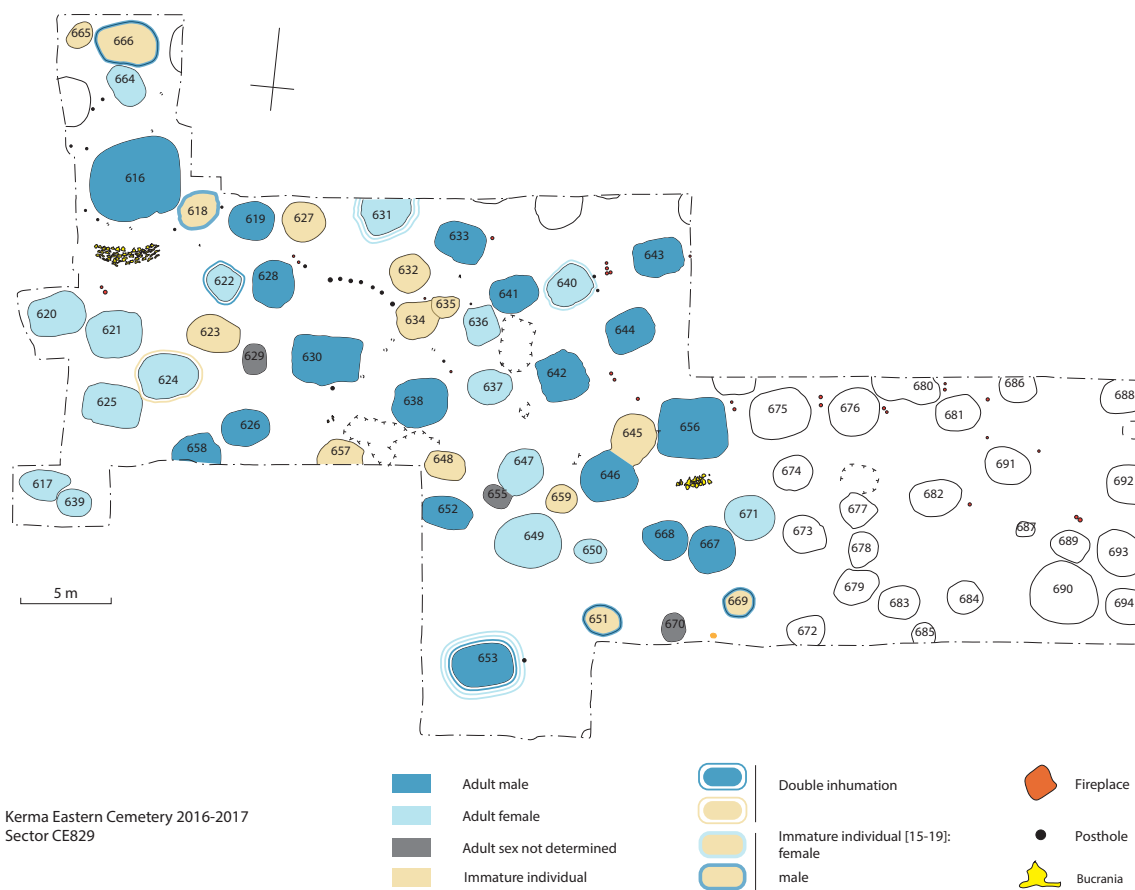


Figure 22. Spatial distribution of the individuals by age-group and sex – Kerma Eastern Cemetery 2016/2017 – Sector CE29.

Of the 56 individuals studied, 40 are adults (71.4% of the group over 20 years of age) and 16 are immature (28.6% belongs to the age-groups: [0]; [1-4]; [5-9]; [10-14] and [15-19]). The sex determination was possible on 46 skeletons (that is to say the entire adult group as well as 5 individuals from the 15-19 age-group, plus the one female from the 10-14 age-group³). 24 of the subjects were male, whilst 22 were female, so that the sex ratio was 1.09 (figure 23)

Sector CE30

A test excavation was conducted south of Sector CE8 during the 2016/2017 season. Four structures were discovered (T660, T661, T662, and T663). There were three individual primary inhumations and a triple primary inhumation (T663). The human remains were in a very poor state of preservation, added to which the skeletal remains were relatively poorly represented, so that the biological information is consequently limited. It has however been determined that four individuals were adults and one was an immature individual aged 15-19 (T662-02), plus one infant in the 1-4 years age-bracket (T663-01). A single individual from the triple tomb (T662-3) was determined to be female, but it not being possible to determine the sex of the other adults.

Discussion on the biological composition of the populations – CE8 and CE29

The analysis of the composition of the individuals from Sectors CE8 and CE29 substantially corroborates the findings from the analysis of previous groups (Fallet 2013, forthcoming). Compared to the results expected for a theoretical population (Ledermann 1969: proportion of immature individuals between 45-64%), the results obtained for Sector CE8 are close to the theoretical percentages, whilst for Sector CE29, the ratios clearly indicate a shortfall of individuals younger than 20 years-old (figure 24). Even excluding the factors tied to tombs with multiple inhumations (bias regarding a ‘natural’ mortality), the percentage of immature individuals at 31.25% is nowhere close to the theoretical spread.

For the combined periods of the *Kerma Ancien 0* (CE28), *Kerma Ancien I* (CE27) and *Kerma Ancien II* (CE23), Camille Fallet highlighted the underrepresentation of very young children (under one-year-olds), as well as an underrepresentation of children in the 1-4 years age-bracket in Sector CE27. In a similar fashion, the populations of Sectors CE8 (transition between Early Kerma and Middle Kerma) and CE29 (*Kerma Ancien II*), show a clear deficit of neonates below the age of one, as well as a small shortfall of children aged between 1-4 years-old. The two populations differ in the next age-groups as follows: when the mortality ratios of the age groups 5-9, 10-14 and 15-19 from Sector CE29 are compared to the theoretical mortality rates, the sample from Sector CE8 shows a slight overrepresentation of children in the 5-9 age-bracket, as well as for the adolescents in the 10-14 age-bracket, whilst the individuals in the 15-19 age-bracket fit within the theoretical mortality rates (figure 25).

³ The sex diagnosis of such a young individual (about 14 years in the case of T634) must be treated with caution, given the immature skeletal maturity. In this instance, the three points of ossification of the pelvis were fused together.

Figure 23/ Distribution of the individuals based on age-group and sex – Sector CE29.

	[0]	[0]/[1-4]	[1-4]	[5-9]	[10-14]	[15-19]	[20-99]	total
men	-	-	-	-	-	5	19	24
women	-	-	-	-	1	-	21	22
sex undeter.	2	2	5	1	-	-	-	10
total	2	2	5	1	1	5	40	56

Figure 24/ Percentages of mature and immature individuals compared to the theoretical values established by Ledermann (1969) – Sectors CE28, CE27, CE23 (Fallet 2013) – CE29, CE8

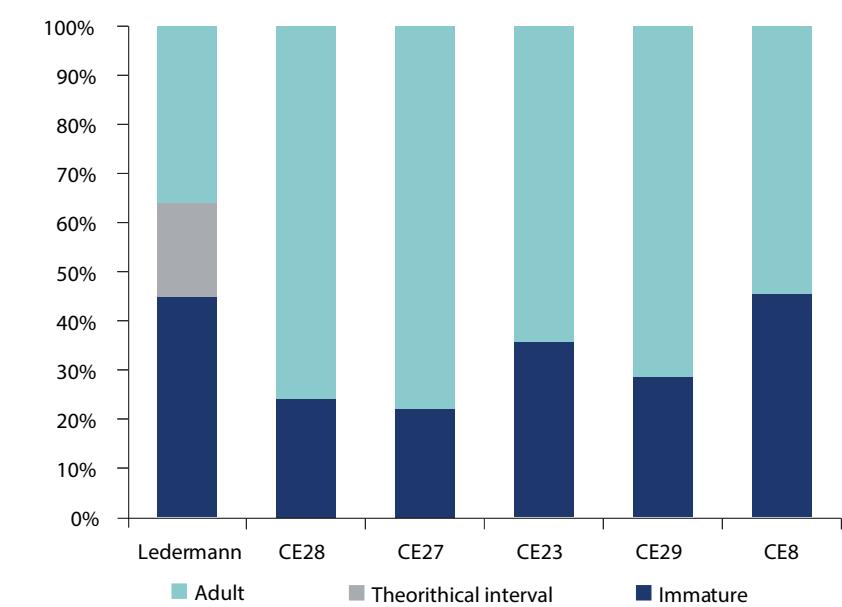
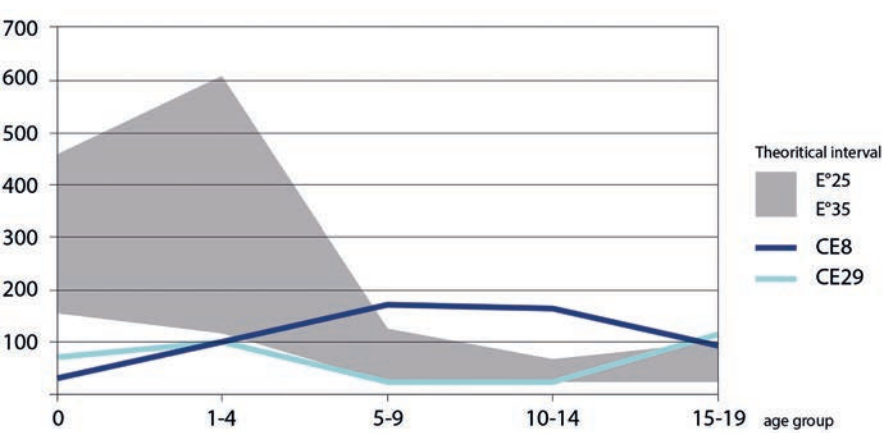


Figure 25/ Variation in mortality quotients compared to theoretical curves (Ledermann 1969:life expectancy at birth between 25 and 35 years) – Sectors CE29 and CE8.



From the two ensembles studied, it is the shortfall in infant burials, and to a lesser extent of children in the 1-4 years-old ages-bracket, that is noteworthy. There can be multiple reasons for such an anomaly. We can exclude sample bias, given the coherence of the mortality rates in Sector CE29 for the 5-9, 10-14 and 15-19 age-brackets, as well as differential conservation of the skeletal remains, given the remains of those individuals found in the same age-brackets. The most probable hypothesis is that of age-selection in the funerary practices specific to infants, and to a lesser extent that of the youngest children. On the island of Saï, a cemetery specifically set aside for the burial of immature individuals, dating from the Classic Kerma period, with special funerary rites, has been discovered. The excavations of this necropolis brought to light ritual gestures and grave offerings specific to the age of the deceased (Murail et al. 2004). No similar funerary areas, reserved for the very young, have been identified at other Kerma Civilisation sites. In parallel, the factors giving rise to the anomalies detected in Sector CE8 (overrepresentation of deceased in the 5-14 age-bracket) are less evident. In spite of an acceptable ratio of immature individuals to adults, the spread between age-groups is subject to discussion, even if the sample is somewhat weak, exacerbated by the non-inclusion of the six graves excavated in 1983, which we have not included⁴. This high instance of mortality can be attributed to the pathological lesions evidenced on the skeletal remains of the individuals concerned, particularly the non-specific markers suggesting stress. Out of the 15 individuals from Sector CE8, four showed signs of hypervascularisation on the interior surface of vertebrae of the thorax and/or lumbar regions; three were affected by periostitis on the diaphysis of the long-bones of their members, and four had porous lesions on the upper surface of the orbital cavities, known as *Cribra orbitalia*. They are all non-specific stigmata which can emanate from multiple causes (traumas, infections, tumours, dysplasia), but their characterisation is indicative of an overall state of sanitation.

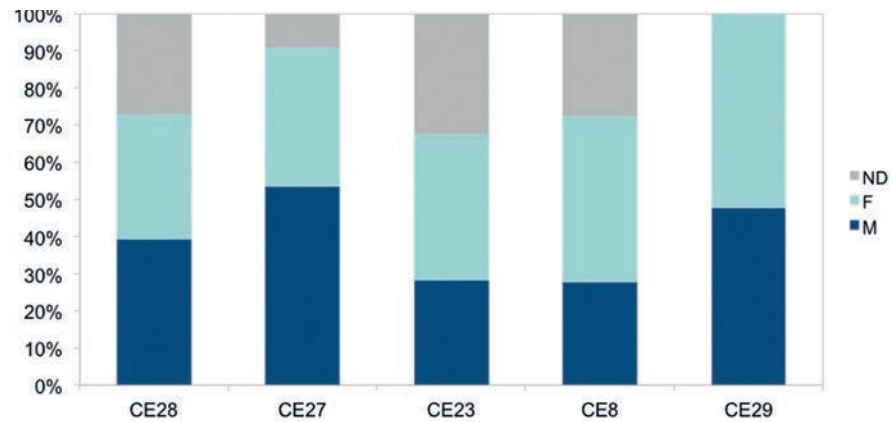
⁴ The ratios have also been calculated eliminating the bias resulting from the two double inhumations, which gave essentially the same results (shortfall in the number of immature individuals and overrepresentation of the 5-14 age-group).

⁵ The individuals belonging to the 15-19 age-group are included in the distribution calculations presented. Their inclusion does not alter the trend shown in the results.

The narrower analysis, limited to the sample of the adult individuals, leads to a discussion of the male/female ratios⁵ (figure 26). At this stage of the analysis, it is difficult to draw conclusions due to the variability in the sex ratio for the different chronological phases studied in the Kerma Necropolis. If the population spread is in equilibrium for the population samples from Sectors CE28, CE27 and CE29, Sectors CE23 and CE28 produce contrasting ratios between male and female individuals. For the *Kerma Ancien* II of Sector CE23, Camille Fallet highlighted this discrepancy and recommended enlarging the sample in order to validate the conclusions. If the result needs to be weighed against the nature of the sample (25% of the individuals are of an undetermined sex, and those from Test-excavation C of C. Bonnet are not included), it is interesting to also question at the same time the presence of individuals with a special status, and in particular that of female potters attested in this Sector (T599 and T604).

On the other hand, it is noteworthy that the adult group from Sector CE29 is distinguished by a high average age. Out of the 40 mature individuals, 13 have been

Figure 26 / Percentages and spread of males and females – Sectors CE28, CE27, CE23 (Fallet 2013) – CE8 and CE29 (ND = sex not determined; F = female; M = male).



identified as being over 50 years old (21.7%), and a total of 23 as being older than 40 (57.5%, represented by 12 females and 11 males). These numbers are substantially validated by the observation of numerous osseous and dental pathological lesions due to physiological processes tied to senescence: degenerative articular illness or osteoarthritis, biparietal thinning, (T664), paradontium and *ante mortem* loss of teeth. In fact, 21 of the 40 subjects aged over 40 suffered from light to acute cases of arthritis in several parts of their anatomies (mostly in the vertebra, but also the knees, the hips, and to a lesser extent, the hands, the shoulders and elbows, as well as in the ankle-joints and feet). It is also interesting to note the high average age of the adult population in Sector CE29, coupled to good sanitary conditions. The frequency of traumatic lesions is low (six cases noted in Sector CE29, including the amputation of a finger (T644), with the evidence for non-specific stress rare (paradontium, hypoplasia of the dental enamel, *criba orbitalia*).

Discussion regarding the funerary practices and the organisation of the necropolis – CE8 and CE29

The spatial organisation of the necropolis can be studied in the light of the distribution of individuals according to age and sex. To date, the general layout of Sectors CE29 and CE8 does not permit the definition of a distribution pattern of the graves based on biological criteria (figures 20 and 21). It will be interesting to restudy the question in the light of an enlarged window of observation, especially for the period of *Kerma Ancien II* with Sector CE23. Similarly, it will be of the utmost importance to study the evolution of funerary practices from the onset of Early Kerma to Middle Kerma, both from the point of view of the spatial organisation of the necropolis (distribution and selection of the individuals, taken from specific segments of society) or the structure of deposition in relation to individual biological parameters (grave-goods, associated deposits, funerary architecture).

