



NEKHEN NEWS

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Find of a Lifetime

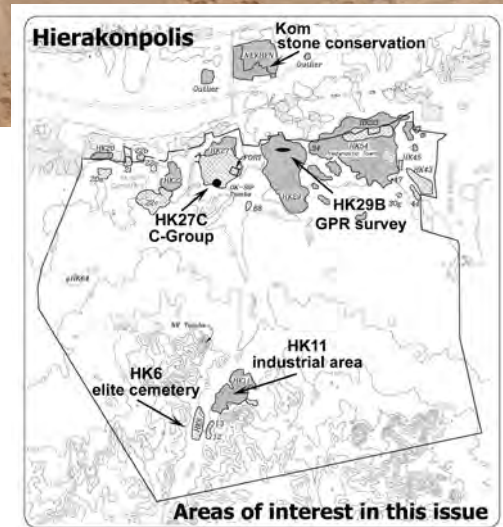
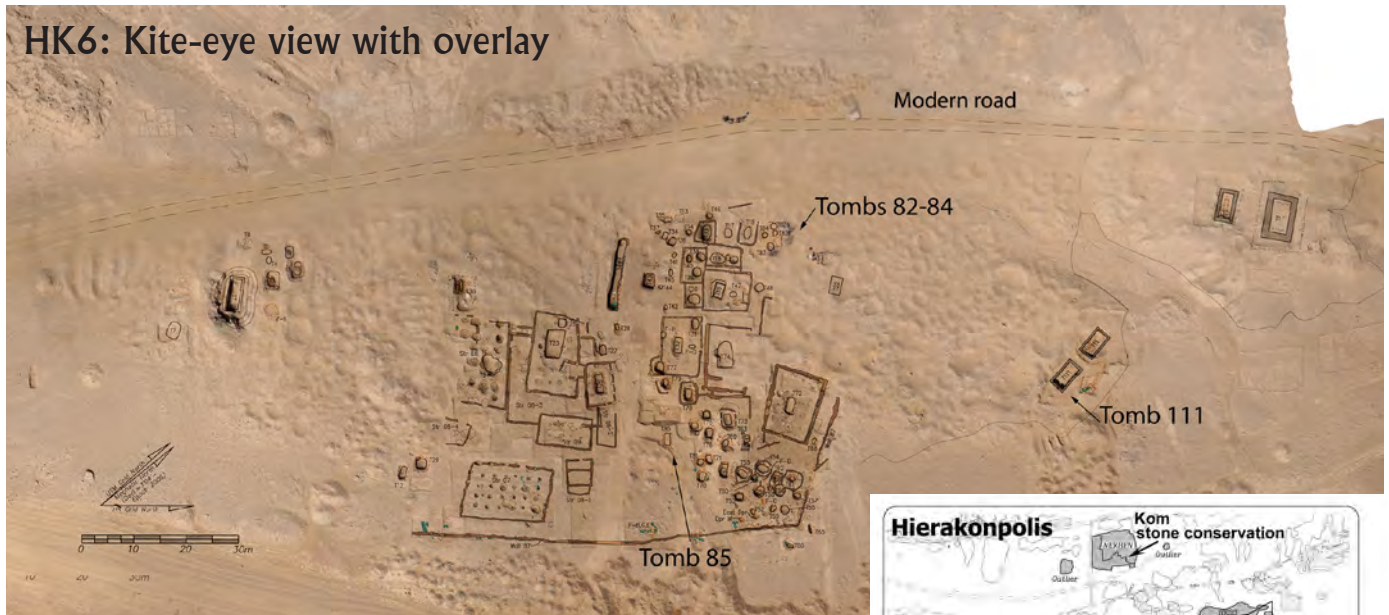
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Hierakonpolis in 2017–2018

HK6: Kite-eye view with overlay



Time Line

Period	Date BC
Badarian	4400–4000
Naqada I	4000–3800
Naqada II	3800–3300
Naqada IIIAB	3300–3050
Unification/Narmer	3050
Dynasty 1	3000–2890
Dynasty 2	2890–2686
Old Kingdom	2686–2160
First Intermediate	2160–2055
Middle Kingdom	2055–1650
Second Intermediate	1650–1550
New Kingdom	1550–1069
Third Intermediate	1069–656
Late period	664–332
Ptolemaic	332–30
Roman	30–AD 395

Kite-flying at HK: See page 19.



Thanks for Your Support

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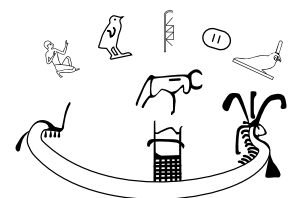
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Celebrating the Nekhen News: Volume 30 and Counting

—Renée Friedman, Director, Hierakonpolis Expedition

Hard to believe, but this is volume number 30 of the *Nekhen News*! To celebrate this milestone (millstone?) we have compiled an expanded issue of the newsletter detailing the results of two highly successful campaigns of fieldwork as well as the fruits of current research on and about the site of Hierakonpolis. Our first field campaign took place in November 2017, when we explored the Naqada III portion of the HK6 cemetery, revealing Tomb 111 and all of its breathtaking contents in addition to fascinating insights into how the elite cemetery was used and reused over time (pages 4–6). After the discovery of a spectacular decorated knife handle (see cover), intricate ivories, intriguing arrows, and interesting animals in a variety of materials (pages 7–14), who could ask for more? Yet, the finds kept on coming when we returned in February–March 2018 to continue the search below the spoil heap (pages 15–18). Efforts there were handsomely repaid with the recovery of fabulous flints and a new ceramic mask early in the process, although the circumstances of their deposition remain somewhat of a mystery. Not all the discoveries were easy, but after some serious spoil dirt shifting, we finally did find the tomb (Tomb 85) we were looking for.

A Ground Penetrating Radar survey by the team of geophysicists from Port Said University in November led to the excavation of other tombs and the detection of many more, all contributing to a better idea of cemetery layout and organization (pages 24–25). Returning in February, the team tested a newly devised remote sensing technique, which resulted in the re-discovery of the so-called

stela of King Pepi I on the Kom at Nekhen, allowing us to conserve this important monument and record it in detail for the first time (pages 26–28). Technology (old and new) was very much at the forefront throughout both campaigns.



Shifting the spoil heap at HK6

Photos taken from a traditional kite were turned into stunning and accurate views of the landscape with new software (page 19), while magnetometry at HK11C revealed exciting new features that were totally unexpected (pages 22–23).

We are also very happy to report that the process of preserving Green's facsimile of the Painted Tomb has gotten off to a good start and we present the first of a series of reports that will keep you updated on progress as it unrolls (pages 29–32). Thank you all for your interest in this project and your generous donations that are making it possible.

In thirty issues we've come a long way from the first 8-page photocopy in 1985. Helping to make the *Nekhen News* what it is today is the quality of the photography, for which we salute Jim Rossiter, who has been documenting our finds for just shy of 20 years! The beautiful and often hard-won images gracing the pages of this edition in particular are evidence of his handwork. From the biggest hippo (see page 21) to the smallest detail (page 20), his camera has captured it all, making us very lucky and also immensely grateful.



Photographer Jim Rossiter at work.

The *Nekhen News*, of course, represents the efforts of a dedicated team of researchers, workmen and colleagues sharing their knowledge and skill as well as the magic worked by Tori Muir in formatting the varied contributions. Thirty volumes on, I wish to thank them all. 🐦

One to Remember: Tomb 111 at HK6

—Renée Friedman

In November 2017, in collaboration with the Allard Pierson Museum, Amsterdam, we embarked on an investigation of Naqada III activity at the very northern tip of the HK6 cemetery, near Tomb 11. Our aim was to obtain a better understanding of the later history of the cemetery and to get a clearer idea of its extent in earlier times. We chose this spot for two reasons. First, the 1999 magnetometry survey indicated that a large brick-lined tomb would be present here; and second, excavation of Tomb 11 in the 1980s had unearthed a great deal of earlier material suggesting that Naqada I–II burials were spread across the site.

The chosen area appeared largely undisturbed (at least in recent times) and soon the upper walls of a large tomb emerged, which was almost exactly 5m long and 2.5m wide (internally) and ultimately 1.16m deep. All four sides were lined with bricks (22x11x5cm) laid in courses of three headers irregularly alternating with courses of header-stretcher combinations. Coating the interior of the walls was a still sticky mud-plaster up to 3cm thick.

In dimensions and orientation it is identical to Tomb 11, from which it is separated by only two meters. To emphasize their close connection, we decided to call our new discovery Tomb 111. Both contained a large but similar range of pottery, including net-painted cylindrical jars, which can be closely dated to the Naqada IIIA2 period (Dynasty 0), making the tombs nearly contemporary with the famous Tomb U-j at Abydos. Despite disturbance by looters, nearly 35 vessels in a variety of types could be reconstructed from Tomb 111.

Another element common to both of our tombs were blades of obsidian, a dark volcanic glass imported from Ethiopia, which appear to have been paired with similar



All in a row: Tomb 111 with Tomb 11 right behind it.

blades of light-coloured flint. This choice of contrasting shades was no doubt intentional, and probably had ritual significance. Yet, beyond these basic components the two tombs were highly personalized, perhaps reflecting the interests and status of the deceased.

Tomb 11 belonged to a child of 10–12 years who was interred on a wooden bed with legs beautifully carved to resemble bull's feet. The owner of Tomb 111, on the other hand, was a young adult male according to the analysis by Daniel Antoine and Rebecca Whiting (British Museum). Judging from the impressions of wood planks found on the tomb floor, he was probably buried in a wooden coffin. Copious amounts of native acacia wood dressed into planks (10cm wide, 3cm thick and at least 42cm long) were collected, some of which may also have formed the roof.



Pottery selection from Tomb 111 including distinctive net-painted cylindrical jars.



Contrasting colours: Beige flint and black obsidian blades from Tomb 111.

Other bones recovered from Tomb 111 indicate this young man was not buried alone. Archaeo-zoological analysis by Wim Van Neer and Bea De Cuperre (Royal Belgian Institute of Natural Sciences, Brussels) revealed that he

was accompanied by three donkeys. While donkeys in threes have been found with other tombs of this time, unexpectedly these were three baby donkeys—two newborns and one about 8 weeks of age. The presence of a nearly complete skeleton of a 2-month old pig was also a surprise, and the potential significance of this assemblage is discussed further on page 11.

Also out of the ordinary were the arrowheads found in the tomb. Since the fragments came out piecemeal (full marks to the sieve crew for catching all the bits and to Xavier Droux for piecing them back together), we are not quite sure how many different types we actually have, but one type is certainly unique. These are blunt-tipped arrowheads of ivory carved with two sets of barbs placed on alternate sides. Most remarkably, they also feature tiny blades of flint that were inserted into slots just above one set of barbs. In two cases, the flints were still in place, but we were able to reunite the loose flints with their arrowheads because the slots were custom made and certain blades could only fit in certain slots.

The use of microliths or tiny pieces of flint in composite arrow construction is an ancient technique going back to the Palaeolithic, but it became popular again especially in the New Kingdom. Arrows carved with barbs are also well known, but both together is unparalleled in any time period.

Even more curious is the way the base of each arrowhead was drilled to create a socket about 1cm long, but only about 4mm wide, for the insertion of another element. The socket is so small it is hard to imagine what was meant to go



Carnelian lunates, barbed composite arrowheads and tapering ivory rods from Tomb 111.

Photo: J. Rosstler

into it except for the tang carved at the end of the long tapering ivory rods we also found in the tomb. It is exactly the right size.

Of course it is equally possible that the tapering rods are arrowheads in their own right, for which many parallels are known.

The same can be said for the carnelian lunates from the tomb, which could have been affixed with mastic to simple shafts. Nevertheless, the possibility remains that all these pieces were meant to go together. Thus, we tentatively suggest an assembly whereby the tapered end of the ivory rod was slotted into a reed shaft, the tapered end inserted into the



Slotting into place? Possible reconstruction of the arrows.



Modern blunt-tipped arrow for small game hunting

socket of the barbed arrowhead, and the lunates attached at the blunt end of that. The result would have been a rather impressive (if impractical) piece of kit. The jury is still out on this idea, since blunt-tipped arrows, not so different from our own, are used frequently today for hunting small game where extreme penetration is not desired. The blunt ends also prevent the arrows from getting stuck in trees or burrowing into the ground, making them easier to retrieve. Considering the care and skill that went into crafting these ivory arrowheads, ease of recovery may have been a real concern. In the end, the number (nine if all elements go together) and types of arrows remain unclear, but we can be pretty sure the owner of Tomb 111 liked to hunt, or at least to give that appearance.

Other finds, like a small copper adze blade, suggest he also went in for a little wood working, and decorated ivory casting sticks indicate he enjoyed playing games. Gaming was apparently a favoured pastime for the elite, as sticks directly parallel in size, shape and décor are known from Abydos Tomb U-j. Conspicuous by its absence, however, is jewelry. While Tomb 11 yielded a large number of beads and amulets in a variety of valuable materials (gold, silver, turquoise, lapis, etc), only one carnelian barrel bead was

found in Tomb 111 and it is probably intrusive.

Bling may not have been his style, but he still liked pretty things. Case in point is the beautiful ivory plaque found scattered around the tomb. Detailed on both sides, it is carved with rows of animals cut free of the background, leaving only small

points of attachment to a ground line. Remarkably, this ground line turns a corner, so that a spirited antelope appears to tread on the trunk of an elephant, behind which a leopard is carved. Spots of green malachite, present on both sides, were intentionally applied for decorative effect and must have been quite striking against the white of the ivory when it was new. From the surviving fragments, which include another antelope and possibly a wild dog, we can tell this object was composed of at least three rows of animals, and pieces from the border indicate it was originally rectilinear (see page 20). Ivories featuring these animals are well known in the Naqada III period, especially from the Hierakonpolis Main Deposit, but the openwork craftsmanship is unparalleled.

Further fragments attest to a variety of carved ivory objects in the tomb, but there can be little doubt that the most prized possession was the amazing decorated knife handle found during the final scrape of the floor. The significance of this spectacular find cannot be over-estimated. Only 12 other more or less complete knife handles of this type are known in the world and this is one of the very few to have a datable context. The find of a lifetime, I must admit it had me dancing across the cemetery until I realized what a daunting task its conservation and recording was going to be. I thank Lamia El-Hadidy, Daniel Bone, Jane Smythe and Jim Rossiter for all of their hard work in this respect. The fruits of their labours



Casting sticks and other objects from Tomb 111.



