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# Of Kings and Horses: Two New Horse Skeletons from the Royal Cemetery at el-Kurru, Sudan

Claudia Näser<sup>1,\*</sup> and Giulia Mazzetti<sup>2</sup>

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\*Correspondence: [c.naeser@ucl.ac.uk](mailto:c.naeser@ucl.ac.uk)

<sup>1</sup>UCL Institute of Archaeology, UK

<sup>2</sup>Alumna UCL, UK

# Of Kings and Horses: Two New Horse Skeletons from the Royal Cemetery at el-Kurru, Sudan

*Claudia Näser and Giulia Mazzetti*

## Abstract

This article presents the zooarchaeological evidence from two horse burials at the royal cemetery of el-Kurru, Sudan. The skeletons, whose survival after excavation was unknown, were recently rediscovered in storage in the Sudan National Museum. The article outlines the archaeological context of these specimens, their importance for research on equids in the ancient Nile valley and the first results of their zooarchaeological analysis.

**Keywords:** Sudan, Nile valley, el-Kurru, Kushite, horse burials, Shebitqo

## Introduction

Debates on the use of horses in the ancient cultures of the Nile valley have been lively throughout the last century, covering a wide range of topics such as the date of their introduction to the region (Clutton-Brock 1974; Braunstein-Silvestre 1984; Bibby 2003; Meeks 2005; Raulwing and Clutton-Brock 2009), their ideational and ideological significance (Török 1991; Lenoble 1994; Meeks 2005; Guerneur 2012) and the potential

for a distinct breed having been raised in Kush, namely the Middle Nile valley in present-day Sudan (Postgate 1974; Dalley 1985; Heidorn 1997). Alongside their economic and functional values, horses were key elements in the Egyptian iconography of pharaonic rule and military dominance from the mid-second millennium BCE onwards. Later, they also played an important role in the cultural identity and royal ideology of the Kushite kings who ruled Egypt as the pharaohs of the 25th Dynasty.

The scarcity of zooarchaeological evidence has, however, impeded the progress of this research. A mere 17 horse skeletons from ancient Egypt and Sudan have so far received zooarchaeological analysis and publication (Table 1 and Figure 1). While more specimens, such as the Ballana and Qustul horses (Emery and Kirwan 1938; Dann 2008, 128–130; 2009), were excavated, they have remained unstudied except for preliminary examinations at the time of their discovery and their present locations are unknown. In view of this, each addition to the database of skeletal material is vital for advancing an understanding of the role of equids in ancient Egypt and Sudan – and we are happy to report such an addition in this article.

The story of their rediscovery is a perfect illustration of the challenges zooarchaeological research in the Nile valley, and indeed research based on material from early excavation in general, is facing. What we set out to find was actually another specimen, the Buhen horse, which had been excavated during the UNESCO campaign to Lower Nubia in 1958. The specimen had subsequently been exported to London for study, but its trail was lost in 1976 when the skeleton was reportedly ‘packed up’ in the Natural History Museum in London and ‘removed by staff from the British Museum (Bloomsbury), to be returned to the authorities in Sudan’ (Raulwing and Clutton-Brock 2009, 11). Upon our inquiry, colleagues at the Sudan National Museum in Khartoum and subsequently the British Museum searched their archival records and, in the former case, their storage for the Buhen horse, but could find neither the specimen itself nor any information about it.<sup>1</sup> While we thus have to report negatively on the chances of retrieving the Buhen horse for further study, the search in Khartoum brought to light what turned out to be the remains of two other horses. These specimens had been excavated at the Kushite royal cemetery of el-Kurru in 1919 and resurfaced exactly one hundred years after their primary discovery.