Special attention can be given to multiple inhumations. Numerous studies have focussed on the exceptional tumuli of Classic Kerma excavated by Reisner in the early 20th century (1923). The appearance of multiple burials goes back to the period of *Kerma Ancien I* (mostly double inhumations with two adult males or an adult male accompanied by an adult female, Fallet 2013) and continues in *Kerma Ancien II*, with greater frequency as well as a growing number of accompanying individuals. This trend is confirmed in Section CE29 (*Kerma Ancien II* and III), which yielded four tombs with multiple primary burials, two of which were double burials, one triple and one quadruple, with all spread in a random manner across the Sector:

- T622 is a double tomb containing a female aged over 40 and a male between the ages of 20 and 39. The severe pillaging of the tomb meant that the contents were thoroughly disturbed, so that the primary burial could not be distinguished from the secondary one.
- T640 is a double tomb containing two females (one aged 20 to 29 who was located at the northern end of sepulchral pit, and the other aged between 30 and 59 located at the southern end). The female located at the southern end was most probably the principal deceased, given her position and the grave-goods with which she was associated (stick, fans).
- T631 is a triple inhumation containing three females (one aged over 40 at the northern end, whilst the two others were over 60). The principal individual would appear to be the one in the centre, given her position. The two females aged over 60 were associated with the remains of stick (to which can be added the remains of leather skirt and sandals), and the individual to the north wore a leather skirt decorated with beads.
- T653 is a quadruple inhumation containing a female aged over 40 located at the northern end of the sepulchral pit, an immature male in the 15-19 age bracket located in a north-central position, a male aged over 60 located in a south-central position, and a female aged between 20 and 29 located to the south at the bottom of the access-pit (the men are in a central position, whilst the women are to the extremities). Two sticks frame the contents, one in the hand of the first individual described, and the second behind the fourth individual. Numerous objects (pendants, copper ring, stone labret, beads, ivory bracelets and arrowheads). Only the man aged over 60 was associated with the leather skirt decorated with beads and the earrings; he also wore a ring on the ring finger of his left hand. Without additional contextual information, it is difficult to establish who was the principal deceased, although the lateral position of the two females allows us to suppose that they were accompanying individuals. The most plausible hypothesis is to identify the oldest man as the principal deceased, although without any certitude.

As for Sector CE8 (transition between Early Kerma and Middle Kerma), it yielded two tombs with double inhumations:

- T587 contained two females (one aged between 20 and 39, located to the north of the pit, and the other, aged between 20 and 29, to the south). Remains of wood (stick) were found in the infill of the grave. The individual to the north wore ankle bracelets, while the one to the south wore a ring on his left hand. Based on their respective positions and the standardisation of the grave-goods, the principal individual was most probably the one located to the south, without being able to confirm this with certitude.
- T598 contained two individuals in the 5-9 years age-group. Based on the degree of bone maturity, the individual placed to the south appears to be the older of the two children. Numerous objects and other deposits were found out of context in the tomb's infill (body ornaments, shell pendant), without it being possible to attribute these to either individual.

In the given context and faced with the inventory of multiple burials, we are confronted with the variety of structures, as well as the diversity of individuals involved and their interrelations. In a wider context, and as more cases come to light and are incorporated in their study, it is hoped that their place within the necropolis will be better understood. The identity of the accompanying dead is a complex one, coupled to the fact that each instance is small-scale, so that the sample is restricted in each case. The examination of the question of the biological differential and distance (both morphological and morphometrical) within and between tombs is problematic. An increase in the number of cases studied will hopefully help overcome these problems.

The differences observed both in terms of funerary practices and the distribution of the sample population, supply additional data for the better understanding of the site and its evolution over time. The Kerma Eastern Necropolis offers many avenues of research, and a variety of anthropological and archaeological issues. The potential of the corpus of skeletal finds takes on its full value when incorporated with the all the archaeological data collected, which are often of an exceptional character.

During our stay in January 2016, the faunal remains from the recent excavations of the Early Kerma tombs in Sectors 8, 23 and 27 of the Kerma Cemetery were studied. Dogs and sheep were the principal species present in the tombs.

Dogs

Eleven sepulchres yielded more-or-less complete skeletons of dogs. We will not discuss the details of their position inside the pit, which is generally at the western end on the tomb, at the feet of the deceased (figure 27). As can be seen from the inventory in figure 28, the majority are male dogs, as confirmed by the presence of the baculum (penis bone) on several specimens. The analysis of the base of the cranium, using the criteria developed by The & Trough (1976), leads to the same conclusions. In two instances (T567.2 and T610) the sex could not be determined. Their size, however, whilst not large, places them amongst the males.

Most of the dogs are adults over two years old. A single exception is represented in tomb 598 by a young puppy aged 6-8 months. The study of tooth wear on the lower fang (M1), using the criteria developed by Horard-Herbin (2000) indicates a dominance of stages D to G, placing these animals in the older to advanced age-group. The height at the withers, estimated using the coefficients developed by Harcourt (1974), is comparable to that obtained for the dogs from the 1981-1998 excavations (Chaix 1999). To conclude, the morphological metrics indicate that the dogs studied in 2016 are comparable to those previously studied, are relatively gracile, with elongated crania, long-legged and of light musculature (figure 29).



Figure27/ Dog placed in the grave 531 of Sector CE23.

The sheep

Sector 23 yielded six sheep remains from the same number of sepulchres, whilst 17 tombs in Sector 8 yielded a total of 52 sheep (figure 30). Males dominate the assemblage with 48 specimens, with one sheep (or castrated animal) and nine animals for which the sex could not be determined. This dominance of rams amongst the faunal assemblage of the necropolis was already identified amongst the sheep previously studied (Chaix & Grant 1987). The ages demonstrate a dominance of young animals, with 15 under 10 months, 19 between 10-20 months, 17 between 20 months and 3 years, and only 7 over 3 years old. Here again, the results are comparable to those of the previous excavations, with the majority of the animals being under two years old.

A few morphological data are interesting, and in particular that of sheep with sharp horns in tombs 525, 526, 552 and 587. In two instances (t. 588 and 610), they have atrophied horn emplacements on the forehead, which could be the result of human actions. It is also important to note that tomb 586 contained three sheep whose horns had been pierced. This was done in anticipation of fixing a disc made of ostrich feathers between the two horns, as has been demonstrated in other similar instances in the necropolis. (Chaix 1984, 2006). Amongst the epiphyseal bones, some metapodes have permitted the height at the withers to be calculated, using the coefficients developed by Teichert (1975). The differences with the previously-studied sheep are not statistically significant.

The goats

A few remains of goats were found, and in particular two horns of a female goat and one of a billy-goat in tomb 586, and two horns of goats in tombs 600 and 615, whilst 592 and 598 yielded skull and jawbone fragments.

Bucrania

The study of several tombs produced evidence of bucrania, often in a very poor state of preservation. 22 bucrania were found in 16 tombs, whilst 12 others contained 18 horns or fragments of horn of cattle, which last fragmentary remains are doubtless also the remains of bucrania. As evidence, the point of horned sheath from tomb 499, clearly showed the presence of a 'gland' destined for the deformation of the horns (Chaix et al. 2012).

Sector	Grave	N	Sex	Stage wear	M1 inf.	Age
CE 23	530	1	male	D		6-8 months
CE 23	531 north	1	male	D		
CE 23	531 south	1	male	D		
CE 23	546	1	male	E		
CE 23	551	1	male	E		
CE 23	553	1	male	G		
CE 23	567.1	1	male	D		
CE 23	567.2	1	?	E		
CE 8	586.1	1	male	B		
CE 8	586.2	1	male	E		
CE 8	598	1	male	A/B		
CE 8	607	1	male	G début		
CE 8	610	1	?	G début		
CE 8	615	1	male	D		

Figure 28/ Inventory of the dogs discovered in the Sectors CE8 and CE23.

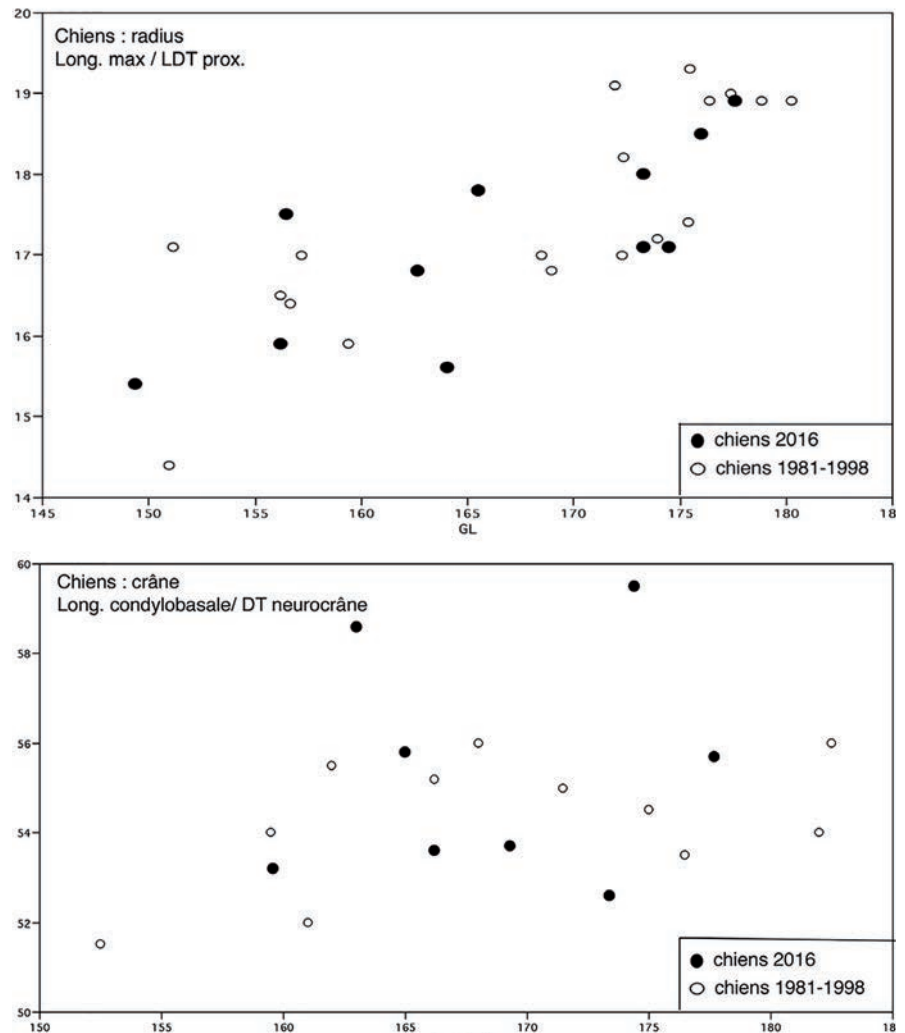


Figure 29/ Metric data on the radius and the crania of the dogs studied in 1981-1998 and in 2016.

Sector	Grave	N	Sex	Age	Remarks	Sector	Grave	N	Sex	Age	Remarks
CE 23	498	1	male	15-20 months		CE 8	595	1	male	6-8 months	
CE 23	499	1	male	22-36 months		CE 8	596.1	1	male	8-12 months	
CE 23	525	1	male	30-48 months	hornless	CE 8	596.2	1	male	20-30 months	
CE 23	526	1	male	5-7 months	hornless	CE 8	596.3	1	male	20-30 months	
CE 23	552	1	female?	30-48 months	hornless	CE 8	596.4	1	male	15-20 months	
CE 23	567	1	male	36-42 months		CE 8	596.5	1	?	20-30 months	
CE 8	583.1	1	male	20-30 months		CE 8	596.6	1	male	36-40 months	
CE 8	583.2	1	male	22-36 months		CE 8	596.7	1	?	20-30 months	
CE 8	583.3	1	male	8-12 months		CE 8	598.1	1	?	3-5 months	
CE 8	584	1	male	2-4 months		CE 8	598.2	1	male	5-6 months	
CE 8	586.1	1	male	14-20 months	horn perforated	CE 8	598.3	1	?	3-4 months	
CE 8	586.2	1	male	10-13 months		CE 8	598.4	1	male	3-5 months	
CE 8	586.3	1	male	10-13 months		CE 8	598.5	1	male	14-20 months	
CE 8	586.4	1	male	10-13 months		CE 8	599	1	?	foetus	
CE 8	586.5	1	male	10-13 months	horn perforated	CE 8	602	1	male	5-6 months	
CE 8	586.7	1	male	10-13 months		CE 8	607.1	1	male	14-20 months	
CE 8	586.8	1	male	20-30 months		CE 8	607.2	1	male	18-24 months	
CE 8	586.9	1	male	10-13 months		CE 8	607.3	1	male	22-36 months	
CE 8	586.10	1	male	10-13 months		CE 8	607.4	1	male	12-17 months	
CE 8	586.11	1	?	15-20 months		CE 8	607.5	1	male	3-6 months	
CE 8	586.12	1	male	10-13 months		CE 8	607.6	1	male	5-7 months	
CE 8	586.13	1	male	22-36 months	horns perforated	CE 8	608	1	male	20-22 months	
CE 8	586.14	1	male	15-20 months		CE 8	610.1	1	?	30-45 months	
CE 8	587.1	1	male	10-13 months	broken horn	CE 8	610.2	1	male	47-48 months	
CE 8	587.2	1	male	8-12 months	hornless	CE 8	610.3	1	male	45-48 months	
CE 8	588	1	male	10-13 months	atrophied horns	CE 8	610.4	1	male	22-36 months	pinched horns
CE 8	589	1	male	18-24 months		CE 8	610.5	1	male	22-36 months	
CE 8	591	1	?	20-30 months		CE 8	610.6	1	male	27-30 months	
CE 8	592	1	male	5-7 months		CE 8	614	1	?	10-12 months	

Figure 30 / Inventory of the sheep discovered in the Sectors 8 and 23.

FROM THE MESOLITHIC TO THE BEGINNING OF THE NEOLITHIC IN UPPER NUBIA: THE SEQUENCE OF WADI EL-ARAB (8300-5400 BC CAL)

The site of Wadi El-Arab is located 15 km east of the Nile in the region of Kerma (figure 31). It is interesting in offering a continuous sequence stretching from 8300 to 5400 BC, which allows us to follow some of the stages in the neolithisation process of the area. The site was excavated during seven seasons between 2005 and 2013. Preliminary results have already been published in the *Kerma Magazine* (Honegger 2010, 2011, 2012, 2013; Honegger and Jakob 2009; Jakob 2015; Liseele 2012; Williams 2012), as well as in an article dealing with the occupation of the Region of Kerma (Honegger and Williams 2015). Several researchers have been implicated in the study and publication of the site, notably the study of the faunal (Veerle Linseele), the skeletal remains from the sepulchres (Isabelle Crèvecoeur) and the sedimentation processes (Martin Williams and Michel Guélat). As regards the study of the archaeological remains, Bastien Jakob has picked up the baton and is making it the subject of his doctoral thesis. The present article is drawn from a communication presented at the 23rd biennial Meeting of the Society of African Archaeologists (SAFA) held at the Jean-Jaurès University (Toulouse, 26 June-2 July 2016).

