



Photo: M. Baba

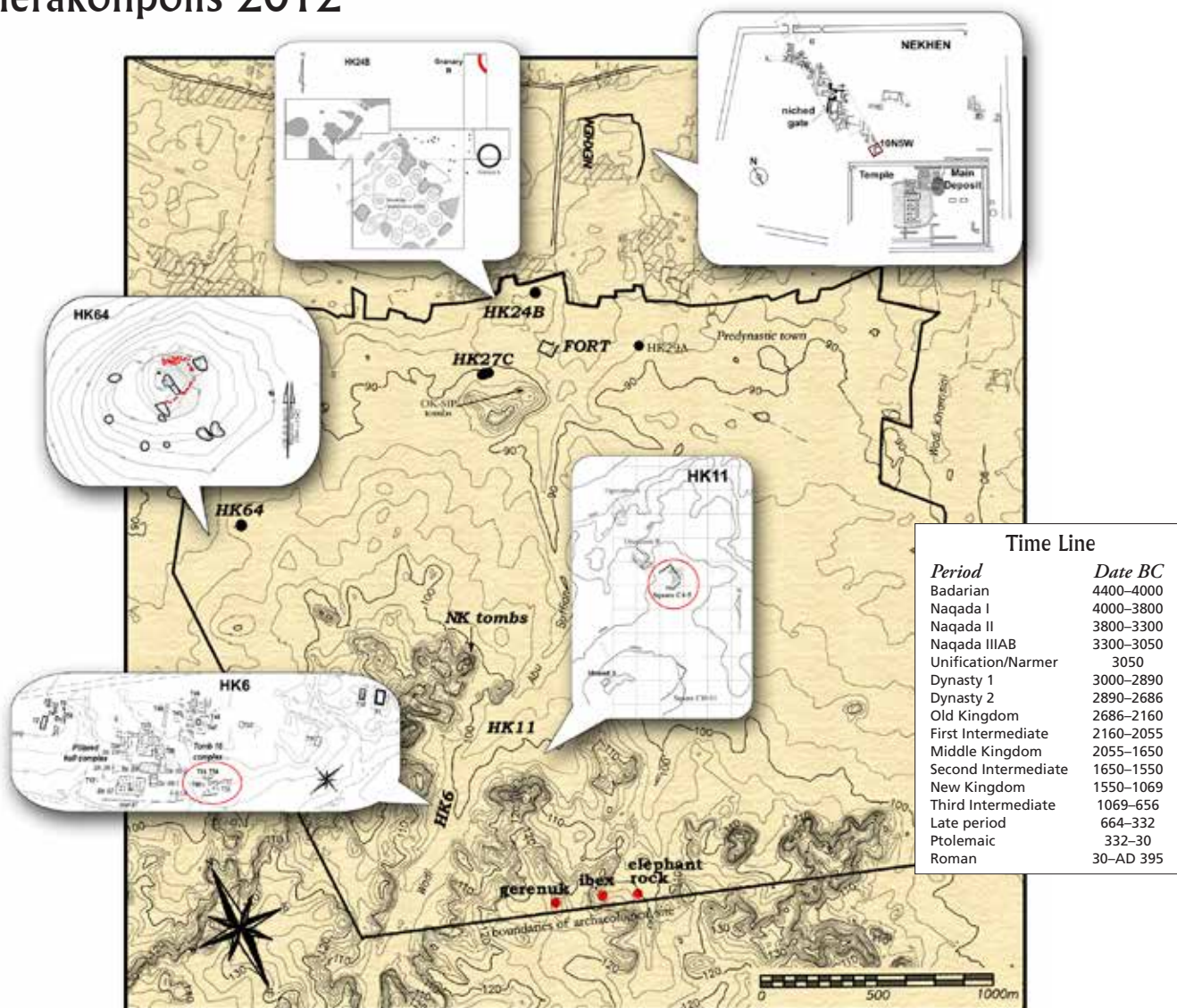
A Harvest of Potatoes

In This Issue

Hierakonpolis 2012	2	Wadi el Pheel—The Wadi of the Elephant	18
New and Reviewed	3	The Mystery of the Notch Rows	19
Lure of the Leopard at HK6	4	Scanning the Fort in High Density	20
A Big Pink Pot	6	Counting the Costs: A Project Manager’s View of the Fort	21
Double Delight: Another Dwarf from HK6	7	Making the Bricks Speak: Compositional Analysis at the Fort	23
Counting Sheep in the Elite Cemetery	9	HK27C Revisited: Egyptian Pottery in the Nubian Cemetery	24
A Harvest of Potatoes: Excavation at HK11C in 2012.	10	The Lady in InfraRed	25
Residue Analysis at HK11C Mound A.	12	Hierakonpolis in Edinburgh	26
Nekhen 10N5W Revisited: Charting Ceramic Changes	13	Sun Worship at Hierakonpolis: Insights from Edinburgh	27
Square 10N5W: Innovations in Lithic Production	14	The Rock Inscriptions at HK64.	28
Going Down in the Mound: Investigations Near HK24B	15	Death on the Nile (Apologies to Agatha Christie)	29
Photo Highlights 2012	16	The Friends of Nekhen	31



Hierakonpolis 2012



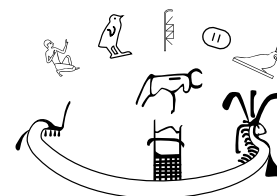
Thank you all!

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New and Reviewed

—Renée Friedman, Director, Hierakonpolis Expedition

I can't deny we were a little worried about what might greet us when we returned this season, but despite the continued lack of police presence, everything was just fine. Inspected upon arrival in late January, thanks to Sidain, Feisel and the other guards, the house was intact, the garden was planted and even the batteries for the solar system still worked.

The next order of business was to tour the site, where damage was found to be no worse than usual (a few new pits, nothing major). That sorted, the only thing left to do was fetch the cat (Dusty) from Luxor, and just in time too, before the rolling gasoline shortages made such journeys difficult. These shortages proved only mildly inconvenient since once everyone was settled in we got down to another busy season exploring things new and old.

Along with many new discoveries from around the site, this year we were given the extra gift of 'second sight'. Continued excavations in the elite Predynastic cemetery at HK6 near the tomb of last year's leopard not only added new and special species to the roster of our growing zoo, but provided second examples of things we'd seen before, allowing us to make meaningful comparisons now and in the future (see pp. 4–10). Second sightings included another aurochs, another crocodile and more amazingly another dwarf! All of these appear to be part of yet another mortuary compound, probably just a little later than that of Tomb 16, although its main tomb still eludes us.

Animal additions were not limited only to the cemetery, as the rock art survey recorded an extremely successful season in what we had long considered to be most unlikely places (pp. 18–19). These were not the only new discoveries to require us to review. Further exploration of the industrial complex at HK11C yielded an unexpected harvest of stone 'potatoes'. Familiar from previous seasons, the sheer numbers in which these curious objects were found are compelling us to take a second look at their function and purpose (pp. 10–11). At the same time, a slice through the industrial mound at HK24 revealed surprisingly good structural preservation and is forcing us to reconsider older received wisdom (p. 15).



Partying around the pink pot (p. 6) with part of this year's crew (L–R): Lamia El-Hadidy, Grazia DiPietro, Bea DeCupere, Anna Pieri, Wim Van Neer, Marie Millet, Kazuyoshi Nagaya and Xavier Droux.

Through the lens of greater knowledge, digital media and modern scientific tests we also took second looks at areas and materials excavated earlier. A state-of-the-art laser scan of the Fort is allowing us to see it in an entirely new way, while detailed examinations of what it took to build it in both of its

phases are leading to a new appreciation of this old monument (pp. 20–23). Meanwhile, intensive reanalyses of the ceramic and lithic material from the 1984 stratigraphic sondage at Nekhen is refining our understanding of this major urban center at the time of state formation (pp. 13–15).

The Nubian cemetery at HK27C was also the subject of review. Focusing on it from an Egyptian angle we now have a better idea of its date range, while viewing it through an infrared filter shed new light on things we just couldn't see before (pp. 24–25).

Partly a sentimental journey, we also returned to HK64, the first area worked when we resumed the expedition in 1996. Freeing it from its protective covering of old carpets, stones and rubble, we captured the plethora of petroglyphs in digital format for the first time and took another look at some of the many inscriptions left by some rather important people who visited this remote wind-swept hillock in the Second Intermediate Period (p. 28).

Egypt is not the only land where discoveries can be made. Post-season sleuthing in the archives and museum storerooms in the UK also led to new encounters with lost treasures and forgotten tales (pp. 26–27, 29–30), each with important implications for Hierakonpolis in its many phases.

The new and reviewed discoveries of the 2012 season remind us of how much there still is to learn about this amazing site. It's definitely worth more than just a second glance. 🐱



Dusty returns!