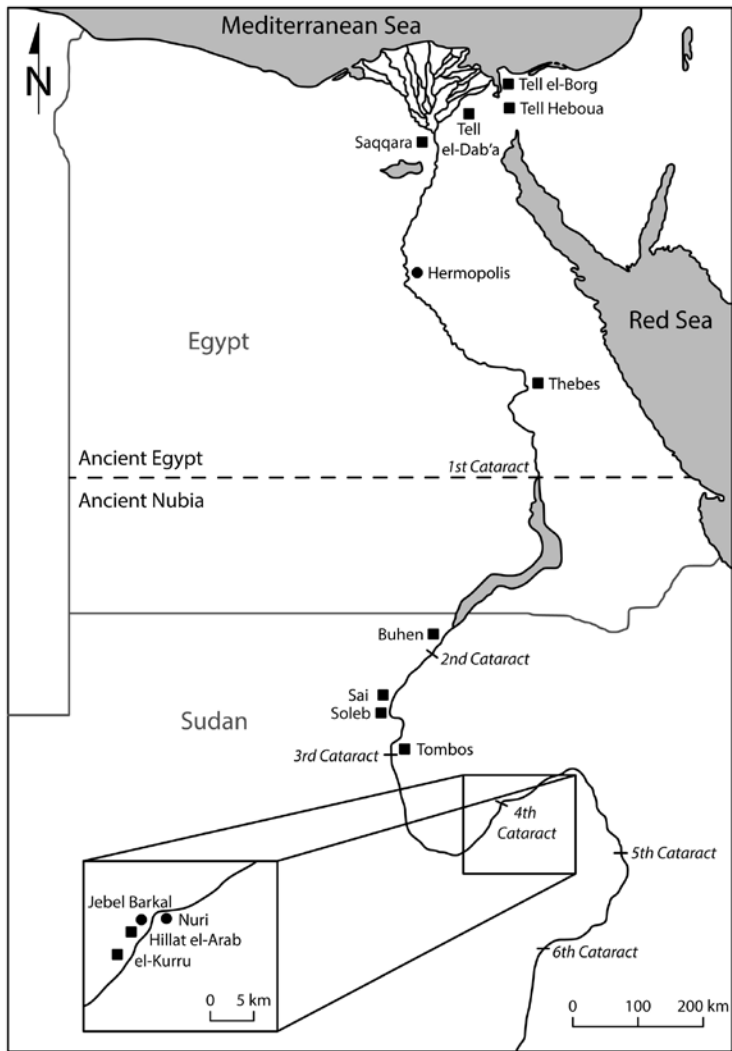
**Table 1** List of published horse specimens from Egypt and Nubia. (Data compiled from Turner 2015, Schrader et al. 2018 and Ikram 2019; all dates are quoted from these publications or the primary excavation and zooarchaeological reports referenced in them and are based on archaeological context, except in the case of the Tombos horse for which a 14C date was obtained from linen fabric adhering to the body, see Schrader et al. 2018, 388.)

Sites	Specimens	Suggested dates
Tell Heboua	1 (partial skeleton)	~1786–1552 BCE
Tell el-Dab'a	5 (complete and almost complete skeletons)	~1750–1512 BCE
Buhen	1 (almost complete skeleton)	~1675–1570 BCE
Sai	1 (almost complete skeleton)	~after 1500 BCE
Thebes	1 (complete skeleton)	~1494–1468 BCE
Soleb	1 (partial skeleton)	~1410–1372 BCE
Tell el-Borg	1 (partial skeleton)	~after 1300 BCE
Saqqara	2 (complete and partial skeletons)	~1300–1200 BCE
Hillat el-Arab	1 (partial skeleton)	~1250–750 BCE
Tombos	1 (complete skeleton)	~1005–893 BCE
el-Kurru	2 (partial skeletons) + 2 reported in this article	~705–690 BCE