During the last two decades, the subject of neolithisation has been a particular focus of interest for archaeologists, so that several regions of North-East Africa have been studied from this perspective. Amongst the most important, we need to mention Nabta Playa and Bir Kiseiba (Wendorf and Schild 2001), the western desert explored by the team from the University of Cologne (Kuper and Riemer 2013), as

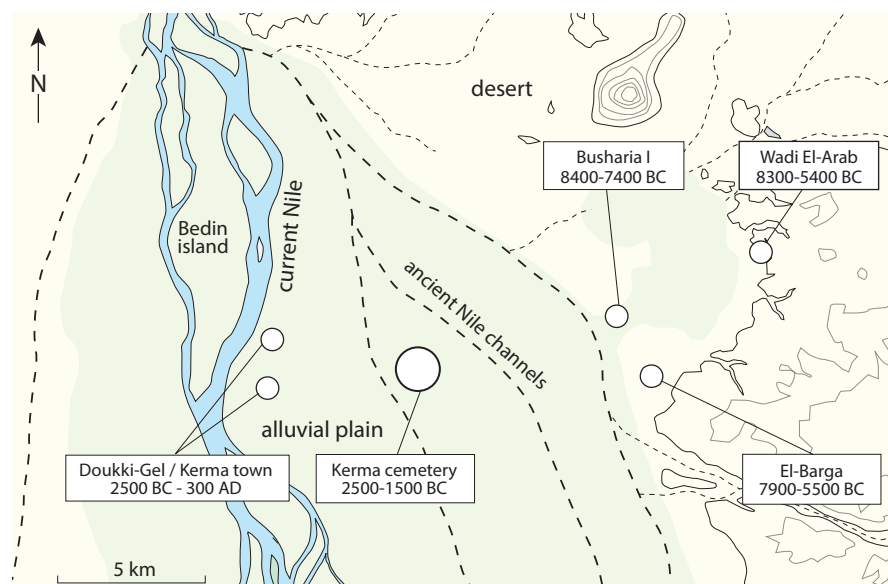


Figure 31/ Localisation of Wadi El-Arab in the Kerma Basin.



Figure 32/ Objects deposited in the Neolithic tombs of El-Barga (6000-5500 BC). Earrings, beads, pendent and lip-lugs.

well as Central Sudan (Usai 2014). Generally speaking, the sites in the Egyptian Nile Valley are rare, and do not allow the sequence of events to be followed during the neolithisation process, whilst this region should be playing a central role. It is thought that most of the sites have been buried under the river-born sediments, eroded or destroyed by agricultural practices. In this context, the site of Wadi El-Arab is of particular interest, since it is a source of new information, and fills a gap for the Nile valley and Upper Nubia.

Previous studies on the occupation of the region have demonstrated that that up until 5400 BC, the human settlements were located on the fringes of the alluvial plain, above the Nile flood-waters. The period which is of greatest interest to us lies between 6500 and 5500 BC. It is during this period that we can observe the first changes associated with the neolithisation process. Two sites cover this period. On the one hand the site of El-Barga, which is made up of two cemeteries, one of which belongs to the Mesolithic and the other the beginning of the Neolithic; on the other, the site of Wadi El-Arab at which there is a sequence of habitations including a few tombs.

At El-Barga (Honegger 2004, 2005), the Mesolithic cemetery is dated between 7800-6900 BC and comprises some 50 inhumations in pits without grave goods, unless we include a single shell in two tombs and a few beads made of ostrich eggshell in another. The Neolithic cemetery extends further south and is made up of over 100 tombs which date from 6000-5500 BC. One of the sepulchres was capped by the bucranium of a cow, which confirmed its appurtenance to the Neolithic. Important changes in the funerary rituals and in the morphology of the skeletons occur, whilst

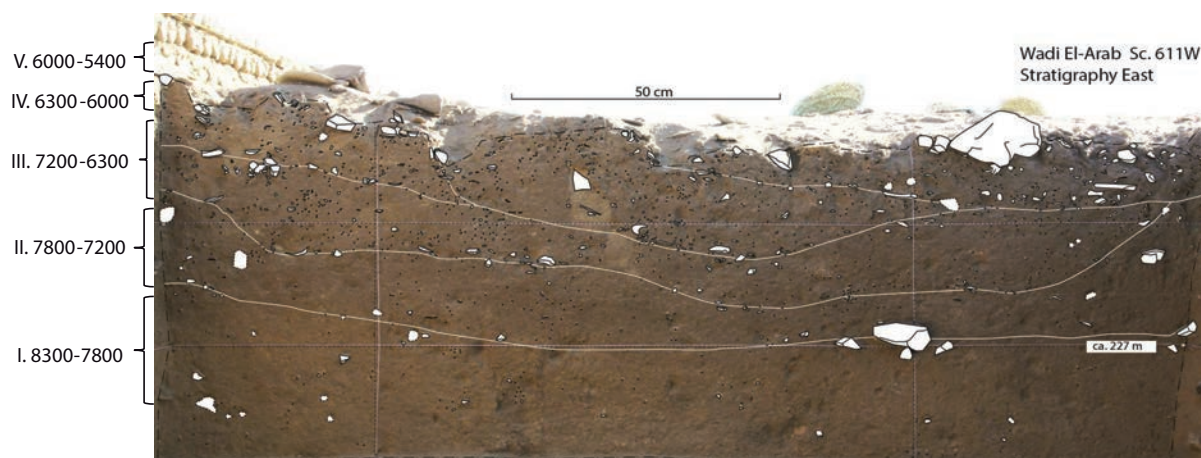


Figure 33/ Stratigraphy of Wadi El-Arab with the principal occupational phases.

all the graves continue to be individual inhumations in pits. The presence of grave-goods, largely new to the region, occurs almost systematically in the Neolithic graves. These are characterised by the presence of polished stone objects: axe heads, labrets and ear-rings; by several items of burnished pottery devoid of printed decoration; by bracelets made of hippopotamus ivory and simple make-up palettes (figure 32). The occasional object harps back to the previous period, such as two bone harpoons and pottery with printed decorations. At the anthropological level, the contrasts are also striking (Crèvecoeur 2012); the Mesolithic individuals are extremely robust, and exhibit strong muscular attachments on the cranium, long and wide mandibles with spina mentalis exceptionally developed, higher dental diameters, etc. They are close to Epipalaeolithic populations. The Neolithic skeletons are more gracile with shorter and narrower mandibles. They are close to Neolithic populations of the 5th millennium. All these elements speak for important changes involving the arrival of new populations, and give the impression of a certain rupture, rather than a slow transformation. It is in relation to this apparent rupture that we examine the sequence from the site of Wadi El-Arab. We ascertain what elements of the material culture change at this habitation site, which is contemporaneous with El-Barga, in order to determine whether the rates of change in this context appear to be slow or rapid.

The site of Wadi El-Arab is located on the fringe of the alluvial plain, with the Nile floods lapping the edge of the site at the beginning of the Holocene. One of the principal attraction of the site is the fact it has preserved sediments one metre thick, with a crust at their summit and carbonate infiltrations which protect them. The site extends over more than three hectares. Two main sectors were excavated. The

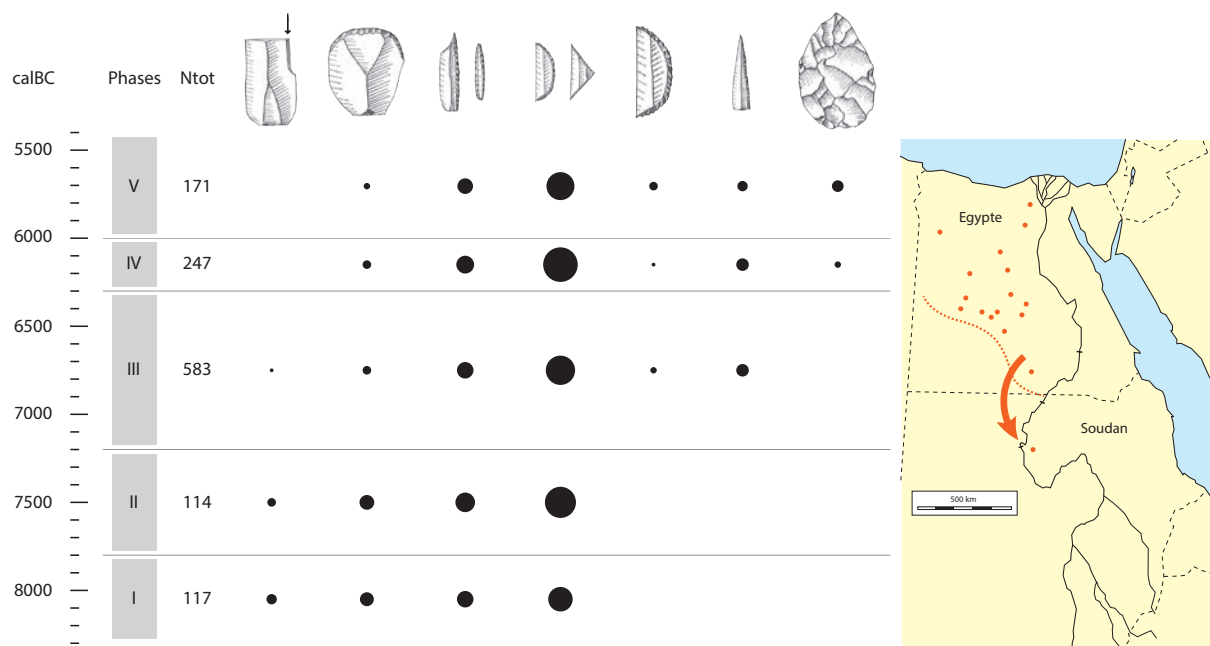


Figure 34/ Main types of the knapped lithic industry in Wadi El-Arab with their chronological evolution. The map shows the distribution of lithic bifacial tools in Egypt and Sudan (after Riemer 2007)..

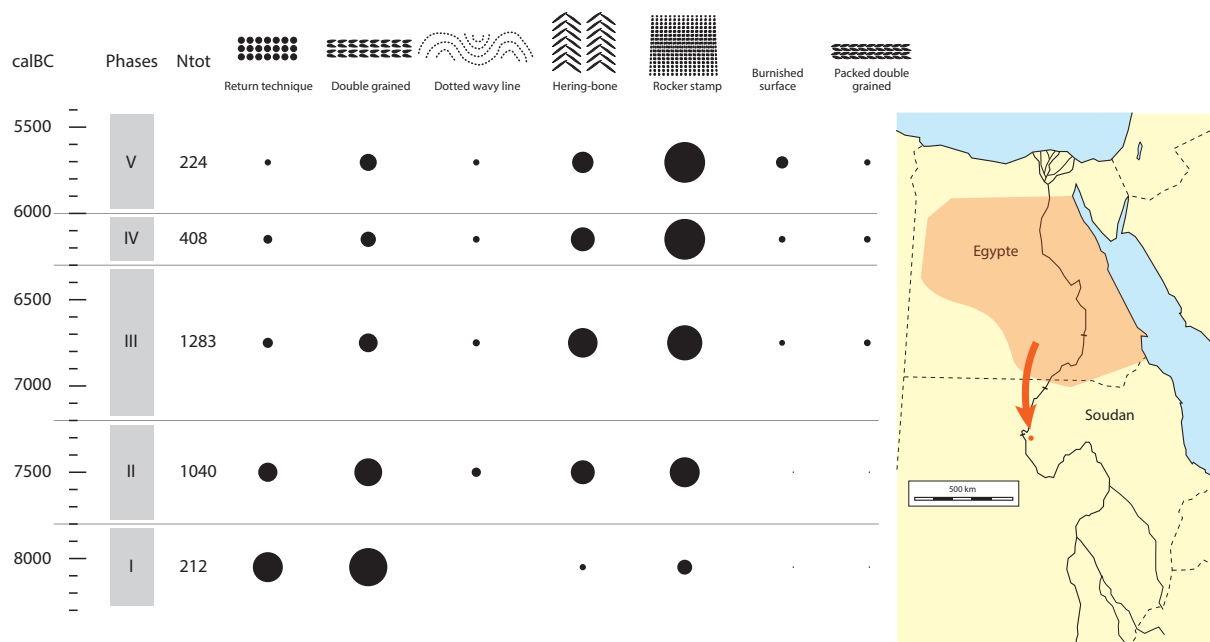


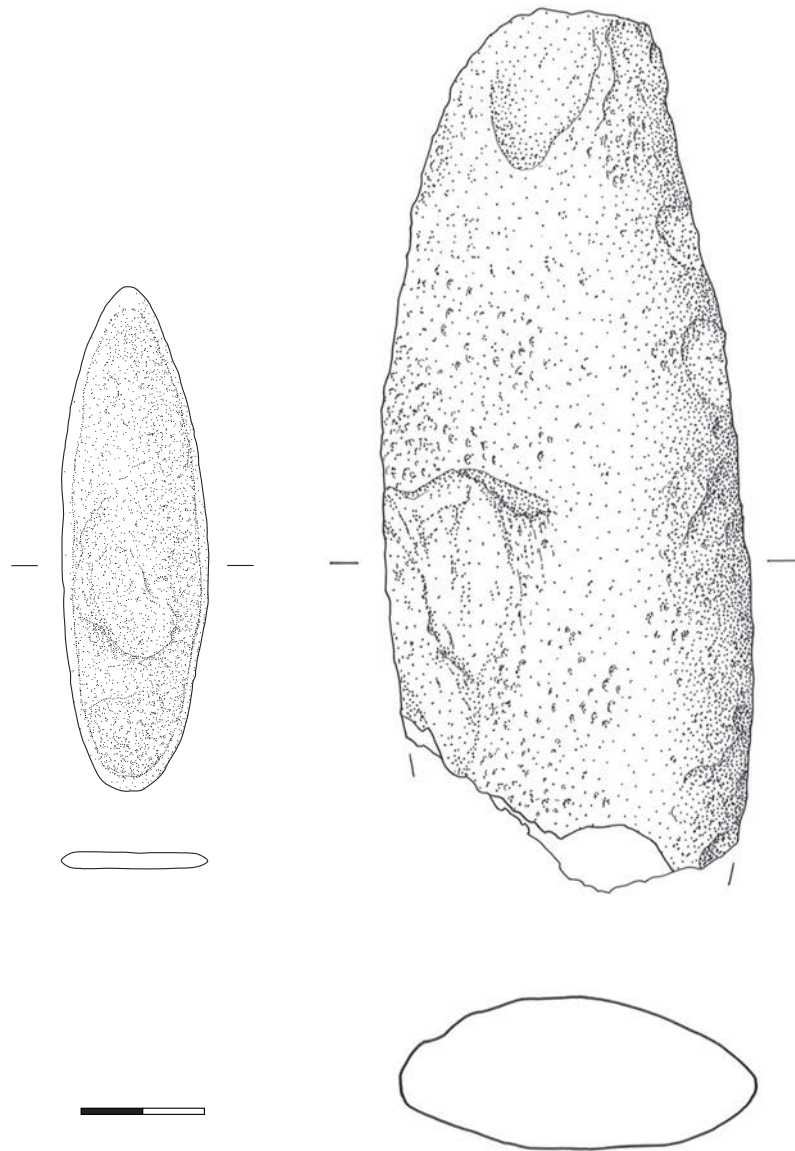
Figure 35/ Chronological evolution of the pottery decoration and surface treatment in Wadi El-Arab. The map shows the distribution of burnished pottery in the 6th millennium BC in Egypt and Sudan (after Riemer 2007)..

sedimentary sequence is poorly contrasted, but cross-referencing the stratigraphic, chronological and cultural data has permitted the identification of five phases spread between 8300-5400 BC (figure 33). These five phases cover the entire Mesolithic and the Initial Neolithic. It is clear that post-depositional phenomena do not permit as fine a vision as one obtains in closed contexts. The main evolutionary tendencies can however be interpreted, as well as certain cultural breaks. Phases 2 and 3 are the thickest and best preserved, whilst phases 4 and 5 at the top of the stratigraphic sequence have suffered most from erosional effects, and are quantitatively less important. Faunal remains are particularly poorly preserved at the top of the sequence, which could explain why no remains of domesticated fauna were found, with the exception of a bovine metapode fortuitously discovered on the surface. The evolution of the knapped lithic industries is relatively homogeneous and shows no evident signs of ruptures (figure 34). The presence in particular of geometric microliths – segments of circles and triangles – borers and drills, pieces with regular retouch – with abrupt retouch in particular – as well as irregular retouch, are constants. It is interesting to note that burins were only found in the earlier phases and that the large segments of circle and backed points only appear starting in phase 3. The most important rupture is marked by the use of a new technique in phase 4 with the appearance of points made by invasive bifacial shallow retouch. In fact, traditionally, Nubian lithic industries produce microliths with abrupt retouch. The appearance of these bifacial pieces in the mid-7th millennium BC is indicative of contacts with Egypt, where this type of point is diffused at the same time (Riemer et al. 2013). Wadi El-Arab is located much further south than the limit of the area covered by the sites which produced bifacial points.

