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Peer reviewed

article/ The Archers of Kerma: Warrior Image and Birth of a State

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abstract/ A research programme conducted by the Swiss archaeological mission in the oldest sectors of the Eastern Cemetery of Kerma has uncovered the tombs of several dozen archers. The appearance of these armed warriors dating from ca. 2300 BC onwards can be put in parallel with the resumption of commercial activities between Egypt and Nubia, illustrated by the Harkhuf expeditions. The archers and their warrior attributes probably participate in the emergence of kingship ca. 2000 BC, which takes control of the commercial axis along the Nile and is illustrated by the accumulation of wealth and the development of servitude. This article proposes to describe these Kerma archers and then to look at the evolution of funerary rites that show in their own way how a social hierarchy emerges that will lead to the birth of a state, in this instance the kingdom of Kerma.

keywords/ archers, warriors, Kerma, kingdom, social stratification

1. Introduction

It is known that at the time of the Egyptian Kingdom, Nubia represented a neighbouring and often rival entity, extending from the 1st to the 5th Cataracts. Its renowned warriors are represented by archers and are depicted on numerous occasions in the Nile valley, on stelae, engraved rocks, bas-reliefs and painted

tomb walls. As early as the Old Kingdom, archers were enrolled in the Egyptian armies as mercenaries and probably formed troops, as shown by the model representing them in the tomb of Prince Mesheti (11th Dynasty). The territory of Nubia is itself designated from the beginning of the 3rd millennium by a hieroglyph in the shape of a bow, *Ta-Sety*, which means the land of the bow. Despite this evidence of the importance of these warriors and their weapons, archaeological attestations of tombs of Nubian archers contemporary with the Egyptian Kingdom are anecdotal. Only a few tombs from the Kerma period (2550-1480 BC) have been reported by Charles Bonnet in his excavation reports on the Eastern Cemetery of Kerma.¹ His most important discovery consists of an almost intact tomb of a naturally mummified archer (Figure 1). Also dating from the *Kerma ancien II* phase (2300-2150 BC), the same tomb contained the body of a young man, whose head had been displaced by grave-robbers.² He was accompanied by arrow remains and two bows of simple curvature, 120 cm long. One of the bows was decorated with a plume of ostrich feathers.



Figure 1. Reconstruction of the grave of the mummified archer excavated by Bonnet (1982), made with the original natural mummy, pottery and plume of ostrich feathers (Kerma ancien II, 2300-2150 BC)

The Eastern Cemetery of the Kingdom of Kerma³ is known for the abundance of weapons found in its tombs⁴ as well as the abundant evidence of trauma found on the skeletons there.⁵

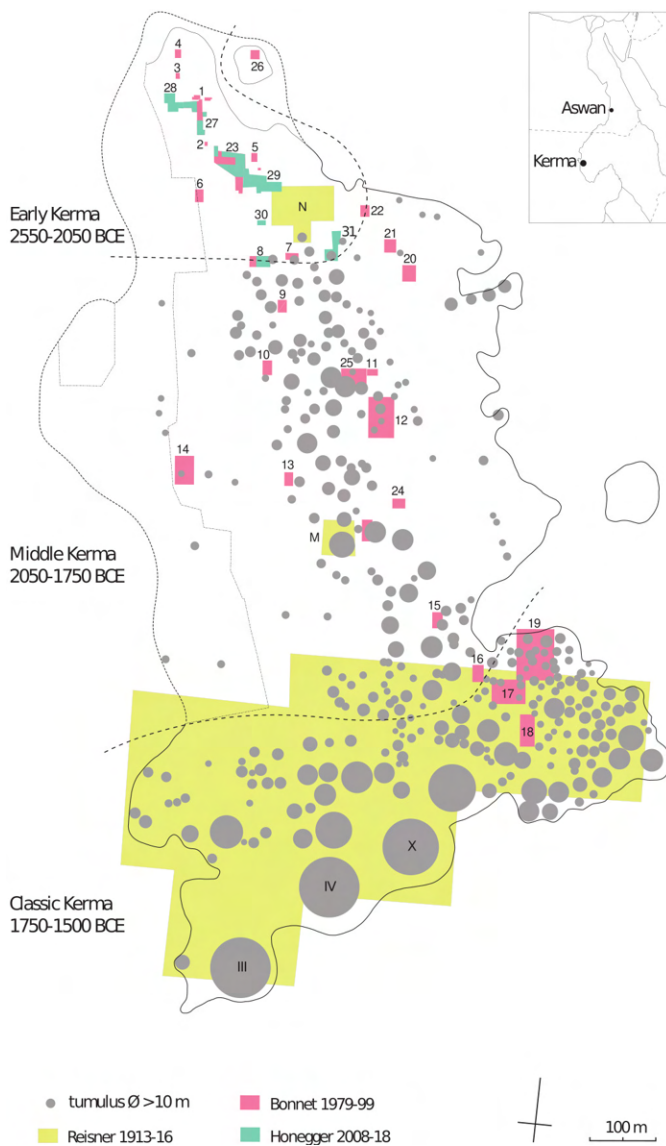


Figure 2. Plan of the Eastern Cemetery with the locations of large graves excavated since the early 20th century identified. The sectors investigated by Reisner between 1913-1916 are indicated. Sectors 1-27 were excavated by Bonnet between 1980-1997, whilst Sectors 27-31, as well as Sector 8, have been excavated or re-examined during our excavations which began in 2008.

These observations led to the view of this society as a warlike aristocracy, where testimonies of violence were common. These reflections have so far focused on the final phase of the cemetery and of the Kingdom (1750-1500 BC), best known thanks to the work of George A. Reisner, undertaken at the beginning of the 20th century.⁶ Since then, excavations were undertaken between 1979 and 1999 by Charles Bonnet, who investigated 27 sectors spread over its entire surface (Figure 2), and between 2008 and 2018, we have undertaken systematic excavations in sectors of the early stages of the cemetery (2550-1950 BC), that correspond to the formation of the Kingdom of Kerma.⁷ They provide previously unpublished information on the appearance of the first warriors in the form of the famous Nubian archers, on cases of violence, as well as on the phenomena of servitude, wealth, and funerary ostentation that was co-eval with the birth of the kingdom and its domination over a large part of Upper Nubia.