Lure of the Leopard at HK6

—Renée Friedman

This year the lure of the leopard proved too strong, and excavations in the elite Predynastic cemetery at HK6 were moved eastward in order to provide the ferocious feline found last season in Tomb 50 with some friends (*Nekhen News* 23:12–13). The numerous craters in the immediate area certainly suggested he had many companions, and in the end he turned out to have even more than the surface indications led us to believe. Ten new tombs were discovered (Tombs 51–60), 6 containing humans, 4 for animals and one with both. All were heavily disturbed, but pottery from the area dates the graves to the Naqada IIA–IIB period and suggests that they belong to a funerary complex one or two generations later than that of Tomb 16. The main tomb of this new complex, however, remains to be discovered.

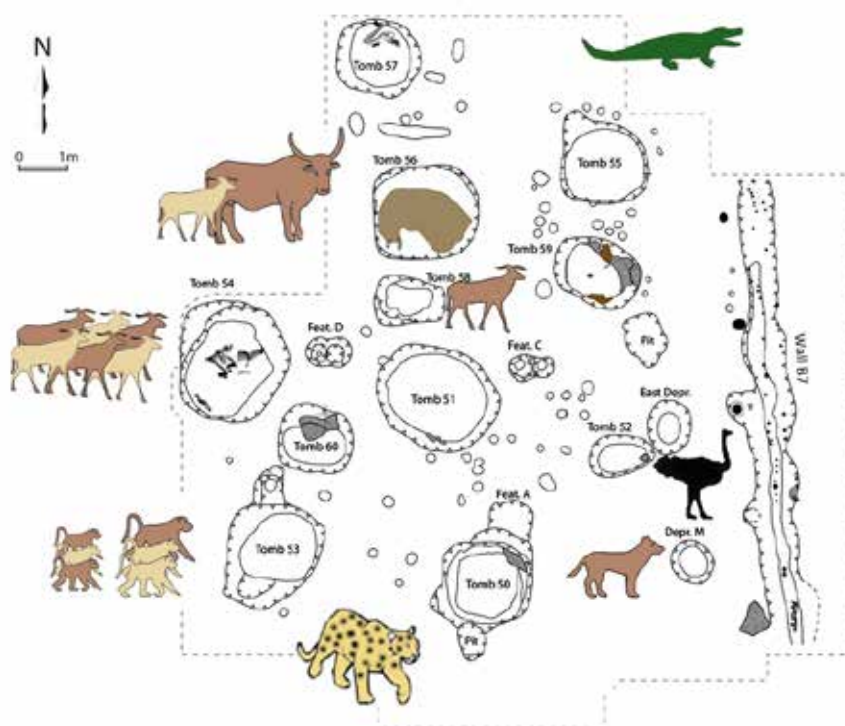
Work in this new area initially involved clearing the bone-filled backdirt surrounding the craters down to the compacted surface on which it had been deposited, probably during relatively recent plundering activities. The depressions were then investigated, leading to the discovery of six tombs. In the second part of the season, the compacted surface was removed to reveal the original ancient surface, 5–20cm below, as well as four more tombs and several pits, which were not visible from above. Much to our surprise, some of these pits contained the skulls of the tomb owners, often shattered by rocks, suggesting that the tombs were first disturbed in remote antiquity when the objects around the heads were the focus of interest. The skulls, intentionally thrown out of the grave, were then smashed, perhaps to prevent the dead from taking revenge. The bedrock in this area is high, so all of the tombs were relatively shallow (45–75cm deep) and presumably topped by mounds of dirt, making them easy to locate. Pottery of the late Dynasty 2 attests to visitors at that time,

but the nature of their intentions (deferential or destructive) cannot be determined.

Immediately north of the leopard, Tomb 51, the deepest of the graves, contained the disturbed remains of four humans: two children and two adults, one of which delighted us by being another dwarf (see page 7). Other human occupants were found in Tomb 55, the remarkably shallow grave (45cm deep) of two young (probable) men, one a strapping teenager already near the top of the height range and still growing. Tomb 57 contained the only in situ body of the season, that of a young woman, while her two companions in the grave were attested only by their feet. The woman had been placed on her left side, feet to the north, facing upwadi and covered with red ochre turning the bones red. The same treatment was observed last season in Tomb 47, also applied to a female (*Nekhen News* 23:5). Based only on the preserved muscles of his leg, the large

20–25-year-old man buried in the tiny Tomb 52 was positioned in the same way and remnants of a lovely fringed garment were found around his waist. Tomb 60 contained the highly disturbed remains of a young adult male, while the only part of the 12-year-old child still in place within Tomb 59 was one hand, despite both tombs being invisible from the surface and covered completely by the compacted upper surface that must have taken centuries, if not millennia, to form.

Humans and animals were found together only in Tomb 53. A robust male (?) and a gracile female with bad teeth were accompanied by 6 baboons: one large (male?) and 2 smaller (females?); 2 subadults and a juvenile. Apparently better treated than others in the cemetery, these baboons displayed only 4 healed fractures on a total of



Leopard and friends in the new complex at HK6.

84 metapodials (hand and foot bones), compared to those from Tomb 12 where 1 in 4 metapodials had pathologies. The large quantity of textiles in this tomb suggests that both the humans and the baboons were covered or even wrapped in linen.

Other members of the leopard's circle of four-legged friends involved mainly, but not exclusively, sheep. Eight sheep were found in three different graves and represent new additions to the cemetery's faunal repertoire. The six large specimens found for the most part *in situ* in Tomb 54

exhibit exceptional physical features discussed in more detail on page 9. The special character of the one in Tomb 58 is further highlighted by the tasseled textiles and fragments of delicately woven leather buried with it. Another sheep was found in Tomb 56, placed upon the upper matting over a relatively young (c. 1.5 year old) aurochs (wild cattle). Badly disturbed like most of the burials, only the lower part of the aurochs' tail and its back feet (including hooves) were still in place, but because the animal's body had preserved the matting directly below, its silhouette could clearly be discerned. In addition, remnants of the rope originally placed around its neck were still present on the mat.

Baboons and aurochs were not the only animals also known from the Tomb 16 compound. This new complex also includes a crocodile. Although its tomb has not yet



Aurochs in silhouette and finds from Tomb 56.

been investigated, from pieces collected from the surface, its size can be estimated at about 2m, similar to the crocodile found in Tomb 45 (*Nekhen News* 23:10).

Rounding up the faunal cohort accompanying the leopard (so far) are the remains of a medium-sized dog and, more surprisingly, the vertebrae and legs of a young ostrich. Ostrich bones are very rare in the Predynastic record. Until now, it was only Merimde and Maadi that could boast such remains, al-

beit very few (7 and 2 bones respectively). Those found at HK6 belong to a bird that was about half the size of an adult and probably stood about 1m high. While we had always imagined great egg collecting expedition to procure the large number of ostrich eggs known from the cemetery (*Nekhen News* 21:18–19), the bones of this young ostrich now present the intriguing possibility that ostriches were being kept and raised at the site perhaps in royal egg farms!

This year's excavations also gave us a chance to revisit Wall B7, the now 70m-long wall that appears to run along the entire east side of the cemetery (*Nekhen News* 18:9–10). The new segment of the wall examined this season revealed part of an intricate history with evidence for two or possibly three phases of construction or repair. Well-preserved wooden posts, c. 6–10cm in diameter, found



The crocodile collection.



Sheep apparel? Woven leather and tassel from Tomb 58.



Working in the wall trench.

within the 50cm-deep foundation trench belong to the first phase. At surface level, these posts were encased in coarse grey plaster. Fragments of finer plaster with traces of red and black pigment were also observed. More widely spaced posts set at higher elevations on the east side of the trench seem to belong to a later phase, while to the west, posts of 20cm diameter, set at 2m intervals, may be evidence of a third phase.

Exhibiting a reassuring selection of similarities as well as an intriguing range of differences, this new complex poses many new questions, but its discovery also gets us a little closer to answering one of them: How big are these mortuary compounds? A distance of only 20m separated this new complex from that of Tomb 16. Within this area must lie the border between them as well as the main tomb for the new complex. A strategy for bridging this gap is being formulated for the 2013 season, but considering that half of it is covered with our backdirt pile (whoops!), we definitely have our work cut out for us! 🐾



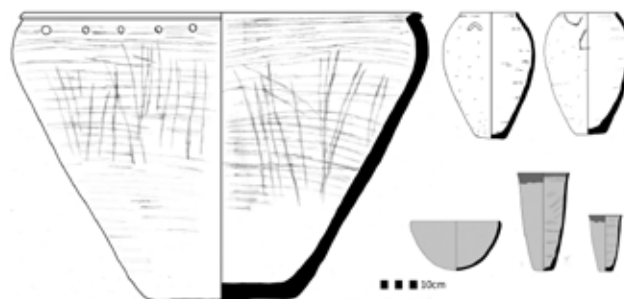
New friends: the first sheep from HK6 in Tomb 54.