The openwork ivory plaque from Tomb 111, front and back.

are presented on the next page with a detailed description of the decoration and all its wonders.

In brief, the intricate carving on one side shows rows of animals as seen on other knife handles (see page 8), while on the other side, a row of powerful animals headed by a large scorpion en-

circles two registers of boats. Of note is the unique presence of the scorpion, an animal that was especially prominent at Hierakonpolis in ivory carving and as figurines, but is unknown on other knife handles. It is therefore probable that this handle was created in workshops at the site.

In contrast to the modelled raised relief of most other knife handles, the style of carving is rather flat: the designs here were incised and the background cut away, with details added by incision and pecking only. Notably, the ivory was never polished and the striations from the initial smoothing are still quite evident wherever the original surface survives. We can't be sure, but it is fun to consider that perhaps a final polish was unnecessary because the handle was originally covered in gold foil, a small scrap of which was found on the tomb floor.

All of these wonderful finds would have been enough to make Tomb 111 one to remember, but its story continued (see page 13) as we widened the excavations to the very edge of the wadi terrace and found more extraordinary things right next door. 🏛️

Excavation of Tomb 111 was funded by a Netherlands Organisation for Scientific Research (NOW) grant awarded to the Allard Pierson Museum, Amsterdam, and carried out with the assistance of Willem Van Haarlem, Wim Hupperetz, Liam McNamara and Xavier Droux.

Tomb 111 Knife Handle in Detail

—Renée Friedman

Vital stats: Length: 10.1cm; Width: 6cm; Max thickness: 2.3cm. Carved on both sides, but termite activity and salts have obscured some aspects of the decoration. The flint blade once hafted to it was not found.

Side 1: The boss side is carved with two rows of animals framing two registers of boats. All elements face toward the blade end of the handle, as is typical. The bottom row begins with a large scorpion, its long tail lying flat against the border, with just the end beginning to turn upward. Only traces remain of the decoration above owing to salt and termite damage. Behind the scorpion is a poorly preserved animal with a long curving tail and a strange head (a griffin?). It is followed by another animal with a long curving tail and a spotted coat, probably a leopard. The next animal may be a Barbary sheep with part of one down-curved horn preserved. Along the rounded end is a large lion with its tail lifted over its back. Following behind are two birds, one with a forked tail and a smaller bird that might be a guinea fowl.

The animals at the beginning of the top row have been lost, but it is still possible to make out four ibex with characteristic horns and small chin beards. The row terminates in a crested ibis, a plume of feathers trailing behind its head. Its body has been detailed with incised ticks.

In the second register are three boats with simple up-curved ends, floating on water together with a large bird, perhaps a pelican. The middle boat is the best preserved and appears to have a sloping seat or open shelter of reed construction on deck. Remnants of incisions on the first boat suggest it may have carried something similar. The third boat has traces implying a more elaborate structure with door amidships.

The register below features two large boats with ‘antelope’-headed prows. They are placed to either side of the boss which is pierced lengthwise and decorated with a series of incised concentric circles. The first boat floats on a band of water that is marked with a series of incised crescents. Both boats have elements on deck that are difficult to interpret and are discussed further on pages 9–10. At the end



Ivory knife handle from Tomb 111, front back and sides.



Distinguishing the details on the knife handle from Tomb 111 (drawing by Jane Smythe).

of the row are two vertical elements marked with hatching that may represent trunks of palm trees, possibly used as mooring posts. They connect to a band that runs below the boats and is unfortunately lost in the damage.

Side 2: The flat side of the handle has 5 rows of animals. The first row is carved with at least 7 saddle-bill storks and terminates with a heron (?). This is part of a composition that is common to all knife handles with animal rows and originally would have included a giraffe near the front. The second row

contains animals with triangular ticks on their bodies that may be leopards. The animals in the 3rd row have short tails and are decorated with incised ticks only on their backs; they may be hyenas. The 4th row probably contained lions judging from the long curving tail. Wild cattle are clear in the 5th row and appear to stand on a thick ground line. The 6th row seems to be a decorative border of short lines of raised relief set in groups of four; alternatively, it may represent elements of the landscape. ➤

Decorated Knife Handles: A Club Members List

Knife handles retaining a relatively complete decorative scheme form a restricted club that, with the addition of the Tomb 111 example, now admits only 13 members. They can be roughly divided into three groups based on the presence of animal rows, entwined snakes and fantastic animals, or boats and/or humans, but these elements can be combined in many different ways.

Viewed together, one can trace the unifying theme of 'order'. The carved scenes show us the animal world controlled in orderly rows or kept in its proper place by more powerful/mythic animals or humans. The control of the human world is implied in scenes of violence and captives, but also involves a boat voyage to present the proof of these efforts and to conduct the appropriate ceremonies. While all of the scenes can be explained as

allegories on the control of chaos, the ancient Egyptians no doubt understood them as illustrating myths or legends, which sadly have not come down to us. It is much like trying to decipher Greek vase painting without Homer, and in our attempts to piece together the story, every new member of the club is most welcome!! ➤



The Abu Zeidan knife.

Photo: X. Droux

Animal Rows Both Sides:

- Abu Zeidan knife (Brooklyn 09.889.118)
- Pitt Rivers knife (London BM EA68512)
- Carnarvon handle (New York 26.7.1281)
- Abydos K1262, Tomb U-127

Snakes, Fantastic Animals, Animals/ Humans Hunting:

- Gebel el-Tarif knife
- Berlin handle (Berlin 15137)
- Petrie Museum knife (UC 16294)
- Abydos K3325, Tomb U-127

Humans, Prisoners, Boat Voyage, Ceremonies:

- Gebel el-Arak knife (Paris E11517)
- Metropolitan handle (New York 26.241.1)
- Hierakonpolis handle (Oxford AN1896-1908 E.4975)
- Abydos K1103, Tomb U-127
- HK6 Tomb 111 handle



Abu Zeidan.

Gebel el-Tarif (DeMorgan 1898: 115).

Gebel el-Arak.

Focus on the Flotilla: The Knife Handle from HK6 Tomb 111

—Dorian Vanhulle, CReA-Patrimoine/Université libre de Bruxelles, Belgium

Hierakonpolis is definitely the site of wonders. The excavations in November 2017 at HK6 illustrate this perfectly with the discovery of an ivory knife handle, richly carved on both sides. It joins a restricted club since only twelve other well-documented decorated knife handles are currently known, and it adds to the discussion of their meaning, since aspects of its iconography have no direct parallels. This exceptional object from Tomb 111 is securely dated to the Naqada IIIA2 period.

Together with other decorated artefacts such as the so-called Davis comb, the Sayala mace-handle, ceremonial palettes and the ivories from the Main Deposit, ivory knife handles belong to the category of prestigious objects made during the Naqada IID–IIIA period. All are unique in their own way, yet their iconography, particularly keen on animals organised in rows, seems to convey an ideological discourse mainly related to the notion of the primacy of order over chaos. Nautical processions combined with official buildings, members of the elite (including perhaps crowned figures), combatants and prisoners are attested on four handles. The scenes on the Gebel el-Arak and the Metropolitan knife handles are particularly intricate. They add to the fundamental notion of order a political and religious dimension. This combination of the terrestrial superiority of the elite (perhaps kings) with the cosmic order of the universe may already be reflected in the Gebelein painted shroud and on the famous painting from Hierakonpolis Tomb 100 (the Painted Tomb).

Although quite difficult to read, the new knife handle from Tomb 111 shows on the boss side two registers of boats surrounded by animals. The boats dominate the central section, while the fauna are situated along the edges, following the curve of the object. While both boats and animals occur on other knife handles, their appearance together on the same side here is surprising. The boats themselves are also atypical, and this makes them



Middle boat in the flotilla on the Tomb 111 knife handle.

especially intriguing. Unfortunately, salt and termite damage has made some details hard to decipher.

The upper register contains three wooden boats with short, almost vertical extremities and a bottom that is slightly curved. No oars or rudders can be seen in the band below, and no markers, such as garlands, fronds or emblems, are identifiable. At first glance, they appear to closely resemble the freight boats depicted on ivory and ebony labels inscribed for the Dynasty 1 kings Aha and Djer. However, it is difficult to explain the presence of such practical boats on such a luxury object, and one which was meant to convey an ideological and political discourse. We are thus most probably dealing with something other than mere freight boats here, but exactly what type is still hard to say.

These boats cannot be related to papyriform barques or the classic Predynastic sickle-shaped boats; nor have they direct affinities with the standardised boat that appears during Naqada IIIA–B. Boats of this ‘official’ type have highly upraised extremities and a stern that is triangular in profile. Vessels of this type can be observed, for example, on the Qustul incense burner, on ivory and ceramic boat models from the Hierakonpolis Main Deposit and Tell el-Farkha, as well as in rock art.

A notable feature of these boats is the sloping seat or shelter on deck, and the structure on the right side of the middle boat could be interpreted in this way. Its position and its orientation are consistent with the general direction of travel towards the left. Yet, it is important to note that this ‘seat’ is never higher than the boat’s extremities in official iconography. That this is the case on this object is problematic. Knife handles are the products of skilled artisans and such imprecision would be quite unexpected.

One might also compare the structure on the middle boat to the deck houses, shown for example on a model in Munich and depicted on the Narmer Palette, but such buildings are usually longer and more horizontal. Equally unresolved is the identity of the sloping lines on the left side of the middle boat, but a gang-plank, a disassembled



Comparable crafts: Model of ‘official’ boat from Tell el-Farkha; ceramic boat model in Munich; freight boats on Dynasty 1 labels; and elaborate boat on Main Deposit ivory.



Boats with animal heads on Gebel el-Arak knife handle.

temporary structure or some sort of cargo are all possibilities (see below).

Further complicating the discussion, all three boats need not be the same, as suggested by the remains of more elaborate constructions on the third boat. Difficult to identify due to the poor preservation of the ivory, this boat seems similar to those depicted on an ivory plaquette from the Main Deposit, which shows a procession of boats featuring structures with a central door or window.

The middle register preserves two boats clearly carved with animal heads at their prows. Water is suggested below the first boat by a succession of curved incisions and an almost identical feature can be observed on the Metropolitan Museum knife handle.

Boats with ornamented prows are well-known in rock art at Hierakonpolis (see *Nekhen News* 20: 24) and elsewhere at this time, but identification of the schematic elements as animal heads has remained controversial. Thanks to this new knife handle, it is now difficult to deny the presence of animal heads on boats around the Naqada III period. It also provides confirmation for the new drawing of the Metropolitan knife handle by U. Effland, which suggests an animal head on the prow of the boat leading a procession. From this perspective, it is very interesting to note that the




A floating fantasy? Animal-headed boat on the Tomb 111 handle with fins on deck.



Animal-headed boat on the Metropolitan knife handle with new drawing superimposed.

sickle-shaped boats carved on the Gebel el-Arak knife handle also possess horned animal heads stuck into their prows. All together this strongly suggests the existence of a specific category of ceremonial barque with a prow decorated with a horned animal head, whether fashioned from fronds and reeds or incorporating real or modelled skulls.

Although the ivory is better preserved in the middle register, what these boats carry on deck is far from obvious. The diagonal lines on the deck of the second boat may represent a dismantled wooden construction, perhaps something like the rounded deck structures on the Gebel el-Arak boats. The first boat with its fin-shaped decking is even more of a quandary, since it does look like a fantasy. In fact, the fins on deck call to mind the hybrid animal seen on other knife handles: a mixture of antelope and tilapia fish, known to some as a 'tilapelope'. Horns and fish were symbols of regeneration and eternity, and by putting them together this creature had double significance. While such a combination of boat with this iconic animal is unparalleled, it is perhaps not that surprising given the symbolic nature of the boat as a metaphor for the order of the cosmos and all the benefits (power, fertility, rebirth) that came with it throughout the later part of the Naqada period.

In contrast to the other knife handles featuring boats and man-made structures, human actors are conspicuous by their absence in the Tomb 111 carving. Unless the powerful animals, like the scorpion and lion, in the bottom row can be considered avatars of regions, groups or individual people, an explicit political message is missing. Whether the crucial notions of the primacy of order over chaos and rebirth and fertility are the only messages the scenes on the Tomb 111 handle were meant to convey remains to be determined. Nevertheless this new example expands our view of knife handle iconography and brings us ever closer to cracking the code. 



The hybrid 'tilapelopes' on the Abu Zeidan and the Berlin knife handles (Needler 1984:154; Kuhn 2015: fig. 69c).

Did Donkeys Go by Three?

—Marie Vandenbeusch, Dept. of Ancient Egypt and Sudan, British Museum

Among the many unexpected discoveries within Tomb 111 of the Naqada IIIA2 period at HK6 were bones belonging to three donkeys. Analysis by Wim Van Neer and Bea De Cupere (Royal Belgian Institute of Natural Sciences, Brussels) shows they are the remains of two new-born donkeys and one not older than two months of age. The presence of these three baby donkeys is somewhat surprising on many levels. Donkey burials are known from around elite tombs in the Naqada III period, but those in Tomb 111 are, to date, the southernmost examples. And in the grave of an adult male, where the grave goods suggest significant wealth and status, why bury babies?

Previous archaeozoological evidence for donkeys at HK6 was limited to the remains of two wild donkeys in the only partly excavated back-dirt around the large rock-cut Tomb 2 (also dated Naqada III), but their place of burial is still undetermined. Their presence in Tomb 111 now puts donkeys firmly on the list of species interred in the cemetery, at least during this later phase of burial activity.

Their absence during the Naqada I–II period, however, seems quite curious, especially since donkeys were represented on a comb and flint figurine from HK6 and incised on rock art around the site. This pictorial ubiquity is at odds with the archaeological record, but with the new discoveries in Tomb 111 we can begin to develop ideas about how this animal was perceived at Hierakonpolis over time.

Unlike many of the species attested in the elite cemetery at HK6, donkeys are known from other sites, especially in the Memphite area during the Early Dynastic period. Excavations in Abusir, Tarkhan and Helwan have all revealed instances where three donkeys were buried in subsidiary



Donkey depictions from Hierakonpolis.

locations in association with large tombs, and it is the number three that allows us to make comparisons.