2. The Eastern Cemetery of Kerma and its New Excavation

As part of our programme on the evolution of society in Early Kerma, we have reinvestigated and completed the excavations of Sectors 23, 27, and 8, and have opened Sectors 28, 29, 30, and 31 (Figure 3). The tombs have been systematically excavated, taking into account information on the surface (burial mounds, ceramic deposits, bucrania, fireplaces, and post holes) and collecting the material contained in the tombs and infill of the pits. Knowing that more than 99% of the graves dating from this period of the necropolis' utilisation were subsequently looted, the infill of the pits is often the only way to get an idea of the contents of the tomb and of the ceramics placed on the surface beside the mound.

The work undertaken in recent years has made it possible to build a precise chronology for the early phases of the cemetery, from the beginning of Early Kerma to the beginning of Middle Kerma. The study and spatial distribution of the 409 tombs excavated since 2008 allows us to follow in detail each stage from the evolution of funeral rites. An absolute chronology was constructed using 23 ¹⁴C dates that were confronted with the typology of Kerma pottery and Egyptian imports, and this makes it possible to distinguish five successive phases between 2550 and 1950 BC: *Kerma ancien 0, I, II, III*, and *Kerma moyen I* (Figure 3).⁸

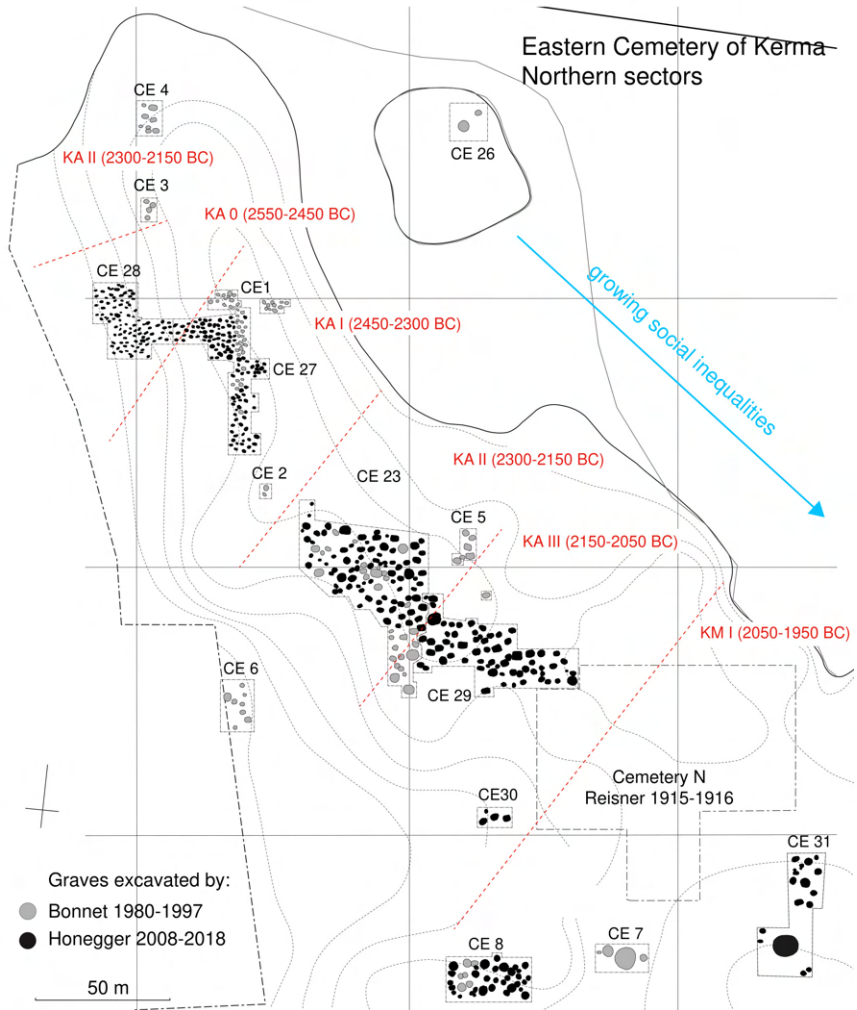


Figure 3. Map of the Early Kerma and early Middle Kerma sectors in the Eastern Cemetery. From the initial installation in Kerma ancien 0 (2550-2450 BC) to the emergence of the first royal tomb in Kerma moyen I (2050-1950 BC), the dimensions of the tombs increase, the rituals become more complex and the hierarchisation of society increases until the appearance of a royalty.

We thus have a relatively precise chronological framework which highlights five distinct phases of relatively short duration from the beginning of Early Kerma to the Middle Kerma.

Regarding the spatial analysis, the first observed tendency during this evolution appears to be the progressive increase in the size of the graves' pits. These are small and rectangular during *Kerma ancien 0* (average surface of 0.9 m²), becoming oval and only marginally larger during *Kerma ancien I* (average surface of 1.2 m²). It is only from *Kerma ancien II* that they mostly become larger and more circular (average surface of 4.2 m²), with this tendency continuing in *Kerma ancien III*, with the larger pits attaining a diameter exceeding 4 metres, occasionally more quadrangular than circular (average surface of 5 m²). Then, in *Kerma moyen I* appeared the first royal graves with a diameter ranging between 7 to 10 metres.

In the oldest sectors (*Kerma ancien 0* and *I*) the tombs are all of equal size and their contents do not give the image of strong social distinction. As is the rule in the Kerma period, the bodies are laid on their right side, head towards the east. The objects found in the tombs are not very abundant and metal (gold, copper alloy) is very rare. With regards to pottery, there is a marked presence of C-Group pots, which becomes more discrete over time.⁹

The *Kerma ancien II* phase shows spectacular changes in the funerary rites, compared to the earlier phases in the cemetery. The tombs are generally larger and contain more objects. Metal is more regularly attested, notably in the form of bronze mirrors and gold necklaces or pendants. Animal sacrifices make their appearance (dogs, caprines) as well as bucrania in front of some tumuli. Tombs with multiple burials are also more frequent, indicating the development of accompanying or sacrificed people, which will increase significantly in the succeeding periods. The distinction between male and female graves becomes systematic and stereotyped (Figure 4). If the buried women are systematically endowed with a stick, an ornament, and sometimes particular objects or tools such as potter's tools, the male tombs are systematically endowed with a bow.¹⁰

During the *Kerma ancien III* phase, the same tendencies identified in the previous phase continued. In the sectors of this period, we noticed that young boys' graves were also accompanied by bows (Figure 5).