The pottery at Wadi El-Arab evolves in several “Sudanese” styles of Impressed Ware (figure 35). It shows clear affinities in particular with the Nubian sequences and with those from the region of Nabta Playa in particular. The earliest decorative styles are produced using the alternative pivoting stamp technique (APS) and the return technique in particular. During the intermediary phases, the famous dotted wavy line and the herring-bone pattern appear. The rocker stamp technique is the most prevalent starting in phase 2. At the end of the sequence burnished and particularly fine pottery appears in the final ensemble. This last pottery style once again echoes Egypt, where, during the 7th millennium BC, burnished pottery appears, which would progressively supplant the regional traditions (Riemer et al. 2013). A fragment of beaker was also found at the top of the sequence, in a context dated to the 6th millennium BC, which is a type of pottery which would evolve particularly starting in the Middle and Final Neolithic (Jesse 2007).

At the top of the sequence, a few items made of polished stone make a discreet appearance (figure 36). These few objects echo the numerous polished stone axe-heads and body ornaments discovered in the necropolis of the nearby Neolithic site of El-Barga. The technique of polished stone appears in the region of Kerma at the advent of the Neolithic. The origin of this technique is problematic and as-yet not clearly established for North-East Africa. Does it come from the north with the

Figure 36/ Polished point and
axe made from metamorphic
stone from the upper level
of Wadi El-Arab.



other components of the Neolithic, or does it originate elsewhere? From Niger for example, where Roset appears to have found a very early production of polished stone objects at the site of Tagalagal (Roset 1983). It is difficult to make a clear determination at present, and more research may help clarify the situation.

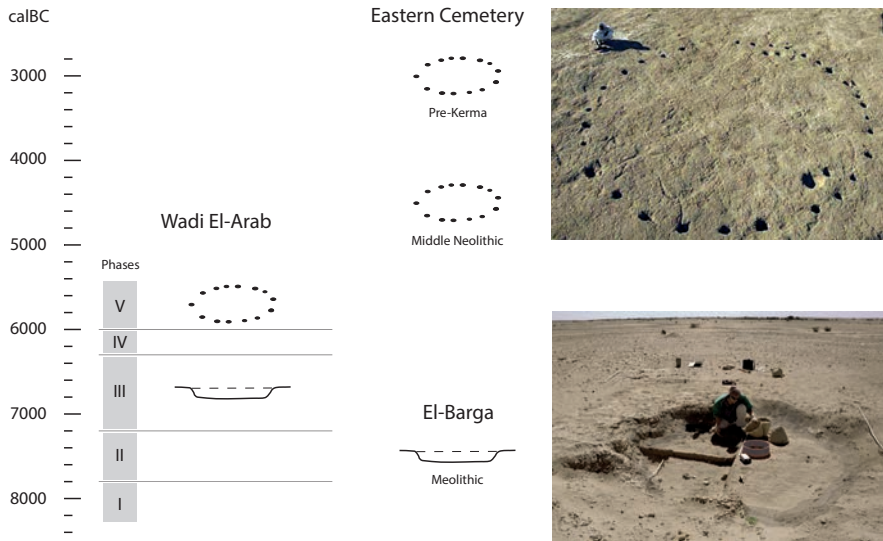
The evolution of the habitations at the site of Wadi El-Arab, shows a marked difference between the 7th and 6th millennia BC (figure 37). A tradition of semi-subterranean huts gives way to huts built with a wood-post frame. Similar semi-subterranean huts were found in the region of Nabta Playa (Wendorf and Schild 2001), as well as the nearby site of El-Barga (Honegger 2004) and in Central Sudan at the site of El-Khiday (Salvatori et al. 2014). As for the circular wood-post huts,

these can be found in the region at sites dating from the Middle Neolithic until the period of the Kingdom of Kerma (Honegger 2006). It is possible that this change in the type of habitation was generalised and symptomatic of an important transformation, which was tied to the establishment of the Neolithic.

The sequence of Wadi El-Arab reveals numerous changes in the 6th millennium. These changes however, seen quantitatively, do not appear to give the impression of major ruptures. They give the appearance of being progressive, with a strong continuation of the underlying Mesolithic culture. The contrast is greater in the funerary context at the site of El-Barga, where a clearer rupture can be observed. This observation is not however necessarily contradictory. The choice of objects deposited as grave-goods at El-Barga appears to have accentuated the differences, especially as regards body ornaments, which are in complete contrast to the preceding Mesolithic. The few examples of pottery at El-Barga emanate from two traditions (Impressed Ware of Sudanese tradition and Burnished Ware). The chipped stone industry, which is poorly represented in the tombs, cannot be used as a basis of comparison in a similar manner. Finally, it must also be acknowledged that the Wadi El-Arab sequence has to date not yielded much material from the 6th millennium occupation levels. Further research should allow us to fine-tune our initial reflections.

To conclude, the neolithisation process in Nubia comes across as being similar to other north-east African regions. It is characterised by the gradual introduction of Neolithic attributes: bovines, most likely followed by caprines, then by agriculture, which last is very poorly attested. We can assume the arrival of new populations starting in the early 6th millennium BC, which merged with the Mesolithic substrate, bringing about progressive changes in the material culture and more marked contrasts in the area of funerary rituals.

Figure 37/ Chronological evolution of the habitation structures from the Mesolithic to the Neolithic in the region of Kerma.



This article sets out how the African breeders of large domesticated animals are viewed over time, and how that has influenced the theoretical and methodological views of pastoralism in social sciences, especially those of ethnology and archaeology. It is inspired by a chapter from my doctoral thesis defended at the University of Neuchâtel (Dubosson 2016), which focussed on the ethnoarchaeology of African pastoralism, which subject saw its genesis in the research at Kerma. Different historical sources are presented, which trace the traditional narratives concerning African stockbreeders. These reveal the assumptions and ways in which they were viewed, many of which are still often current. For several centuries, pastoralism has been studied and described, often in pejorative terms. The stockbreeders, as principal actors, their domesticated animals and their environment have been the subject of persistent and often ambivalent fascination of numerous authors, both ancient and modern. This notable phenomenon is persistent since the first written mentions by the Egyptians, right up to present-day international publications.

The African breeders are most often seen as different from others, due to their nomadic life-style and their relationship with their animals. Such views emanate from social groups that do not practice nomadic pastoralism, and the effect of such views is the ideological polarisation of pastoral and non-pastoral societies, the origin for which can be found in the value-judgements, mostly in relation to sub-Saharan Africa, of city-dwellers and agriculturalists, and later by Westerners who discovered these pastoralists and their herds, whilst exploring and colonising the “Black Continent”. In fact, some observers were quickly shocked and scared off the practices of the pastoralists, which appeared to them, based on their own logic, as incomprehensible and irrational. Others have been surprised and impressed by their physical or mental characteristics, as well as by their adaptive faculties. Over time their narratives would create either a realistic, or a mythical image of these pastoralists and their life-style. This article shows how this hybrid vision concocted by ancient authors still largely influences how pastoralism is perceived.

Pastoralists in Ancient Egypt

The first references to African pastoralists can be found in texts and inscriptions from pre-Dynastic and Dynastic Egypt (Montet 1954, Roccati 1982, Anselin 2000). They are referred-to as Tjehenou, Tjemehou, Medjay, Meshwesh, Lebu, or Blemmyes (Barnard 2009, Ritner 2009). One term in particular, Lebu, was used to describe them, being the name of a Berber tribe located to the west of the Nile Delta. Lebu is quite probably at the origin of the ethnic term ‘Libyans’, used at that time to collectively describe all the tribes living in North Africa, west of the Nile Delta (Zimmermann 2008). However, the diversity of the pastoralist societies was apparent from Early Egyptian times, and it would be wrong to think of the

Libyans as a single, stable and immutable ethnic and cultural entity, or to look for its historical continuity over time and space. The only constant which generally comes across is their recurrent threat to the Egyptian power.

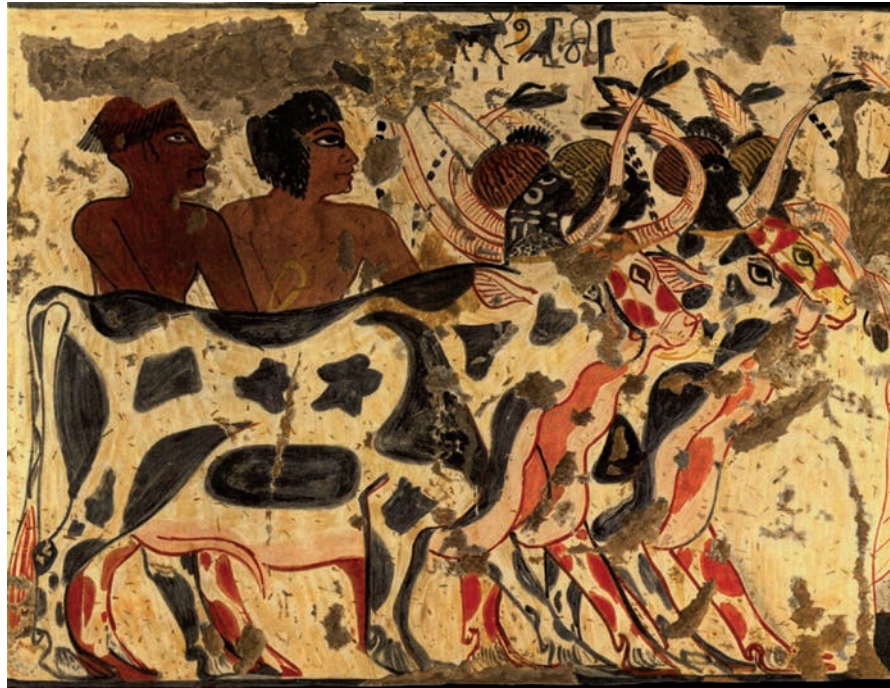
Pre-Dynastic and Dynastic documents attest to the bellicose relationships which existed between the sedentary populations of the Nile Valley and the nomadic ones to the west and south of Egypt. The Libyan Tribute Palette shows the booty carried back by King Scorpion from his expedition into the foreign lands of the Tjehenou: cattle, donkeys, sheep and trees. The Palermo stone tells how, during a military expedition, Sنفrou (Dynasty IV), razed the land of the Nubians and brought back 7.000 prisoners and 200.000 head of livestock. The annals of this king are also present on a fragment in Cairo, which mentions a razzia in the lands of the Libyans, which produced 1.100 prisoners and 13.100 head of livestock (Roccati 1982: 39-40). A low-relief from the funerary temple of Sahourê (Dynasty V) brought back a rich booty from the land of the Tjehenou: 123.000 head of cattle, 223.400 donkeys, 32.423 goats and 243.688 sheep. Under Ramses III, 1309 head of cattle were brought back from the lands of the Meshwesh, as well as donkeys, goats and sheep. The presence of the Egyptians in the lands of these pastoralists does not appear to be limited to controlling them, weakening them and keeping them at a safe distance; it is also to gain possession of their wealth on four legs.

If the numbers put forward on the documents of the Egyptians can be questioned, the value of the facts they relate cannot be totally rejected. Populations of stockbreeders certainly existed in North Africa, especially in the Sahara, in the Western Desert as well as in Nubia, and that from at least the 5th millennium BC (Gratien 1995, Riemer and Darius 2011, Briois et al. 2012, Barich et al. 2014). Furthermore, they were prosperous, and the livestock which they owned was wealth largely coveted by the pharaonic power. Several documents confirm the regular importation of cattle from lands to the west and south of Egypt (figure 38).

African pastoralists in Antiquity

During antiquity, Africa was a poorly known continent, which was divided in three large regions: Libya, Egypt and Ethiopia. All the populations of North Africa, excluding the Nile Valley, were deemed to be Libyans, and were known to the Ancient Greeks from at least the 7th century BC (Zimmermann 2008). Used as a generic name, the term 'Libyans' designated in particular the North African indigenous populations with a lighter skin-colour than those from the South, designated 'Ethiopians'. Ethiopia was the name given to the lands to the south, to designate Africa in a general way. The Ethiopians were thus all the other populations to the south of Egypt as far as the Atlantic, excluding the Greeks and Phoenicians. The interior of the continent remained largely *terra incognita* (Cary and Warmington 1929). Thus, only a few of the African peoples are mentioned by the authors of Antiquity, and then only fairly briefly. They describe, embroidering

Figure 38. Import of Nubian cattle from the tribute to the Pharaoh, Thebes, tomb of Huy (no.40). Tutankhamun, 1357-1349 B.C. (Davies and Gardiner 1936: pl. LXXX),



fact and fiction, the habits of the African stockbreeders, their particular traits and their relationship with the domesticated animals. These narratives would condition the West's perception of pastoralism during many centuries.

The Greek historian Herodotus describes pastoral populations in books III and IV of his *Histories* (Larcher 1850). At times mocking and at other times admiring, he briefly mentions two African populations who live a pastoral life in lands full of *“ferocious beasts”* (Book IV, 101-192): the Libyans and the Ethiopians. He states that the first live on *“flesh and milk”* (Book IV, 186), and that the tribe of the Garamantes owned cattle that *“grazed whilst walking backwards”* because their horns *“faced forward”*. They grazed thus, otherwise their *“horns would stick in the ground”* (Book IV, 183). With this description of the cattle, Herodotus has the Garamantes recite part of a mythical tale: that of the theft of Apollo's cattle by the young Hermes, who has them grazing by walking backwards, so as to fool his pursuers.

In fact, he sets these Libyans under an ambiguous divine character, Hermes, protector of roads, junctions and travellers, whilst also guardian of robbers. Herodotus is here following the geographical tradition that has it that the world of these stockbreeders is elusive and devious, peopled by racketeers and brigands. This trait is subsequently picked-up by all antique historiography (Troussset 1982: 99-100), and beyond, establishing the stereotype of the nomad. Amongst the Ethiopians, Herodotus distinguishes the Troglodytes, neighbours of the Garamantes, and the

Macrobians. He attributes to these Ethiopians a near-perfection, which he compares to an imperfect Mediterranean world, and which he presents as an ideal towards which the Greek world should strive. These Ethiopians were stable, virtuous and perfectly contented with their lot. Living on the edge of the known world, the *oikoumenè*, protected from foreign influences by a burning and impenetrable desert, they received as their share of the extremities of the world “*that which is most beautiful*” (Book 3, 106). However, by setting the Ethiopians in a mythical land, which is at the extremities, which are understood to be immutable and unattainable, Herodotus *de facto* takes them out of history, which is full of movement (Racine 2001). In fact, why should the Ethiopians change, since they have attained quasi-perfection? Herodotus thus contributes to the creation of a distant and fabulous Africa, as well as an opposition between a dynamic centre full of movement and a static periphery.