Comprehensive descriptions of the Memphite tombs are unfortunately lacking, but their respective publications yield some interesting details. At Abusir, three donkeys were buried aligned along the wall of a tomb subsidiary to Mastaba IV, which probably dates to the reign of King Den of Dynasty 1. They were found standing in a row, some with evidence of damage to the skull. They may well have been buried alive, explaining the need to neutralise them with blows, or at least calm them down. The picture is similar at Tarkhan, where three donkeys were discovered standing under the southern corridor beside the enclosure wall of Tomb 2050 (Dynasty 1, reign of Djet). At Helwan, three tombs (615.H3, 53.H10 and 719.H5) also contained donkeys —three are mentioned for at least two of them— but very little information about their position is available. Outside the Memphite area, at Abydos, buried donkeys have also been found in association with the early Dynasty 1 cult enclosure of a still unidentified royal owner



Phalanges (toes) of the baby donkeys in Tomb 111.



Donkey burials at Abydos (Rossel et al. 2008: fig. 1).



Three donkeys in the Painted Tomb.

(Narmer?). There were ten of them in total, distributed among three brick-lined subsidiary tombs. All were adults and showed signs of having led hard-working lives.

The burials described above are generally dated within the first two dynasties (Naqada IIIC), thus Tomb 111 (Naqada IIIA2) is the earliest confirmed burial of donkeys so far known. Despite the length of time donkey burial was practiced, one cannot help noticing that the number three is recurrent. Three is also a key number on several representations of donkeys. For example, the Painted Tomb at Hierakonpolis includes a group of three quadrupeds, probably donkeys, as part of a hunting scene. Groupings in three can also be seen on pottery and rock art, even if species identification is sometimes not entirely obvious. The number three was an omnipresent and symbolically charged number in pharaonic Egypt: there are the many divine triads, such as Osiris, Isis and Horus or Amun, Mut and Khonsu. Three was also commonly used to refer to the notion of plurality: three strokes at the end of a word indicated a plural, which could encompass anything from three to infinity. Did the tomb owners believe that by interring three donkeys they



Donkeys in rock art at Hierakonpolis shown as the focus of a hunt.

would multiply to form a whole herd? Of course, we can never know for sure.

The donkeys in the Memphite area have been interpreted in a number of ways, from being pet animals to demonic symbols of Seth. I prefer to interpret them as essential elements of transport, and perhaps even symbols of trade and wealth. The standing donkeys in Abusir and Tarkhan seem to be ready to go whenever the tomb owner needs a ride. Obviously, it is a little harder to apply this explanation to those buried in Tomb 111. Only babies—and certainly not ready to be ridden or carry a load—nevertheless, they could have conveyed the same notion of accompanying and serving the deceased for eternity.

Complicating the story a bit is another interesting discovery made in Tomb 111: the bones of a young pig. Pigs shared the same negative connotation as donkeys throughout the pharaonic period. Both animals were later associated with Seth and considered elements of chaos, beasts of burden, and components of the most basic subsistence. Whether these animals carried the same connotations in the Naqada III period is unclear; however, those preparing Tomb 111 clearly chose to include such animals along with beautifully carved ivory pieces and other demonstrations of wealth. These animals clearly meant something. Were they a guaranteed supply of food and means of transportation? Symbols of evil and chaos neutralized? Hunting targets for eternity? Very frustratingly, we must await new discoveries to find out. 🐘



A baby donkey among the rocks.

The Hippo Next Door: Further Discoveries Around Tomb 111

—Renée Friedman

A decorated knife handle would certainly have been a fitting end to the story of Tomb 111, but there was more, much more. This we discovered when we began clearing to the north of the tomb. This area had been partly excavated in 1985 during the investigation of Tomb 11 and an unsightly trench had been dug through it since that time. Our work here was mainly meant as a house-keeping exercise and to check for evidence of superstructure surrounding the tomb. Who knew how interesting the neighbours were going to be?



Tomb 111 and its neighborhood.

The 1985 excavations had revealed much pottery of early Predynastic date believed to come from burials that had been disturbed by Naqada III tomb building. Yet the sheer amount of this pottery and its limited range of shapes alluded to a different explanation from the start. The assemblage was dominated by little red polished bowls, essentially saucers, usually about 12cm in diameter. Almost all of them



Extraordinary excavations: A leg of the ceramic hippo emerging.

have worn centres while some have traces of burning around the rim, indicating they were used as lamps or incense burners. In just the small space we cleared there were over 180 measurable fragments, equivalent to more than 45 individual saucers. In addition, the discovery in the same area of fragments of several human figurines suggested even more strongly that this material was not the

residue from disturbed tombs, but instead the remnants of ritual activity.

Further clearance revealed the place where such activity likely took place. At the northern end of the wadi terrace we found the top surface had clearly been flattened and its edges carefully smoothed to a 45 degree angle. This was not by accident, and surrounding the foot of this slope were two rows of upright stone slabs, presumably set up to demarcate the cemetery's boundaries.

This slope was later filled in with mud brick debris and the stone slabs covered over when the terrace was artificially extended with sand to make space for the construction of Tomb 111. The pressure of the loose sand against the east wall of the tomb caused it to buckle and the inward curve of the wall was already noted in antiquity. Bricks laid in various patterns were inserted in an attempt to strengthen it and seem to have done the trick. Despite these changes to the landscape, the trouble taken to extend the terrace with land fill suggests this location was still an important place to be, and it was not long before we discovered what the fuss was all about.

Even as it was coming out of the ground we knew it would be extraordinary, and piecing it together, so it proved to be—a large ceramic statue of a hippopotamus! Clustered closely together on the flattened top by the slope, and possibly near the original installation, were several fragments. Here we found the head, with its eye in raised relief and nostrils with cut out centres and modelled edges, as well as two of its stout legs, each fashioned with three little toes. A third leg was uncovered in the same place in 1985, but thought at the time to be a jar stand.

The most astonishing aspect of this statue is its size. The head alone measures 50cm in length and an assembly of fragments originating from somewhere along the back is over 80cm long. Thus we estimate the entire statue



Flat pack: Fragments of the ceramic hippo statue recovered so far.



Hippo statue reconstructed (hypothetical).

may have measured 1.5 to 2m in length, making it life-sized for a young hippo 3–6 months of age.

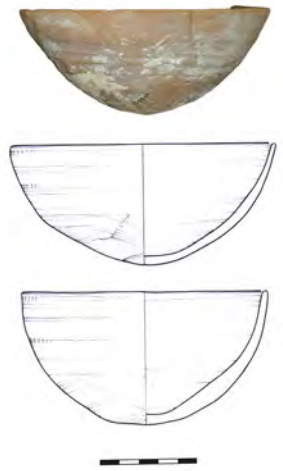
Entirely made of clay, the statue was modelled from very coarse Nile silt with many straw and angular stone inclusions. The legs were made separately and joined to the body before firing, but holes near the joins show how the pieces were tied together for greater strength. Among the many fragments of the body, some preserve the rounded edge of an oval opening presumably in the belly area, which would have allowed this large, thick walled, hollow sculpture to be created and ultimately fired.

An amazing example of ceramic artistry as well as technical engineering, such a statue would certainly not have been easy to make, and exactly who made it is not yet clear. Hippo statues are known from many phases of the Pre- and Early Dynastic period, so it is hard to tell. Its features and modelling can, for example, be compared with the small hippo-shaped vessel of fine clay from Abydos grave U-560 (Naqada IC–IIA), while its size and manufacture are comparable with a statue made of a coarse Egyptian fabric found in association with rich Naqada III graves at Qustul in Nubia. Estimated to have been roughly 50cm in length, the Qustul hippo is still small compared to the HK6 statue, and the strong modelling

of its head, eyes and tusks are markedly different. More research is required, but regardless of whether the HK6 hippo is from the original Predynastic ritual installation or part of a refurbishment in the Naqada III period, it is the largest ceramic statue of its time. Standing on the raised terrace at the tip of the cemetery, perhaps acting as its guardian, this pottery hippopotamus statue must have been a potent sight and one that may have endured for some time.

Evidence for later interest in the area is indicated by a number of reconstructible hemispherical bowls dating to the Middle Kingdom, roughly 1000 years after Tomb 111 was constructed.

Testifying to renewed offering activity in the HK6 cemetery, these bowls take on additional importance in light of the notable reappearance in the Middle Kingdom of Pre- and Early Dynastic imagery and objects, such as hippo figurines, wands and mythical creatures like griffins. Recently it has been proposed that this resurgence was sparked during new temple construction, when ancient ritual deposits were encountered. However, these bowls from around Tomb 111, as well as other pots and inscriptions found in the cemetery, suggest this revival was not limited to the passive observation of archaic forms, but also included active engagement with the ancient sites and acknowledgement of the august ancestors and their remarkable accomplishments. 🐘



Revival time: Middle Kingdom hemispherical bowls from around Tomb 111.



A placid countenance: The early Predynastic hippo pot from Abydos U-560 (Dreyer & Polz 2007: fig. 262).



The ceramic hippo statue from HK6: Finding a fitting face.



Fearsome features: The Naqada III hippo head from Qustul, Nubia (Williams 1986: pl. 99).

More Adventures Under the Spoil Heap: HK6 in 2018

—Renée Friedman & Xavier Droux, Hierakonpolis Expedition

In February 2018 we returned to HK6 to resume our battle with the back-dirt. The remarkable plaster objects we had found the previous season at the edge of the heap made us anxious to see what more might be hidden below. Of course, it was never going to be easy. To remove a strip 1m wide and 8m long, it took two full days of hard manual labour. However, these initial efforts were quickly rewarded when, laying on the original surface, we uncovered a stunning flint figurine in the shape of a Barbary sheep.

Made on a translucent beige-orange flint, the figurine features two downward curving horns, a schematic head and a short sloping body; only the back leg is missing. Remarkably, it finds its perfect mate in the flint Barbary sheep in the Ägyptisches Museum in Berlin. Although differing in size, both are probably the work of the same craftsman who intentionally chose flint in contrasting colours.

The three flint animals in Berlin (see *Nekhen News* 27: 26) have long been thought to come from Hierakonpolis based mainly on resemblances among the ibex figurines. The similarity of the two Barbary sheep now leaves little doubt about their place of origin, but we found yet another clincher for this attribution.

In the same deposit with the Barbary sheep flint was a complete fish-tail knife with notches along the tang. Even though these notches would have been hidden by the handle, they have been expertly accomplished. Such work only has one parallel, and it is in Berlin and notably was purchased



Lithic treasures from below the HK6 spoil heap.



Snap! Flint friends in Berlin (ÄM15712+16127; courtesy of Ägyptisches Museum, Berlin).

at the same time as their ibex. These two knives are exceptionally similar in dimensions and workmanship. And to remove any lingering doubt, another knife in Berlin with similar notching along the haft is even listed specifically as coming from Hierakonpolis. Case closed!

Lithics were not the only treasures below the back-dirt. Fragments of a ceramic mask also popped out, which mended with the chin found last season. With finds like these, we *had* to be getting close to something interesting. So, adrenalin pumping, we pulled out the shovels and shaved another meter off the spoil heap. However, this time with less success: just hard surface and still no tomb. So we did it again, this time utilizing the very latest technology—the wheel barrow—but still nothing. So we did it again... and again. To make a long story short, it led us a merry chase, but we eventually did discover the tomb under the spoil heap, but not where we expected it.

Not of outstanding size (c. 3x2m), Tomb 85 makes up for it by being entirely rock cut through the hard sandstone to a depth of over a meter. While it had been difficult for us to locate it, others clearly hadn't had the same problem and the tomb was essentially empty, its contents widely scattered.

Nevertheless, we were able to piece together a pottery table with two rows each of seven round depressions impressed on the top. Elevated on separately modelled legs, it may have been used for gaming. It bears a certain resemblance to a table of unfired clay found in Mahasna



Tomb 85—finally!



Gaming table from Tomb 85.



From a crowd of canines, one dog still *in situ* in Tomb 83.



Bea dealing with the dogs.

tomb H41 (Brussels E.2957), the top of which is divided by light incisions into three rows of six compartments each. While this table was once considered early evidence for the game of *senet*, this interpretation can no longer be maintained. Our table, on the other hand, may be for playing a type of mancala, a game of capture and strategy. Mancala is the largest and most widely distributed board game family in the world, and boards featuring two rows of depressions are considered to be the oldest. Slabs with a similar configuration of holes have also been found in early Neolithic contexts (c. 6000 BC) in the Near East.

Pottery recovered in the tomb's vicinity included a black-polished jar with tubular handles imitating a stone vessel, and a red polished bowl on a pedestalled foot, as well as several straw tempered jars, pointing to a Naqada IIB date. The amount of pottery suggests the tomb was once very rich, but whether the flint items and the mask should be attributed to it remains difficult to say owing to a strange set of circumstances that are still a bit unsettling.

Let us explain. While the search for a tomb below the spoil heap dragged on without result, we became increasingly concerned as both the physical anthropologists and faunal specialists were about to arrive and there was nothing for them to work on! We needed a tomb, and fast. Since the GPR survey undertaken in November 2017 (see page 24) had detected the likely location of several, it seemed like the perfect moment to 'ground truth' these results. From among the various options on the GPR map, we arbitrarily selected a spot on the north side of Tomb 19, the grave of an aurochs, discovered by Barbara Adams in 1999, and began digging.



Coming together over time and space:
The new mask from HK6.

Although the chosen area had been disturbed on several occasions (newspaper dated April 12, 2000 was found deep down, and sadly the area was looted again during our excavations), we were able to identify four small round tombs bounded by a well-preserved wooden fence. Tombs 82 East and West, which may originally have been parts of one larger tomb, contained two adolescents as well as three mid-sized dogs, two of which were still partly *in situ* around the sides, their backs to the wall, paws pointing inward. Tomb 84 belonged to a single adult, while Tomb 83 was the burial place of at least 12 mid-sized, well cared for dogs, exhibiting almost no pathologies. Only one of this pack was found in articulation along the east wall; the rest required the careful analysis of bags of disturbed bones by Bea De Cupere for their reconstitution. Once the fussy job of sorting phalanges was done, Bea was then able to move on to the chunkier task of examining the many aurochs bones displaced from Tomb 19 and dumped in Tomb 84. Thanks to these additional finds several elements could be mended and new long bone measurements added to the database for this male aurochs, now amongst the most complete specimen of its age.

A bone hair pin with carved top, numerous fragments of ivory bangle bracelets, a blade of obsidian, and fragments of a large rhomboid palette with incised decoration (see page 35) were also recovered during the excavation of this limited (6x4m) area, but because of the disturbances, it is difficult to determine which tomb they came from.