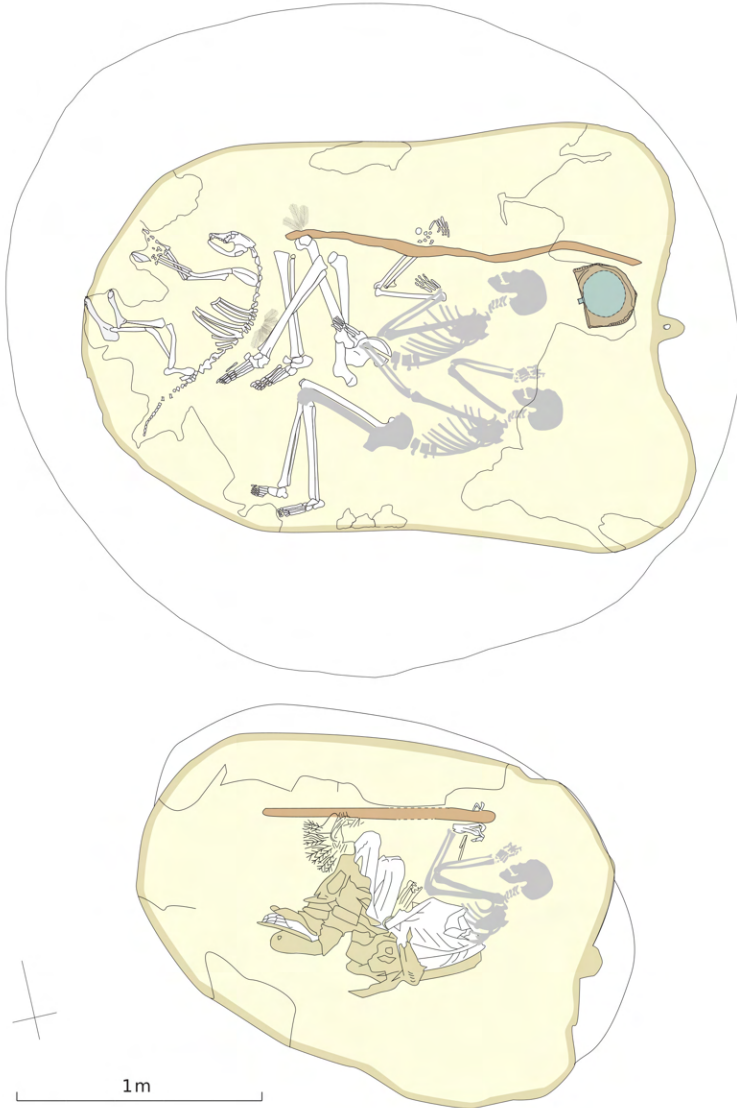


Figure 4. Graves of an archer and of a woman with a stick of the Kerma ancien II Phase (2300-2100 BC), found in Sector 23 of the Easter Cemetery of Kerma. The grave of the archer contained two individuals: a young man in the central position and a woman placed by his side. A dog, a bow, an ostrich feathers fan, and a bronze mirror accompanied the young man. The grave with a wooden stick contained a woman aged 20-29 years. Both graves were partially plundered and a part of the skeletons is here reconstructed.

The four youngest individuals with a bow are less than 4 years old and the one in Figure 5 has a bow that is too large for his age.



Figure 5. Intact grave of a 1.5-year-old child with a bow, a cushion made of vegetable matter, and a pot (Kerma ancien III, Sector 29). As is the rule in Kerma graves, the body was placed on a carefully cut piece of bovine pelt.

This observation and their age – less than two years for two of them – shows that these bows are not necessarily placed in tombs to express the activity of the deceased, but also have a symbolic connotation related to male status. The richest graves sometimes distinguish themselves in a more spectacular manner. One of them had 50 aligned bucrania to the south and 38 decorated pots on the surface. It is at the beginning of Middle Kerma (*Kerma moyen I*) that the first royal graves appeared, like that recently discovered in Sector 31 of which the diameter exceeds 10 metres and has over 1400 bucrania laid out in front of the tumulus.¹¹

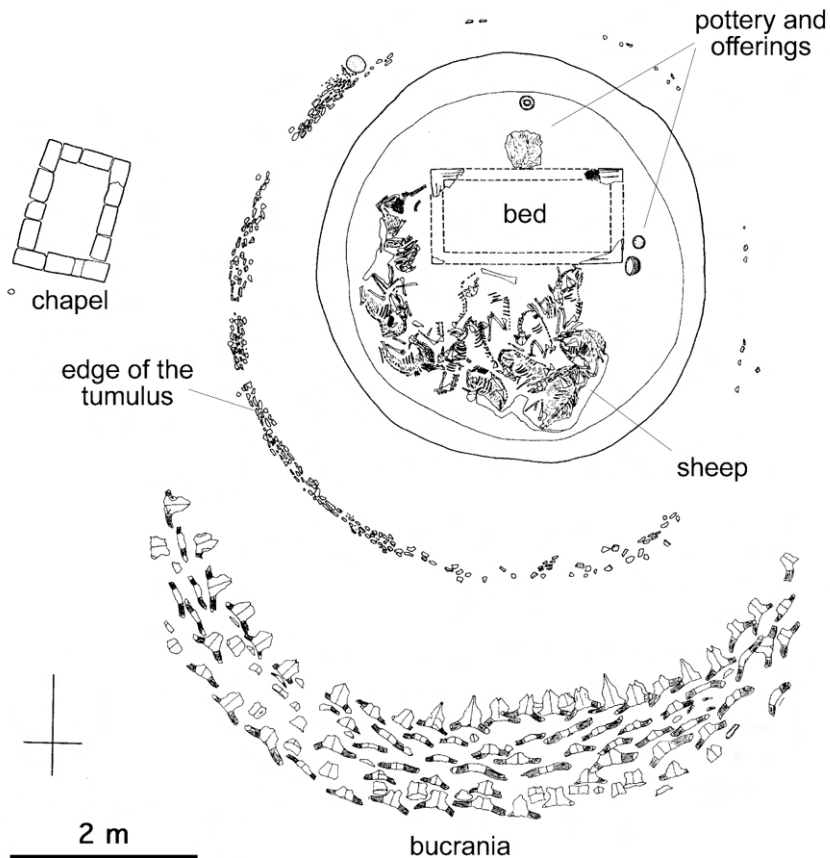


Figure 6. Middle Kerma grave with bucrania deposited south of the tumuli and a mud-brick chapel located to the west (ca. 1900 BC).