Writing in the first century BC, the historian Diodorus Siculus describes in Book III of his *Bibliotheca Historica* a number of nomadic peoples (Hoefer 1851). Following on from Herodotus, he describes the Troglodytes as living in a particular region of Africa, to the south-east of Egypt on the shores of the Red Sea. He states that the Troglodytes are called Nomads by the Greeks, since they live a pastoral life with their herds: “*following after their herds and flocks, they move from one land to another, avoiding any stay in the same regions*” (Book III, 32). They feed on milk mixed with blood during the wet season and the flesh of their animals at all times. The name of parent is not given to “*any of their kin*”, but is reserved “*for the bull and the cow, the ram and the sheep, which they call fathers and mothers, since they supply them with their daily food, as against the men and women who gave them birth*” (Book III, 32). They are often at “*at war between each other, not like the Greeks, through resentment or any other reason, but to always have fresh pastures*” (Book III, 33). They kill themselves when no longer able to follow their herds, by strangling themselves with a cow’s tail, thus putting an end “*bravely to their lives*” (Book III, 33). The descriptions of the habits and life-styles of the Nomadic Troglodytes by Diodorus Siculus highlight the centrality of the livestock in their daily and ritual life, almost to the point of obsession. The nomads come across as bellicose, fighting amongst each other, or against other pastoralists with the sole purpose of caring for their wealth, their livestock, so that it might enjoy the best pastures and water-holes. He states that their habits are so “*strange*”, that any reader might doubt his narrative, unless he took into consideration the extreme character of their existence. In fact, it is because they live at the extremities of the world, in lands “*with a climate totally opposed to ours*” that their lifeways are so different (Book III, 34).

Diodorus also describes another “*nation*”, that of the Western Ethiopians. He distinguishes amongst this nation the inhabitants of the powerful Kingdom of Meroe and the nearby tribes to the south. Of the first, the Meroites, Diodorus informs us of a “*strange*” and “*singular*” practice, which consisted of putting to death their king on the orders of the priests responsible for the divine cult (Book III, 6). This

evocation brings to mind the ritual practice of regicide amongst the present-day Shilluk nomads of Southern Sudan, regarding which anthropologists are still trying to understand the significance (Schnepel 1991, Graeber 2011). Diodorus informs us that their food consists in large part of “*the flesh, the milk and cheese from their herds*” (Book III, 8). Their habits are “*very savage and ferocious like those of the animals they resemble, not so much in terms of their character; but more in terms of their habits. Their bodies are filthy, and have very long nails like those of animals*” (Book III, 8).

Diodorus is the first to portray the pastoralist as being obsessed by his cattle. The excessive way in which he describes him, turns him into a savage, completely mesmerised by his domesticated animals. His existence can only make sense in their company. He thus gives body to the notion of the irrationality of the pastoralist in his attitude and behaviour. The subsequent work of several modern anthropologists will build on this image, particularly through that of the Cattle Complex of Melville J. Herkovits (1926).

In the first century AD, the Ethiopians are again the subject of a description, this time by Pliny the Elder in his *Naturalis Historia* (French translation, Littré 1855). The author is largely inspired by the classical idea of determinism between man and his environment. Thus, the Ethiopians live in a land scorched by the sun, whose rays coloured their skin (Book II, 80). Amongst them can be found tribes without noses, without upper lip, or even without a tongue (Book IV, 35). Others, lacking a head, have their mouths and eyes in the middle of their chest (Book V, 9). The harshness of the climate makes the people stupid (Book II, 80). In Pliny, we find an even more extraordinary mixture of fact and fiction than in Diodorus. If the geographical descriptions of the continent appear to be fairly realistic, those treating of the human cultures are much more caricatural. He gives an idea of Africa as a savage world, rich and strange, peopled by animals and humans each more grotesque than the last. The principal characteristic of Africa that comes across is that of its bestiality. During this period, the sources regarding Ethiopia are homogeneous, transmitting and repeating stereotypes resulting from lack of knowledge regarding the land, as well as being conditioned by the political vision of Rome as having a civilising mission (Mietton-Géroudet 1992). This situation is replicated today in certain narratives by non-pastoralists, regarding the East African breeders. They are deemed to be living close to nature, like wild animals, untouched by civilisation which would have lifted them to the rank of human beings. Some photographs support this narrative, showing them close to and even assimilated into an element of African wildlife (Tornay 2009, Silvester 2013).

The information given to us by the authors of Antiquity, must be treated with caution; scanty and partial, they inform us more on the imagery of that time than they do on the realities of life regarding pastoralists. The portrayal of the ‘other’ cannot be taken literally, since ethnography in Antiquity functioned by opposing stereotypes (the wild pastoralist as the antithesis of the civilised Greek

or Roman), on the archetypal visions of barbarians (sexual promiscuity, perpetual famine, war, anarchy, excesses), on negative definitions of nomadic pastoralism (wandering, brigandage), and on fabulous descriptions of the pastoral environment (impenetrable, immutable, full of wild and monstrous animals) (Trousset 1982, Leveau 1988). This tendency suggests that the authors of Antiquity felt a need to create a gap between the 'civilised' world and the 'primitive' space of the subject being studied. The traits associated with the nomadic pastoralist was not the result of objective observation, but rather of ideological and cultural projections. They are selected in such a manner as to make the pastoralist appear inferior, by placing the emphasis on the strange, the shocking, the frightening. They make the reader reject nomadic pastoralism as a degrading way of life. Repeated over the centuries, the authors of Antiquity obtaining their information from previous authors, these traits end up creating a durable image of the pastoralist as an extreme and barbarous individual (Trousset 1982). He is portrayed as a cruel being, savage and monstrous, ignorant of civilisation and its benefits, and lacking ethics and social structure. However, beneath this mythical and ideological pastoralist, it is possible to discern a part of his real history. To achieve this, it is important to first set aside the clichés, extract the facts hiding behind the mask of fantasy, and take note of the convincing elements supplied by the authors of Antiquity. It is then necessary to look for additional information, such as that which archaeology can supply, since this can qualify the views of Antiquity and the simplistic narrative which these propose regarding pastoralism.

Medieval and colonial African pastoralists

After the authors of Antiquity, the interest in African pastoralists appears to have waned, as though everything had been said on the subject. There is virtually no local sources, as written sources can be said to become generalised at the beginning in the 19th century. The transmission of information is by way of oral tradition. The external sources are on the one hand Arab and on the other European. The Arabic sources set out narratives that are more succinct and precise than in Antiquity, whilst relating primarily to the shores of the Mediterranean. The interior remains a mystery, since it continued to be difficult of access. Thus, the pastoralists they mention are for the most part breeders of cattle and camels, who had entered into the dynamics of the Islamic exchange network. The European external sources begin to gather momentum only from the 15th century, with the expansion of triangular trade networks in the intertropical coastal regions. They are marked by a profound racial prejudice, which largely contributed to the lack of interest in the history of the African populations (Fauvelle-Aymar 2013b). Whilst the 12th century mention by Benjamin of Tudela of a naked people living south of Aswan, who were ever prepared to take risks to obtain agricultural produce, and who ate grass growing on the banks of the Nile like wild animals, could make one think of the Nuer or the Dinka, there is no definitive proof to confirm this (Hess 1965, Fauvelle-Aymar 2013a). It is during the period of the great explorations that the conceptualization of the African pastoralist will take form, and this historiography of pastoralism

cannot be separated from the vision of the Black African. The characteristics of the pastoralists would progressively be constructed and conditioned on the back of those of the negroes, subjected to slavery and the slave trade. The sources are largely impregnated by racial prejudice and an ambivalent treatment of Africa, which was treated on the one hand as a land of abundance (gold, ivory, etc.), and on the other as repulsive (chaotic nature, suffocating climate, dense vegetation, strange animals, savage and monstrous populations, etc.). The narratives are those of travellers, which take the form of detailed reports or fabulous descriptions. They produce an image of Africans as inferior and grotesque, and this image is largely accepted in the Europe of the 16th century and beyond (George 1958, McCarthy 1983, Lowe 2005).

At the end of the 18th century, the systematic exploration of Africa, described as the 'Dark Continent' by the Europeans, got underway (Hibbert 1984). Scientific interest for the black continent increased, signalling a growing curiosity for the geography, botany, zoology and ethnology. The reports regarding the peoples that were encountered were essentially the work of solitary explorers, whose explorations were funded by organisations whose aims were scientific, or by governments interested in trade. Some of these reports became best-sellers, exercising considerable influence on Western culture and the course of modern history (Brantlinger 1985).

The representation of the continent and of its inhabitants, favoured by European imperialism, continued to be impregnated by the classic theme of the civilising mission of the Western world. In fact, if there was long time-span between these reports and those from Antiquity, the manner in which they portray Africa demonstrates their belonging to the same tradition. They state, explicitly or implicitly, that the Africans ignore the meaning of civilisation, that they are devoid of ambition, lazy, naïve, childish, cruel, of loose morals, that their behaviour is excessive and irrational, and that they live in chaotic and anarchic lands. To summarise, Africa is represented as a mirror image of what Greece, Rome and Europe had never been and never should be. Whenever it is a question of describing the people and their culture, an ethnocentric moral judgement is always implied. The ideas regarding civilisation and progress are forever present in the image that Europe paints of itself. This influences the belief-system and legitimises the categorisation of European behaviours as civilised, whilst those of non-Europeans are uncivilised. A change in the perception of the 'other' is perceptible in that whilst previously very often seen as a 'monster', this now tended to be replaced by 'primitive', 'savage' or 'noble savage'.

From the end of the 19th century until the beginning of the 20th century, pastoralism is seen defined as an archaic and intermediate means of production, somewhere between mobile hunting and the gathering of wild plants on the one hand, and agriculture on the other. This evolutionist vision made Africa look as though it had

remained primitive, inhabited by traditional societies, living in a wild and hostile environment. This vision was reinforced by the tales of pastoralists recently come across by travellers, explorers, western missionaries and colonial administrators (Parodi da Passano 1981, Turton 1981). These views became a pillar of racism, justifying colonialism, in both its paternalistic and aggressive forms. These first visitors were generally little interested in the peoples they came across, and the recording of cultural and linguistic details was for the most part very fragmentary, since it represented a by-product of their other activities. In their descriptions of the pastoralists they came across were to be found precise descriptions as well as mostly negative summary judgements. The image which comes across remains that of the traditional vision from Antiquity and the Middle Ages. The traits with which they had then been associated continue to be present: stockbreeders were thieves, fearsome warriors, savages with strange cultural traits. A new characteristic appears however, regarding their place in the historical evolutionary process. In 1868, the German botanist Georg A. Schweinfurth travelled from Khartoum to Bahr-el-Ghazal by following the White Nile (figure 39), where he came across the Dinka, who, according to him, lived “*in a veritable iron age*” (1894: 153). This vision continued to be current half a century later with the colonial administrators of East Africa. According to Major Geoffrey W. Titherington, who was responsible for the District of Bahr-el-Ghazal, “*The Dinka show us pre-historic man at home in the twentieth century as uncontaminated by outside influence as any race that can be found in the world today*” (1927: 159). They were “*still in the pastoral stage of culture, with all that that implies of conservatism, and [have] not yet passed to the agricultural*”. The administrator Henry C. Jackson sees in the Nuer the most backward people of Africa, savages who were “*an enemy to any sort of progress, and at present, do not want or appreciate any amelioration of their hard, barbaric lot*” (1923: 87). These references to prehistory stress the vision of the archaic, frozen in time and static nature of the pastoral societies. Their objective was to justify colonialism, which alone could bring them forward into the historic present. These societies were seen as being doomed to disappear in the face of the progress of ideas and modern western technology. Their only chance of survival resided in the adoption of civilisation, becoming sedentary and adopting agriculture.

Early on, the Western observers, who were for the most part colonial administrators of the British East Africa Protectorate, took to highlighting the importance of stock-breeding in the lives of East African pastoralist populations, whether they be Maasai (Thomson 1887, Hollis 1905, Merker 1910), Kipsikis (Barton 1923), Nandi (Hollis 1909), Suk (Beech 1911) or Turkana (Barton 1921) in Kenya, or Dinka (Schweinfurth 1874, Titherington 1927), Didinga (Driberg 1922), Shilluk (Westermann 1912) or Nuer in Southern Sudan (Jackson 1923). The importance attached to the pastoralists was repeated numerous times in the texts of the several authors, to the point that it ended-up appearing suspect. Were their observations overemphasising the importance of stock-breeding, or were they downplaying their other activities, such as agriculture, fishing, or hunting and gathering, which came across in the final analysis as secondary? In fact, the idea that stock-breeding was



Figure 39/ Schweinfurth's drawing of a Dinka village (Schweinfurth 1874: 177).

their only occupation was a direct reflection of how they portrayed themselves, since it had the highest cultural value for them. It did not reflect its real economic value, since we are a long way from being certain that they depended only or principally on stock-breeding for their subsistence.

The emphasis given to cattle is thus the result of the way in which it was perceived in the domain of representations. The authors consequently agreed amongst themselves that the cattle were objects of veneration. The first author to set the tone was no doubt the British trader John Petherick, who reported that in the Nuer, Dinka and Shilluk societies, the “*veneration for the bull*” was a “*superstition*”, the origin for which was a “*corrupted relic of a portion of the creed or habits and customs of the Ancient Egyptians*” (Petherick 1869: 10). He continued by stating that they were not sentimental enough to bury their cattle, since it was the pleasure of ownership which made the cattle an object of veneration. The Westerners were often intrigued to discover cultural norms so at odds with their own, placing cattle in, what for them, was an unusual position (Wessenborn 1906). They had trouble explaining the divine, sacred and almost human status with which the cattle were endowed.

The Hamitic theory of Charles G. Seligman

The importance of cattle in the sub-Saharan cultures would be interpreted, as from the middle of the 19th century, as the result of the influence of a conquering nation of pastoralists called the Hamites. This hypothesis appears to have originally been expounded by John H. Speke, a British explorer in East Africa, in his widely-sold bestseller 'Journal of the discovery of the source of the White Nile' (1863). In the region of the Great Lakes, he came across African populations who lived in kingdoms, which, according to him, emerged consequent on the invasion of "mythic" pastoralists originating from Northern Asia, who conquered the local agriculturalists. This hypothesis, whose influence would prove long-lasting on the way in which African pastoralism was perceived, in fact has a long history (Sanders 1969).

At the beginning of the 20th century, the idea that African populations should be studied from this Hamitic, racial and diffusionist perspective was developed at length by the British anthropologist Charles Gabriel Seligman (1873-1940). He expounded that the resemblances revealed by ethnography, physical anthropology and archaeology could only be explained by the presence of a common cultural Hamitic root (Seligman 1913: 593). His work 'Races of Africa' (1930: 97), reedited several times until the 1960s, would have a profound influence on how African pastoralism was perceived, and would supply the ideological background for several generations of anthropologists, archaeologists and historians who were interested in Africa. According to him, the Hamites were Caucasian pastoralists, meaning Whites, who arrived in repeated waves via Southern Arabia or the Horn of Africa, to eventually conquer the entire continent. In his work, he attempted to demonstrate the influence of the Hamites on the Black African populations, by emphasising the similarities in their physical characteristics, their customs, beliefs, and their social and political organisation. When differences appeared, they were regularly assumed to be due to racial mixing between "Blacks" and Hamites. Numerous traits were thus highlighted and associated with the Hamites, identified as the initiators of civilisation on the continent, which implied all cultural, technological, economic and political developments. The manifest racism of this hypothesis, the rejection of all historical creativity by the Black Africans, would be condemned in the 1950s, but the vision projected would be found in the present-day writings of western as well as African intellectuals. In fact, the model of state formation proposed, achieved through external cultural influences, retains a certain attraction amongst researchers (Fage and Oliver 1970), as well as that of the diffusion from the north-east of technical innovations or specific cultural phenomena (Cole 1954). For sure, the authors do not automatically refer to the Hamites when referring to irrigation systems (canals and weirs), the circular architecture of the stone huts, of megaliths, of the mutilation of teeth or of circumcision, but they always refer to a Caucasian population, which would henceforth be referred-to as 'Southern Cushites' (Murdock 1959, Sutton 1968). If for some researchers, that there should have been historical expansions and invasions of pastoralists acting as the motor for political and social

change, was considered a myth which subsisted through the utilisation of distorted terminology (Sanders 1969), for others, afrocentrists, this new appellation marked a turning point in the study of the ancient history of the continent. According to these, the abandonment of the term 'Hamite', with its discredited connotations mixing physical, cultural and linguistic traits, and its substitution with 'Southern Cushite', whose use did not pretend to any racial or cultural connotation, should permit a more objective study of pastoralism (Ehret 1967, 1974, Lynch and Robbins 1979, Farelus 1993, Sutton 1993, Ehret 2011).