All are of interest, but the most intriguing was the nose of a ceramic mask, which was found just below the surface during a clean-up operation prior to mapping. Since Barbara Adams had discovered a mask fragment (part of

an eye) in the same area in 1999, we were initially not too surprised. Totally unexpected was that this nose (and the eye piece) mended to the fragments found under the spoil heap, located nearly 50m away! Together they make one nearly complete and at times rather spooky mask, similar in size and features to the smaller one from Tomb 16. Another mask for our collection, it brings the total of confirmed examples to seven, based on ear count alone, but considering all collected fragments the projected total number still stands at ten (so far).

How this example came to be so widely dispersed is unclear. Perhaps the fragments were taken to the dump by accident during the 1999 excavations or picked up around Tomb 85 and discarded by the road. Whatever the case, it is still pretty weird that within weeks of finding one part of a mask, mending pieces would turn up in a randomly chosen excavation area half way across the site. Whether it is simply a fluke, or something more, it calls into question the specific attribution of our fabulous finds pending further adventures below the back-dirt. 🏺



Skilled in Camouflage: Barbary Sheep in the Elite Cemetery

—Wim Van Neer & Bea De Cupere, Royal Belgian Institute of Natural Sciences, Brussels, Belgium

The elite cemetery HK6 at Hierakonpolis is famous for the wide variety of animal species that were buried there. These include not only the domestic species such as dog, sheep, goat and cattle that are also found in several other Predynastic graveyards, but also a number of wild animals recorded nowhere else.

The list of wild species to date includes two crocodiles, a young ostrich, 16 anubis baboons, a jungle cat, six wild cats, and a large male leopard as well as numerous ungulates: three young hippos, two young male elephants, two subadult aurochs, a female, gravid hartebeest and two wild donkeys (we cannot tell if the three baby donkeys in Tomb 111 were wild or domestic). Some of the animals, like the crocodile, hippos and cats, may have been obtained locally in the Nile Valley, whereas others, like the aurochs and hartebeest, were already very rare in

Upper Egypt due to overhunting and competition with domestic stock. Still other species—the anubis baboons and the elephants—did not live in the Egyptian Nile Valley and must have been obtained from the south.

The wild donkeys were probably captured in the desert wadis adjacent to the site and this is also where the ostrich may have been caught; however, other desert species are thus far absent at the elite cemetery. Not one gazelle has been found in any of the burials despite its frequency among the hunted species in the faunal assemblages of the settlement localities. And despite its presence in the artistic record, no physical remains of ibex have been found at HK6 either. In fact, the only evidence for this animal on the entire site is one possible skeletal element recovered from the domestic refuse at HK11 Square G. The fact that ibex live in the rocky deserts on the east side of the Nile may explain its rarity at Hierakonpolis.

Another typical inhabitant of the rocky desert is the Barbary sheep (*Ammotragus lervia*), living on both the east and west sides of the Nile. Its remains are regularly found in settlement sites, albeit in small numbers, and it is well represented at the ceremonial centre HK29A, where wild species occur in relatively high proportions. But what about Barbary sheep at HK6? The flint figurines from the cemetery, with their distinctive down-curving horns, show artistic interest in this species, but was it physically present?

Until recently we couldn't be sure, but after reviewing the large 'sheep/goat' bones available from the site, we now have good reason to believe that it must be somewhere. Recognising isolated skeletal elements of Barbary



Artistic representations of Barbary sheep from the HK6 cemetery.

sheep is not always easy. They can resemble ibex in shape and size and certain bones are even hard to distinguish from large domestic sheep and goat. The bones must also be well enough preserved to take measurements and observe diagnostic morphological features that will allow sound identifications.

Meeting these criteria is a shoulder blade from disturbed deposits on the south side of Pillared Hall E8 (2008). In terms of overall size, it could belong to a hartebeest, but the morphology leaves no doubt about its identity as a male Barbary sheep. Supplementing this isolated bone, a metacarpal (anterior cannon bone) found around Tomb 64 in 2013 can be recognized as coming from a female Barbary sheep. Only one other toe bone (a single first phalanx) was found that season in the wider surroundings, and with just these bones we were still a bit hesitant to consider Barbary sheep among the cemetery's inmates.

Excavations in 2016 to the north of Tomb 72 finally yielded additional remains — six anterior phalanges (toes) all belonging to a single foot and possibly articulating with the metacarpal found in 2013. These remains were now sufficient to indicate the presence of Barbary sheep, but since there is variation in size amongst the remains, there may have been up to three different individuals.

Obviously, the exact location of their grave(s) still needs to be determined, but we now feel confident enough to include Barbary sheep on the list of wild animals kept by the inhabitants of Hierakonpolis. Perhaps this is only to be expected as people appear to have managed these animals since early prehistoric times. This is indicated by Early Holocene finds in the Tadrart Acacus mountain range in Libya, where rock shelters with thick layers of Barbary sheep dung attest to their captivity. On these sites, dating to around 9000 years ago, the forced penning of Barbary sheep must have been a strategy of hunter-gatherers to minimize the effect of lean periods. At HK6, of course, food security was not the reason; rather the keeping of Barbary sheep should — as with the other wild animals in the elite cemetery — be seen as a manifestation of the power of the elite for which this cemetery was reserved.

Until very recently rams, billy goats and Barbary sheep symbolized power, determination and virility among North African shepherds and mountain dwellers. For the Algerian infantry, the Barbary sheep even served as a mascot until the 1960s. Known for their ability to leap 2 meters from a standing start, Barbary sheep are also famed for their camouflage skills. When threatened, they will stand perfectly still for as long as necessary and blend into the background. As we have learned at HK6, this is a talent they seem to retain even after death. 🐏



Right shoulder blade of male Barbary sheep (top) compared to the left scapula of hartebeest (bottom). The arrow indicates the diagnostic muscle attachment typical for hartebeest which is missing in Barbary sheep.



Foot finds: The six Barbary sheep toe bones discovered in 2016 articulating with the cannon bone of 2013, plus one extra.



Regiment of Algerian infantrymen with a Barbary sheep as their mascot at Mostaganem in 1958.

Let's Fly a Kite: Getting a Bird's-Eye View of Hierakonpolis

—Paul D. Wordsworth, University of Oxford

Many of us take it for granted in the present day that an essential part of the archaeologist's toolset is an overview of a site from the air. From climbing ladders to piloting light aircraft, extraordinary efforts are made to photograph and map sites aerially, which provides a very different perspective than that gained at the trowel's edge. Airborne reconnaissance, and particularly the use of Unmanned Aerial Vehicles (UAVs or 'drones'), however, is a much-debated and sensitive topic and these technologies are now controlled by rigorously enforced laws in many countries, leaving cultural heritage practitioners cautious about using such techniques. Several alternative methods still exist, and the long practice of kite-photography is experiencing something of a renaissance for on-site investigation. In February 2018 we tested the efficacy of using kites to gain aerial perspective on the excavation at Hierakonpolis, and glimpse in high resolution rarely seen views of the extensive archaeological landscape.

Kite photography is of course entirely beholden to the whimsy of the winds, which necessitates a degree of pragmatism as to when and where to fly. Nevertheless, the favourable conditions at Hierakonpolis in February allowed us to photograph large areas of the site, which at other times might not have been possible. Appropriate kite equipment is more straightforward than one might expect, consisting of a single string parachute or triangular kite, suitably balanced to hold a steady altitude, and a fixed bracket on a counterbalanced string system which hangs beneath the kite, to which a suitably lightweight digital camera is attached. Such a straightforward system requires a fairly simple approach to taking photographs, in our case a continuous time-interval set of shots with pre-defined lens and exposure settings. Ground coverage can be gained through a combination of altitude of flight (i.e., length of string) and walking the kite across the required area. In practice, these factors are often determined by the wind, but the ultimate goal



The C-Group cemetery at HK27C: The view from the kite.

is to obtain a series of overlapping images that can be stitched together to produce an aerial overview. The lower the altitude, the more images needed, but equally the higher the image resolution of the finished product.

Following a meandering course—sometimes concentric circles, occasionally in a grid—but always carefully avoiding the literal pitfalls of the excavation sites, we obtained a series of photographs covering a variety of localities. A priority was to image HK6 (see page 2 for result), but also to move across to the industrial area of HK11 to create a seamless map of the two sites together for the very first time. Another task was to photograph the C-Group cemetery at HK27C in order to gain an overview of the several seasons of work that took place there, and together with surveyor Joel Paulson, correct some niggling problems with the detailed map. A kite flight over the Fort (the ceremonial enclosure of Khasekhemwy) gave us an opportunity to look down from above to complete and complement the 2012 laser-scan of the monument (see *Nekhen News* 24: 20), which was able to document all but the top parts of the walls.

The transformation of these photos into something useful is wholly thanks to the widespread availability of software that can undertake Structure from Motion (SfM) from such images. Put plainly, this is a computational method to create a three-dimensional model from overlapping photographs, with often astonishing accuracy, that can then be tied into a site grid, turned into an orthographic photomosaic of the site, or navigated in a 3D-viewer. For such a large and complex site as Hierakonpolis, the possibility of creating overview maps of its many areas opens up extraordinary possibilities, from stitching together different sites to identifying and mapping new features. It seems that as long as the wind blows, the potential of kite photography is just about endless. 🐛



Flying the kite over the Fort in Hierakonpolis.

Tomb III Ivories: A Closer Look



Ibex and ibis on the top register of the knife handle.



A giant scorpion, bottom register.



Lion and birds coming round the end.



Boat and palm trees (?) in middle register.



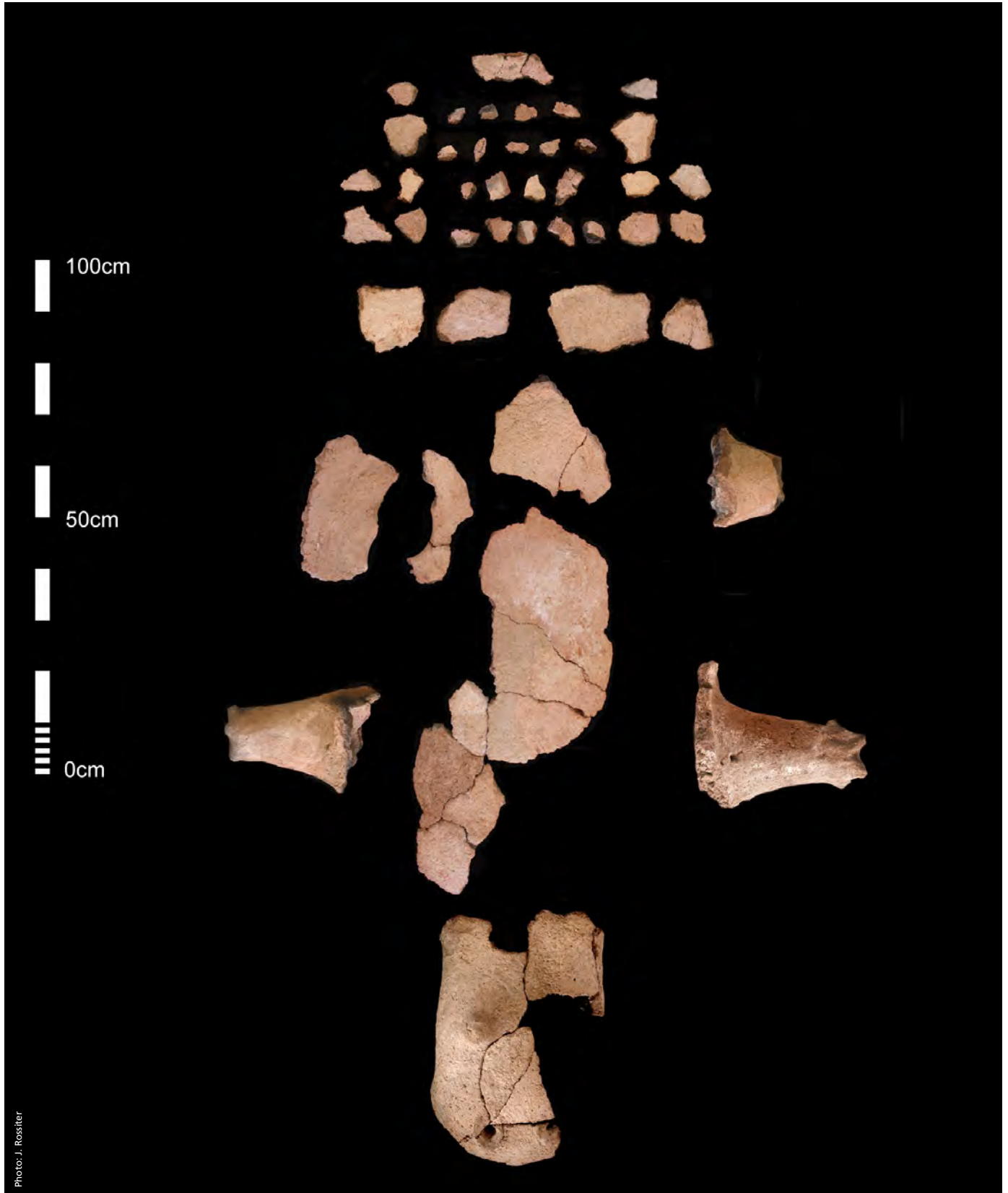
Openwork ivory plaque, piece by piece.



Composite ivory arrowhead, all sides.

All photos: J. Rossiter

It Is a Big Deal!



The ceramic hippo statue from HK6.