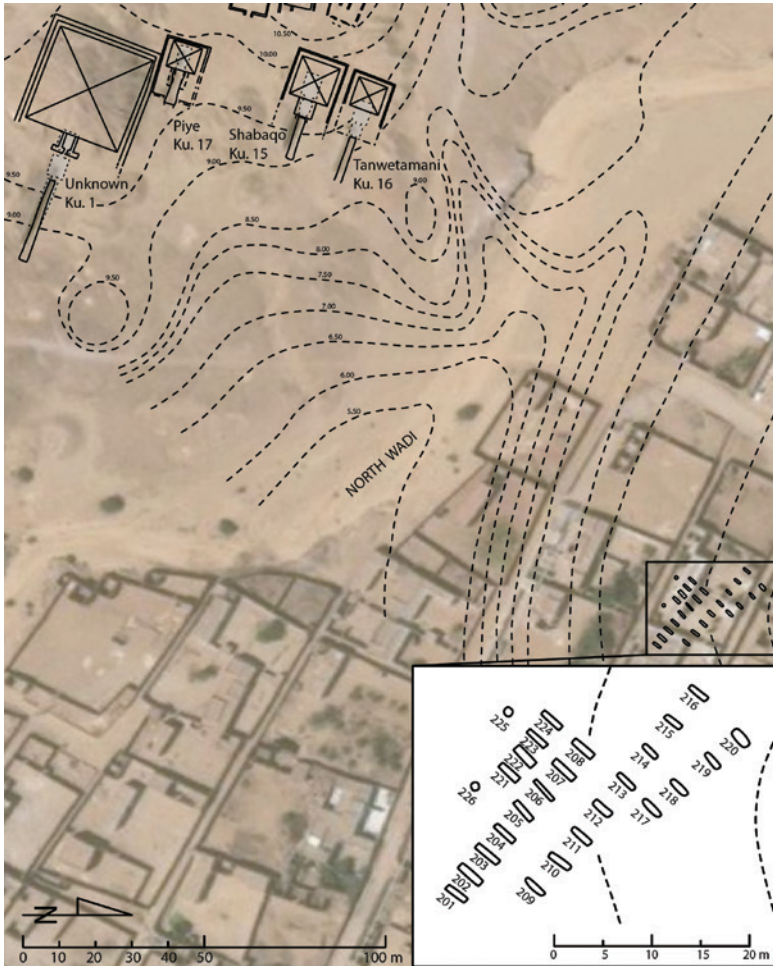
## The archaeological context: The site of el-Kurru and previous studies on the Kurru horses

El-Kurru is the ancestral cemetery of the Kushite rulers who came to dominate Egypt and reigned as the 25th Dynasty between c.735–656 BCE. The site is located below the Fourth Nile Cataract in present-day Sudan (Figure 1). While the earliest tombs in the cemetery, probably dating from the ninth century BCE, had superstructures in the shape of tumuli, later generations built Egyptian-style pyramids over their subterranean burial chambers (Dunham 1950). The site contains the tombs of four rulers of the 25th Dynasty: Piye, Shabaqo, Shebitqo and Tanwetamani.<sup>2</sup>

El-Kurru was first excavated by the Harvard University-Boston Museum of Fine Arts Expedition under the direction of George Andrew Reisner in spring 1919. Reisner's team discovered an area of horse burials (Figure 2), 140 metres northeast of the main cemetery.<sup>3</sup> It comprised 24 burial pits, organised in four rows of two times four and two times eight features, in which the animals had been interred



**Figure 1** Map of the Egyptian and Middle Nile valley indicating the sites from which horse remains derive. (Image credit: Kay Kossatz, adapted from Schrader et al. 2018, Figure 1)

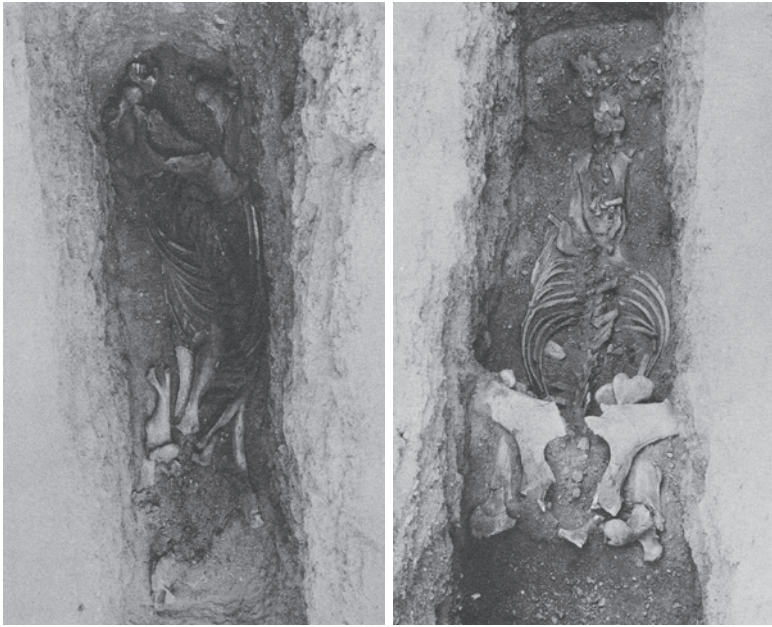


**Figure 2** The northeastern part of the royal cemetery of el-Kurru with a close-up of the horse cemetery. (Image credit: Kay Kossatz, after Dunham 1950, map II; background: <https://www.bing.com/maps>, accessed 18 February 2020)

in a standing position. All the burials had been plundered, but nine still contained skeletal remains and other finds. While five graves only produced minor quantities of fragmented bones, Reisner (1919, 253) mentions ‘four nearly complete skeletons (excepting the head)’