Seligman was one of the first anthropologists to have put forward, with the methods and scientific theories of the period, the idea of a predominance of pastoral ideology in the cultures of North-Western, Eastern and Central Africa. In these regions, it was possible to regularly observe "*sacred or uncommon*" (Seligman 1913: 656) characteristics in relation to milk, and the essential role played by cattle in rituals and their economy. These Hamites would thus have succeeded in making of their cattle the most important form of symbolic, relational and material wealth for a large proportion of the African peoples. Seligman took up his arguments in a synthetic work on the Hamitised peoples of Southern Sudan, 'Pagan tribes of Nilotic Sudan' (Seligman and Seligman 1932), whilst at the same time supplying more detailed information on their material and spiritual life. His empiric as well as theoretical implication in this region thus opened the way for more detailed studies on the importance of cattle in the East African cultures, many of which were undertaken by his students, such as Jack H. Driberg (1922, 1923, 1930) and Edward E. Evans-Pritchard (1940). His diffusionist and racial approach would be replaced by a more cultural approach to pastoralism, regarding which Melville J. Herskovits would be an essential proponent in the early 20th century with his notion of 'cattle complex'.

The Cattle Complex of Melville J. Herskovits

In the early 20th century, the close association between man and his animals would be the new trait defining the East African stockbreeders. This became the object of a detailed study by the American anthropologist Melville J. Herskovits (1895-1963) in his doctoral thesis, published in a long article in the American magazine 'American Anthropology' (1926). With the title 'The cattle complex in East Africa', it represented the first major synthesis of African pastoralism. The term 'cattle complex' has been translated into French as '*aire de la vache*', and describes an ensemble of values associated with cattle in East Africa, which guide the behaviour patterns and perceptions (Bonte 2009: 200). From this viewpoint he examined the different attitudes of the stockbreeders with regards to their cattle, the work and products they furnished, the taboos, customs and rituals in which they were associated, as well as their perception of their cattle as a source of wealth, power and prestige. He examined all instances where the cattle exercised a strong cultural influence (Herskovits 1926: 272), since according to him, cattle played a greater social and ritual role, than an economic one. The principal traits were summarised as follows: "*Cattle as wealth, cattle as the only acceptable dowry, cattle as the proper animals to be used in ceremonies or at*

special feasts, cattle associated with distinct sex or occupational taboos, special milk customs...” (1926: 653). Their distribution was sufficiently similar and interrelated, according to him, to form a vast cultural area. It extended from the north to the south of the continent, from the lower valley of the White Nile to the South African coast, excluding Somalia and Ethiopia to the east, and the Congo Basin and the Kalahari Desert to the west. Within this space, the cattle complex was best evidenced by the Nyanza around Lake Victoria, with the Nuer, Dinka, Shilluk and Murle (South Sudan) to the north, the Turkana, Suk and Kikuyu (North West Kenya), the Maasai, Nandi and Kavirondo (Northern Kenya and Tanzania), as well as the Bantu in the region of the Great Lakes (Rwanda, Burundi), to the south. The historical point of origin of the cattle complex was not where currently practiced, noted Herskovits (1926: 656-657). He stated that it needed to be sought elsewhere, without specifying exactly where. He nonetheless let it be known that archaeologists and archaeozoologists might be able to identify it, or at least help in understanding the diffusion of cattle and the related cultural traits.

The value of stock-breeding and the close association between man and his domesticated animals was perceived negatively by a number of scientists (especially geographers, ethnologists, biologists, or economist), as well as government agents. Subsequent to the work of Herskovits, new terms made their appearance, such as *‘boolâtrie’* (Tauxier 1937), to evocate the place of cattle in the supernatural representations, and *‘boomania’* (Richard-Molard 1949) to designate the practices which were irrational from the viewpoint of the Europeans (refusal to sell their cattle or their saleable produce, retaining aged beasts, expand their herds beyond the carrying capacity of the land, etc.). Under the influence of the colonial vision, the African stock-breeding was qualified as unproductive and sentimental, and the breeders, considered to be ecologically insensitive, were accused of destroying their environment, damaging their own prosperity as well as that of their country. They were subsequently taken in hand, and development programmes established to control their pasture lands, their herds and their mobility. The creation of national borders and the enforced sedentarisation of the stockbreeders did not improve their lot, since it brought about the reduction in the transhumance zones and an increased exploitation of certain watering places and pasture lands. After the colonial period, these stereotypes continued to be propagated. Ethnologists, biologists, economists, government officials, defenders of the environment or development professionals continued to maintain that pastoralists were irrational and that they were incapable of managing their herds and pasture lands for the common good (Harding 1968, Livingstone 1977). These negative traits belonged to an old paradigm, which saw pastoralism as a way of life vowed to disappear, but mostly as a menace for the economic, ecological and political stability of their ‘host’ country. The phantom of the cattle complex would continue to regularly haunt the studies related to pastoralism, since it was not until the end of the 1990s and early 2000s that a new paradigm would appear (Warren 1995, Turner 2011). Turner recognised the importance of moving cattle around, due to the high spatiotemporality of the rainfall, and therefore of the production of animal feed and the sensitivity of pasture lands to overexploitation,

as well as the capacity of the stockbreeders to manage for themselves their local resources (pastures, transhumance corridors, water points). He also proposed that the collaboration between local and national actors take place on a regular basis, and that they work towards the protection and preservation of their resources, as well as to facilitate the access to the market places of the stockbreeders and their produce. The stockbreeders were thus recognised as having real empiric know-how and a true understanding of the socio-economic causal relationships.

Academic and scientific approaches

As from the 1940s, anthropological studies relating to pastoralism became more numerous and became truly empirical and academic. A major change occurred at that time, with the anthropologists working directly with the stockbreeders (Dyson-Hudson 1972). Heavily influenced by the concerns of British anthropologists of the period, they studied the capacity of the stockbreeders to adapt to the prevailing arid conditions, on their social organisations and the questions of mobility imposed by their means of production. These early extensive studies did not detach themselves so easily from the romantic vision of authors of yesteryear. The pastoralists continued to be described as valorous and noble warriors, fierce and independent, free to wander with their herd and ignorant of the constraints and frustrations of 'civilised' man (Dyson-Hudson and Dyson-Hudson 1980: 15). Furthermore, such traits being associated with male values, the role of the womenfolk remained neglected.

The fascination for the pastoral nomads who best corresponded to the romantic stereotypes would become the subjects of numerous studies. Ethnographic studies were mostly undertaken in East Africa, with the Nuer (Evans-Pritchard 1940), the Boran (Baxter 1954), the Turkana and the Jie (Gulliver 1955), whilst West Africa was not forgotten (Stenning 1959). The literature dealing with pastoralism would flower in the 1960s and 1970s, thanks to the new generation of anthropologists. The ranks included more women and the choice of location and research agenda became diversified. The numerous monographs produced at that time testify to the fact that pastoralism was not in irreversible decline, as predicted by some a few decades previously (Hinde and Hinde 1901, Amin, Willet and Eames 1987). Colonialism had, it is true, a dramatic impact on the pastoralist communities. Progressively relegated to the periphery, limited in their migrational movements, controlled and taxed for their use of the land and the ownership of cattle, they no longer found themselves at the centre of regional systems or the wider exchange and reciprocity networks which they had known until the beginning of the 20th century (Galaty and Bonte 1991). However, they continued to maintain their specific mode of subsistence, whilst incorporating new opportunities (import of new merchandise, increase in the demand for meat, sale of cattle and related products on the markets, access to veterinary care, paid work on the white man's farms as an alternative to razzias), using well-established economic and social strategies with a mixed degree of success and ingenuity (Waller and Sobania 1994: 55). The ethnographic monographs of the period testify to the dynamism of the pastoral communities

and their resilience in the face of the external world. These deal with the Boran (Dahl and Hjort 1976), the Dassanech ((Almagor 1978), the Bédouins (Behnke Jr 1980), the Fulani (Dupire 1962), the Gogo (Rigby 1969), the Hima Ankole (Elam 1973), the Karimojong (Dyson-Hudson 1966), the Maasai (Jacobs 1965), the Pokot (Schneider 1979), the Samburu (Spencer 1965), the Rendille (Spencer 1973), the Sebei (Goldschmidt and Goldschmidt 1976), the Somali (Lewis 1961) and the Tuareg (Nicolaisen 1963). If most of these anthropologists remained faithful to the structural-functional school of British social anthropology, a few replied present to the call of Dyson-Hudson, who wanted the understanding of the pastoralists to come second after the comprehension of what stock-breeding involved (1972: 14). These anthropologists paid particular attention to the ethical and emic information obtained, and based their behavioural analysis of the theories and methods of ecological anthropology and that of political economy. They were interested in the human behaviour as regards individual actions and tried to identify the impact of changes brought about by economic development factors and those induced by the policies of the colonial and national governments. The studies would demonstrate that attempts at generalisations were of very limited value as aids for understanding the structures and functioning of pastoral societies. They in fact demonstrated that there was a large degree of variability between pastoral groups as regards the manner in which they managed their herds, their social structure, their dependence on agricultural produce, the interactions between neighbouring groups, task allocations, etc.

In the 1970s and 1980s, the way in which pastoralism was approached underwent a major change. The detailed studies regarding the processes which characterised specific adaptations within pastoral groups in several regions around the world, would replace those studies previously undertaken, which had been oriented toward the idealistic visions of pastoralism. These studies, undertaken in Africa, in Asia and the Middle East, would produce descriptions of pastoralism which were far from conforming to a uniform vision. They in fact revealed the great variability in the social organisations and the environmental adaptations of the pastoral societies. To explain this variability, the most important models examined the level of continuum in the exploitation of multiple resources and the dependence on non-pastoral products (Salzman 1971), the analysis of the group territoriality and the environmental resources (Dyson-Hudson and Smith 1978), the economic analysis of the stock in terms of capital (Barth 1964, Schneider 1979), the relationship between ownership and power in societies based on parentage (Bonte 1978, Tornay 1979a, 1979b, Rigby 1985, 1992), the role of the stock in the reproduction of the organisational structure of the societies (Bonte 1975, Hazel 1979, de Heusch 1982, Bonte 1991). Most anthropologists had by now broken free of the romantic stereotypes of the nomadic pastoralist, and analysed specific aspects of systems of stock-breeding. By focussing more on the variables and the dynamic aspects of these groups, they hoped to avoid static images, such as 'nomad pastoralists', 'pastoral nomadism', 'pure pastoralism'. As from the 1980s and 1990s, interest in pastoralism grew significantly. Awareness or increasing aridification, environmental degradation

and the political instability in regions particularly threatened by aridification and famine, led to the multiplication of the multidisciplinary approaches. The studies combined the studies of pastoral groups with that of their physical environment and the problems of aridity in the regions in which they lived. Monographs continued to be produced (Schlee 1989, Fratkin 1991, Little 1992, Rigby 1992), but the new tendency was towards collaborative and interdisciplinary research (Dyson-Hudson and McCabe 1985, Fratkin and Roth 1990, Little and Leslie 1990). Several volumes were thus produced from this standpoint ((Monod 1975, Equipe 1979, Galaty et al. 1981, Johnson and Anderson 1988, Baxter and Hogg 1990, Galaty and Johnson 1990, Galaty and Bonte 1991, Barfield 1993, Spear and Waller 1993). They also wished to give greater emphasis to the historical approach regarding the pastoral societies, which had often been neglected in previous studies. Certain authors thus tackled the prehistory of pastoralism, proving the existence of an ancient African stock-breeding tradition, which was well adapted to its immediate environment (Smith 1992, Marshall 1994). The studies at that time were however based more on qualitative data (history, ethnology), than quantitative (ecology, health, nutrition, demography and economic development). These last biobehaviourist viewpoints were further developed beginning in the 1990s (Fratkin, Galvin and Roth 1994, Little and Leslie 1999, Leonard and Crawford 2002, Homewood 2008).

Beginning in the 1990s, the myths, stereotypes, simplifications and generalisations, which had impregnated both the popular and academic vision of African pastoralism, were regularly confronted and criticised in case studies, which were always better documented (Galaty and Bonte 1991). The false notions were those of non-pastoralists, which is to say, governments and research professionals. Herskovits was no doubt the first to have fed them an academic vision. Possibly unwittingly, he was the cause of several such instances, but the influence of his work favoured their propagation. Amongst those visions most often prevailing, we can mention the following (Hesse and MacGregor 2006): pastoralists were deemed to practice the accumulation of an irrational number of head of cattle, based on their cultural rather than economic value; in order to always satisfy the needs in water and pasture lands of their herds, they tended to expand in a predatory manner; pastoralism was essentially a natural adaptation to an arid environment and was therefore ecologically determined; pastoral societies tended to create isolated systems, which were compartmentalised and autonomous; finally, the political and social systems of the pastoralists were egalitarian, which tended to fragment the political authority and contributed to their marginalisation within the modern state structures.

The mythologization of herders continued and even became more marked, thanks to the development of photography and filming, followed by the internet. Stereotyped images, often accompanied by brief captions, which these mediums portray, are carefully constructed and widely diffused. We are referring to postcards, touristic publicity films, contemporary films, documentary films, illustrated books, etc. These images tend towards the romantic, the exotic or ritualistic, by emphasising those same elements as in the past, which is to say, 'extraordinary' customs and

beliefs (Ricciardi and Wan 1971, Riefenstahl 1982, Beckwith, Fisher and Hancock 1990, Beckwith and Fisher 1999, Silvester 2006). They are often embellished, highlighted or exaggerated by technical means or original shot angles. Too rarely, they project the point of view of the pastoralists themselves (MacDougall, Blue and Baxter 1974, Strecker 1986, Lydall and Strecker 2001, Olibui and Young 2009). To the contrary, these images reinforce the ethnocentrism of the public targeted, by emphasising the external doubly distorted vision of the pastoralists. On the one hand they are presented as noble savages, living in harmony with a generous and pure mother-nature, which is ever more threatened by the assaults of modernisation (Silvester 2009, 2013, Nelson 2015). The images suggest that they need protection, since they are the symbol of a fast-disappearing world. On the other hand, they appear as barbaric nomads. They are represented as wild warriors attached to strange customs, with traditions involving violent razzias and incredible migrations, which are dramatic or uncontrollable (Giansanti 2004, 2010, Silvester 2015). Certain images suggest that these 'last nomads' are incapable of grasping the advantages of modernity of which they totally ignorant. In each instance, they are supposed to be immediately recognisable by their clothing and exotic hair-styles, their bright ornaments, their lances or automatic rifles which they proudly clasp, and their intense look and tall stature. These few elements are supposed to distinguish them as pastoralist, as against the agriculturalists or hunter-gatherers. They in fact tend to be merged under the 'pastoral' umbrella of the different ethnic groups who live primarily as pastoralists in East Africa. The Maasai, Nandi, Pokot, Nuer, Dinka, Bodi, Mursi, Hamar, etc., become difficult to distinguish and place by the wider public.

The pastoralists thus become once again grouped under a single definition, largely used since the early 19th century, that of 'primitive'. These images, which perpetuate the stereotype, through an aesthetic appropriation, are often reductive and morally questionable. They harp back to a vision of a primitive Africa, which was one of the pillars of colonialism. Nowadays, it is possible to witness the return of this vision with ecotourism, and its romantic enthusiasm for the 'primitive'. Tourists have the option to discover regions of the world supposedly reflecting a wild nature, to take a journey back in time and be in the timeless world of the pastoral communities, who supposedly have a simpler and healthier life than in a city environment.

Conclusion

Popular representations of pastoralism appear to have little evolved, despite several decades of good-quality scientific work. This situation is probably the result of an unbridged gulf between the world of ethnographic or anthropologic research and the wider public, which would allow the stereotypes to crumble, as well as the avowed wish for simplistic reporting in the mass medias (Tornay 2009). If the anthropology of pastoralists has permitted these to become better-known, for the many they remain always as exotic.