Differences between burials increase during Middle Kerma and for this period it is not rare to find grave-pits of up to 10-15 meters in diameter. This ranking between burials suggests a stratified society, which would culminate at the end of the Kingdom of Kerma. The central inhumations in the largest tumuli are supposed to be the graves of the rulers; the other tumuli could belong to high status individuals or to free men and women.¹² In certain instances a mud-brick chapel was erected on the west side of the tumulus (Figure 6).¹³

During Classic Kerma the diameter of the largest graves is between 30 and 90 meters. The three most famous ones were built to a uniform size with tumuli approximately 90 meters in diameter (KIII, IV, X). Composed of a complex internal structure of mud-brick walls with a corridor giving access to a central vaulted chamber, these tumuli are assumed to belong to the most powerful rulers of Kerma¹⁴. The grave goods found in these burials and in some subsidiary ones were particularly elaborate and the proportion of Egyptian imports high.¹⁵ Two monumental funerary temples (KI, KXI) were erected north-west of the tumuli KIII and KX. The Eastern Cemetery was abandoned as a location for royal burials during the conquest of Kush by the Egyptians of the 18th Dynasty, about 1500 BC. A last royal grave was erected 4 km to the west, south of the ancient town of Kerma and dates about 1480 BC.¹⁶

3. The Archers' Graves

From the *Kerma ancien II* to the *Kerma moyen I* phases onwards (Figure 3) all male tombs that we excavated between 2008 and 2018 are equipped with a bow, even those of children.¹⁷ Of course, many graves are too looted to conclude that archery equipment was present, but as soon as the grave is better preserved, the presence of archery elements is attested, the smallest clue being the presence of the string made of twisted sinews, probably from sheep or goats (Figure 7). In view of the number of graves excavated, we can therefore suppose that the presence of men or boys with weapons is systematic for the earlier phases. However, it is not possible to conclude definitively that the presence of male archers was systematic for all phases of the Eastern Cemetery without looking at the previous excavations of Reisner and Bonnet.



Figure 7. Bowstring made of sheep's or goat's sinew with a fixation system at one end.

The "Cemetery North", close to our excavations (2008-2018), was excavated in 1915 by Reisner and in 1916 by his assistant W. G. Kemp (135 graves). The documentation published after the death of Reisner¹⁸ is of lesser quality than for the southern part of the cemetery, corresponding to Classic Kerma and excavated in 1913-1914.¹⁹ The tombs excavated by Kemp have not been spatially located. Nevertheless, we know from our excavations that the "Cemetery N" covers the *Kerma ancien III* and *Kerma moyen I* phases. The documentation identifies the grave of a woman with a staff, but there is no evidence of bows. In view of the discreet nature of the evidence for archery, we believe that it has simply not been identified. It must be said that the tombs were systematically excavated by Egyptians from the village of Kouft, assisted by Nubians. It is therefore very likely that they simply did not observe these fleeting remains.

In the "Cemetery M" (Middle Kerma, see figure 3), the documentation, published with that of the "Cemetery N", is not better than the latter. No archer or bow was identified. It is only in Classic Kerma that this practice seems to disappear, according to Reisner's documentation,²⁰ which is of much better quality than that published by Dunham.²¹ It must be said that this part of the cemetery is different from that of Early and Middle Kerma. Our demographic estimate for the Eastern Cemetery suggests at least 36,000 buried individuals, but those attributed to Classic Kerma envelops only 700 individuals. Simulations of burial recruitment show that this part of the cemetery is the most selective and contains only a small section of the ruling class, in contrast to earlier periods. At this time, the armed persons are accompanied by daggers, which led Hafsaas to conclude that there was a warrior elite displaying this type of weapon, as was the case in Europe in the Late Bronze and Iron Ages.²²

In the excavations of Bonnet, which involved just over 250 tombs, a few archers were identified. Again, the excavations were carried out almost systematically by Nubian excavators who were not trained to find small remains as bow stings. Nevertheless, Bonnet reports the presence of some archers in Early Kerma sectors, as well as in Middle Kerma sectors. The famous mummy of an archer (Figure 1) comes from Sector 4²³ (*Kerma ancien II*) and five other graves of archers were excavated in Sector 23 (*Kerma ancien II*).²⁴ For Middle Kerma, two graves of archers were discovered in Sector 9 and one in Sector 11 (*Kerma moyen I*), as well as another in sector 20 (*Kerma moyen IV*).²⁵ Finally, we had the opportunity to excavate a grave in sector 24 (*Kerma moyen V*) which contained 36 lunates corresponding to arrowheads.²⁶ From all these observations, we can assume that the tradition of male burials as archers started in the *Kerma ancien II* phase and must have continued until the end of Middle Kerma.²⁷



Figure 8a. Plundered grave containing an adult with his leather loincloth and a double bend bow (*Kerma ancien II*, Sector 23). For detail of the bow, see figure 8b

Let us return to the archers' graves of the oldest sectors.²⁸ Their equipment consists of:

- One or two bows, single or double-curved (Figures 8a and 8b). It seems to us that not too much should be made of this distinction, because the double curvature can be achieved by deformation. It does not necessarily suggest a composite bow, attested in Egypt later and supposedly introduced by the Hyksos.²⁹ The bow with a double curvature does not necessarily imply that it is composite, which is a far more sophisticated manufacturing technique, since it is not attested in Africa at this time. On the other hand, ethnographic material describes simple techniques to obtain a strong incurvation of the extremities of the bow, which consist in bending the wood by means of ligaments and forms.³⁰ It is probably the use of similar techniques which explain the well-attested differences in the Nubian bows. The most common dimension is 120 cm, but two larger bows, about 150 cm long, have been found. In a child's tomb, a small model, about 90 cm long, was discovered. The remains of bow-strings have often been found in situ alongside the bow. In some instances, the extent of the bow's curvature leads one to believe that it was strung when placed in the tomb. The bow is always placed to the north of the body, close to the hands. It is occasionally decorated with a plume of ostrich feathers at its extremity (Figure 9). It has not been possible to identify the species of wood used to manufacture the bows since these had been too severely damaged by termites.