A Big Pink Pot

—Renée Friedman

Excavations in the new complex at HK6 produced an abundance of bones and textile, and not an inconsiderable amount of ‘poo’, but other objects were notable by their rarity. In that artefact category generally known as ‘goodies’, we can report only part of a piriform limestone mace-head from near Tomb 53, half of a flint lance from near Tomb 52 and a tiny human head of unfired clay found in Tomb 56, although this may not be its original home. The area around Wall B7 was a bit more forthcoming, yielding one leg and the decorated horn of a fired clay cow figurine along with a few frustratingly



Pink pot and pottery pals to scale.



Lamia and Feisel piecing together the pink pot.

small fragments of a ceramic mask, bringing the total number of masks in this cemetery to at least eight.

Even potsherds were relatively sparse. Nevertheless, we were able to reconstruct several pottery vessels from widely scattered fragments, even if it is not entirely clear from which tombs they came. The typical straw-tempered modelled rim jars (R83), all with pre-firing and in one case also post-firing potmarks, two black-topped beakers (B22a, B22e), and a red polished hemispherical bowl allow us to date the complex to the Naqada IIA–IIB period.

However, the most impressive ceramic finds were the fragments of a large straw-tempered vat, similar in shape to the vats used in the breweries, but in this case more



Photo: J. Rossiter

Joe adjusting the joints.

carefully finished with a red (now rather pinkish) slip and burnishing on both sides. More than half of the vessel could be reconstructed thanks to the efforts of our conservator, Lamia El-Hadidy, who was ably assisted by our guard, Feisel Sidain. Putting together the large and heavy pieces was not an easy task, but once reassembled it was

possible to accurately measure its rim diameter at 1.18m (3'10½"), and its height at an imposing 73cm (nearly 2½ feet). Once refitted we could also see how the ancient potters made this giant vat in two pieces with a tongue and groove arrangement at the joint. How they fired it, or even lifted it, is another matter.

Burials in pots of this type, but without the fancy finish, are known from other cemeteries. Which tomb this vat came from is not entirely clear; however, a number of fragments, including almost the entire base, were recovered from Tomb 51, one of the few tombs deep enough to have held it. Considering the unusual occupants of that tomb (see below), could it be a special pink pot for a special person? With a little more than a third of it still to find in this cemetery of surprises, we'll have to wait and see. 🚧

Where Is the Beef?

Excavations were also continued in Tomb 49, the whopping trench-like tomb on the southern border of the Tomb 16 complex. Exploration of the west part in 2011 revealed the partly articulated bones of 8 Egyptian long-horned cattle, buried whole and unbutchered, all under 3 years of age, and thus prime food. Measuring 13.46m long and 1.55 m wide, we estimated that this tomb could contain about 20 head, but when we returned this season, we found only the highly disturbed remains of 4 more cattle and the rest of the tomb was empty! Where did they go? Did someone promise more than they could deliver, was it meant to be added to over time, or has someone excavated here before us? The mystery continues... 🐄



Double Delight: Another Dwarf from HK6

—Anna Pieri and Daniel Antoine, British Museum

As physical anthropologists, the obvious highlight of the 2011 season at HK6 was the discovery of Tomb 47 (*Nekhen News* 23:7–8), which presented with the rare opportunity to examine the skeleton of a dwarf. Little did we imagine that only a year later the cemetery would yield yet another dwarf, providing us with the truly unique possibility to contrast and compare.

The special focus of interest (to us) this year was Tomb 51, which contained the remains of two adults and two children. The tomb was heavily disturbed and only parts of the bodies were inside the grave. The rest, and particularly the skulls, were recovered later from various nearby

pits and graves into which they had been tossed by robbers. Luckily, their ages and sizes were sufficiently distinct to allow for most of the bones to be reunited with their respective skeletons. In most cases 60–80% of the bones for each body were available for analysis.

Dental development and bone size were used to age the two children. Child 1 was around 9 years old at death, while Child 2 was about 11 years of age. Visible across the permanent canine and incisor teeth of this child were furrow-like defects known as enamel hypoplasias. These defects are the results of episodes of ill-health, such as fevers or dietary deficiencies, which disturb the normal development of the

enamel during the period of crown formation (between the ages of 1 and 6 years). Despite these periods of ill health, no other pathological changes were found, which is often the case with children, as death comes too fast for the skeleton to show any signs.

Adult 1 was probably a female in her early twenties. The skull, recovered intact from an adjacent pit, shows mainly female traits, but many bones were damaged and it was difficult to verify the age and sex. At some point in her life she hurt both of her ankles, badly twisting the right one, as a result of which the talus and calcaneus (heel and ankle bones) fused together. This is likely to have restricted her mobility and caused her to limp.

Adult 2 was the surprise. Thanks to last year's experience, recognising the signs of achondroplasia was relatively straightforward. Like the dwarf from Tomb 47, Adult 2 had small but fully formed limbs with wide and enlarged epiphyses (the ends of the long bones). Moreover, the femurs were strongly twisted, with the lower ends pointing markedly to the back, making them even more bowed than those of the first dwarf. The hands and feet were also very small and the fingers were bent and claw-like, a well-known characteristic of this condition. Based on several measurements, it was possible to estimate an approximate height of 1.30m (4'3"), so somewhat taller than the dwarf from Tomb 47 who stood just 1.20m (3'11") high. The limbs of Adult 2 were not only longer but also larger, suggesting a more robust individual. Unfortunately, damage to the pelvis made sexing difficult, but various traits suggest he was a male.


It is often said that what you seek will always be found in the last place you look, but never expecting to find it, we actually weren't looking. Yet, in the final days of the

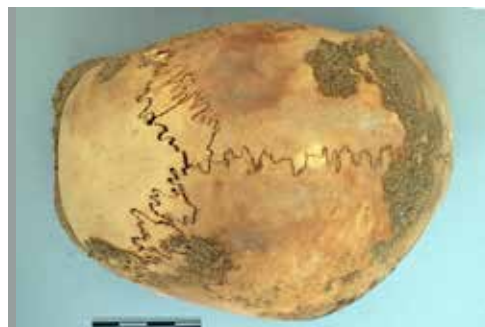


The dwarf from Tomb 51

excavations, little by little the skull of the dwarf emerged. Although damaged, it was still possible to come face to face with this special inhabitant of the cemetery and observe all the typical features of achondroplasia: a large cranial vault with a bulging forehead and pronounced mastoid processes; a wide nasal aperture; a shortened face with small eyebrow arches; a short and somewhat protruding maxilla; and a very angled and wide ramus (posterior part of the jaw). The teeth were particularly informative. Although dental eruption can be delayed in individuals with achondroplasia and age estimates based on dental wear are notoriously difficult, the fully developed upper 3rd molars (wisdom teeth) and the presence of some dental wear suggest an approximate age-at-death of between 25 and 35 years, making him slightly younger than the dwarf from Tomb 47.

Also of interest were a number of ossicles (extra small bones that occur within the cranial sutures) present at the back of his head. The occurrence of cranial ossicles has been observed in some forms of dwarfism, and this trait shows some degree of familial inheritance. The skull of Child 1 also displays these ossicles, suggesting they may have more in common than just the tomb in which they were found. However, further research will be necessary to ascertain if they really are related to one another.

Two dwarfs from the same site, same cemetery, and from about the same time, are both a double delight and a double dilemma. Considering achondroplasia has a frequency of 1 in 15,000–40,000 worldwide, how did these two dwarfs get here? Were they bought to the site to serve the elite? Or are they related? Thanks to a grant from the Thames Valley Ancient Egypt Society, UK, we hope to be able to provide some answers to these and other questions surrounding this delightful double discovery in the near future. 



Evidence in the ossicles? The skull of child 1.



All twisted up: the legs of the dwarfs compared.

Photo: J. Rossiter

Counting Sheep in the Elite Cemetery

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

Among the many animals, especially of the domestic sphere, buried in the elite cemetery at HK6, ovicaprines (sheep or goats) have been relatively rare. Aside from the remains of very young animals from throughout the cemetery, whose species identification and status as buried animal or food offering are unclear, finds had been limited to two goats each in Tombs 3 and 35. Happily, this situation changed significantly during the 2012 season, when sheep (8 of them) were recovered at HK6 for the first time. In Tomb 54, a round grave of about 2m in diameter, six adult sheep were found laid out in a curving row belly to back upon a large mat lining the floor. Matting also covered them. During the excavation great care was taken to lift the individual skeletons separately, which was not an easy task given the numerous superimposed legs. The organic preservation was excellent with pieces of skin, hair and horn retrieved along with intestinal content often still in situ. The material even preserved that ‘peculiar’ smell noticed not only during excavation, but also later in the lab when the bones were cleaned with a dry brush.