They should not however be reduced to simple objects to be represented in photographic images, in the literature or in scientific research. Far from being impotent victims of these representations, imposed on them from outside, recent research indicate that the pastoralists have in their turn manipulated them, and continue to do so, for their individual and collective benefit (Little 1991, Anderson 1993, Abbink 2000, Galaty 2002, Sobania 2002, Turton 2004, Gabbert and Thubauville 2010, Catley, Lind and Scoones 2013, LaTosky 2013, Strecker 2013, LaTosky 2014).

As an example, the Maasai stockbreeders, and notably the elders, knew how to play-up when posing for photographs, or when welcoming colonial visitors, so as to reinforce their authority (Spear and Waller 1993). The manner in which the pastoralists have reacted, and continue to do so, to the stereotyped representations created over the centuries, is not easy to decipher. This is not a privileged area of research, so that we do not at present know how these representations of the self-have impacted the pastoralists, or influenced their pastoral practices. That could be an interesting perspective, which would allow a greater understanding of the dynamics surrounding pastoralism, and help identify the course of future developments, which are currently the subject of heated debates, as well as there being a great deal at stake regarding pastoralism for the countries of Africa (Berhe and Butera 2012, Bollig, Schnegg and Wotzka 2013, Catley, Lind and Scoones 2013, Sternberg and Chatty 2013, Abbink et al. 2014).

BIBLIOGRAPHY

- Abbink, J. 2000. "Tourism and its discontents : Suri-tourists encounters in Southern Ethiopia", *Social Anthropology*, 8, 1: 1-17.
- Abbink, J., Askew, K., Dori, D.F., Fratkin, E., Gabbert, E., Galaty, J.G., LaTosky, S., Lydall, J., Mahmoud, H.A., Markakis, J., Schlee, G., Strecker, I., and Turton, D. 2014. "Lands of the future : transforming pastoral lands and livelihoods in eastern Africa", *Max Planck Institute for Social Anthropology - Working Papers*, 54: 1-29.
- Almagor, U. 1978. *Pastoral partners : affinity and bond partnership among the Dassanetch of South-West Ethiopia*. Manchester: Manchester University Press.
- Anderson, D.M. 1993. "Cow power : livestock and the pastoralist in Africa", *African Affairs*, 92, 366: 121-133.
- Anselin, A. 2000. "Bœufs et pasteurs – Soudan, Libye, Égypte antique", *Cahiers caribéens d'Égyptologie*, 1: 71-119.
- Aufderheide, A. Rodriguez_Martin, C. 1998. *The Cambridge encyclopedia of human paleopathology*. Cambridge : Cambridge University Press.
- Barfield, T.J. 1993. *The nomadic alternative*. Englewood Cliffs: Prentice Hall.
- Barich, B.E., Lucarini, G., Hamdan, M.A., Hassan, F. 2014. *From lake to sand. The archaeology of Farafra Oasis, Western Desert, Egypt*. Sesto Fiorentino: All'Insegna del Giglio.
- Barnard, H. 2009. "The archaeology of the pastoral nomads between the Nile and the Red Sea", in: Szuchman, J. *Nomads, tribes, and the state in the Ancient Near East : cross-disciplinary perspectives*, Chicago: Oriental Institute of the University of Chicago: 15-41.
- Barton, J. 1921. "Notes on the Suk tribe of Kenia Colony", *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, 51: 82-99.
- Barton, J. 1923. "Notes on the Kipsikis or Lumbwa tribe of Kenya Colony", *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, 53: 42-78.
- Baxter, P.T.W., Hogg, R. 1990. *Property, poverty and people : changing rights in property and problems of pastoral development*. Manchester: Department of Social Anthropology and International Development Centre, University of Manchester.
- Beckwith, C., Fisher, A. 1999. *African ceremonies*. Vol. 2. New York: Harry N. Abrams.
- Beckwith, C., Fisher, A., Hancock, G. 1990. *African art : people and ancient cultures of Ethiopia and the Horn of Africa*. New York: HN Abrams.
- Beech, M.W.H. 1911. *The Suk. Their language and folklore*. Oxford: Clarendon Press.
- Behnke Jr, R.H. 1980. *The herders of Cyrenaica : ecology, economy, and kinship among the Bedouin of Eastern Libya*: University of Illinois Press.
- Berhe, M., Butera, J.-B. 2012. *Climate change and pastoralism : traditional coping mechanisms and conflict in the Horn of Africa*. Addis Abeba: Institute for Peace and Security Studies and University for Peace.
- Bietak, M. 1968. *Studien zur Chronologie der nubischen C-Gruppe. Ein Beitrag zur Frühgeschichte Unternubien zwischen 2200 und 1550 vor Chr.* Denkschriften der

- österreichischen Akademie der Wissenschaften 97. Wien: H. Böhlau Nachf.
- Bietak, M. 1979. "Ceramics of the C-Group Culture", in: Hintze, F. ed. *Africa in Antiquity. The Arts of Ancient Nubia and the Sudan*. Meroitica 5: 107-127.
- Bolig, M., Schnegg, M., Wotzka, H.-P. 2013. *Pastoralism in Africa : past, present and future*. New York: Berghahn Books.
- Bonnet, C. 1982. "Archaeological excavations at Kerma (Sudan): preliminary report for the seasons 1980-81 and 1981-82", in: Bonnet, C. et al. *Archaeological excavations at Kerma (Sudan)*, Geneva, ns, 30: 1-25.
- Bonnet, C. 1984. "Archaeological excavations at Kerma (Sudan): preliminary report for the seasons 1982-83 and 1983-84", in: Bonnet, C. et al. *Archaeological excavations at Kerma (Sudan)*, Geneva, ns, 32: 1-22.
- Bonnet, C. (dir). 1990. *Kerma, royaume de Nubie*. Genève: Musée d'art et d'histoire.
- Bonnet, C. 1997. "Archaeological excavations at Kerma (Sudan): preliminary report for the seasons 1995-96 and 1996-97", in: Bonnet, C. et al. *Les fouilles archéologiques de Kerma (Soudan)*, Geneva, ns, 45: 96-112.
- Bonnet, C. 1999. "Archaeological excavations at Kerma (Sudan): preliminary report for the seasons 1997-98 and 1998-99", in: Bonnet, C. et al. *Les fouilles archéologiques de Kerma (Soudan)*, Geneva, ns, 47: 57-76.
- Bonnet, C. 2000. *Edifices et rites funéraires à Kerma*. Paris: Errance.
- Bruzek, J. 2002. "A method for visual determination of sex using the human hip bone", *American Journal of Physical Anthropology*, 117: 157-168.
- Bonte, P. 1978. "Pastoral production, territorial organization, and kinship in segmentary lineage societies", in: Burnham, P. Allen, R. F. *Social and ecological systems*, London: Academic Press: 203-226.
- Briois, F., Midant-Reynes, B., Machand, S., Tristant, Y., Wuttman, M., De Dapper, M., Lesur, J., Newton, C. 2012. "Neolithic occupation of an artesian spring : KS043 in the Kharga Oasis, Egypt", *Journal Of Archaeology*, 37, 3: 178-191.
- Catley, A., Lind, J., Scoones, I. 2013. *Pastoralism and development in Africa. Dynamic change at the margins*. Abingdon: Routledge.
- Chaix, L. 1984. "Troisième note sur la faune de Kerma (Soudan) - Campagnes 1983 et 1984", *Genava, ns*, 32: 31-34.
- Chaix, L. 2006. "Bœufs à cornes déformées et béliers à sphéroïde : de l'art rupestre à l'archéozoologie", in: Gauthier, Y., Le Quellec, J.-L., Simonis R. eds. *Hic Sunt Leones, mélanges sahariens en l'honneur d'Alfred Muzzolini*, Cahiers de l'Association des Amis de l'Art Rupestre Saharien, 10: 49-54.
- Chaix, L., J. Dubosson, M. Honegger. 2012. "Bucrania from the Eastern Cemetery at Kerma (Sudan) and the practice of cattle horn deformation", in : Kabaciński J., Chłodnicki M. and Kobusiewicz M. *Prehistory of Northeastern Africa. New ideas and discoveries*. Studies in African Archaeology, 11: 189-212.
- Cleuvenot, E., Houet, F. 1993. "Proposition de nouvelles équations d'estimation de stature applicables pour un sexe indéterminé, et basées sur les échantillons de Trotter et Gleser", *Bulletins et Mémoires de la Société d'anthropologie de Paris*, 5, 1-2: 245-255.

- Crèvecoeur, I. 2012. "First anthropological insights on the Early Holocene funerary assemblages from El-Barga", *Kerma, Documents de la mission archéologique suisse au Soudan*, 4: 19-28.
- Davies, M., Gardiner, A.H. 1936. *Ancient Egyptian paintings*. Chicago: University of Chicago Press.
- Driberg, J.H. 1922. "A preliminary account of the Didinga", *Sudan Notes and Records*, 5, 4: 208-222.
- Duday, H., Courtaud, P., Crubezy, E., Sellier, P., Tillier, A.-M. 1990. "L'anthropologie de "terrain" : reconnaissance et interprétation des gestes funéraires", *Bulletins et Mémoires de la Société d'anthropologie de Paris*, 2, 3-4: 29-49.
- Dunham, D. 1982. *Excavations at Kerma, part VI*. Boston: Museum of Fine Arts.
- Dupire, M. 1962. *Peuls nomades : étude descriptive des Wodaabe du Sahel nigérien*. Paris: Institut d'ethnologie.
- Dyson-Hudson, N. 1966. *Karimojong politics*. Oxford: Clarendon Press.
- Dyson-Hudson, R., McCabe, J.T. 1985. *South Turkana nomadism : coping with an unpredictably varying environment*. Vol. 2. New Haven: Human Relations Area Files.
- Ehret, C. 1967. "Cattle-keeping and milking in eastern and southern African history : the linguistic evidence", *The Journal of African History*, 8, 1: 1-17.
- Ehret, C. 1974. "Cushites and the Highland and Plains Nilotes to AD 1800", *Zamani*: 150-169.
- Ehret, C. 2011. "A linguistic history of cultivation and herding in northeastern Africa", in: Fahmy, A.G., Kahlheber, S. and D'Andrea, A.C. *Windows on the African past. Current approaches to African archaeobotany*, Frankfurt am Main: Africa Magna Verlag: 185-208.
- Elam, Y. 1973. *The social and sexual roles of Hima women : a study of nomadic cattle breeders in Nyabushozi county, Ankole, Uganda*. Manchester: Manchester University Press.
- Equipe. 1979. *Production pastorale et société*. Paris: Maison des sciences de l'homme.
- Fallet, C. 2013. "Bioarchaeological Study of the ancient Sectors of the Eastern Cemetery: latest Results. *Kerma, Documents de la mission archéologique suisse au Soudan*, 5: 32-36.
- Fallet, C. forthcoming. "Population from the Kerma Eastern Cemetery: biological Identity and funerary Practices", in: Honegger, M. (ed.), *Nubian Archaeology in the XXIst Century. Proceedings of the Thirteenth International Conference for Nubian Studies (Neuchâtel, 1-6 September 2014)*. Leuven - Paris - Walpole: Peeters Editions.
- Farelius, B. 1993. "Where does the Hamite belong", *Nomadic Peoples*, 32: 107-118.
- Fratkin, E., Galvin, K.A., Roth, E.A. 1994. *African pastoralist systems : an integrated approach*. Boulder: Lynne Rienner Publishers Inc.
- Fratkin, E., Roth, E.A. 1990. "Drought and economic differentiation among Ariaal pastoralists of Kenya", *Human Ecology*, 18, 4: 385-402.
- Friedman, R. 2001. "Excavations in the Nubian Cemeteries", *Sudan & Nubia* 5: 29-37.
- Friedman, R. 2004. "Excavation of the C-Group cemetery at HK27C, Hierakonpolis", *Sudan & Nubia* 8: 47-51.
- Friedman, R. 2007. "The C-Group cemetery at Locality HK27C: Results of the 2007

season ", *Sudan & Nubia*: 11, 57-62.

Friedman, R. 2014. "HK27C C-Group Cemetery Revisited", *Nekhen News*: 26, 23-25.

De Morgan, J. 1903. *Fouilles à Dahshour*. Wien: Adolphe Holzhausen.

Gabbert, C., and Thubauville, S. 2010. *To live with others. Essays on cultural neighborhood in Southern Ethiopia*. Köln: Rüdiger Köppe Verlag.

Galaty, J.G. 2002. "How visual figures speak : narrative inventions of 'The Pastoralist' in East Africa", *Visual Anthropology*, 15, 3-4: 347-367.

Galaty, J.G., Aronson, D., Salzman, P.C., Chouinard, A. 1981. *The future of pastoral peoples*. Ottawa: International Development Research Centre.

Galaty, J.G., Bonte, P. 1991. *Herders, warriors and traders : pastoralism in Africa*. Boulder: Westview Press.

Galaty, J.G., Johnson, D.L. 1990. *The world of pastoralism : herding systems in comparative perspective*. New York: Guilford Press.

Goldschmidt, W.R., Goldschmidt, G. 1976. *Culture and behavior of the Sebei : a study in continuity and adaptation*. Berkeley: University of California Press.

Gratien, B. 1978. *Les cultures Kerma. Essai de classification*. Lille: Université de Lille.

Gratien, B. 1986. *Sai I. La nécropole Kerma*. Paris.

Gratien, B. 1995, "La Basse Nubie à l'Ancien Empire. Egyptiens et autochtones", *JEA* 81: 43-56.

Harcourt, R.A. 1974. "The dog in prehistoric and early historic Britain", *Journal of Archaeological Science*, 1: 151-175.

Heidenreich, R. 1935. "Tongefäße", in: Steindorff, G., *Aniba*. Glückstadt und Hamburg: J.J. Augustin.

Hesse, C., and MacGregor, J. 2006. *Pastoralism: drylands' invisible asset? Developing a framework for assessing the value of pastoralism in East Africa*. Vol. 142. London: Drylands Programme, International Institute for Environment and Development.

Hollis, A.C. 1905. *The Masai : their language and folklore*. Oxford: Clarendon Press.

Hollis, A.C. 1909. *The Nandi : their language and folklore*. Oxford: Clarendon Press.

Homewood, K. 2008. *Ecology of African pastoralist societies*. Oxford: James Currey.

Honegger, M., Dubosson, J. 2009. "Ancient graves of the Eastern Cemetery", *Kerma, Documents de la mission archéologique suisse au Soudan*, 1: 9-10.

Honegger, M. 2004. "Settlement and cemeteries of the Mesolithic and Early Neolithic at el-Barga (Kerma region) ", *Sudan & Nubia*, 8: 27-32.

Honegger, M. 2005. "Kerma et les débuts du Néolithique africain", *Genava*, 53: 239-249.

Honegger, M. 2006. "Habitats préhistoriques en Nubie entre le 8e et le 3e millénaire av. J.-C.: l'exemple de la région de Kerma", in: Caneva, I., Roccati, A. (eds.), *Acta Nubica. Proceedings of the X International Conference of Nubian Studies, Rome 9-14 September 2002*. Rome : Università di Roma "La Sapienza": 3-13.

Honegger, M. 2010a. "The Ancient Kerma Area of the Eastern Cemetery", *Kerma, Documents de la mission archéologique suisse au Soudan*, 2: 7-11.