Investigations at HK11C: A Closer Look Inside and Out

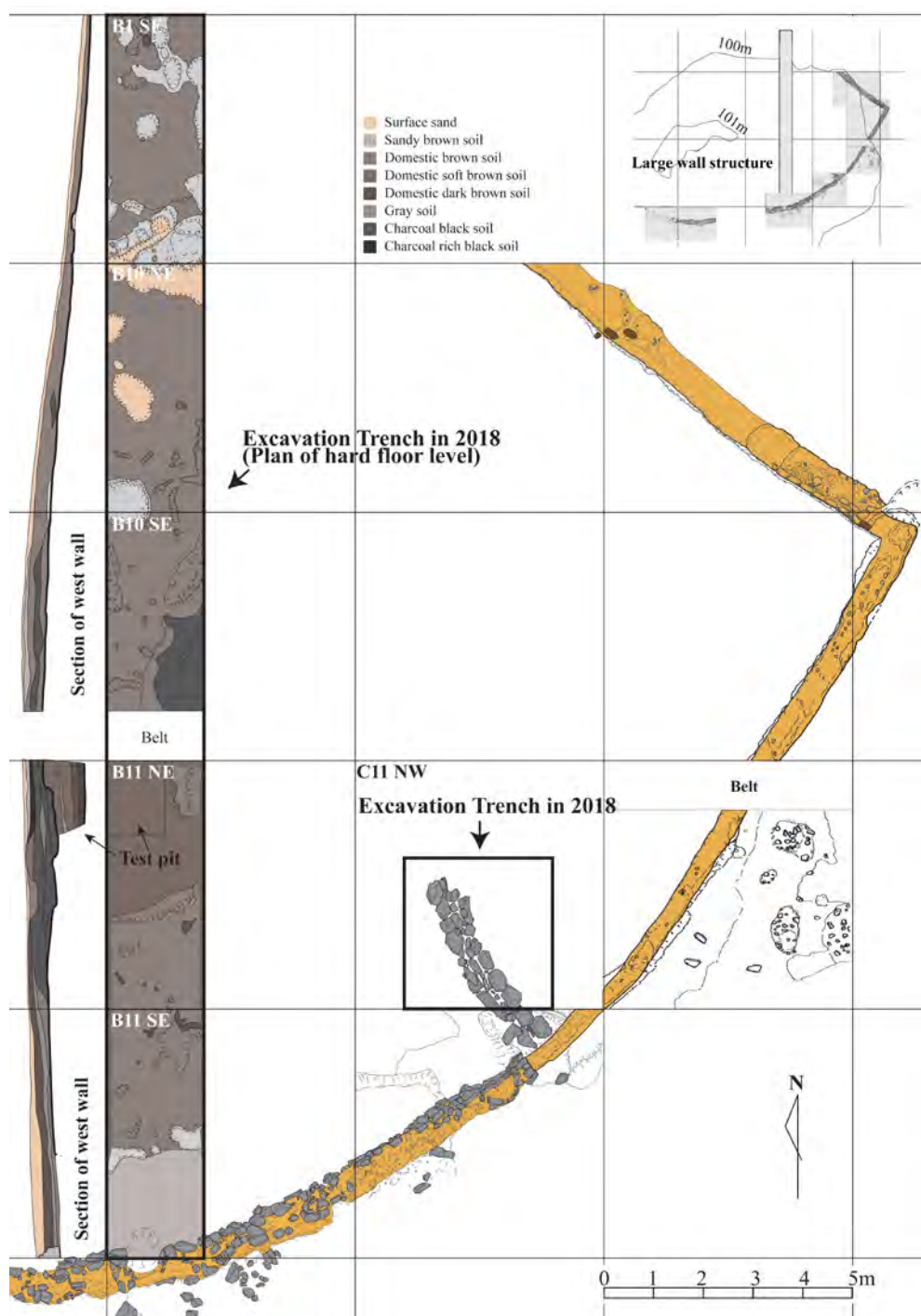
—Masahiro Baba, Waseda University, Tokyo, Japan

Beginning in 2003, investigations at HK11C have revealed the remains of large-scale production activities, as attested by the beer installation at Operation A, the complex for beer and pottery production at Operation B, and the factory for meat and fish preparation at Operation C, all of which were detected thanks to magnetometer surveys in 1999 and 2010. The excavation of these features is now more or less complete, but there is one more that still needs to be worked out. This is the large walled structure located at the southern edge of HK11C. It is composed of a freestanding wall constructed with hand-made bricks in its northern and eastern parts and stone slabs in the south. Based on radiocarbon dates and associated materials, it can tentatively be placed within the Naqada IIB–IIC period, making it one of the oldest mud brick structures in Upper Egypt.

After chasing the walls of this structure for many years, last season we finally reached the end of their line and can now estimate the full length of the building at 38m (!), but its function remains unclear. Therefore, in February 2018, we returned to HK11C with the aim of obtaining some answers.

In order to understand the activities that took place within the walls, we made a long trench (2x24m) down the middle of the structure. These excavations initially revealed several thick layers of ash and charcoal. This burnt debris probably originated from the production facilities at Operations A, B or C and was dumped here after the building had lost its primary purpose. More interesting was the hard-packed floor found below the ash layers. This floor, which is almost certainly associated with the structure's

walls, was made on so-called Domestic brown soil, typical of settlements at Hierakonpolis. Significant amounts of animal and fish bones, dung, seeds and even some textile fragments were collected on and above the floor, indicating that the area inside the walls was originally used for the domestic activities of those who lived or worked at HK11C.



Plan of the Large Wall Structure at HK11C and the areas explored in 2018.



Photo: J. Rossiter
A long trench inside a big wall: Investigating the middle of the Large Wall Structure.



In search of a bigger picture: The magnetometry survey of the seemingly barren west side.

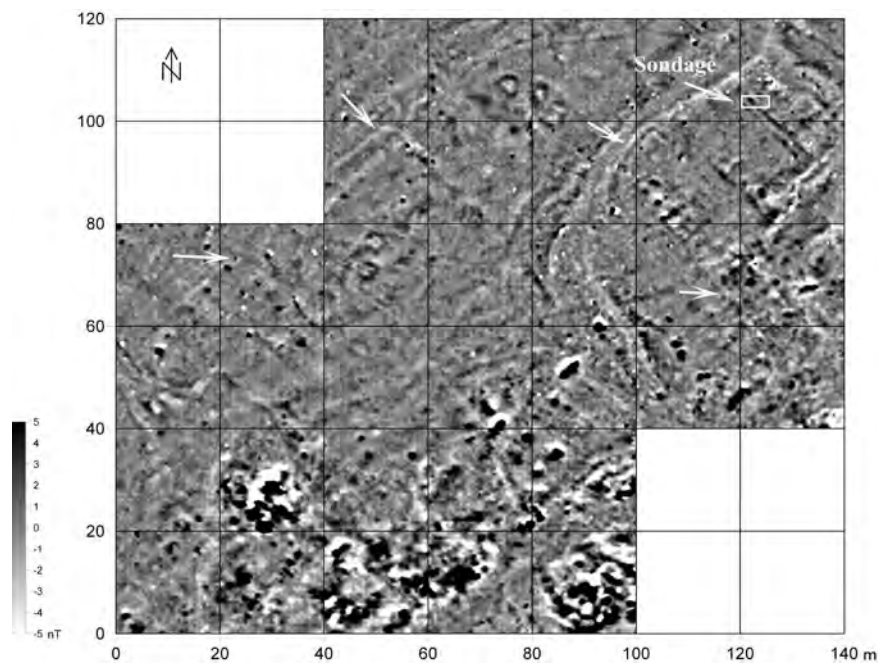
Going deeper, a test pit below the hard floor revealed more layers of Domestic brown soil with even more organic and faunal content which extended down more than 80cm to the natural Pleistocene sediment of the wadi terrace. Thus, there was probably a long history of habitation here, even before the walls were constructed. Pottery sherds from the test pit included black-topped beakers, shallow red-polished bowls and large bowls of shale ware, all suggesting a date in the early Naqada period.

No indications of internal divisions appeared in the excavated area, but another trench in Square C11SW exposed a wall of stone slabs measuring 3.5m in length. It is clear that this short wall was added after the large wall was reused, since it was placed atop the accumulations of the black burnt debris. The reasons for its creation are unclear.

All of the major anomalies detected by the magnetometer surveys at HK11C have now been investigated, but many questions still remain about how and why this industrial area functioned. It was clear we needed a bigger picture, so we asked Tomasz Herbich and Robert Ryndziewicz from the Polish Academy of Sciences to carry out another magnetometer survey, this time on a large area (120x140m) to the west. Stretching from one side of Operation B to the edge of the wadi bordering HK6, the survey area looked pretty barren. This made the results even more astounding. The magnetic map shows several large rectilinear anomalies as well as some higher amplitude clusters. To test these results, a small sondage (2x5m) was set over the corner of one rectilinear feature. It revealed a hard floor, coated with yellow mud, into

which had been dug several post holes and a fence trench, which match the anomaly exactly. According to the magnetic map, this originally wood-built feature is more than 20m long and is one of at least five structures that fill the western part of the wadi terrace. To the south are more food producing facilities based on the similarity of the stronger anomalies to the shape and amplitude signatures of Operations B and C.

Evidently, the HK6 cemetery wasn't as isolated as we thought. In fact, these results suggest it was part—if not the main focus—of a vast area of industrial, productive and possibly even administrative activities. Just when we thought we might have reached the end of the line, we now have many more intriguing establishments to explore. This will certainly keep us busy! 🏠



The new magnetic map and its amazing anomalies. Arrows point to possible structures.

Remote Sensing at Hierakonpolis: Testing New Techniques

—Akram M. Aziz, Tamer E. Attia & Mahmoud Ismael, Faculty of Science, Port Said University, Egypt

During the past season our team from Port Said University was invited to Hierakonpolis to test the utility of various remote sensing techniques for detecting different types of buried features. With the support of the grant awarded to the Allard Pierson Museum, we began our investigations in November 2017 with a Ground Penetrating Radar (GPR) survey.

GPR is a high-resolution technique for imaging underground structures using electromagnetic (EM) waves in the frequency band of 10-1000 MHz. Linearly polarized EM pulses are transmitted by an antenna that is moved across the ground surface on a device that essentially looks like a lawn-mower. When the transmitted pulses encounter a subsurface feature, they are reflected back to a receiving antenna (also on the lawn-mower). The round-trip transit time of the pulse and its reflection provide range information on the target in real time. However, GPR only works in areas that are relatively flat and free from stones, allowing direct and constant contact with the ground. This restricted the places that it could be used at Hierakonpolis.

At HK6, the survey concentrated in the area around the modern road and a few other flat locations. Even with this limited coverage, interesting observations could be made. A total of 50m along the road bed was surveyed with traverses every 50cm along the grid lines in both N-S and E-W directions. Very few features were detected in the road itself while to either side clusters of features suggest the location of various tomb complexes. The lack of reflected radar anomalies within the modern road may indicate that the same route to access the site was used in ancient times. As with all remote sensing techniques, the veracity of the readings must be tested (ground-truthed) by excavation, but these preliminary results provide significant hints for reconstructing the ancient appearance and organization of the elite cemetery.



It's like mowing the road: The GPR survey underway at HK6.

An area better suited to GPR is HK29B, where a palisade wall made of large wooden posts set into a deep trench was discovered in 2005–2008 (see *Nekhen News* 19: 4–5). The excavated portion of this wall is 50m long and has the same orientation as the ceremonial center at HK29A, indicating a close association. We were asked to apply GPR in this area in order to get a better idea of the extent of this wooden wall and the size of the area it might have enclosed. Assuming that the wall would continue along the same trajectory as the excavated portion, we ran more than a dozen traverses with the instruments across the flat, featureless area in the northern part of the site. Our readings indicate that our assumption was correct: the wall trench continues straight on for at least another 50m, with no evidence of a corner. A massive wooden wall stretching for at least 100m may well have surrounded a huge ceremonial and administrative zone or protected the entire town. It is hoped that further work at this locality will be able to test these results and provide more information about this important structure, which has no parallel at any other Predynastic site.

In February 2018, we returned to try something even more challenging and completely new. We were asked to help relocate the so-called stela of King Pepi I (see page 26), which had been buried on the waterlogged, highly irregular and overgrown Kom at Nekhen. Under such conditions, traditional forms of remote sensing won't work, but because the 'stela' was cut from Aswan granitic rock (characterized by high radiation emissions), we thought a detailed Gamma Ray Spectrometry survey might produce results. By measuring the concentrations of the radioactive elements, we hoped to detect the position of the buried block.



GPR at HK29B: The team scrutinizes the radar readings beside the trench of the palisade wall.

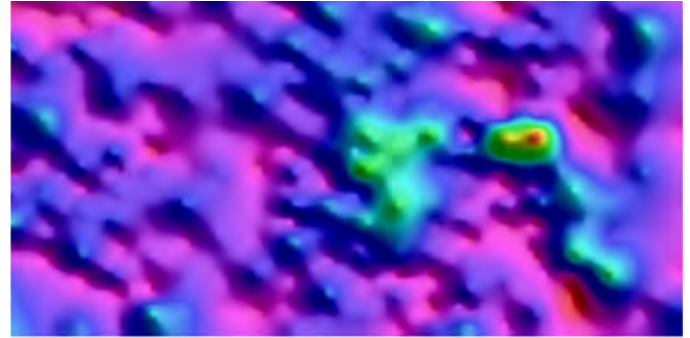


Testing new techniques of detection: The spectrometry survey in progress on the Kom at Nekhen.

Setting up a grid over the area most likely to contain the stone, we made 41 traverses with the hand-held spectrometer, taking readings every 50cm. The measurements were then analyzed and plotted in the form of maps, showing the spatial distribution of various concentrations of the radioactive elements of Potassium, Thorium, and Uranium, and their Total Dose Rates. Some elements proved more useful than others, with Thorium showing the tightest clustering. However, when the data were combined using Principal Component Analysis—a method used to define and visualise the differences between the highest and lowest values of radioactivity, thereby providing a chemical ‘signature’ for granite—two anomalies became clear. One could not be further investigated without extended excavation, but the other had a strong rectangular shape very similar to the granite monument we sought. By plotting the changes in the various elements across the anomaly, laterally and perpendicular to it, we were even able to determine its width, length and gradient.

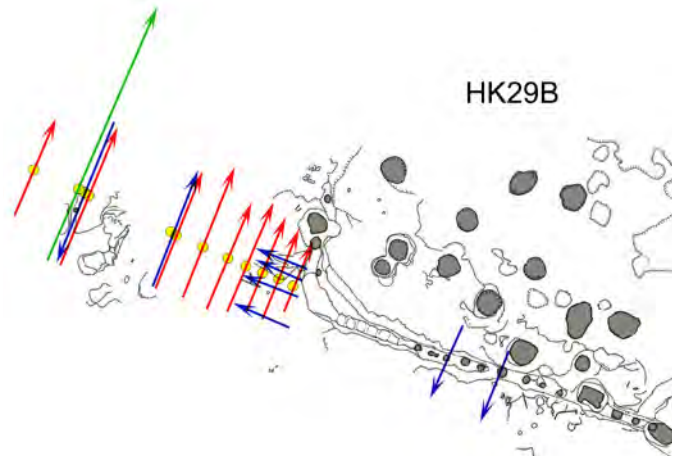
Clearance around the target rapidly revealed the Pepi ‘stela’ exactly where the interpreted radiometry measurements showed it would be. A highly satisfying conclusion to our survey, this success introduces Gamma Ray Spectrometry as a new tool in archaeological prospection, especially for the detection of buried granitic stones. ☀

For further information see: A. M. Aziz, T.E. Attia, L. McNamara, & R. Friedman, 2018. Application of Gamma-ray Spectrometry in Discovering the Granitic Monument of King Pepi I: A Case Study from Hierakonpolis, Aswan, Egypt. *Pure and Applied Geophysics* <https://doi.org/10.1007/s00024-018-2036-1>



1 0 1 2 (meters) **Principal Component Analysis (PCA)**

Gamma Ray Spectrometry on target: The mapped results of the computed Principal Component Analysis revealed strong anomalies shown in green and yellow, one of which matched the dimensions of the Pepi monument exactly.