The skulls and particularly their horncores are of special interest since they can tell us the type of sheep involved. Although one was almost hornless, the five others had horns of the corkscrew type, which is typical of the sheep breed known in Egypt since the Neolithic. This breed continued to exist in Dynastic times and was of the hairy type. It is only in the 12th Dynasty that ammon-horned sheep appeared, a breed with fleece and horns that curve backwards. The two types co-existed for some time, but the ammon sheep ultimately prevailed.

The horncores on three skulls were especially well-preserved. One shows the horns emerging from the head in

the horizontal position typical of corkscrew sheep. However, on the two others, the horns were in a most unexpected place, having been intentionally directed upward and parallel to one another. Depressions visible near the base of the horns were probably caused by the rope used to force the horns together as they grew. Cattle with deliberately deformed horns are familiar from Old Kingdom tomb reliefs and the method used to achieve this has been described from Kerma, but no parallels are known for this practice in sheep. The reason for this modification remains a mystery, but these sheep were exceptional in many ways.

By multiplying the greatest length of the long bones with an index, it was possible to calculate the shoulder height of the corresponding individual. For the six sheep in Tomb 54, the height at withers varies between 83 and 91cm, which is extremely large for sheep. That they were males is confirmed by the shape of the pelvis, but further study is needed to establish whether they were rams or wethers, as there are certain peculiarities that suggest the practice of castration.

It is clear that all of these sheep were more or less adults since complete dentition is present and the teeth show moderate wear. Yet, on several of the long bones the so-called



Modified horns with arrows showing the depressions made by the rope.



Sheep with normal horns.



Tall sheep from Tomb 54.




Corkscrew and ammon-horned sheep in Tomb 2 at Beni Hassan, Middle Kingdom.

epiphyseal sutures are still visible. This is a remnant of the cartilaginous plate that allows the long bones to grow. This line usually disappears once the animal reaches adulthood. However, the hormonal imbalance caused by castration, especially if practiced early in life, causes delayed closure of this suture allowing for prolonged growth and resulting in larger and heavier animals. All of the sheep found this year were large: the adult in Tomb 56, keeping company with the aurochs, was equally as big and the somewhat younger sheep buried alone in Tomb 58 was comparable.



Corkscrew-horned sheep on the Late Predynastic Libyan Tribute Palette.

The sheep selected for burial at HK6 are exceptional in that they must have been the largest individuals in the herds. The modification of the horns of some, directed upward, must have made them even more impressive. By contrast are the remains of a remarkably small goat of slender build with a shoulder height of only about 62cm collected from the north edge of the excavation area.

Although its grave has not yet been located, it is perhaps no coincidence that both extremely large and very small ovicaprids were selected for burial in the same complex as people who were exceptionally tall and one who was very short. 



A Harvest of Potatoes: Excavation at HK11C in 2012

—Masahiro Baba, Waseda University, Japan

Every season at HK11C brings new discoveries and new surprises. This year, it was Potatoes!

Located on the southern terrace of the Wadi Abu Sufian, HK11C is the large Predynastic industrial area where we unearthed the well-preserved installation of breweries and pottery kilns at Operation B. Having completed the excavation of this remarkable complex in 2009, our current objective is to gain a better understanding of the function and landscape of the surrounding area. To this end, guided by the magnetometer survey of 2010, we uncovered two mud-brick structures, one of which, located just east of Operation B, was the focus of research in the 2012 season.

Partial exploration last season (*Nekhen News* 23: 22–23) revealed the northern part of a mud-brick structure in Square C4 and this year we returned to find more of it. As expected from the magnetometer map, the northeast wall continued straight for another 3m, making for a total length of 6.5m. It then turns to the southwest at a right angle, although no bricks were preserved at the corner, perhaps due to later damage. The wall consists of three rows of hand-moulded mud-bricks and is preserved to a maximum height of 30cm (roughly 3 courses of bricks).



The potato harvest.

Its exterior face is coated with thick mud plaster in which the finger marks of the builder are still visible.

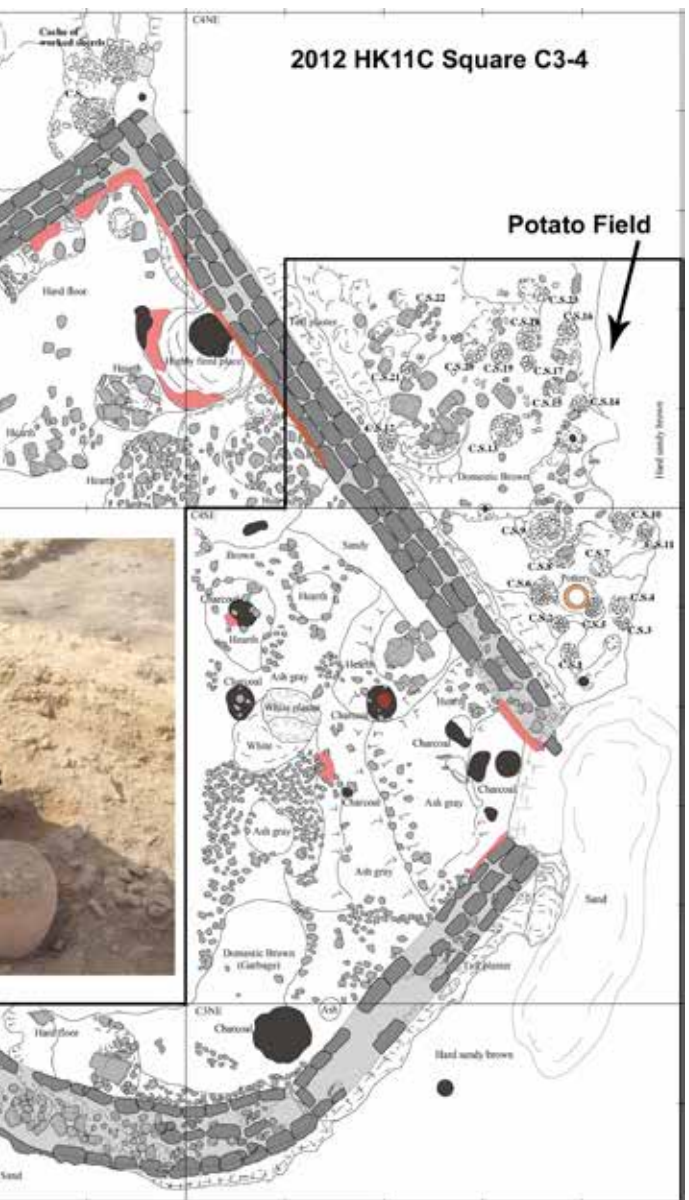
More unexpected was the southern wall. It runs straight for 3.5m and then curves inward. This curved part seems to be a later addition, since the construction

method is different. Here the mud-bricks are placed on both sides of a rubble core. Continuing beyond the excavation area, what this wall will do next is anyone's guess.

The interior of the structure was filled with accumulated layers of burnt debris as well as concentrations of charcoal, ash, scorched stones and potsherds, which are probably the remains of hearths. There are also some very highly burnt features located mainly against the walls. Among them, close to the southern wall, one burnt feature contained a large amount of lithic chips and seems to be a trash disposal place for lithic production. No structural divisions could be distinguished anywhere within the ash-filled interior.

By contrast, outside the walls, burnt debris was completely absent. Instead, layers of brown soil containing much organic material had accumulated. From this soil, a large number of small oval pieces of soft sandstone began to emerge, which our Egyptian workers call *batatas* (potatoes in Arabic). Almost all had been smoothed and flattened on one or more faces, and one was even cube-shaped, proving that these are man-made objects. As the excavations continued, we found these potatoes had been carefully deposited in 23 conical pits, each containing from 16 to more than 100 shaped stones along with the occasional worked potsherd. In addition, a complete pottery jar embedded in the ground contained 148 of these curious objects. In all, we harvested a total of 1001 potatoes!

What are these potatoes and how do they relate to the activities going on in this place? When we found these objects at the Operation B kilns, we assumed they were tools for the pottery-making like the worked potsherds, but now there are simply too many of them for that explanation to work. We now need to think of new possibilities. The finds from within the mud-brick structure (mainly lithics, animal



Square C3-4 at HK11C in 2012.

bones and pottery sherds) suggest a Naqada IIC–IID date. Although its function remains unclear, it is obviously related to production using fire on a scale that is far beyond domestic. As these production activities required fuel, presumably some sort of raw material and possibly water, could the stone potatoes be counting tools used to record in-bound deliveries of supplies or out-bound dispatches of the final product? Having no intrinsic value of their own, these shaped stones may thus have been used to record work rates like the tokens known from Mesopotamia. Of course, this is still just a hypothesis, one of many to be tested when we return to the field for the next potato harvest. 🍠

This work is financially supported by the Japan Society for the Promotion of Science.