Figure 8b. Detail of a double bend bow whose length is over 1,5 m (Kerma ancien II, Sector 23).

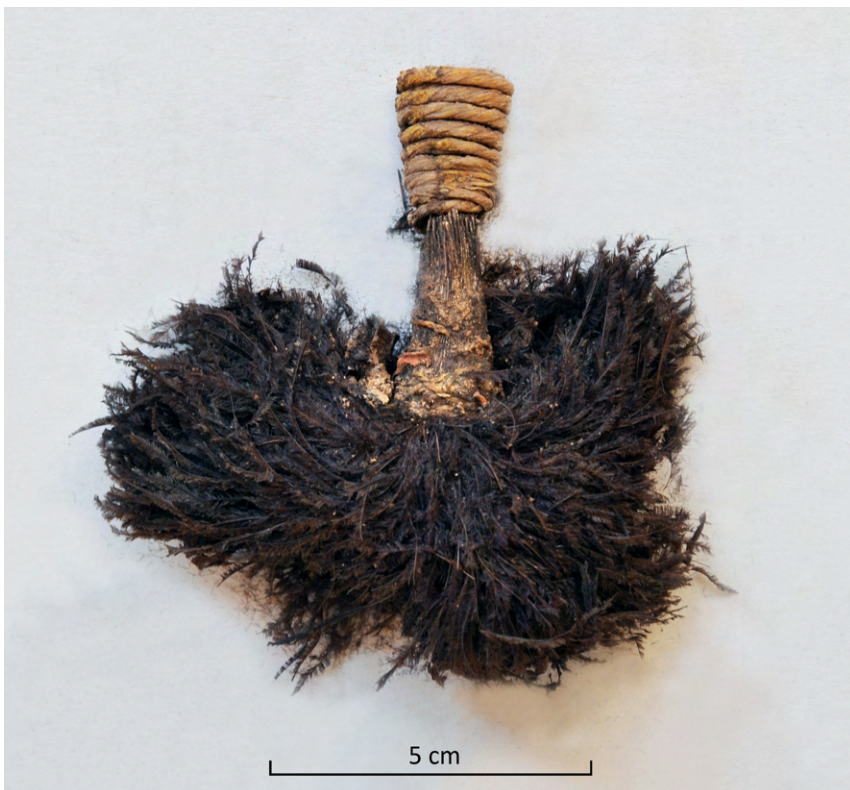


Figure 9. Plume of ostrich feathers with a string, which was rolled up at the extremity of the bow (Kerma ancien II, Sector 23).

- Reed arrows with a tail and several embedded microliths, similar to the arrows of Naga-ed-Der in Egypt, dated to the 6th to 12th Dynasty, i.e., a period contemporaneous with Middle Kerma.³¹ The arrowheads are lunates made of quartz, carnelian, or sometimes flint (Figure 10). The few surviving examples correspond to the A3 type of fitting defined by Clark et al.³² with one lunate placed at the tip of the arrow and the other two at the sides. The arrows would have been inserted in a quiver, but in at least one instance they were placed directly in the archer's left hand.

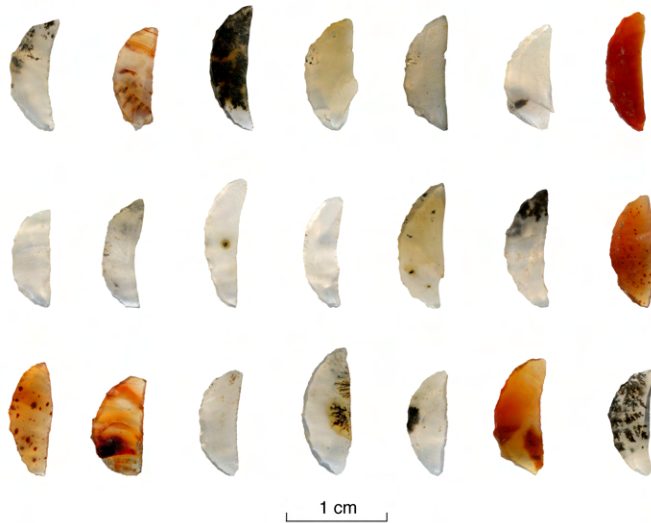


Figure 10. Middle Kerma quartz and carnelian lunates used as arrowheads (Kerma moyen V, Sector 24).

- A goat-skin leather quiver. Its presence in the tombs is not systematic, but we have been able to identify seven more or less complete ones. They are sewn, some wide and rather short, while others are more slender, like the example in Figure 11.



Figure 11. Leather quiver 72 cm long with braided leather strap attachment (Kerma moyen I, Sector 31).

- A leather archer's wrist-guard of a specific model that seems to be typical of the Kerma tradition (Figure 12). These have been found in a few cases *in situ*, on the left wrist of the deceased (Figure 13), they are always of the same design, with the protective part provided with two concave sides and a pointed end. Some similar specimens are known from Egypt in the mass grave of soldiers found at Deir el-Bahari of the 12th Dynasty.³³ This type of wrist-guard is unusual in Egypt

and some authors considered it to have come from the north, but it probably belongs to Nubian archers originally attached to the Kerma culture.³⁴



Figure 12. Leather archer's wrist-guard (Kerma moyen I, Sector 8).



Figure 13. Intact grave of an 18 years old archer. He wore a necklace with a Red Sea shell pendant, an ostrich feather fan, an archer's wrist-guard on his left wrist, and a sheepskin loincloth covering his hips and legs. He held a few arrows in his hands and a bow was placed beside him, of which only a few traces were left by termites. At his feet, a sacrificial ram is tied with a rope that goes around the archer's waist several times (Kerma moyen I, Sector 31).



Figure 14. Detail of a Nubian archer depicted on a fresco from the Temple of Amun at Beit El-Wali that describes the expedition of Rameses II to Nubia (New Kingdom).

These observations will be the subject of more detailed descriptions in the future, especially the numerous leather objects, which are the subject of a recently started PhD thesis.³⁵ Of all the tombs excavated, only two adult tombs were almost (Figure 1) or completely intact (Figure 13). Enriched by the observations made on the other male tombs, it is possible to reconstruct the appearance of these archers, who resemble quite closely the representations made by the Egyptians, notably those on the temple of Amun at Beit El-Wali, which describe the expedition of Rameses II in Nubia (Figure 14). Although later than the tombs where we made our observations, the white earrings of the men depicted in these frescoes are the same as those that first appear in the *Kerma ancien II* phase and continue thereafter. In fact, these earrings obtained from a Nile shell were found only in male tombs (Figure 15).