In search of the wall at HK29B: The arrows indicate the transects and the yellow dots show the location of detected anomalies.

Keep an Eye on Our Progress!



Join the Friends of Nekhen and help us continue to make these exciting discoveries! See page 39 for details.



Conserving the Pepi 'Stela'

—Liam McNamara, Lisa and Bernard Selz Curator for Ancient Egypt and Sudan & Daniel Bone, Head of Conservation, Ashmolean Museum, University of Oxford

In 2018 we were granted permission to conduct a conservation assessment of the stone monuments on the town and temple mound of ancient Nekhen. In particular, we wanted to examine and document the so-called stela of King Pepi I unearthed in the area of the Main Deposit by J.E. Quibell and F.W. Green in 1897. It is mentioned several times in their excavation reports and was drawn on the temple plan, but the investigators never published a photograph or drawing showing the details. The only surviving photograph of the monument taken during the original excavation is now in the archive of the Petrie Museum. The block was left on site after attempts to move it failed. An evocative note from Georges Daressy to Green explains what happened. Translating from the French, it reads:

We cannot get Pepi's stela out, which has already broken three ropes; we would have to bring in the big beams that are on the boat; after that I'm afraid the cars could not carry this big stone that weighs 4 ½ tonnes and is unbalanced. Do you not think it would be better to leave it in place until next year and take only the blocks of Khasekhemwy.

Indeed, the Khasekhemwy blocks were successfully transported to Cairo and are now in the Egyptian Museum, but the Pepi stone remained on site where it lay partially exposed until 1989. Photographs taken at that time show the top surface covered with a significant amount of white salts obscuring the decoration. It was subsequently reburied in order to provide some protection from seasonal fluctuations in the water table and to prevent further degradation. The precise location of this pink granite block was then lost as the site became covered with halfa grass and other debris.

The monument's location was ultimately re-established using a combination of earlier site plans and a new method of geophysical prospection devised specifically for detecting granite by our colleagues from Port Said University (see page 24). Once the survey data were plotted, the area around the suspected location was cleared in order to ground-truth the results. After removing the halfa grass, we were initially faced with a rather unprepossessing salty hole, but our spirits rose as the block began to emerge, the feldspar minerals so typical of granite glistening in the sunlight.

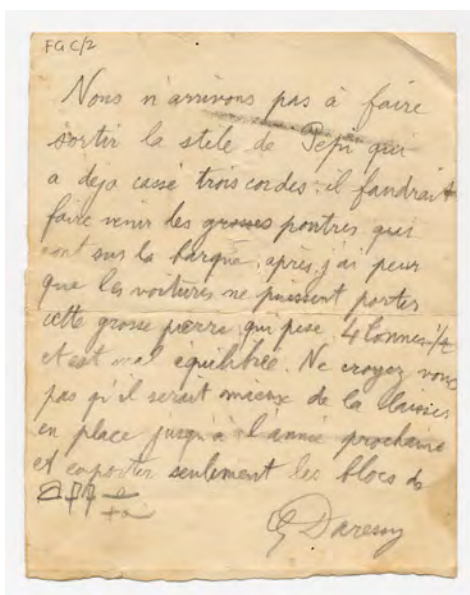


The Pepi 'stela' as found in 1897 © Petrie Museum of Egyptian Archaeology, University College, London.

When fully exposed, the 'stela' was found to be lying roughly east-west at an oblique angle in extremely damp clay-like soil. Its orientation, lying face upwards, appears different from that shown in the 1897 photograph, perhaps as a result of the attempts to lift it at that time. The lower end was sitting in a large pool of very salty water, indicating the high level of the water table in this area. Every morning before work could continue we were forced to bail out this water with buckets.

Despite our initial misgivings, we found that the decorated front face was in generally good condition, with localised areas of accretion, some following fissures in the stone. These salt encrustations obscured carved details and were likely to cause further damage if left untreated, so we decided to remove them where possible. The front face and sides were cleaned manually using brushes and wooden sticks; the more compacted encrustations were removed using dental tools and short blades. The hardest encrustations were softened with a 5% solution of sodium hexametaphosphate and rinsed clean with water.

Thanks to this careful cleaning and thorough examination, we soon came to realise that what had been described as a free-standing granite



Letter from Georges Daressy to F.W. Green about his attempt to move the Pepi block © Dept. of Manuscripts and University Archives, Cambridge University Library.



The monument in 1989, exposed and encrusted with salt.



Pepi re-discovered but surrounded by very salty water that had to be bailed out each morning.



Daniel Bone and Oxford student Ellie Jones cleaning the surface of the block.

stela was more likely to be a door jamb, and this has important implications for our understanding of the monument and its original setting.

The door jamb is roughly rectangular for most of its length, with an irregular broken top (probably originally flat) and a tapering sockle at the base. It is about 3.7m long, 84cm wide and 46cm thick. The upper part of the block has an inscription including part of the titulary of King Pepi I, the third ruler of the Sixth Dynasty. Below is a scene of the king standing in front of a goddess and the falcon-headed god Horus. The north side of the block is rough with a notch just above the top of the sockle; the south side was worked smooth with a slightly rounded surface, suggesting that this is the inner face of the door jamb. The rough side would presumably have been set into a mud brick wall. The underside, only partially uncovered, seems to have been worked smooth to a similar level of finish as the front face, but without any traces of decoration.

The most interesting part is of course the front surface, which is decorated in sunk relief. At the top are several (probably

four) vertical columns of hieroglyphs, including remnants of the king's *nsw bity* and *nb t3wy* 'Lord of the Two Lands' titles, above the cartouche spelling out the name Pepi. To the right of the cartouche is a deeply carved circular sign, with traces of a curved line above it, which may be the remains of another cartouche, presenting the possibility that the block was usurped and re-carved by Pepi I. A vertical line carved down the right side of the inscription and continuing behind the king's figure below indicates the border of the decorated area. Remnants of further signs are visible on the far left, but it is not possible to make sense of them due to the degradation of the stone.

Below the inscription, the king is shown facing towards a goddess, who may be either Isis or Hathor, and the god Horus. The figures are standing on a horizontal register line only barely visible in a few places below their feet. The king is wearing a triangular kilt knotted at the waist and a bull's tail hanging down behind his back leg. In his left hand he holds a mace, the circular head of which can be seen projecting from the front edge of the kilt. There are possible traces



The rough side of the stone indicates it was a door jamb rather than a free-standing stela.

of the mace-handle in the carved internal surface of the kilt; presumably such details would originally have been picked out in paint.

The goddess is shown wearing a sun disc and horns on her head with a vulture or cobra (it is not clear which) projecting from the front edge, and a long wig that extends down to the middle of her back. Her right arm is bent and her right hand cups the king's right elbow. Standing with legs together, she appears to be wearing a sheath dress that stops just above her ankles.

Behind this female deity is Horus, represented with a falcon head and clad in a short knee-length kilt with a bull's tail extending down his rearward leg. His right arm hangs down by his side, possibly holding an object in his clenched fist. It may be a bow, a common attribute of Horus of Nekhen known from later depictions, but unfortunately the details here are difficult to determine. His left arm extends forward to the shoulder of the goddess and possibly projects beyond her figure to touch that of the king. Much of the left side of the figure of Horus is lost in damage along this edge. Traces in the area above his head suggest he is wearing the White Crown.

The surface on the lower part of the block is smooth with no further decoration; the upper section is marred by a large area of damage where the stone has delaminated. Below this, it curves out slightly to meet the upper edge of the socle, which has been worked smooth on the front, and is slightly rougher at the sides. The tenon tapers to a roughly rounded point at the base, presumably to enable the block to stand upright in its original position.

Various options for the future preservation of this monument include re-erecting it or relocating




Sunk relief decoration depicting King Pepi I in front of two deities.

Photo: P. Wordsworth

it to a drier part of the site. However, the conditions that Daressy faced in 1899 have not substantially changed and a feasibility study by qualified engineers with experience of lifting this type of object in comparable conditions is required before any major action can be undertaken.

For the time being, we opted to rebury the block. Prior to reburial, the water surrounding the lower end of the monument was removed and the trench all around it was partially filled with coarse free-draining gravel. Then a layer of soft sand with good drainage properties was added beneath and around the stone up to the inscribed area. The decorated surface was then covered with canvas in order to protect it from soil and to allow water and salt to evaporate rather than forming hard encrustations on the surface. Finally, further sand was added over the entire block to a height of about 30–40cm in order to keep the drying face away from the surface of the stone and thereby help to minimise further salt damage until a more permanent solution can be devised.

The rediscovery of the Pepi door jamb shows that it is more than just a pretty carved face. Its examination and re-interpretation raise a number of important questions about how we should envision this portion of the site. Given its size and weight, presumably it toppled over close to its original position.

Can the other jamb and lintel of this doorway be far away? What was the nature of the building to which this monumental gateway gave access? Was it part of the site's Old Kingdom temple, home to the golden falcon, pottery lion and life-size copper statues of Pepi I found nearby? All these new questions from an old find show that, like all parts of Hierakonpolis, there is so much more we need to learn. 



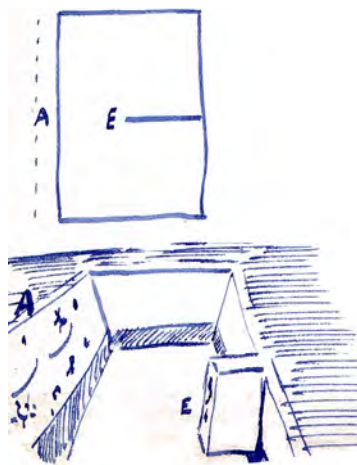
Interim measures: Reburying the block in gravel and sand to promote drainage.

Preserving the Painted Tomb

—Alexandra Greathead, Senior Paper Conservator & Liam McNamara, Lisa and Bernard Selz Curator for Ancient Egypt and Sudan, Ashmolean Museum, University of Oxford

On 5 February 1899, F.W. Green discovered the 'Painted Tomb' at Hierakonpolis – a rectangular brick-lined pit with a partition wall, the interior surfaces of which had been mud plastered and painted on two walls with scenes depicting a flotilla of boats, humans and animals. To this day, it remains the only decorated tomb to have survived from Predynastic Egypt and provides important information about the origins of several key motifs in Egyptian art that would be reproduced for the next 3000 years. Considering himself alternately amongst the luckiest of men (to have found the tomb) and the most unfortunate (to now have to deal with it), Green spent four months painstakingly documenting the painted decoration under trying conditions (see *Nekhen News* 11: 24–25). Since no other options were available to him at the time, to record his amazing discovery, Green made watercolour copies of the scenes at actual size on separate sheets of paper.

These drawings were shown at the annual exhibition of antiquities from Egypt Exploration Fund excavations at University College, London in July 1899, although the crates including the contents of the tomb were delayed. Eventually, these artefacts ended up in Oxford, as did Green's facsimile many years later.



Green's (?) sketch of the Painted Tomb showing the locations of the paintings on its walls.

To reconstruct the tomb scene, Green pieced together the individual sheets and glued them onto a 5m-long roll of linen, adding the background and annotations. This was presumably the basis from which the plates in *Hierakonpolis II* (1902) were produced, published at a 4.5 times reduction. A two-thirds scale reproduction of the paintings on seven poster-sized sheets was subsequently made and distributed by the British School of Archaeology in Egypt in 1953. The original full-sized roll ultimately found a home in the Griffith Institute at the University of Oxford, where it was donated by Green's wife, Hilda, in 1949. Upon its arrival, it was logged in the accession register as: “Water-colours glued on to a

linen ground mounted on a wooden roller at each end rather like a wall map is arranged.”

These rollers have long since disappeared, leaving several tack-holes along the shorter edges, but some idea of the arrangement can be gleaned from a photograph of the facsimile fully unrolled in the Ashmolean Museum sometime in the late 1960s or early 1970s. Already one can see some cockling (puckering), creasing and fraying around the painting, problems that have not improved with time.

Thanks to funds generously donated by the Friends of Nekhen and the Rikki Breem Bequest we can address these and other issues



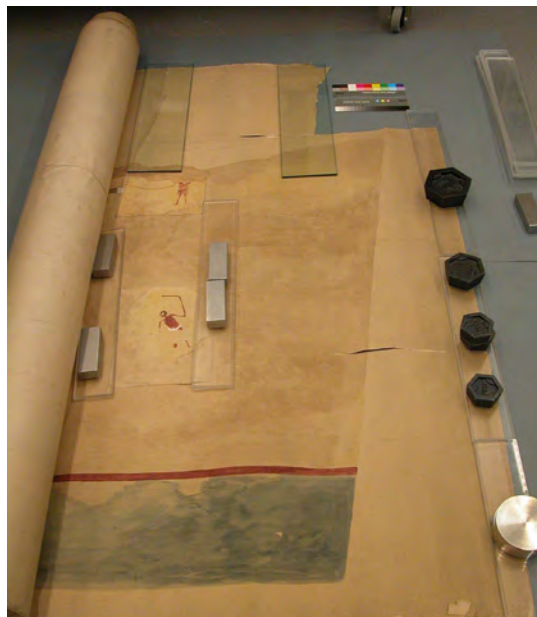
Painted Tomb in pieces: Green's watercolours before mounting (courtesy of the Association égyptologique Reine Élisabeth, Brussels, Neg. 377).