Residue Analysis at HK11C Mound A

— Eman E. Khalifa, Cairo University, Egypt & Tulane University, USA

Residue-analysis, frequently mentioned in episodes of *CSI*, is a type of study long applied in chemistry. Its basic premise is that each plant or animal product has specific quantities of specific organic compounds that can get trapped in the pores of whatever it comes into contact with. I applied this type of analysis to sherds from Mound A at HK11C not to investigate a crime, but to solve the ancient mystery of what Predynastic pots were used for. Excavated in 1979 by Fred Harlan, Mound A is a midden (trash dump) more than 2m deep. Although located not far from the brewery and kiln installation of Operation B, it appears to predate the installation and contains only domestic waste. The material from Mound A was exported as part of a study collection in 1980. It is now stored in the British Museum and a selection of sherds was made available to me for analysis.

To test the applicability of residue-analysis on artefacts as old as those from HK11C Mound A, I applied Gas Chromatography/Mass Spectrometry (GC/MS) to 23 samples taken from 22 sherds from Layers 3, 4, 16 and 17. With dates of 3770–3630 BC, there were some doubts, since traces of the contents trapped inside the narrow pours of the ceramic matrix may degrade over time.



Fred Harlan at HK11C Mound A in 1979.

The first material detected by GC/MS turned out to be a contaminant from the micro filters, while another substance, dioctyl-phthalate, was a plasticizer. Unless the Predynastic Egyptians discovered plastic, this compound must have come from the bags in which the sherds were stored. Not all of the samples provided further results, but a few did give up their secrets.

Residues of palmitic and octadecanoic acid, both common in plant and animal fats, were found in the walls of black-topped pottery. A red-polished bowl sherd, in addition to octadecanoic acid, showed the presence of: (1) decanoic acid, which naturally occurs in trace quantities in cow and coconut milks; (2) tetradecanoic acid, naturally present in cow milk and mutton tallow, and in smaller quantities in beef tallow and pig fat; and (3) pentadecanoic acid, which naturally occurs in butterfat in cow milk and hydrogenated mutton fat. One can then suggest that this hemispherical bowl probably once held a dairy product.

I also took two samples from the same black-topped sherd to test whether any organic substance was applied on the surface to enhance or create the blackened rim. The GC/MS found no evidence, thus providing us with a better idea about how this type of pottery was produced.

As the actual contents of vessels are rarely preserved, the use of GC/MS for residue analysis holds great promise for unraveling the mystery of pot usage. In addition, each compound detected can help to reconstruct the diet of the Predynastic residents of Hierakonpolis, making it a particularly useful tool in cases where more obvious physical evidence has, as they say on *CSI*, done a bunk. 💡

This work was funded by National Science Foundation Doctoral Dissertation Improvement Grant # 1005713.

In Remembrance

Barbara Adams 1945 – 2002

On 26 June 2002 Barbara Adams lost her battle with cancer, depriving us of the benefit of her lifetime of experience and knowledge and more than 20 years of Hierakonpolis dig lore. In the 10 years since her passing we have continued and expanded upon the work she began at HK6. The amazing ceramic masks were the first clue, but with the discovery of Tomb 23, she knew she was onto something special. Sadly, she was unable to see just how right she was. The remarkable pillared halls and new tomb complexes certainly would have thrilled her and there is no doubt she would be just as excited as we are by what is still to come.



Barbara mending pottery from HK6.

An updated biography and full bibliography of Barbara Adams are now available on the new and improved www.hierakonpolis-online.org. 🐦

Nekhen 10N5W Revisited: Charting Ceramic Changes

—Grazia Di Pietro, Naples, Italy

Despite decades of work, the remains excavated by Michael Hoffman in 1969 and 1984 in square 10N5W at the town-mound of Nekhen still represent the only uninterrupted stratigraphic sequence from the Predynastic to the Early Dynastic ever found on a major town site in Upper Egypt (see *Nekhen News* 12:15).

Detailed re-analysis of the 10N5W ceramic sample undertaken this season confirms the value of this material as an important tool for the relative dating of settlement sites. Several significant developments in the shape, technology and composition of the ceramic assemblage throughout the different levels could be traced with wide-ranging implications.

Trends noted within the straw-tempered Nile silt pottery from levels 2–4 of the stratigraphic sondage are certainly meaningful chronologically, but at the same time reflect important changes taking place within the society and economy of this early urban center during the Late Predynastic, the period of state formation in Egypt. For example, the progressive replacement of better-made bowls (A) by standardized, mould-made ones (B) may be seen as evidence of increasing ceramic mass production, which in turn implies the existence of a class of specialized craftsmen and greater centralized control. Among the jars, the on-going definition of the rim may be connected to the need for more efficient sealing, for which the strong lip could provide a grip. This too may be evidence of centralized control over certain products.

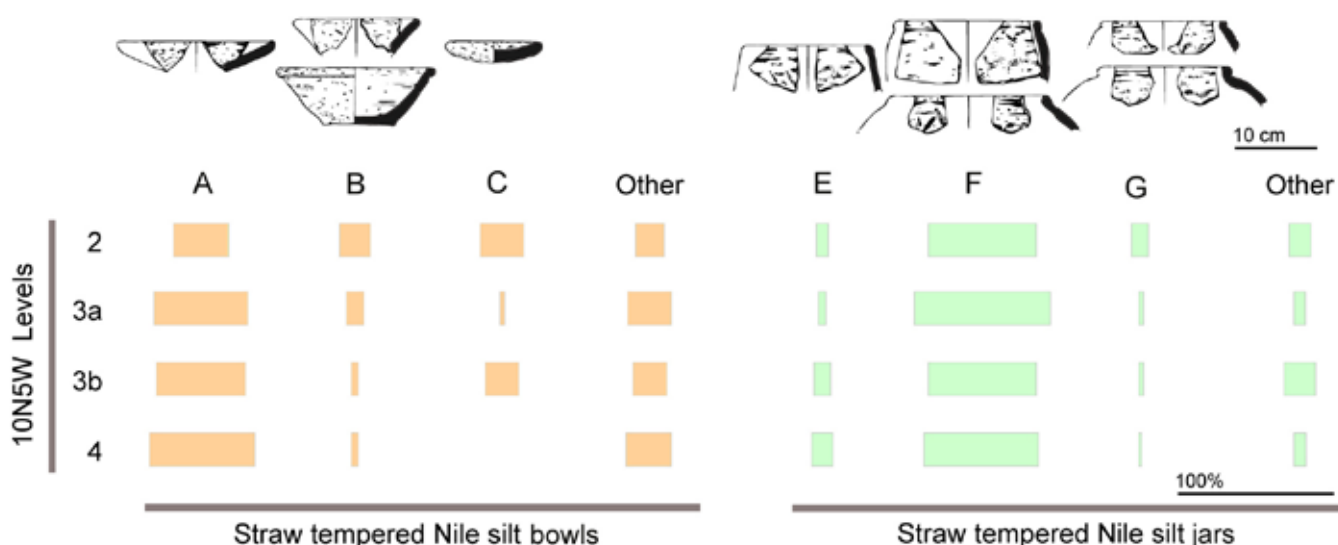
This study also allowed previous interpretations of the structures uncovered in 10N5W to be revisited. In 1969 Hoffman discovered evidence of a soft-material structure in the form of post-holes and wall trenches in the western



Structure 84-III in 1984.

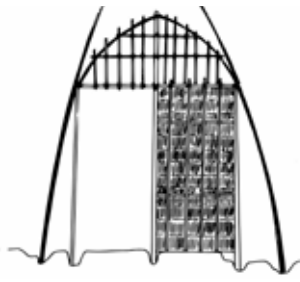
sector of the square. Immediately below it, a building (Structure 84-III) with thin mud-brick walls and an attached fenced compound was uncovered in 1984. Based on the paucity of normal domestic refuse and the number of decorated sherds and special artefacts, Hoffman interpreted the post-hole building as a Protodynastic shrine and offered a tentative reconstruction. By contrast, the underlying Structure 84-III was considered domestic in keeping with its plan, associated artefacts and features.

Yet re-examination of the ceramic assemblages from the two structures does not support this neat dichotomy. The relative percentages of fabrics and shape classes in both phases are very similar and the 'shrine' interpretation is hard to maintain considering that it was erected on top of a domestic building only slightly earlier. An abrupt change in function would appear odd, at best. However, if, as the available ceramic evidence suggests, the function remained the same, we then need to ask whether the pottery should be regarded



as purely domestic. It comes from an area in the immediate vicinity of the early temple at Nekhen and has intriguing similarities with the ceramics from the so-called 'floor deposit' at the ceremonial center at HK29A. Is it a matter of time or of function?

For the moment, perhaps an interpretation of 10N5W as a place where a range of domestic pursuits were undertaken along



The 'shrine' as reconstructed by Hoffman.

with activities connected to the nearby cultic center may be a good 'compromise' between the initial ideas of Michael Hoffman, the data recently gained from the re-examination of the pottery and our, still limited, knowledge of the Pre-/Protodynastic settlement ceramics. 🏺

This study was made possible by a grant of the Michela Schiff Giorgini Foundation of the United States.