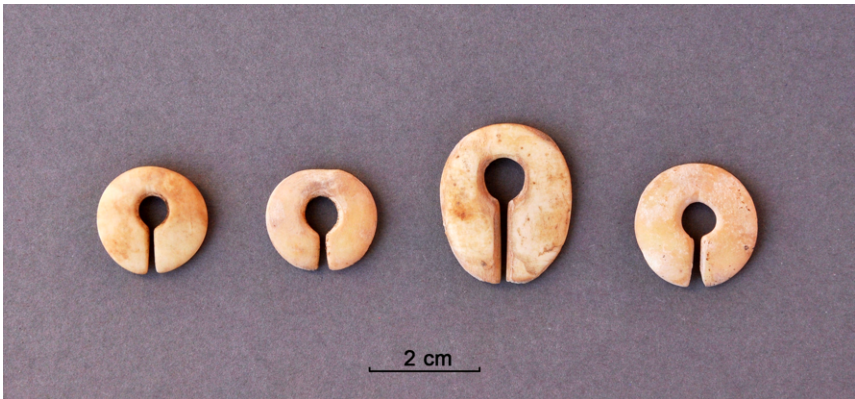


Figure 15. Shell earrings from male graves (Kerma ancien II, Sector 23). Their diameter is between 2 and 3 cm.

Similarly, the men of Kerma wear a sheep-skin loincloth that still has its wool, which can be dark brown, beige, or quite frequently bicoloured, with alternating black and beige spots (Figure 16).



Figure 16. Sheep-skin loincloth that still has its wool (Kerma ancien I, Sector 27). The bicoloured fur is composed of black and beige spots.

This bicoloured fur, which bears witness to a selection process resulting from advanced domestication,³⁶ could be a form of imitation of the coat of leopards

such as those found on Egyptian frescoes. However, we never found a leopard-skin loincloth during our excavations in the Eastern Cemetery. Moreover, we cannot exclude that some archers were naked and did not wear a loincloth, as suggested by an engraving from Wadi Sabu at the 3rd cataract where a series of six archers wearing a feather on their head, are rendered in a figurative style very close to that observed at Kerma (Figure 17);³⁷ among this group, only one archer is wearing a loincloth, while the others are naked. Finally, we did not have occasion to observe the presence of a feather belonging to the headdress of the buried, but Bonnet points out the trace of a headband in the tomb of a mummified archer (Figure 1) that could have served to attach a feather.³⁸



Figure 17. Scene representing archers on a rock engraving at the 3rd cataract (Wadi Es-Sabu, 3rd or 2nd millennium BC, height of archers about 15 cm). One of them wears a loin-cloth and all have a head dress made of an ostrich feather, a typical Nubian adornment frequently used by the Egyptians when representing their southern neighbours.

4. Evolution of Funeral Rites and the Emergence of a State

At Kerma men and boys of all ages are systematically buried with their archers' equipment from about 2300 BC onwards and this continues for several centuries, probably until the end of Middle Kerma about 1750 BC. Clearly, there is a symbolic dimension to this display, underscored by the fact that even children as young as 1,5 years old are equipped with bows. Moreover, researchers have repeatedly pointed out that there are numerous instances of evidence for violence in the Classic Kerma part of the cemetery,³⁹ and the anthropologist working on the skeletons of Early Kerma has also noted the abundance of such evidence, especially on young men.⁴⁰ It must therefore be admitted that the presence of archers cannot only be symbolic and that it also reflects the status of these warriors who were perhaps trained in the handling of the bow from a very young age. As reported by the Egyptians, this weapon was of major importance in Nubia and at the time of Early Kerma, the hundreds of excavated tombs did not reveal many other kinds of weapons. Mace heads are exceptional in this period and we found only one in 409 excavated tombs. Spears must have been made of wood or composite material as we found a long point manufactured from a mammal long bone that could have been the apex of a spear. As for copper alloy daggers, they only appear at the end of Early Kerma and become more numerous during Middle Kerma, becoming more elongated, to finally be replaced by the daggers of Classic Kerma. We can also point out the wooden throwing sticks or the several bronze spearheads, but the aim is not to draw up a complete inventory of weapons, an exercise that has already been done for weapons in this necropolis.⁴¹

If we have already underlined that it is from the *Kerma ancien II* phase (2300-2150 BC) that the distinctions between the tombs begin to be marked, this tendency will be reinforced thereafter to culminate with the appearance of the first royal tombs of the *Kerma moyen I* phase (2050-1950 BC). These tombs, unfortunately looted, are notable for their size (7 to 10 m in diameter for the pit, 12 to 15 m for the tumulus), for the hundreds or even thousands of bucrania deposited to the south of the tumulus, but also for the quantity of fine ceramics laid out inside the pit and around the tumulus. Other criteria, such as the animal and human

sacrifices – which some prefer to call accompanying deaths – also underline the status of the individuals insofar as their number is proportional to the dimensions of the grave. Finally, the quantity of Egyptian ceramics gives an idea of the intensity of exchanges (Figure 18).