In all its glory: The Painted Tomb facsimile unfurled in the Ashmolean Museum sometime in the late 60s/early 70s (Ashmolean Neg. A.1020a).

as we begin to preserve this irreplaceable record of the Painted Tomb. Its conservation definitely presents a number of challenges, not least among them a logistical one: measuring 5m long and 1.8m wide, the roll is a tight fit for the Ashmolean's Paper Conservation studio! There are no tables large enough to accommodate the painting, even partially unfurled, so the only option has been to lay clean polythene on the floor, covered with blotters, and to work on it at that level.

Over time the linen has become very discoloured, indicating that it is probably very brittle and acidic. It is extremely difficult to unroll the painting, which can only be viewed one small section at a time because there are conflicts between the support materials (linen and paper). The damage includes a wide range of tears (some very large), creases, splits (particularly where sheets join and overlap), tenting, marks, stains, abrasion, surface dirt, discolouration and fading. Some of the sheets are cracking due to the curvature of the roll, others are lifting as the adhesive degrades. Ultimately the painted sheets will need to be re-lined with a more stable material and a new storage system devised. But a complex procedure of examination, analysis, documentation and testing will be required before we get to that point. Many things have to be taken into consideration before



Section by section, assessing the object in detail, noting areas of loss, tears and fraying.

and during conservation treatment over and beyond scientific or material based concerns.

It is important to point out that there are differences between the conservation of Fine Art and the conservation of archival material. With Fine Art, we have to consider the 'original intention' of the artist regarding the image and choice of materials, as well as the 'aesthetics' of the work, all of which will influence any treatment plan. With archival material it is important to retain all information relating to the purpose of the 'object'. Often archival works on paper can be considered 'working objects' — they might be written or drawn records of a place or environment, a design or

scheme, letters, or notebooks, etc. When a Paper Conservator approaches the conservation of a bank note from the 1960s, for example, removal of all of the dirt from its multiple handlings would be to remove part of its history. A balance therefore has to be struck between what will ensure its preservation and what is integral to its purpose: with luck the two will not be in conflict! The original facsimile of the Painted Tomb, though an archival work on paper, is also a copy of a work of art, and therefore falls into both categories.

Key to any conservation approach is learning as much as possible about the 'object' in order to create a



Work of fine joinery: Green's watercolours fitted together on the linen backing.



Painted Tomb problems: An example of cracking and tenting along a join as well as cockling and splash marks.

well-informed plan and anticipate potential issues and conflicts. In his diary, Green recorded various observations about the original Painted Tomb. He mentions “bright green paint made of pounded malachite” on the boats and “blue black band on top of red ochre” for the dado. Notes such as these alert the Paper Conservator to the possibility that an artist may have wished to accurately replicate the original materials in his/her copy and that appropriate measures should be taken to avoid damaging them.

In another entry dated 1/3/99, Green writes: “Began drawing the painted tomb; it is rather difficult as it is impossible to trace it with the paper Q[uibell] sent + the new has not yet arrived.” This raises the question of what paper did Green use for this mammoth task and did he employ different types. If so, this will have an impact on the proposed treatment, as different papers expand and contract at different rates, dependent on many factors in their manufacture. Such factors could cause conflicts during any aqueous treatments, such as gentle humidification to relax, flatten or lift the sheets.

Green further comments on the difficulties encountered during the creation of the work:

“I went down to the tomb this morning with the intention of beginning the colouring of the drawings. I worked for about an hour, but the air was so dry that the colour dried in ugly streaks and at 11.00 am a strong wind sprung up which deluged me and my work in a fine sand so that I had to stop or have my work ruined by being converted into coloured sand paper so I went back and spent the rest of the day in colouring the sheets already drawn yellow ochre for the ground colour of the tomb” (4/5/99).

Flaws such as streaks are original to an artwork and must not be removed by a conservator. The fact that Green records battling strong sandy winds means that if any sand particles are discovered on the paper and in the painted areas, then we must endeavour to preserve them and their story. Finally, Green records here that yellow ochre was used in his copy and this was probably applied as a wash over much of the background.

With these and other issues in mind, the thorough assessment of the roll began in late 2018. Along with a detailed condition report and photographic documentation, the paintings were also examined under ultraviolet light, mainly in order to investigate the media. As a result we learned that two types of white pigment were used: lead white and probably zinc white. Unfortunately, the lead white has begun to tarnish and has turned pink, orange and grey in some places. As Green’s watercolours are the best record of the colours from the time of the discovery of the original painting, how his pigments have withstood




Ultraviolet image showing a reflecting white indicating the probable use of zinc white pigment.



Paint degradation: Orange and black discolouration caused by the tarnishing of the lead white pigment.

the test of time is important. The next step is to carefully examine the photographs and to cross reference the daylight images with the ultraviolet ones in order to understand more about the techniques and materials used.

The conservation of the Painted Tomb facsimile will be a complex and painstaking process, but from the start it is already paying dividends. We look forward to reporting on more discoveries in the coming years and thank the Friends of Nekhen once again for their phenomenal interest and generosity that is making this fascinating project possible. 

A Visit with the Real Painted Tomb

—Renée Friedman & Liam McNamara

As we get started on the conservation of F. W. Green's paper facsimile of the Hierakonpolis Painted Tomb (Tomb 100), the Egyptian Museum in Cairo is also beginning to conserve what remains of the ancient original. Shortly before leaving the site in May 1899, Green removed the painted plaster and the backing bricks from this special tomb and shipped them to Cairo. How much of the main scene was taken is unknown, but a portion of it was prepared at the museum for exhibition within a framed panel in a supporting matrix of gypsum plaster. For many years this has been on display on the Museum's second floor, but it has now been removed to the restoration lab for an intensive round of analysis and conservation. Through the kindness of Dr. Sabah Abdel-Razek, the Director of the Egyptian Museum, in November 2017 we were granted the privilege of visiting the tomb painting in the company of the Restoration Department's director, Moamen Mohamed Othman. After scrutinizing the printed facsimiles for so many years, it was truly a remarkable experience to be up close and personal with the real thing.




Visiting the Painted Tomb: Artist Jane Smythe; Moamen Mohamed Othman, Director of the Restoration Department, Liam McNamara and Renée Friedman.

The original decoration is somewhat overwhelmed by the bright colours of the reconstructed designs surrounding it, but there is a lot more surviving than one might initially think. Remnants of the original paint are clearly visible on close inspection, but what is most interesting is the scoring of the mud plaster to either side of some of these pigment remains. While Green does not comment on this in the published description of the tomb, in his diary entry for 20/4/99 he writes: "*The designs were lined in the plaster before the colour was put on*", and then goes on to say that in several cases these lines were completely disregarded.

Be that as it may, one can still make out the incised lines around the hulls of the boats and some of the human figures on the preserved fragments. These lines, made when the mud plaster was still moist, have important implications for comprehending the composition of the main scene and how the designs were initially laid out and drafted. They take

on further significance in light of a recent suggestion that certain elements in the Painted Tomb's main scene were added later when the tomb was 'updated' or 'renewed', presumably during the Naqada III period. If evidence of different work practices or phasing can be scientifically distinguished among the different motifs, it would be a major contribution to our understanding of its scenes and the history of the tomb itself.

Nearly 120 years after its discovery, detailed analyses are now under way on both the surviving remnants of the original plaster from the Painted Tomb and the facsimile copy of its elaborate scenes. New and probably unexpected insights are sure to follow as we re-visit and get more intimately acquainted with this most intriguing (and inscrutable) of all decorated tombs. 



Detail of a female figure showing the incision outlining the body and the remnants of white paint.



Incisions preserved in the original plaster around the hull of a boat.

Ashmolean Object in Focus: The ‘Two-Dog’ Palette

—Liam McNamara, Lisa and Bernard Selz Curator for Ancient Egypt and Sudan, Ashmolean Museum, University of Oxford

This spectacular palette takes its modern name from the pair of Cape Hunting dogs (*Lycaon pictus*) that frame the upper part. By the late Predynastic and Early Dynastic periods (c. 3300–3000 BC), a number of large and elaborately decorated palettes like this one were created to impart complex messages associated with the rise of the Egyptian state. Several examples have a central reservoir, recalling the palette’s original function as a surface for grinding pigments, but these highly decorated examples bear no evidence of use, demonstrating their transition from practical equipment (with ritual significance, see page 35) to ceremonial objects of elite display.

Both sides of the Two-Dog palette are carved in low raised relief with scenes depicting what may seem at first glance like the frenzy of an animal hunt, but closer inspection reveals the power relations of a world kept in order. The imagery includes real animals alongside mythical creatures, such as the felines with long snaking necks — so-called ‘serpopards’ — that encircle the central depression on the obverse, as well as a winged griffin on the reverse. Such fabulous creatures are also depicted on contemporary seal impressions from the ancient Near East, including examples from Uruk in southern Iraq, Susa and Tepe Sofalin in Iran, and Habuba Kabira and Tell Brak in Syria. The occurrence of this imagery across such a wide geographical area suggests interaction between the civilisations emerging in these regions around 3000 BC.

On the obverse of the Two-Dog palette the tongues of the serpopards work at the flesh of a fallen gazelle, while a bird spreads its wings above their heads. Around them are wild dogs — known for their strong pack instinct, especially when hunting — perhaps here serving as representative of human group action. In the area below, three saluki hounds

Object Factfile

Findspot: ‘Main Deposit’, Temple enclosure, Hierakonpolis

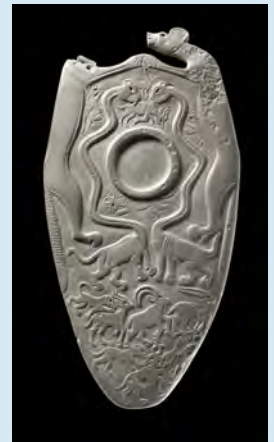
Material: Siltstone (Graywacke)

Height: 42.5cm

Date: c. 3200–3100 BC

Museum No.: AN1896–1908 E.3924

Source: Egyptian Research Account 1897–99



wearing collars, presumably the agents of human masters, chase a troop of animals: gazelle, ibex, Beisa oryx and hartebeest.

At the top on the reverse side, two long-maned lions confront gazelles. Below this, another serpopard bites a horned oryx, a leopard attacks a Barbary sheep as a wild dog looks on, and a winged griffin pursues an aurochs. This pairing of hunter and prey, carnivore and herbivore, powerful and mythical, can also be seen on some of the contemporaneous decorated knife handles. The Gebel el-Tarif knife, which also features a griffin,

provides a particularly close parallel (see page 8).

At the bottom of the palette, a jackal-headed figure wearing a belt or penis-sheath and a long tail plays an end-blown flute, while a giraffe and an ibex appear to prance to the sound. This flute playing figure has been the subject of much discussion. Generally described as a man wearing an animal mask, he has been identified as a shaman dispensing hunting magic or a decoy to calm and



The Two-Dog Palette obverse and reverse.



Detail of the winged griffin and jackal-headed figure on the reverse of the palette.



Detail of ancient repair at the top of the palette.



The wild Cape Hunting dog (*Lycaon pictus*).

fool the prey with his music. However, it has recently been proposed that the dog-like creature might represent yet another idea imported from ancient Iran, where there was a tradition of depicting animals acting like humans. Presumably this imagery of exotic creatures was carried to Egypt along trade routes on portable cylinder seals or their impressions and adopted by Egypt's early kings as an expression of their status and power.

The subtlety of the relief carving on this palette is exceptional, and the deep cutting of each animal's eye suggests that they were once inlaid. The head of one of the dogs framing the top of the palette is missing, and two drilled holes at the base of the neck suggest that it was repaired in ancient times and perhaps reattached using a copper wire. The break could have occurred in the course of the object's manufacture, or during the palette's use as a ceremonial object. It may therefore have been an item of considerable antiquity by the time it came to be buried with the other artefacts in the Main Deposit.

The scenes on the Two-Dog palette appear to contrast sharply with the ordered rows of animals seen on other elite objects of the time (such as palettes, ivory combs and knife handles) owing to its lack of register lines, but the overall message remains the same: a world brought under control through royal and divine power. 🐕



Mesopotamian cylinder seal of green jasper and impression of its decoration of serpopards and lion-headed birds, c. 3200–3000 BC (Louvre MNB1167).

Decorated Palettes of a Different Type: Rhomboids from Hierakonpolis and Beyond

—Stan Hendrickx & Merel Eyckerman, HHasselt University (PXL-MAD), Belgium

When decorated palettes from Early Egypt are mentioned, one automatically thinks of those remarkable creations with their intricate low relief carving like the Two-Dog Palette (see page 33) and the Narmer Palette, both of course from Hierakonpolis. Although only few others of this class have a known archaeological context, they are all generally dated towards the end of the Naqada II period and into Naqada III. In the museums lucky enough to have such exquisite pieces, every one of them is on prominent display; however, there is another type of decorated palette that has received far less attention.

Not as spectacular, but no less interesting, these palettes have decoration that is generally incised but sometimes in relief. The vast majority of them are of the rhomboidal or 'diamond' shape, characteristic for the Naqada I and early Naqada II periods. Their decoration is rarely extensive and mainly involves geometric motifs, animals, and what might be identified as horns (see below). Nevertheless, a few feature fairly complex hunting scenes. For a publication in preparation, we have now recorded some 45 decorated rhomboid palettes (and seven of different shapes), several of which have never been published and most confined to museum storerooms. The number of examples may seem large, but decorated rhomboid palettes remain exceptional compared to the quantity of graywacke palettes of this shape, of which about 100 are known from excavations while perhaps double that amount without documented provenance are housed in museums and private collections.

A new addition to our list is the decorated rhomboid palette found in the elite cemetery HK6 during the 2018 season in disturbed deposits around Tomb 84 (see page 16). It survives as two non-mending fragments that represent less than half of the complete object. Its original length can be estimated at around 40–50cm, similar to others (undecorated) that were recovered from the HK6 cemetery (near Tombs 31



Fragments of the rhomboid palette with incised lozenges found near HK6 Tomb 84.

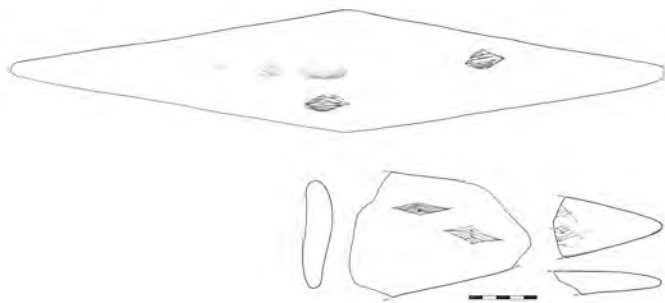
and 19, see *Nekhen News* 21: 4), but it appears to be much thicker.