Square 10N5W: Innovations in Lithic Production

—Kazuyoshi Nagaya, Waseda University, Tokyo, Japan

Excavations by Michael Hoffman in square 10N5W at Nekhen yielded 4495 lithic artifacts consisting of 15 hammer stones, 47 cores, 3917 pieces of debitage and 516 tools. Over 99% of them are made from flint, with others in carnelian, calcite and sandstone. The general characteristics of the lithic assemblage have already been described (*Nekhen News* 12:15–16), but here I focus on blade production.

Square 10N5W is significant for its stratigraphic sequence that helps us to understand the transition of artifacts through time. Eight levels ranging in date from Naqada I (possibly Badarian) to the Early Dynastic were discerned in a sondage of increasingly limited area. For the lithic analysis, these levels are roughly grouped into two phases: the Lower Phase (levels 5–8) dated to Naqada I–II; and the Upper Phase (levels 1–3) dated to Naqada III–Early Dynastic.

Detailed observation on the flints from these levels sheds light on developments particularly during the Late Pre- and Early Dynastic periods. The most obvious change is the presence of rectangular sickle blades in association with 'regular blade' production in the Upper Phase. These sickle blades are always made on blades or bladelets, almost always (95.8%) using fine-grained beige, orange-beige or brown flint, and in 54.5% of the cases the blades from which they are fashioned have a straight profile.

Analyses of the debitage also revealed attributes attesting to technological changes in the Upper Phase. Of the four types of debitage profile shape (straight, concave, convex or twisted), the proportion with straight profile increases in the Upper Phase. A new core preparation method is also apparent. On the proximal ends of blades are traces of the polishing or crushing of the core platform to adjust its shape and angle for percussion. This treatment of the core makes flaking easier and improves the accuracy of regular blade production. In addition, high quality flint with specific colors (beiges and brown) came to be selected. Earlier, during Naqada II, the selective use

of specific raw materials is seen among the bifacial flints in the elite cemetery at HK6 (see *Nekhen News* 23:18–19), but at 10N5W this trend correlates highly with standardized blade production. Blades of beige-toned flint are closest in size to the finished sickles, while blades of other colors vary widely in dimensions.



Sickle blades and regular blades.

Behind the emergence of sickle blades, we can catch a glimpse of two technological innovations that improved blade production—raw material selection and platform preparation—which in turn reflect increasing craft specialization, now applied not just to elite objects but to the lithics of daily life. We can also see much more, as the seemingly sudden appearance of uniform sickle blades at this time is not restricted to Hierakonpolis alone. This phenomenon occurs throughout Egypt, but the reasons for it are still debated. While such standardized blades would have made it easier to slot them efficiently into the haft and change them when they got dull, another reason for their appearance may be the change from a straight sickle to one that was curved. This allowed for faster and more accurate harvesting, but to negotiate the





Phase	Sickle Blades	Debitage with Straight Profile	Platform Preparation	Blades on Beige, Orange-Beige, and Brown Flint
Upper	Present	24.4%	Present	39.9%
Lower	Absent	17.1%	Absent	26.7%

Technological trends at 10N5W.

curve, blade size mattered. Other suggestions have been proposed, but there is no doubt that the specialized production of these uniform sickle blades can be linked to a shift to more intensive agriculture, which in turn is associated with a stronger central government. Exactly when this change occurred at a major center like Hierakonpolis is of course highly significant, and as the re-analysis of the material from 10N5W continues we hope to sharpen our understanding. ↷



Going Down in the Mound: Investigations Near HK24B

— Izumi H. Takamiya, Noriyuki Shirai and Hitoshi Endo

In 1897 J.E. Quibell investigated the low mound to the east of the Fort “sometimes specially called the Kom el Ahmar” (*Hierakonpolis II*, p. 25). At the foot of this mound is the heating installation at HK24B, which has been the focus of our work since 2010 (see *Nekhen News 22 & 23*). On the mound, Quibell reported a group of 12 or more buildings with bee-hive domes and small square doors high up on the south side, which he said were “no doubt granaries”. Digging out the filling of two of them, he found only clean sand, but as a result of this work Quibell stated that the granaries were not built in pits dug into the ground, but that the pottery, coming from kiln debris, was heaped around them. He considered the pottery to be of Old Kingdom date, probably confusing the ubiquitous fragments of the heating vats with later forms, but we now know them to be Predynastic. This being the case, it would imply that the granaries are also earlier. In order to investigate this possibility and assess the relationship of these granaries to the HK24B heating installation, in 2012 we excavated a trench from the base of the mound to the edge of one of the circular structures whose outline was still visible on its slope.

The trench (1.5 x 4.5m in dimensions) exposed the southwest quarter of the exterior face of a mud-brick

granary and more importantly revealed the stratigraphy on its peripheries. What we observed differs markedly from Quibell. Our excavations show clearly that this granary, at least, was constructed in a foundation trench more than 60cm deep, which was dug from a hard surface of dark brown sand through layers of brown sand extending into natural deposits. Eleven courses of mud-bricks (c. 1.05m in height) were uncovered, with more below the level of the excavations. The bricks (c. 25cm long and 8cm thick) had worn corners and surfaces suggesting they might be re-used from other structures. Unfortunately, no artifacts were found that could provide a direct indication of its date. All of the pottery from below the hard surface was Predynastic, but the granary, placed in a pit, could have been built at any time.

Surface indications of more than a dozen granaries of different sizes are preserved on the mound, but they need not have been built all at the same time and probably weren't. There is likely to be a lot of history hidden in this mound, but the remarkable amount of structure still surviving within it suggests that we will eventually come to grips with the granaries. As always, the answer lies below. 🏠



At work in the mound.



The granary exposed.

Hierakonpolis 2012



At the beginning in HK6.



And near the end.



Bea counting sheep from HK6.



Photo: J. Rossiter

Head from Tomb 56.



Photo: B. DeCupere

Corkscrew horn of a sheep from Tomb 54.



Lots of legs in Tomb 54.



Dwarf skull emerging.



Photo: M. Babaa

Bringing in the harvest at HK11C.

Rock Art Gallery



Aurochs from Ibex Flats.



Notched rows from Barbary Sheep rock.



A Barbary Sheep.



Sandal outlines from Gerenuk Flats.



The Gerenuk.



Ostrich from HK64.

Treasures from Hierakonpolis in Edinburgh



Votive plaque showing the worship of Horus of Nekhen



The book of worshipping Re on the stela of Hornakht.



Statuette of a New Kingdom priest.



Statuette of a goddess (Late Period).



Horus of Nekhen on a stela from the time of Amenhotep IV.



Twice carved lintel of Sesostris I.



Horus of Nekhen on the stela of Hornakht.

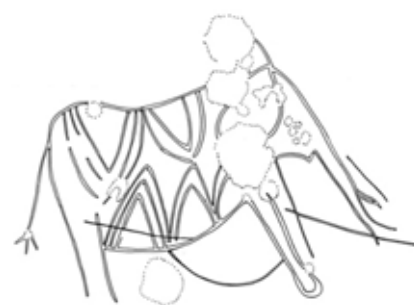
Wadi el Pheel—The Wadi of the Elephant

—Fred Hardtke, Macquarie University, Sydney Australia

The Upper Egyptian spring is my preferred time to be in the field, offering clear light and pleasant walking conditions for rock art surveying. Happy to return after a year away, I resumed my habit of setting out early, when the sun is just appearing and casts the long shadows that make the petroglyphs almost pop out of the rock. Once the baking sun is overhead, dispersing its light in all directions, the art is difficult to discern, although it is still possible on occasion to locate promising areas, like the outcrop of sandstone I noticed in one of the wadis cutting through the desert plateau. Returning the following morning, the landscape was almost unrecognisable from the previous afternoon, but I soon



Incised palette from Abadiya B102 (courtesy of Musées Royaux d'Art et d'Histoire, Brussels).



Elephant from Wadi el Pheel.

relocated the outcrop and the exact spot, next to an ancient water cascade. The incisions only vaguely understood before now emerged as a chunky elephant with a pattern of alternating chevrons decorating its body and floppy 'butterfly ears'. What a great way to start the day!

Elephants with similar decoration are known from two rock art sites in the Western Desert, but have not so far been detected among the many elephants in the Eastern Desert. Chevron decoration for animals is frequent on White cross-line pottery of the Naqada I–IIA period, and the best parallels for our elephant are found on pot marks and an incised palette of the same period. Contemporary with the real elephant in HK6 Tomb 33, whether this petroglyph is a portrait of or tribute to this mighty beast remains unknown, but it is fun to speculate.

In honor of this discovery, the wadi, still used by shepherd today, is now called *Wadi el Pheel* (Arabic for Wadi of the Elephant), but continuing along it I soon learned that the elephant was not its only inhabitant.