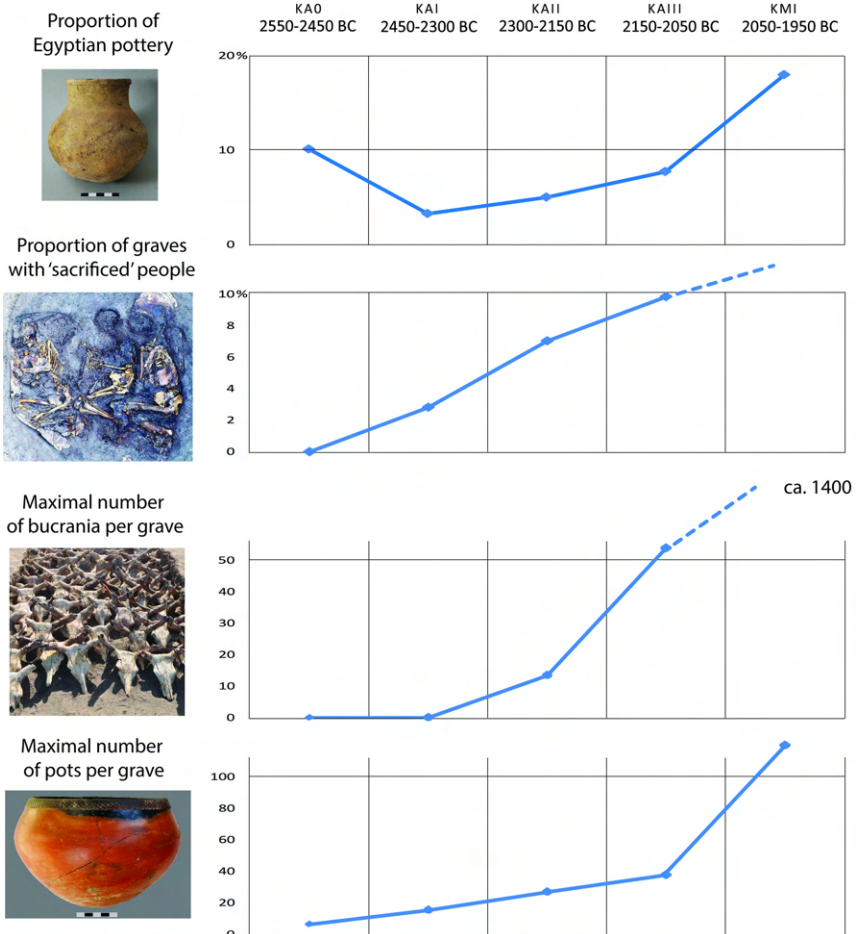


Figure 18. Competitive lavish funerals are evidenced by the increase of deposits of exotics goods in and next to the grave, 'sacrificed people', bucrania, and elaborate funerary pots. The proportions were calculated on the basis of 409 graves excavated between 2008 and 2018 (Honegger 2018b).

During the first phase of the Eastern Cemetery, exchanges with Egypt are already significant and it is possible that the presence of several C-Group features is evidence of important contacts between Upper and Lower Nubia.⁴² During the

next phase exchanges decline, a sign of a certain loss of Egyptian control over Lower Nubia as has already been pointed out.⁴³ It is during the *Kerma ancien II* phase (2300-2150 BC) that imports increase again. It is also from this time onwards that the archers' tombs appear, that the distinctions between the tombs start to be significant, and that wealth becomes more important, notably through the presence of Egyptian copper alloy mirrors, which tend to attract the interest of looters.

It is precisely during this phase that Egyptian sources mention the famous expeditions of Harkhuf,⁴⁴ a high dignitary from Aswan. His tomb, covered with inscriptions, relates the story of his three journeys to Nubia commissioned by the pharaohs Merenre I and Pepi II around 2250 BC. These were obviously expeditions aimed at reopening trade routes by making contact and trading with the Nubian populations located south of the 2nd cataract⁴⁵. The narrative tells us that several populations or tribes populate Nubia and do not necessarily maintain peaceful relations between them⁴⁶. These groups are already hierarchical with dominant personalities capable of gathering armed men in quantity, goods, and donkeys by the dozen, to accompany Harkhuf and his escort. It is likely that Kerma then developed a coercive policy to ensure the control of the lucrative trade with the Egyptians in an atmosphere of conflicts between tribes or lineages. The valorisation of the role of warriors in funeral rites could be a consequence of this.

From this point onwards, indications of a more marked social stratification rapidly increase alongside a growth of imports, human sacrifices, bucrania in front of the largest tombs, as well as red fine ware with black rims, whose decorations multiply (Figure 18). One can imagine a competition between dominant lineages, as we have suggested in an analysis of the significance of fine ceramics and their decorations⁴⁷. This competition would have led to the emergence of a dominant lineage that concentrated wealth and showed it in funeral rites, as exemplified by the first royal tombs, which appear around 2000 BC (Figure 19). It is from this period onwards that the necropolis will undergo a spectacular development, much more important demographically than natural population growth could allow. Kerma must therefore have been the centre of the kingdom from this period onwards and attracted populations from its kingdom to settle in the region.



Figure 19. View of the first Kerma royal tomb (Kerma moyen I, 2050-1950 BC). One can see the edge of the burial tumulus made of earth and stones, the post holes of a wooden architectural structure inside the burial pit and more than 1400 bucrania to the south of the tomb. The diameter of the burial pit is about 10 metres.

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Endnotes

1. Bonnet, “Les fouilles archéologiques de Kerma (Soudan),” 1982, pp. 15-9; 1984, p. 17; 1986, p. 12; 1995, p. 44. ↩
2. Bonnet, “Les fouilles archéologiques de Kerma (Soudan),” 1982, pp. 15-9. ↩
3. Kerma is the name of the village next to the city of Kerma and its eastern cemetery. It gave its name to the culture of Kerma, defined by its ceramics and its funeral rites (see Gratién, *Les cultures Kerma. Essai de classification*). This culture is also referred to as the Kingdom of Kerma. In the context of anthropological theories on the evolution of societies, a kingdom can be equated with a state (see Testart, *Éléments de classification des sociétés*). It can also be considered as a secondary state, insofar as it seems to emerge as a result of its contacts with the Egyptian state, which originated more than five centuries before (Smith, “Nubia and Egypt: Interaction, acculturation, and secondary state formation from the third to first millennium BC”). ↩
4. Hafsaas-Tsakos, “Edges of bronze and expressions of masculinity: the emergence of a warrior class at Kerma in Sudan,” pp. 79-91; Manzo, “Weapons, ideology and identity at Kerma (Upper Nubia, 2500-1500 BC),” pp. 3-29. ↩
5. Judd, “Ancient Injury Recidivism: An Example from the Kerma Period of Ancient Nubia,” pp. 89-102. ↩
6. Reisner, *Excavations at Kerma. Harvard African Studies* 5-6. ↩
7. This project was 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). We also thank Dr Abdelrahman Ali, director of the National Corporation of Antiquities and Museums of Sudan (NCAM) for his support. ↩
8. Honegger, “La plus ancienne tombe royale de Kerma en Nubie,” pp. 189-94; Honegger, “New Data on the Origins of Kerma,” pp. 21-4. ↩