Both fragments show decoration on one side only, but since the surviving surface on the other face is limited, it cannot be excluded that both sides were originally decorated as seen on many of the other examples. On the larger fragment are two lozenges, both filled with closely spaced lines creating a chevron effect. On the smaller fragment two similar lozenges are only partially preserved and appear to have been parts of a larger lozenge-shaped motif.

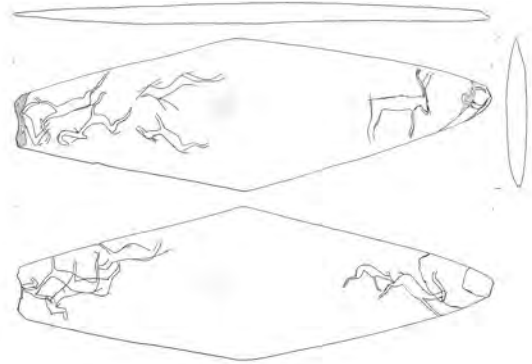
Among the 13 palettes with geometric decoration in our corpus, very different designs occur. The best parallel for the Hierakonpolis fragments is a complete example of similar size on display in the Cairo Museum (JdE 45128). The decoration consists of two lozenges very similar to those of the HK6 palette, albeit less carefully made.

Describing decoration is obviously easier than understanding its meaning. In-filled lozenges occur frequently on White Cross-lined pottery, where they are often considered imitations of basketry. This, of course, can hardly be the case for the decoration of palettes. The lozenges could be a reflection of the shape of the palette itself, yet their visual resemblance to the heads of crocodiles depicted on some White Cross-lined vessels is thought-provoking, especially as crocodiles feature several times in the decoration of rhomboid palettes. These are some of the issues currently being investigated within the study of this palette group.

The new palette from HK6 is not the only example of this decorated class from Hierakonpolis. At cemetery HK43, Burial 155 contained a much smaller rhomboid (8.5x3.7cm) ornamented with two bands defined by incised lines running oblique to the axis at one extremity. A palette with similar decoration placed near one tip was found by F.W. Green in 1899, possibly in the same cemetery. Measuring just over twice the size (17.9x7.9cm), it



Lozenge decoration on a palette in Cairo (JdE 45128) and the palette from HK6.



Palette in Brussels incised with hunting scenes on both sides (MRAH E6834).

is now in the Museum of Archaeology and Anthropology, Cambridge (Z 15837). In total, seven palettes with straight line decoration are known, but they should probably be viewed together with the six palettes which feature curvilinear motifs, always in pairs, applied in the same location. The curvature suggests these lines are meant to depict animal horns. These decorated palettes may therefore be associated with more elaborate rhomboids which have one end sculpted in the shape of bull horns often in combination with bird heads. Bovine horns are particularly significant since the bull will eventually become one of the most important royal symbols.

It is of interest to note that the Hierakonpolis examples show traces of use for grinding pigments, as do nearly all of the decorated rhomboid palettes. This function explains why the decoration is often applied at the extremities, which were not affected by the grinding process. However, it is not always clear when and by whom the decoration was applied. In contrast to the highly carved ceremonial palettes, the find contexts of the rhomboid examples (almost exclusively

tombs) indicate they were privately owned. The link between palettes for grinding cosmetic ores and the use of cosmetics as elements of protection has regularly been made. It would be logical therefore to consider the decoration of the palettes in a perhaps more personal ritual context, providing protection for their individual owners.

While a direct connection with the famous ceremonial palettes cannot yet be charted, the 'heraldic' opposition of the dogs in the hunting scene incised on a palette now in Brussels may well be an ancestor for the composition of the Two-Dog Palette. Whether or not the incised palettes served as an iconographic source for later carvings, the use of rhomboid palettes as a medium for decoration shows that these grinding platforms were more than just functional objects from the start. Imbued with magical or ritual significance, palettes were in many ways the obvious choice for more elaborate displays of the concept of order over chaos as seen on the Two-Dog Palette, or of royal domination and control as so brilliantly rendered on the magnificent palette of Narmer. 🏹



Palette from HK43 Burial 155 with incised lines at the tip.



Curvilinear motifs on a palette in Brussels (MRAH E2878).



Hunting scene on palette on display in the Ashmolean Museum (AN1896-1908 E.392).

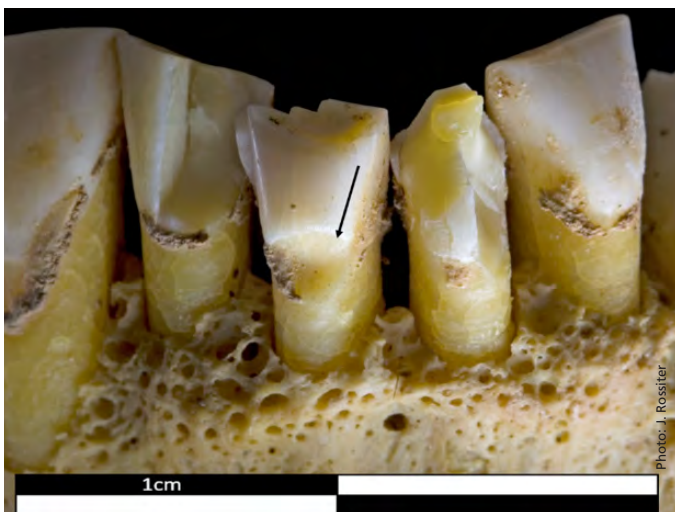


Groovy Nubians: Dental Evidence from HK27C

—Rebecca Whiting, Dept. of Ancient Egypt and Sudan, British Museum

Current study of dental wear in Nubian collections from the Fourth Cataract region of the Nile, as well as from other Sudanese Nile Valley cemeteries, has demonstrated that from Neolithic to Medieval times the Nubians were using their teeth for more than just eating. The type of dental wear observed in these groups may be called 'non-masticatory dental wear' and it has been suggested to reflect occupational practices, oral hygiene and even intentional modification. In February 2018 a study was undertaken to investigate if the individuals from the C-Group Nubian cemetery at HK27C showed evidence of non-masticatory dental wear similar to that found in other Nubian groups. Although only a small subset of 21 individuals was examined in the short time available, non-masticatory wear was found in six individuals (29%). Overall, 353 teeth were examined in detail and 13 were found to have signs of this type of dental wear (4%). This came in several forms: interproximal (between the teeth) grooving/notching; buccal/labial (on the side of the tooth closest to the cheeks) grooving; and lingual (side of the tooth closest to the tongue) polishing.

Interproximal grooves/notches were found on 8 out of the 13 teeth, buccal/labial grooving was found on 2/13 teeth and lingual polishing observed in 3/13. A little over half of the observed teeth with non-masticatory wear (7/13) were associated with dental pathological changes found in four out of the six individuals. The woman in Tomb 9 (one of the three tattooed ladies) displayed labial grooving associated with possible periodontal (gum) disease; she had also lost all of her upper teeth antemortem.




Buccal/labial grooving on the lower incisors of the individual from HK27C Tomb 9. Arrow indicates the upper edge of the most prominent groove on the lower right central incisor.



Interproximal grooving on the mesial sides of the upper central incisors of the individual from HK27C Tomb 46. Arrows indicate the labial edge of both grooves.

The three other individuals displayed interproximal grooving/notching associated with various stages of dental decay in the contact facets between the teeth. This may suggest that the alleviation of pain or discomfort may have been the motivating force behind the grooving seen in these individuals. However, two other individuals had no pathology associated with their non-masticatory wear; therefore, habitual cleaning of the teeth or perhaps occupational practices may have been responsible for these marks.

The frequency of non-masticatory wear in this sample from HK27C, though small, is similar to that found in a contemporary Kerma culture collection from the Fourth Cataract region (site 4-L-2), although only interproximal grooving/notching was observed there. Yet buccal/labial grooving and lingual polishing have been observed at other contemporary sites in the Northern Dongola Reach (e.g., P37 *Kerma Ancien/Kerma Moyen*). This practice may have been even more widespread; however, research of this type in the Nile Valley is still in its infancy. The preliminary findings from this limited study indicate that the people interred at HK27C may not only have shared burial customs with Nubian cultures further to the south, but may also have had behavioural practices similar to those in the Nubian heartland. 

Infrared Insights: Thanks for All the Tattoos!

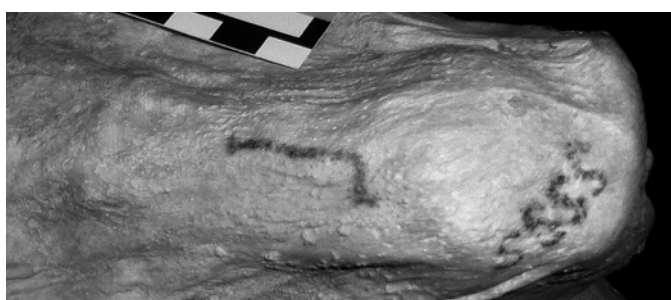
—Renée Friedman

Readers of *Nekhen News* may remember that back in 2012 our surveyor Joel Paulson turned us on to the potential of infrared to help us better understand the tattoos on the Nubian inhabitants of the HK27C cemetery (see *Nekhen News* 24: 25). Its power to see the seemingly invisible was so impressive, this was a technology we definitely needed to have, and thanks to the generosity of the Friends of Nekhen, we were able to acquire a pre-converted infra-red compact camera for our investigative arsenal. With it we have not only been able to examine the tattoos we knew about, but also detect even more amongst the C-Group population (see *Nekhen News* 26 :28–29). In addition, the camera revealed an intriguing set of dotted designs on the skin of a Pan Grave man, documenting for the first time evidence of tattooing in that Nubian culture (see *Nekhen News* 28: 26–27).

Hierakonpolis is not the only place where this nifty little gizmo has proved its value. Pointing its beam on Gebelein Man, the famous natural mummy on display in the British Museum, what looked like a dark smudge on his upper right arm jumped out on the screen as tattoos depicting two slightly overlapping horned animals. Infrared investigation of the equally well-preserved Gebelein Woman in the BM also did not disappoint. The camera revealed four S-motifs tattooed on the top of her right shoulder and a curving linear design—possibly a staff or musical clapper—on her upper arm. Radiocarbon testing of the hair from both individuals dates them to 3351–3017 BC (c. Naqada IID–IIIA). This makes them roughly contemporary with the well-known Tyrolean ice man Ötzi (3370–3100 BC), whose 61 mainly geometric tattoos are hailed as the oldest preserved in the world. Well, he has got company now! While Ötzi's tattoos are considered to have had therapeutic significance, we can only speculate on the meaning of the Gebelein tattoos. Nevertheless, applied to both men and women, they were clearly meant to be visible, perhaps as marks of bravery, status, cult



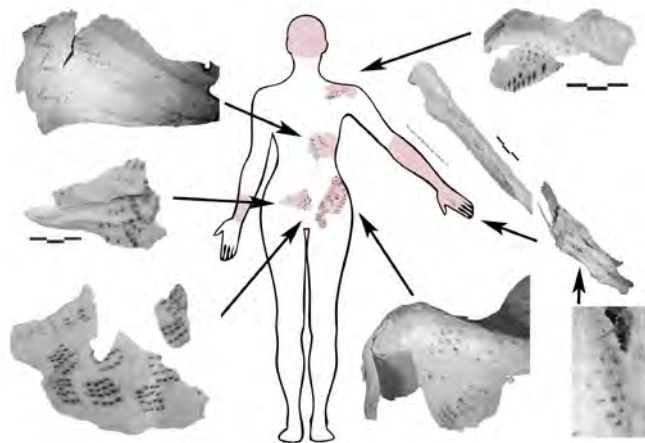
Gebelein Man and his Barbary sheep and aurochs tattoos.



Gebelein Woman's arm and shoulder tattoos.

knowledge or as protection. Whatever the case, their discovery conclusively demonstrates that tattooing was practiced in pre-historic Egypt and overturns evidence from the artistic record that previously suggested only females were tattooed. Pushing back the history of tattooing in Africa by 1000 years, the revelations coming from this little infrared camera are helping to rewrite our understanding of body modification in antiquity.

These spectacular discoveries are all thanks to you, Friends of Nekhen, and your generosity and trust. With your gift that keeps on giving, you can be certain that wherever the camera goes, more insights in infrared are sure to follow. Thank you again. 🔦



Thanks to infrared: The tattoos on the woman from HK27C Tomb 9.

To learn more about your camera in action see:

- R. Friedman, D. Antoine, S. Talamo, P.J. Reimer, J.H. Taylor, B. Wills & M.A. Mannino, 2018. Natural mummies from Predynastic Egypt reveal the world's earliest figural tattoos. *Journal of Archaeological Science* 92: 116–125.
- R. Friedman, 2017. New Tattoos from Ancient Egypt: Defining Marks of Culture, in: L. Krutak & A. Deter-Wolf (eds), *Ancient Ink: the Archaeology of Tattooing*. University of Washington Press, Seattle: 11–36.

The Friends of Nekhen

Nekhen is the ancient Egyptian name for the site of Hierakonpolis, the city of the hawk, and one of Egypt's first capitals. The Friends of Nekhen is a group of concerned individuals, scholars and organizations that is helping the Hierakonpolis Expedition to explore, conserve, protect and publish all aspects of this remarkable site. The largest Predynastic site still extant and accessible anywhere in Egypt, Hierakonpolis continually provides exciting new glimpses into this formative — and surprisingly sophisticated — age, and more.

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Going Round with the Painted Tomb

Thanks to your enthusiastic response to last year's appeal, the Painted Tomb project is now underway. This painstaking process will involve several phases: investigation, documentation, conservation, and preservation, providing long term storage for Green's facsimile. Each step informs the next, and where this will lead is still to be discovered. With your generous donations we have just about (but not quite) reached our goal of covering the projected costs. With a little top up we can be sure to give this unique document all the care and attention it so richly deserves whatever path we take. We ask you again to help us preserve the irreplaceable Painted Tomb. Thank you! 🏛️

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HK 2017–2018: Tombs, Trenches and Treasures



Tombs at HK6: Presenting Tomb 111 (page 4).



Trenches at HK11C (page 22).



Lovely lithics (page 15).



New mask (page 16)!



Intricate ivories (page 6).



Tombs at HK6: Trowelling in Tomb 85 (page 15).



Preserving Pepi (page 26).

All photos: J. Rossiter