At the confluence of the wadi and a small drainage from the west, a field of low boulders featured more incisions of a faunal nature. A series of small ibexes engraved in varying orientations graced one rock, while nearby another panel had what is probably a hartebeest, judging from the shape of the

muzzle and its incurved horns. Hartebeest are relatively rare in the rock art corpus of the region, but their remains are attested in the HK6 cemetery (*Nekhen News* 23:9) and a vat sherd incised with a very similar image was retrieved from the Operation B brewery (see *Nekhen News* 21:24). Another animal familiar from the elite cemetery was found to the north: an aurochs with crescent-shaped horns, disproportionately long hind legs and a tasselled tail.



Gerenuk.

All of the animals have a similar style of incision, but are too widely separated to form a single scene. Pottery found in the area suggests this site was visited on several occasions.

The plateau to the northwest of the wadi was not devoid of interest either. An area of exposed bedrock bore two pairs of sandal outlines with straps. Alongside one was a horned quadruped possibly representing a gerenuk, given its horns and elongated neck. Parallels for gerenuk in rock art come from the Eastern Desert where 30 examples have been recorded, some in the Wadi Barramiya, which terminates just across the river at Elkab.



A hartebeest (probably).




A collection of ibexes.



An Aurochs.

Finishing the season as it had started, indications detected late in the day again had me rushing out at dawn on my last morning to check out a flat outcrop immediately beside the wadi track.

This time, it was a Barbary sheep that appeared, featuring short curved horns, distinctive hairs on the chest and forelegs and cross-hatched

decoration across its body. Following it was another animal, apparently a dog in pursuit. Combined with nearby motifs resembling two bows, there is little doubt this is a hunting scene, especially as Barbary sheep are almost always shown in rock art and pottery painting being hunted. Unusual, however, are the large numbers of straight and curved notch rows, some quite elaborate, which flank the scene and trail along the rocks. Time did not allow for full recording of this striking locality, but it will be a great way to start in the coming season. 



The Mystery of the Notch Rows


—Fred Hardtke

Amongst the abstract motifs at Hierakonpolis, the so called 'notch rows' are the most numerous, with 44 examples known so far. They consist of a series of short notches, usually incised, though some are pecked, arranged in a row that may be straight, curved or curl around, some even form concentric ovals. To date, this motif has been found almost exclusively on horizontal surfaces, often at the high points of hills, but they were not executed with the intention to be obvious to passers-by, as the author can attest from unexpected encounters whilst scaling hills. They can occur in isolation or in conjunction with other motifs, both abstract and figural, as illustrated by the Barbary sheep scene discovered this year.

Despite their ubiquity at Hierakonpolis, research has revealed little about their occurrence elsewhere. The only other examples known so far are one of concentric design in the Eastern Desert and straight, curved and ovoid notch rows from near the Second Cataract in Sudan. Straight rows have also been encountered at the Old Kingdom watch posts in the Dakhla Oasis, where they may have served to count out the days of duty.



Lots of notches at Barbary sheep Rock.

From their distribution and contexts there seem to be no functional reasons for their execution at Hierakonpolis that we may deduce today. Unlike the examples from Dakhla, the places at which they have been found would not have been suitable as guard posts or rest points. Their location, often high up and on horizontal surfaces, might suggest their use as direction markers, surveying points or as stellar observatories, but not all of them have a clear view of the landscape or the sky. That they might be idle time doodles is also unlikely since they occur in high numbers with a relatively consistent stylistic basis. This leaves us with the possibility that they have symbolic or ritual associations. Their co-occurrence with recognisable figural motifs and areas of pecking and pounding suggests a connection with activities of a ritual nature. Indeed, it is possible that the notch rows have a similar set of meanings as the figural motifs since similar pecked markings are found around them both. All we can say for the moment is that notch rows are characterized by a similar and persistent set of core motifs and were very popular at Hierakonpolis, but what they mean, we still don't know. 



Notch row and peck-mark combo.



Scanning the Fort in High Density

—Joel Paulson, San Diego, CA

The conservation and protection of the enclosure of Khasekhemwy (the Fort) have been an important part of the Hierakonpolis project for many years and, when new technology becomes available for the study of it, we seize the opportunity. One of the latest tools for land surveying is a High Density Survey (HDS) laser scanner. The HDS scanner performs the same function as traditional surveying instruments, i.e. measuring angles and distances from known points; it just does it faster, measuring tens of thousands of points per second, depending on the type and brand of the scanner. For rapid documentation of the existing condition of a structure, the scanner is an ideal tool. In a relatively short time, the surveyor can collect millions of points instead of just the few acquired in more traditional surveys. Each point collected is accurate to within a few millimeters, so, unlike photographic documentation, precise measurements can be made between any locations within the scan. The vast numbers of points collected in these surveys are called point-clouds because, on the computer screen, they form a cloud in the shape of whatever was scanned, in this case the Fort. The point-cloud can be viewed as it is, or the points can be used to model the scan into simpler shapes and surfaces for use in 3D modeling software.

In early March 2012 I was able to perform a high definition scan of the Fort with a Leica C10 scanner provided by NV5 Survey Company of San Diego, CA. Using this scanner, in two days of field work, I gathered 137,104,163 survey points (more or less) on the Fort and the surrounding terrain. After cleaning out extraneous features (such as the surveyor), removing duplicate points and trimming down the terrain to a more manageable region, approximately 98 million of the points were used in the final model. To obtain good angles to as many surfaces as possible, I scanned from 27 setup locations within and around the monument. From each setup, I also surveyed a minimum of two targets at known locations

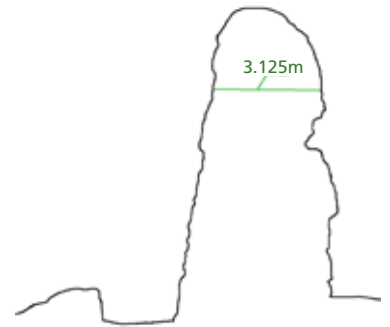
and supplemented these with features on the walls to ensure that the relationship of the scans from one setup to another was accurate to 5mm or less. The processing and cleanup of the scan was done using Leica's Cyclone software. For the final point-cloud model, a density of approximately 1cm was used to balance the accuracy and completeness of the model against the size of the computer file. Point-cloud files can become very large, and too dense a model makes the file too large to work with and share, while not necessarily adding significantly to the quality.

The result of this survey is a highly accurate and dense model of the Fort documenting the conservation work accomplished to date and establishing its current condition.

The point-cloud model can be turned, rotated and zoomed for viewing from any angle or distance. In addition, detailed cross-sections of the walls can be made from the cloud to study measurable wall thickness and damage, which will be an invaluable aid in determining the areas to be addressed in the next round of conservation. This model will also serve as a basis for a computerized 3D reconstruction of the Fort in its original form as we try to comprehend its appearance and function in the time of Khasekhemwy.

The HDS scan survey is only the latest effort in the ongoing study of the Fort as we seek to understand its past and ensure its preservation into the future. □

*An animation of the model can be viewed at:
<http://vimeo.com/45539654>*



Scanner generated cross-section through the southwest wall.



The rendered point-cloud model of the Enclosure of Khasekhemwy (the Fort).

Counting the Costs: A Project Manager's View of the Fort

—Angela La Loggia, Macquarie University, Sydney, Australia

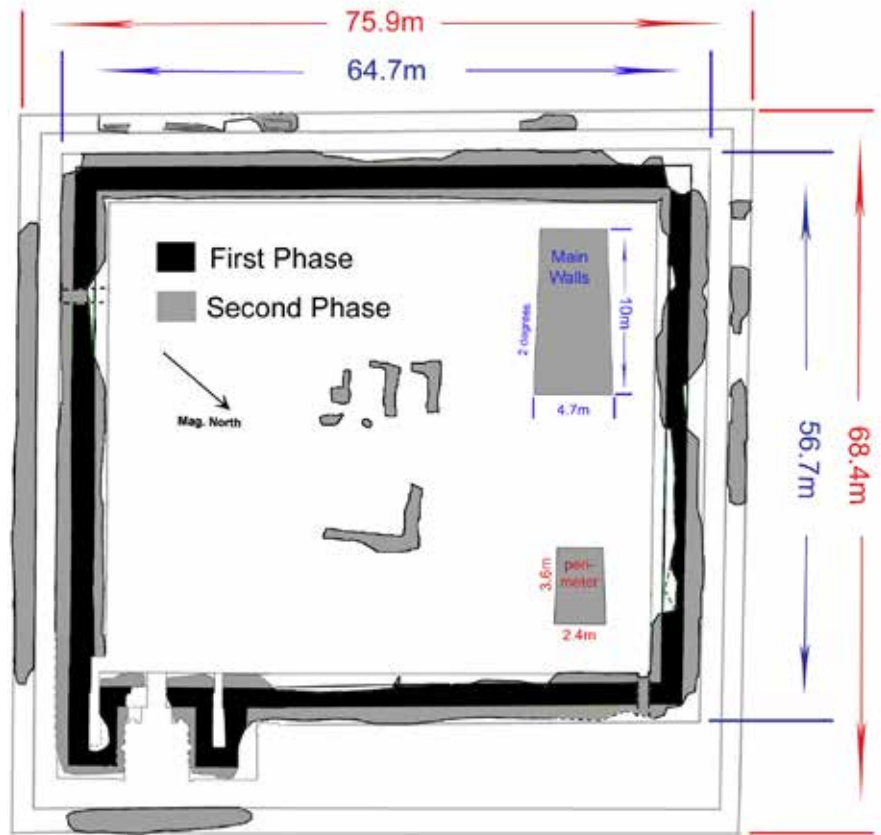
The repair of the Fort has been (and continues to be) a major undertaking, but what did it take to build it in the first *and* second place? Looking at it from the perspective of a modern Project Manager and applying various calculations, we come to some interesting conclusions.