9. Honegger, “New Data on the Origins of Kerma,” pp. 25-8. ←
10. Bonnet and Honegger, “The Eastern Cemetery of Kerma,” pp. 216-8. ←
11. Honegger, “La plus ancienne tombe royale de Kerma en Nubie,” pp. 194-7. See also the end of this paper and figure 15. ←
12. Hafsaas-Tsakos, “Edges of bronze and expressions of masculinity: the emergence of a warrior class at Kerma in Sudan,” pp. 79-91. ←
13. Mud brick chapels were built in connection with the most important and largest graves, Bonnet, *Edifices et rites funéraires à Kerma*. ←
14. Kendall, *Kerma and the Kingdom of Kush 2500-1500 B.C. The Archaeological Discovery of an Ancient Nubian Empire*. ←
15. See Minor, The Use of Egyptian and Egyptianizing Material Culture in Nubian Burials of the Classic Kerma Period and Walsh, “Techniques for Egyptian Eyes: Diplomacy and the Transmission of Cosmetic Practices between Egypt and Kerma.” ←
16. Bonnet and Honegger, “The Eastern Cemetery of Kerma,” pp. 223-4. ←
17. Sector 23 contained 122 individuals of which 90 were discovered by our team. Of these 90 individuals, 49 were mature (25 female and 20 male), 37 immature and 4 undetermined. The total number of archers' graves was 24, of which 15 were adult males, 3 were children under 10 years of age, 5 were between 10 and 19 years of age, and one grave did not yield enough human remains to determine age and sex. In the Sector 29 (*Kerma ancien III*), 18 archers were identified on a total of 72 individuals. In the Sector 31 (*Kerma moyen I*), 8 archers were identified on a total of 20 individuals. The bio-anthropological data are provided by Agathe Chen, in charge of the study of the skeletons of the Eastern Cemetery. ←
18. Dunham, *Excavations at Kerma. Part VI*. ←
19. Reisner, *Excavations at Kerma*. ←
20. Reisner, *Excavations at Kerma*. ←

21. Dunham, *Excavations at Kerma. Part VI.* ↵
22. Hafsaas-Tsakos, “Edges of bronze and expressions of masculinity: the emergence of a warrior class at Kerma in Sudan,” pp. 79-91. ↵
23. Bonnet, “Les fouilles archéologiques de Kerma (Soudan),” 1982, p. 15-9. ↵
24. They were excavated in January 1996 but remain unpublished. ↵
25. Bonnet, “Les fouilles archéologiques de Kerma (Soudan),” 1986, p. 12; 1995, p. 44. ↵
26. Honegger, “Lunate Microliths in the Holocene Industries of Nubia: Multifunctional Tools, Sickle Blades or Weapon Elements?,” pp. 169-71. ↵
27. The number of archers for Middle Kerma may seem low. However, it should be remembered that these tombs are often much more plundered than those of Early Kerma, and that we did not have the opportunity to excavate tombs later than Kerma moyen I during our programme conducted between 1998 and 2008. ↵
28. Honegger and Fallet, “Archers Tombs of the Kerma ancien,” pp. 16-30. ↵
29. Le Quellec, “Arcs et archers sahariens: les représentations d’archers dans l’art rupestre du Sahara central,” p. 62; Le Quellec, “Arcs et bracelets d’archers au Sahara et en Égypte, avec une nouvelle proposition de lecture des ‘nasses’ sahariennes,” pp. 208-11. ↵
30. *Ibid.* ↵
31. Honegger, “Lunate Microliths in the Holocene Industries of Nubia: Multifunctional Tools, Sickle Blades or Weapon Elements?,” pp. 169-71. ↵
32. Clark *et al.*, “Interpretations of prehistoric technology from ancient Egyptian and other sources, part 1 : ancient Egyptian bows and arrows and their relevance for prehistory,” p. 362 and fig. 9. ↵

33. The significance of this find of 59 soldiers is still debated and authors have sought to link it to one of the many conflicts during the 12th Dynasty, Winlock, *Slain Soldiers*. For a discussion on the interpretations of this find, see Vogel, “Fallen Heroes?: Winlock's 'Slain Soldiers' Reconsidered.” ↩
34. Müller describes 5 wrist-guards, all made of leather, similar in shape to those of Kerma. He also presents another similar example from Gebelin. *Der 'Armreif' des Königs Ahmose und der Handgelenkschutz des Bogenschützen im alten Ägypten und Vorderasien*, pp. 16-7 and pl. V. ↩
35. Théophile Burnat, “Manufacture et usages du cuir dans le royaume de Kerma (Soudan, IIIe et IIe millénaires av. n. è.)” Université de Neuchâtel. ↩
36. Louis Chaix, pers. comm. ↩
37. Honegger and Fallet, “Archers Tombs of the Kerma ancien,” p. 20. ↩
38. Bonnet, “Les fouilles archéologiques de Kerma (Soudan),” 1982, p. 15. ↩
39. Cf. Judd, “Ancient Injury Recidivism: An Example from the Kerma Period of Ancient Nubia,” pp. 89-102. ↩
40. Agathe Chen, pers. comm. ↩
41. Manzo, “Weapons, ideology and identity at Kerma (Upper Nubia, 2500-1500 BC),” pp. 3-29. ↩
42. Honegger, “The Eastern Cemetery of Kerma and its first Royal Grave,” pp. 6-19; Honegger, “La plus ancienne tombe royale de Kerma en Nubie,” pp. 185-98. ↩
43. Török, *Between Two Worlds*, pp. 53-73. ↩
44. There is still some debate about the country of destination of these expeditions, called *Iam* by the Egyptians. Kerma is one of these possibilities, and one of the only ones that provides early evidence of contact with the Egyptians in Upper Nubia. Other scholars have proposed the Western Nubian Desert or a region further south, towards Kordofan and Darfur. For a summary and discussion of these different hypotheses, see Obsomer, “Les expéditions d’Herkhouf (VIe dynastie) et la localisation de Iam”, pp. 39-52. ↩

45. Lacovara, “The Stone Vase Deposit at Kerma,” pp. 118-28. ↩
46. Török, *Between Two Worlds*, pp. 69-70. ↩
47. Honegger, “Style and Identity Symbols: an Attempt to Define the Social Meaning of the Kerma Funerary Fineware and Its Decorations”, forthcoming. ↩