- Honegger, M. 2010b. "Mesolithic and Early Neolithic habitation remains of Wadi El-Arab", *Kerma, Documents de la mission archéologique suisse au Soudan*, 2: 3-6.
- Honegger, M. 2011a. "The Beginning of the Kerma Civilisation in the Eastern Cemetery", *Kerma, Documents de la mission archéologique suisse au Soudan*, 3: 9-14.
- Honegger, M. 2011b. "Excavation at Wadi El-Arab", *Kerma, Documents de la mission archéologique suisse au Soudan*, 3: 3-8.
- Honegger, M. 2012a. "Excavations at Wadi El-Araba and in the Eastern Cemetery", *Kerma, Documents de la mission archéologique suisse au Soudan*, 3: 3-9.
- Honegger, M. 2012b. "Excavations at Wadi El-Arab and in the eastern cemetery of Kerma", *Kerma, Documents de la mission archéologique suisse au Soudan*, 4: 3-9.
- Honegger, M. 2013a. "The oldest Sectors of the Eastern Cemetery: Neolithic Occupations and the early Stages of the Kerma Civilisation", *Kerma, Documents de la mission archéologique suisse au Soudan*, 4: 17-31.
- Honegger, M. 2013b. "Wadi El-Arab: seeking out occupations from the 6th millenium BC", *Kerma, Documents de la mission archéologique suisse au Soudan*, 5: 11-16.
- Honegger, M., Jakob, B. 2009. "The Early Holocene sequence of Wadi El-Arab", *Kerma, Documents de la mission archéologique suisse au Soudan*, 1: 3-6.
- Honegger, M., Fallet, C. 2015. "Archers' Tombs of Kerma Ancien", *Kerma, Documents de la mission archéologique suisse au Soudan*, 5: 16-30.
- Honegger, M., Williams, M. 2015. "Human occupations and environmental changes in the Nile valley during the Holocene: the case of Kerma in Upper Nubia (Northern Sudan)", *Quaternary Science Reviews*, 130: 141-154.
- Horard-Herbin, M. P. 2000. "Dog management and use in the late Iron Age: The evidence from the Gallic Site of Levrux (France)", in: Crock-Ford, S. J. ed., *Dog through time*. British Archaeological Reports, International Series 889: 115-121.
- Jackson, H. 1923. "The Nuer of the Upper Nile Province", *Sudan Notes and Records*, 6: 59-107.
- Jacobs, A.H. 1965. *The traditional political organization of the pastoral Masai*. Nuffield College: University of Oxford.
- Jakob B. 2015. "The knapped lithic industry from Wadi El-Arab and the perspectives of a synthesis regarding the nubian Mesolithics", *Kerma, Documents de la mission archéologique suisse au Soudan*, 6: 12-15.
- Jesse F. 2007. "Un nouvel aspect du Néolithique au Wadi Howar (Nord du Soudan): des vases caliciformes", *CRIPEL*, 26: 187-196.
- Johnson, D.H., Anderson, D.M. 1988. *The ecology of survival : case studies from North East African history*. Boulder: Westview Press.
- Kuper, R., Riemer, H. 2013. "Herders before pastoralism: Prehistoric prelude in the Eastern Sahara", in: Bollig M. et al. (eds.), *Pastoralism in Africa: past, present and future*. New York/Oxford : Berghahn Books: 31-65.
- LaTosky, S. 2013. *Predicaments of Mursi (Mun) women in Ethiopia's changing world*. Köln: Rüdiger Köppe Verlag.

- LaTosky, S. 2014. "Images of Mursi women and the realities they reveal and conceal", in: Girke, F. *Ethiopian images of self and other*, Halle: Zentrum für Interkulturelle Regionalstudien: 121-146.
- Ledermann, S. 1969. *Nouvelles tables-types de mortalité*. Paris: PUF.
- Leonard, W.R., Crawford, M.H. 2002. *The human biology of pastoral populations*. Vol. 30. Cambridge: Cambridge University Press.
- Le Provost, V. 2013. "La céramique", in: Jeuthe, C. et al. "Ayn Asil, palais des gouverneurs du règne de Pépy II. État des recherches sur la partie sud". BIFAO 113, 203-238.
- Lewis, I.M. 1961. *A pastoral democracy : a study of pastoralism and politics among the Northern Somali of the Horn of Africa*. London-New York: Oxford University Press.
- Little, K. 1991. "On safari : the visual politics of a tourist representation", in: Howes, D. *The varieties of sensory experience: A sourcebook in the anthropology of the senses*, Toronto: University of Toronto Press: 148-163.
- Little, M.A., Leslie, P.W. 1990. *The South Turkana ecosystem project : report to the government of Kenya, office of the President*. Binghamton: Department of anthropology, State University of New York.
- Little, M.A., Leslie, P.W. 1999. *Turkana herders of the dry savanna: ecology and biobehavioral response of nomads to an uncertain environment*. Oxford: Oxford University Press.
- Lydall, J., Strecker, K. 2001. *Duka's dilemma: Ethnographic film*, 16 mm, 87 min, colour.
- Lynch, B.M., Robbins, L.H. 1979. "Cushitic and Nilotic prehistory : new archaeological evidence from north-west Kenya", *Journal of African History*, 20, 2: 319-328.
- Mann, R., Hunt, D. 2005. *Photographical regional atlas of bone disease : a guide to pathologic and normal variations in the human skeleton*. Springfield : Charles C Thomas publisher.
- MacDougall, D., Blue, J., Baxter, P.T.W. 1974. *Boran herdsman, Parts I and II: Ethnographic film*, 16 mm, 66 min, colour.
- Manzo, A. 2016. *Eastern Sudan in its Setting. The archaeology of a region far from the Nile Valley*. Cambridge Monographs in African Archaeology 94.
- Merker, M. 1910. *Die Masai : ethnographische Monographie eines ostafrikanischen Semitenvolkes*. Vol. 18. Berlin: Dietrich Reimer.
- Monod, T. 1975. *Pastoralism in tropical Africa*. London: Oxford University Press.
- Montet, P. 1954. *Les bœufs égyptiens*. Paris: P. Geuthner.
- Moore, C., Fanning, E., Hunt, E. 1963. "Age variation of formation stages for ten permanent teeth", *Dental research*, 42, 6: 1490-1502.
- Murail, P., Maureille, B., Peresinotto, D., Geus, F. 2004. "An infant cemetery of the Classic Kerma period (1750-1500 BC, Island of Sai, Sudan)", *Antiquity*, 78, 300: 267-277.
- Murail, P., Bruzek, J., Houet, F., Cunha, E. 2005. "DSP: a tool for probabilistic sex diagnosis using worldwide variability in hip-bone measurements", *Bulletins et Mémoires de la Société d'anthropologie de Paris*, 17, 3-4: 167-176.
- Murail, P. 2005. Variations anatomiques non métriques : les caractères discrets, in: Dutour, O., Hublin, J.-J., Vandermeersch, B. (dir.), *Objets et méthodes en paléanthropologie*. Paris : CTHS, 2: 137-152.

- Nicolaisen, J. 1963. *Ecology and culture of the pastoral Tuareg : with particular reference to the Tuareg of Ahaggar and Ayr*. Vol. 9. Copenhagen: National Museum.
- Nordstöm, H.-A. 1972. *Neolithic and A-Group sites*. Scandinavian Joint Expedition to Sudanese Nubia 3. Uppsala: Scandinavian University Books.
- O'Connor, D. 2014. *The Old Kingdom town at Buhen*. EM 106. London: Egypt Exploration Society.
- Olibui, O., Young, B. 2009. *Shooting with Mursi*: Ethnographic film, 55 min, video HD, colour.
- Ortner, D. 2003. *Identification of pathological conditions in human skeletal remains* (Second edition). San Diego: Academic Press Elsevier Science.
- Owings-Webb, P. A., Suchey, J. M. 1985. "Epiphyseal union of the anterior iliac crest and medial clavicle in a modern multiracial sample of American males and females", *American Journal of Physical Anthropology*, 51, 4: 457-466.
- Privati, B. 1982. "New elements for a classification of the ceramics of Ancient Kerma", in: Bonnet, C. et al. *Archaeological excavations at Kerma (Sudan)*, *Geneva, ns*, 30: 53-56.
- Privati, B. 1986. "Remarques sur les ateliers de potiers de Kerma et sur la céramique du Groupe C", in: Bonnet, C. et al. *Les fouilles archéologiques de Kerma (Soudan)*, *Geneva, ns*, 34: 23-28.
- Privati, B. 1999. "La céramique de la nécropole orientale de Kerma (Soudan): essai de classification". *CRIPEL* 20: 41-69.
- Raue, D. in print. *Elephantine und Nubien vom 4. - 2. Jtd v. Chr.* SDAIK 40.
- Reisner, G.A. 1923. *Excavations at Kerma I-V*. Harvard African Studies, 2 vols. Cambridge: Peabody Museum of Harvard University.
- Ricciardi, M., Wan, B. 1971. *Vanishing Africa*. London: Collins.
- Riefenstahl, L. 1982. *Vanishing Africa*. New York: Harmony.
- Riemer, H. 2007. "Mapping the movement of pastro-foragers: The spread of desert glass and other objects in the eastern Sahara during the Holocene 'humid phase'", in: Bubenzer, O. et al. (eds.). *Atlas of cultural and environmental change in arid Africa*. Köln : Heinrich-Barth-Institut: 30-33.
- Riemer, H., Darius, F. 2011. *El Kharafish. The archaeology of Sheik Muftah pastoral nomads in the desert around Dakhla Oasis (Egypt)*. Köln: Heinrich Barth Institut.
- Riemer H., Lange M., Kindermann K. 2013. "When the desert dried up: late prehistoric cultures and contacts in Egypt and northern Sudan", in: Raue, D. et al. (eds.). *The First Cataract of the Nile: One Region - Diverse perspectives*. Berlin : De Gruyter: 157-183.
- Rigby, P. 1969. *Cattle and kinship among the Gogo*. Ithaca: Cornell University Press.
- Rigby, P. 1985. *Persistent pastoralists : nomadic societies in transition*. London: Zed Books Ltd.
- Rigby, P. 1992. *Cattle, capitalism, and class : Ilparakuyo Maasai transformations*. Philadelphia: Temple University Press.
- Ritner, R. 2009. "Egypt and the vanishing Libyan : institutional responses to a nomadic people", in: Szuchman, J. *Nomads, Tribes, and the State in the Ancient Near East*, Chicago: Oriental Institute of the University of Chicago: 43-56.
- Roberts, C., Manchester, K. 2010. *The archaeology of disease*. Stroud: The History Press.

- Roccati, A. 1982. *La littérature historique sous l'Ancien Empire égyptien*. Paris: Éditions du Cerf.
- Roset, J.-P. 1983. "Nouvelles données sur le problème de la néolithisation du Sahara méridional: Aïr et Ténéré, au Niger", *Cahiers ORSTOM. Série Géologie*, 1, 2: 119-142.
- Salvatori, S., Usai, D., Abdelrahman, M. F., di Matteo, A., Iacumin, P., Linseele, V., Magzoub, M. K. 2014. "Archaeology at El-Khiday: New insight on the prehistory and history of Central Sudan", in: Anderson, J. R., Welsby, D. A. (eds.). *The Fourth Cataract and Beyond. Proceeding of the 12th International Conference for Nubian Studies*. Leuven-Paris-Walpole : Peters: 243-257.
- Säve-Söderbergh, T. 1989. *Middle Nubian Sites*. Scandinavian Joint Expedition to Sudanese Nubia 4. Uppsala: Scandinavian University Books.
- Schaefer, M., Black, S., Scheuer, L. 2009. *Juvenile osteology : a laboratory and field manual*. London: Academic Press Elsevier Science.
- Schneider, H.K. 1979. *Livestock and equality in East Africa. The economic basis for social structure*. Bloomington: Indiana University Press.
- Schmitt, A. 2005. "Une nouvelle méthode pour estimer l'âge au décès des adultes à partir de la surface sacro-pelvienne iliaque", *Bulletins et Mémoires de la Société d'anthropologie de Paris*, 17, 1-2: 89-101.
- Schröder, M.-K. forthcoming. "Nubian pottery assemblage from the C-Group cemetery HK27C at Hierakonpolis", in: Honegger, M. (ed.), *Nubian Archaeology in the XXIst Century. Proceedings of the Thirteenth International Conference for Nubian Studies (Neuchâtel, 1-6 September 2014)*. Leuven - Paris – Walpole: Peeters Editions.
- Schweinfurth, G. 1874. *The heart of Africa: three years' travels and adventures in the unexplored regions of Central Africa, from 1868 to 1871. Volume 1*. Translated by Frewer, E.E. New York: Harper and Brothers.
- Silvester, H. 2006. *Les peuples de l'Omo*. Paris: La Martinière.
- Sobania, N. 2002. "But where are the cattle ? Popular images of Maasai and Zulu across the twentieth century", *Visual Anthropology*, 15, 3-4: 313-346.
- Spear, T., Waller, R. 1993. *Being Maasai : ethnicity and identity in East Africa*. London: James Currey Publisher.
- Spencer, P. 1965. *The Samburu : a study of gerontocracy in a nomadic tribe*. Berkeley: University of California Press.
- Spencer, P. 1973. *Nomads in alliance : symbiosis and growth among the Rendille and Samburu of Kenya*. Oxford: Oxford University Press.
- Steindorff, G. 1935. *Aniba*. Glückstadt und Hamburg: J.J. Augustin.
- Sternberg, T., Chatty, D. 2013. *Modern pastoralism and conservation : old problems, new challenges*. Cambridge: White Horse Press.
- Strecker, I. 1986. *The song of the Hamar herdsman. Celebration of the favourite ox of Southern Ethiopia*. edited by Ethnographic film, m., 45min, colour: Ethnographic film, 16 mm, 45 min, colour.
- Strecker, I. 2013. *Berimba's resistance : the life and times of a great Hamar spokesman*. As

told by his son Aike Berinas. Vol. 12. Münster: LIT Verlag.

Sutton, J.E. 1993. "The antecedents of the interlacustrine kingdoms", *The Journal of African History*, 34, 1: 33-64.

Teichert, M. 1975. "Osteometrische Untersuchungen zur Berechnung der Widerristhöhe bei Schafen", in: Clason, A.T. ed. *Archaeozoological Studies*, 51-69.

Testart, A. 2004. *La servitude volontaire*, 2 vol. Paris Errance.

Thomson, J. 1887. *Through Masai land : a journey of exploration among the snowclad volcanic mountains and strange tribes of eastern equatorial Africa*. London: Sampson Low, Marston, Searle and Rivington.

Titherington, G. 1927. "The Raik Dinka of Bahr el Ghazal Province", *Sudan Notes and Records*, 10: 159-209.

Tornay, S. 1979a. "Armed conflicts in the Lower Omo Valley, 1970-1976. An analysis from within Nyangatom society in warfare among East African herders", in: Fukui, K. Turton, D. *Warfare among East African Herders*, Osaka: Senri Ethnological Studies Osaka: 97-116.

Tornay, S. 1979b. "Générations, classes d'âges et superstructures : à propos de l'étude d'une ethnie du cercle Karimojong (Afrique Orientale)", *Production pastorale et société*: 307-327.

Török, L. 2009. *Between Two Worlds: The Frontier Region between Ancient Nubia and Egypt 3700 BC - 500 AD*. Leiden: Koninklijke Brill.

Turton, D. 2004. "Lip-plates and "the people who take photographs" : uneasy encounters between Mursi and tourists in southern Ethiopia", *Anthropology today*, 20, 3: 3-8.

Usai, D. 2014. "Recent advances in understanding the Prehistory of Central Sudan", in: Anderson, J. R., Welsby D.A. (eds.). *The Fourth Cataract and Beyond. Proceeding of the 12th International Conference for Nubian Studies*. Leuven-Paris-Walpole: Peters: 31-44.

Wendorf, F., Schild, R. 2001. *Holocene settlement of the Egyptian Sahara. Vol. 1: The archaeology of Nabta Playa*, New York : Kluwer Academic/Plenum Publishers.

Westermann, D. 1912. *The Shilluk people, their language and folklore*. Philadelphia: Board of foreign missions of the United Presbyterian church of NA.

Williams, M.A.J. 2012. "Geomorphology and Quaternary geology of the region between Wadi El-Arab and Kerma", *Kerma, Documents de la mission archéologique suisse au Soudan*, 4: 10-15.

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