(Figure 3). The alleged absence of skulls led Dows Dunham, who published Reisner's work, to believe that the animals were decapitated, although he found this 'curious' (Dunham 1950, 111). No remains of harnesses or other tack were recorded during the excavation, but it should be noted that the preservation of organic material has been very poor at the site in general and that it can also not be excluded that surviving traces of such material went unnoticed. In contrast, remains of decorative and amuletic trappings survived at the head ends of the mentioned nine graves. Ornaments with royal names came from four graves in the two central rows. From them, Reisner (1919, 253; Dunham 1950, 110) inferred that the burials in the inner rows belonged to Shabaqo and Shebitqo, while the outer rows should in consequence be attributed to Piye (southwest) and Tanwetamani (northeast).

The skeletons from Ku. 211 and Ku. 212 (Figure 3) were taken to Harvard University and transferred to the Peabody Museum of Comparative Zoology in 1941, where they were studied by Glover Morrill Allen. He found the specimens to be similar to contemporary horses, albeit 'their lines were a bit more delicate' (Dunham 1950, 111). Beyond this, Allen's report was never published. Both specimens were later restudied by Sándor Bökönyi (1993), whose analysis has remained the only reference for the Kurru horses ever since. He found that the skulls were not actually missing, but 'represented by very small fragments pointing to the excessive damage done by grave-robbers' (Bökönyi 1993, 303). He does not mention whether the first two cervical vertebrae are preserved and whether they show any cut or chop marks. The presence of a canine indicates that one individual was a stallion, and, as they are similar in size and proportion, they were likely both males. Ku. 211 was adult/mature, while Ku. 212 was an adult. Their long bones had slender shafts and strong muscle insertions. The hooves were described as large and 'conspicuously' wide and flat (Bökönyi 1993, 303, 305). Combined with the slender long bones, Bökönyi (1993, 307) considers this potentially to result from purposeful breeding. Horse 212 showed pathologies which are typical of workhorses, while those of 211 displayed signs of osteoporosis distally, a sign of old age (Bökönyi 1993, 303).



**Figure 3** Grave pits Ku. 209 (left) and Ku. 210 (right) with horse skeletons *in situ*. (Image credit: Dunham 1950, pls XXVIII.B, XXIX.A)

While Reisner had described the horses as ‘a short, rather small breed’ (Reisner 1919, 253; see Dunham 1950, 111), Bökönyi (1993, 305) states that they were large even by modern standards, with withers heights of 152.29 cm and 155.33 cm. They were larger than other contemporary horses, only comparable to later Parthian and Roman specimens (Bökönyi 1993, 307–9 with further references). In Bökönyi’s opinion they were too large for a light chariot and could be considered riding horses (Bökönyi 1993, 309), although the evidence for horse riding is scarce and opinions on whether it was practised differ (Dalley 1985, 44; Heidorn 1997, 106; Hill, Rosado and Wegner 2017; Schrader et al. 2018, 386). This, however, would contradict the Assyrian evidence of Kushite horses being imported for chariotry (see in the section below). Török (1997, 158) connects the evidence of the Kurru horses with the introduction of a heavier chariot carrying three men in Kushite warfare – something that he in turn suggests contributed to their success in conquering Egypt.



## The Kusean breed

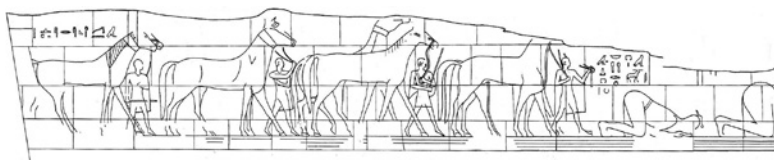
Whether horse-breeding techniques were imported from Egypt into Nubia or were an Indigenous development is an open debate (Bökönyi 1993, 311). However, it is certain that by the seventh century BCE horses were a valuable economic asset of the Kushites, exported as far as Assyria. The Nineveh Horse Reports from the reign of Esarhaddon (680–69 BCE) state that the Assyrians acquired two breeds of horses, the largest and best for chariotry being the *kusaya*, ‘from Kush’ (Postgate 1974, 11–12; Dalley 1985, 43). Kusean, or ‘Kushite’, horses were clearly favoured. The reports mention around 1,000 of these horses, compared to just 85 Mesean, ‘Iranian’, horses (Heidorn 1997, 108 with further references).

The Nimrud Wine List no. 9, dating to 732 BCE in the reign of Tiglath Pileser III, mentions Kushites, and scholars suggest that these individuals may have been at the Assyrian court as horse traders or equestrian experts (Dalley 1985, 44; Heidorn 1997, 108). While large horses acquired from Egypt either through trade or as booty are mentioned in records from the reign of Tiglath Pileser III (744–27 BCE) to that of Ashurbanipal (668–27 BCE; Dalley 1985, 43; Heidorn 1997, 107), the use of the term *kusaya* rather than *musraya*, ‘Egyptian’, in the Nineveh Horse Reports suggests that Kush was their original breeding ground (Dalley 1985, 43; see Postgate 1974, 11–12). This hypothesis is supported not only by the fact that the Dongola Reach around the Third Cataract was renowned for horse breeding in early modern times (Morkot 1995, 237–8), but also by the finds of horses from sites related to the formative and early periods of the Kushite society in the terminal second and early first millennia BCE at the sites of Hillat el-Arab, Tombos and Begrawiya South (Table 1).<sup>4</sup>

## The horse in the 25th Dynasty

As a powerful instrument of warfare on the one hand and a symbol of victory and prestige on the other, horses do not only feature in the archaeological context of the royal cemetery at el-Kurru, but also in contemporary royal imagery. The relief decoration in the hypostyle

hall and the courtyard of the Amun Temple at Jebel Barkal, which was added to the complex in the reign of Piye, is a perfect example of this: the depictions of the king's military campaign against Egypt focus on representations of horses – led by grooms, pulling chariots and being ridden – including a scene in which the victorious king receives a tribute of horses, rather than the human prisoners of the Egyptian iconographic tradition (Figure 4; Dunham 1970, pl. 50; Török 1991, 195; Doxey 2019, 138). This equestrian iconography of victory can also be seen, though fragmentarily preserved, at the Amun Temple of Taharqo in Sanam (Macadam 1955) and in Piye's famous 'Triumphal Stela'. Originating from the Amun Temple at Jebel Barkal, the latter recounts the king's victory over four Egyptian rulers (Grimal 1981; Gozzoli 2001). While the stereotypical representation of Piye as a pious ruler cannot necessarily be considered historically accurate, the prominence of horses in the narrative is unique and may reflect a certain degree of authenticity (Doxey 2019, 138). Horses are repeatedly mentioned throughout the text; the most famous passage in this respect comes from Piye's reprimand of Nimlot, the ruler of Hermopolis, after he successfully besieged and captured the city: '[the fact] that my horses were made to hunger pains me more than any other crime you committed in your recklessness' (Morkot 2000, 188). The pictorial scene in the lunette of the stela shows Nimlot leading a horse towards Piye (Grimal 1981, pls I, V). A variety of interpretations has sought to explain this innovative iconography. Breasted (1909, 545) believed it to be an actual description of Piye's love for horses, while Wilson (1957, 293) saw it as a display of piety and austerity.



**Figure 4** Relief decoration in the courtyard of the Amun Temple at Jebel Barkal showing defeated Egyptian rulers in prostrate positions and a procession of horses led towards Piye, whose figure is partially preserved further to the right, outside the reproduced section of the scene. (Image credit: Tim Kendall)

Most scholars now agree that the stela represents an intricate array of political realism and reference to topical concepts of rulership that have their source in earlier New Kingdom times (Török 1991, 195–6; Gozzoli 2003), but the importance of horses in Kushite royal identity and ideology likely played a part as well. This could give new meaning to Piye’s statement ‘that *my* horses were made to hunger’. While Grimal (1981, 73 note 196) has already noted the unexpected use of this possessive pronoun in his commentary to the stela’s translation, he left it uncommented. Read in context, the phrasing might indicate that Piye referred to horses of Kusean breed in Egypt, that is, in the possession of the Hermopolitan ruler.

## **Preliminary results from the analysis of the newly discovered Kurru horses**

In October 2019 the horse remains rediscovered in the storerooms of the Sudan National Museum were analysed in the Bioarchaeological Laboratory of the National Corporation for Antiquities in Khartoum by Giulia Mazzetti. A first assessment showed that the bones, which were stored in 13 separate crates, were mixed with remains of other species. When the horse bones were separated and cleaned, it was discovered that some had grave numbers pencilled on them. This, together with different size and discolouration, allowed most of the bones to be successfully attributed to one of two individuals. Hanot and Bochaton’s (2018) method was used to ensure that both individuals were indeed horses, rather than donkeys or hybrids. After this was successfully determined, the presence and absence of the individuals’ skeletal parts were assessed and bone taphonomy and bone surface modifications were recorded, as were any signs of pathology. No signs of burning or butchery were detected. Finally the limb bones, sacra and teeth were measured following von den Driesch (1976).

Specimen Ku. 209 was well-preserved, while Ku. 210 had suffered more post-mortem breakages; the latter’s bones were more fragile, and parts of the long bones and the vertebral column were missing. The most remarkable feature was the size difference between the two individuals (Figure 5). While the measurements taken from Ku. 210 were similar to

those of Ku. 211 and Ku. 212 (Bökönyi 1993), the long bones of Ku. 209 were found to be shorter but with a proportionally greater breadth. Both individuals are adults, which is seen from epiphyseal fusion evidence. It was not possible to obtain higher resolution ageing data since the two remaining cheek teeth are fragmented; also, as with Ku. 211 and 212 (Bökönyi 1993, 305), incisors were missing. The medial splint bones of Ku. 209 were fused in their metacarpals, while those of Ku. 210 were just fusing at the time of death, suggesting some age difference. In Ku. 209, two lumbar vertebrae (L5–L6) were fused together (Figure 6), a sign of spondylosis, a degenerative pathology caused by periosteum irritation (Bartosiewicz and Bartosiewicz 2002, 825). Specimen Ku. 209 showed bilateral signs of osteoarthritis in its forelimbs, suggesting that the animal was physically active. An in-depth comparative palaeopathological study will be necessary to assess whether these pathologies are consistent with riding or pulling a chariot.

Some highly fragmented and eroded pieces of skull were present. These may have belonged to either or both Ku. 209 or 210, or equally to the other specimens stored in the same crates. Three fragmented teeth are likely to be those that appear in the *in situ* photograph of Ku. 209 (Figure 3a; Dunham 1950, pl. XXVIII.B). Overall, this survival pattern of cranial parts mirrors the preservation described for Ku. 211 and 212 (Bökönyi 1993). Atlases were missing for both specimens, but the axis of Ku. 209 was present. No cut or chop marks which might indicate decapitation were detected. It should be noted that the lack of cranial bones and atlases does not necessarily mean that the horses were beheaded, as other bones, such as all caudal vertebrae, Ku. 209's calcaneus and Ku. 210's ulna are also missing. The possibility that they were lost either during the plundering of the graves, or post-excavation, or are still stored elsewhere should be considered.

The withers height of the two specimens were calculated following the factors of Kiesewalter (1888) and were estimated at 152.55 cm for Ku. 209 and 154.80 cm for Ku. 210. These results are similar to those of Ku. 211 (153.80 cm) and 212 (156.10 cm), measured by Richard Meadow using the same calculation (see Raulwing and Clutton-Brock, 2009, 55–6). Bökönyi (1993) used Vitt's (1952) method and estimated a withers height of 152.29 cm for Ku. 211 and of 155.33 cm for Ku. 212. Applying Vitt's method to Ku. 209 and Ku. 210 produces 149.15 cm and



**Figure 5** Articulated right metatarsals and phalanges of Ku. 209 (left) and Ku. 210 (right). (Image credit: Giulia Mazzetti)



**Figure 6** Fused lumbar vertebrae L5-L6 of Ku. 209. (Image credit: Giulia Mazzetti)

154.09 cm for Ku. 209 and Ku. 210 respectively. Specimen Ku. 209 is comparable in size to the Hillat al-Arab horse (~149 cm, Chaix, 2006), while the specimen from Saï is smaller, with a withers height of 140 cm (Chaix and Gratin, 2002). The sex of Ku. 209 and Ku. 210 could not be determined due to the lack of canines and an insufficient sample size to plot sexual dimorphism. However, the similarity in size to the two males studied by Bökönyi could suggest that Ku. 209 and Ku. 210 were stallions, too.

## Outlook

The horse cemetery of el-Kurru is lost under modern housing (Figure 2), but the rediscovery of the specimens Ku. 209 and Ku. 210 is an exciting chance for new research. It does not only enlarge the database of horses known from Kush, but also invites a fresh look into subjects beyond zooarchaeology – including the Kushite line of succession. While the sequence of the Kushite rulers was conventionally considered to have been Piye, Shabaqo, Shebitqo, recent research has suggested reversing the order of the latter two (Jurman 2017 with further references). The el-Kurru horse cemetery adds another argument in favour of this reinterpretation. Ku. 209 and Ku. 210 are the easternmost burials in the second row from the northeast (Figure 2). Specimen Ku. 209 was interred in a pit of 1.9 m depth, 2.4 m length and 0.6 m width (Dunham 1950, 113, fig. 39, pl. XXVIII.B). Remains of ‘at least 5 necklaces’ were recorded at the head end of the grave. One of them comprised fourteen faience cartouches with Shebitqo’s throne name, as well as another throne name, Menkheperra (Dunham 1950, 113, pl. LXVIII.A). The latter is considered to have been the earliest throne name of Piye, before he changed it to Wesermaatra and later Seneferra (Török 1997, 154, 163; Morkot 2000, 169–70; Gozzoli 2003, 209 with notes 37 and 38).

For Ku. 210, the excavation report merely states ‘grave: like Ku. 209’ (Dunham 1950, 113; compare Figure 3). The only inscribed object from this grave is a faience cartouche with the name Menkheperra (Dunham 1950, 113). From these finds, it is safe to assume that row Ku. 209–16 belonged to Shebitqo, while the outer row next to it, which is Ku. 217–20, can now be attributed to Piye – reversing the order suggested by Reisner (see above). Faience objects carrying Piye’s

throne name were not only used on his horses, but also found the way onto the horses of his successor – and were buried with them. The logic of spatial development also supports this identification: Ku. 217–20 occupies the highest part of the site, while the other rows spread further down the slope. An expansion of the cemetery downhill is more likely than vice versa.

With the addition of Ku. 209 and Ku. 210, Shebitqo's horses occupy a prominent place in the archaeological evidence of equids in the Nile valley. Zooarchaeological study of them has only just begun. It will be interesting to see what more they have to offer in terms of learning about the Kushite kings and their horses, the longstanding question of their employment as riding or draught animals, and the social, ideological and ritual dimensions of equid burials in ancient Egypt and Sudan.

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## Conflict of interests

The authors declare no conflict of interests with this work.

## Notes

- 1 We thank Abelrahman Ali, Mutwakil Adam Adar, Amel Atiya, Shadia Abdu Rabo and Mohamed Saad of the National Museum in Khartoum and Neal Spencer, Patricia Usick and Marie Vandenbeusch of the British Museum for their help.
- 2 The fourth king of the 25th Dynasty, Taharqo, built his tomb at Nuri, 23 km upstream of el-Kurru. The pyramid of Shebitqo lies 70 m west of Ku. 1, outside the part of the cemetery illustrated in Figure 2.
- 3 Though commonly called the Kurru horse cemetery, a more correct designation would be horse and dog cemetery, as Reisner excavated two additional circular graves southwest of the horse burials (Figure 2: 225, 226), one of which contained the burial of a dog (Dunham 1950, 110).

- 4 A horse burial described as ‘suggestive of the horse-graves ... at El Kurru’ (Dunham 1963, 441, fig. 239.B) was discovered in the cemetery of Begrawiya South. From its position in a cluster of early graves, it could indeed date from about the same time. The specimen did not receive any zooarchaeological analysis and is not known to be preserved, hence it is not included in Table 1.

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