First, we need to establish just how many mud-bricks were needed to build this nearly 10m tall monument. This can be accomplished by determining the total volume of the walls and then dividing it by the volume of an average brick. Using the dimensions provided by the recent surveys, a volume of $10,086.45\text{m}^3$ was calculated for the main structure. Adding on the 3.6m high perimeter wall, we achieve a total volume for the final Fort of $12,373\text{m}^3$, not including the internal structure whose full dimensions are still unknown. Dividing this total by the volume of an individual mud-brick (0.002567m^3) gives us an impressive 4.82 million bricks. Of these, 553,891 bricks were used in the First Phase to build a more modest Fort, with walls only 2.1m thick and 2.5m high. While we can calculate that about 12% of the structure's total volume was actually taken up by mortar, since it is made of the same material as the bricks, let's keep it simple!

Armed with this information, we can now look at the cost of both building phases in terms of time and labour.

In brick manufacture as still practiced in Egypt today, a crew of four men (2 brick makers, 1 mixer, 1 porter) can produce 3,000 bricks per day. Conceivably using ten crews (or 40 men), making 30,000 bricks per day, the bricks for Phase 1 could be prepared in just 19 days, not including the time for raw material collection before or drying/curing after. The manufacture of the additional 4,266,132 bricks for Phase 2 would have taken 142 days, but was no doubt on-going during the construction.

The transportation of bricks would have required porters using shoulder yokes to carry the bricks, as represented in the tomb of Rekhmire. Assuming that the brick yards were close to the Fort, at least during the first phase, the bricks could have been carried relatively quickly to the construction site. Presuming a porter could realistically undertake 40 trips per day (5 per hour; 8 hours per day), each man could transport about 600 bricks on a daily basis. If



Fort specifications.

100 porters were employed, the bricks for the First Phase could be conveyed in as few as 10 days, those for Phase 2 in an additional 71 days.

The art of bricklaying has changed little over time, so the current rate of 800 to 1,000 units laid per man per day can be considered valid. Using the more conservative estimate, nine bricklayers could lay 7,200 bricks per day. Although more may seem better, limitations on workspace and factors such as mortar preparation and transportation may have restricted the number of bricklayer that could feasibly be employed. Based on a crew of nine bricklayers, Phase 1 would have taken 77 days to construct and Phase 2 an additional 593 days.

Once the Phase 2 walls were complete, the structure then needed to be plastered. Aside from its aesthetic appeal, plastering protected the bricks from the elements. With the total surface area to be plastered amounting to c. $4,381\text{m}^2$, this was no small undertaking. Using their hands to spread the plaster and a wooden float for the final finish, a crew consisting of two plasterers and one assistant could cover 30m^2 per day on average based on modern



practice. Therefore one crew could have completed the task in 146 days, and it is probable that several crews were involved. Assuming the presence of three crews, who would also be responsible for the placement of scaffolding, the mud render and final coat of white plaster could have been applied in 49 days.

Putting it all together (wall construction and rendering), the Fort in its final form took ideally about 719 days or approximately 2.5 years to build based on full time employment, 288 days per year (8 working days in a 10 day week, 36 weeks in a year), not including holidays and other events at the work site. In reality, it probably took longer—what building project doesn't?

This type of analysis shows that the Fort was definitely a commitment in time and materials, but the real revelation is the number of workmen that could feasibly have been involved. Maximum crew estimates still place it under 200, not the cast of thousands we might have imagined. Even in the more ambitious second phase, although professional expertise in design and oversight may



Transporting bricks and materials. Scenes from the work site in the Tomb of Rekhmire, 18th Dynasty (after Davies 1935: pl. 59).

have been brought in, the majority of the work force could have been locally sourced. Indeed it may have been the ability to marshal local labour that allowed Khasekhemwy to build so much. If we count up all of his projects, the numbers in his employ were substantial, and the lessons learned in their management undoubtedly set the stage for the stone monuments of his successors. 🏛️



Fort Fixes in 2012

The critical repairs necessary to keep the Fort standing may be complete, but maintenance is still essential. Thanks to a grant from the Thames Valley Ancient Egypt Society, UK, we were able to grout the new masonry on the north wall to prevent colonization by birds and insects as well as apply needed touch-ups along the perimeter walls. A nasty crack opening up high on the west wall also attracted our attention. Tackling this task was not for the faint hearted. Nearly 7m up, it stretched the limits of our scaffolding, but luckily we are blessed with workmen as brave as they are skilled. Another job well done! 🏛️



Touching up the mud grout on the perimeter wall.



Tip-top repair work!



Making the Bricks Speak: Compositional Analysis at the Fort

—Tessa Dickinson, University College London

Bricks from the two phases of the Fort were tested scientifically for composition, and from these tests two distinct recipes emerged, which tell us about two very different manufacturing strategies. Probably the oldest bricks to have been tested in this manner, the results provide unique insights into the logistics of large-scale mud-brick architecture during this early period.

The Fort's First Phase, with walls only 2.1m thick, was a much smaller project, something also reflected in its bricks, which are sandier, have less organic content and present a much wider spectrum of colour and textures, although most on average were composed of 12% clay (the main binding agent), 42% silt and 46% sand. The types of micro-artefacts found in the mix are also more varied. Midden waste (ceramics, bones and flint) is frequent, as well as ash and charcoal.

The soils used for the bricks were probably sourced from two locations in the desert: the palaeosilt of the Sahaba formation and those of the 'clay-pit' east of the Fort. However, sedimentation layers in the bricks also suggest the economical practice of re-cycling. Old bricks would have been readily available from the nearby Predynastic settlement, long since abandoned, and their reuse, after being broken down and left to soak, could certainly explain the variety of artefact types seen in the bricks of this phase.

Still, the brick makers knew how to make strong bricks with limited access to prime materials. The avoidance of the silt-rich alluvium may have been deliberate considering the narrow floodplain at Hierakonpolis, but they may also have been aware that its clay content would shrink during drying, causing the bricks to crack. A lower clay content made mixing easier and faster, but limited the bricks' strength, so ash and charcoal were added to harden them, an effect the Romans also exploited when they invented the first cements using ash.

The mud-bricks of the Second Phase are of higher quality with regard to both ingredients and manufacture. Composed on average of 13% clay, 48% silt and 39% sand, like the earlier bricks, they also contain ash to make up for the low clay



Brick making in the Tomb of Rekhmire.

content. But now the bricks are siltier, have a higher organic content (chaff, straw and probably manure), and are far more homogeneous in colour, texture and type of micro-artefacts. Larger inclusions, such as charcoal and pottery fragments, are more frequent and appear to be intentional rather than the result of brick reuse. The recipe's lower sand content and greater use of organics promoted faster drying, speeding up the production, which larger inclusions would have also aided.

While it is likely that similar sources of palaeo-silts were employed in the recipe, now fresh alluvium from field topsoil was also added, making for a strong, uniform, silty brick that is almost identical to those used in Khasekhemwy's funerary enclosure, 150 km north at Abydos

The two different mud-brick recipes visible at the Fort reflect two very different strategies. The first phase bricks, using less prime materials and exhibiting greater variety, suggest a less organised, or less centralised, production. The bricks of the second build point to a more highly organised effort that not only used larger amounts of materials, but also of better quality.

Whoever was behind the initial construction, it is clear that his brick makers favoured materials that were immediately accessible and had low impact on agricultural resources. Was this due to poverty, thrift or local views on the monument and its materials? We may never know the answer to this, but when Khasekhemwy returned to the site, he had no such limitations.

The recipe in the second phase betrays an obvious desire, incentive or ability to build more costly in terms of volume, materials and expertise. Likely a reflection of political change, whether this occurred over the course of several reigns or just several years is unclear. But the bricks tell us that the difference in logistic, outlay and, more importantly, perception was vast. ■



The clay pit east of the Fort.

HK27C Revisited: Egyptian Pottery in the Nubian Cemetery

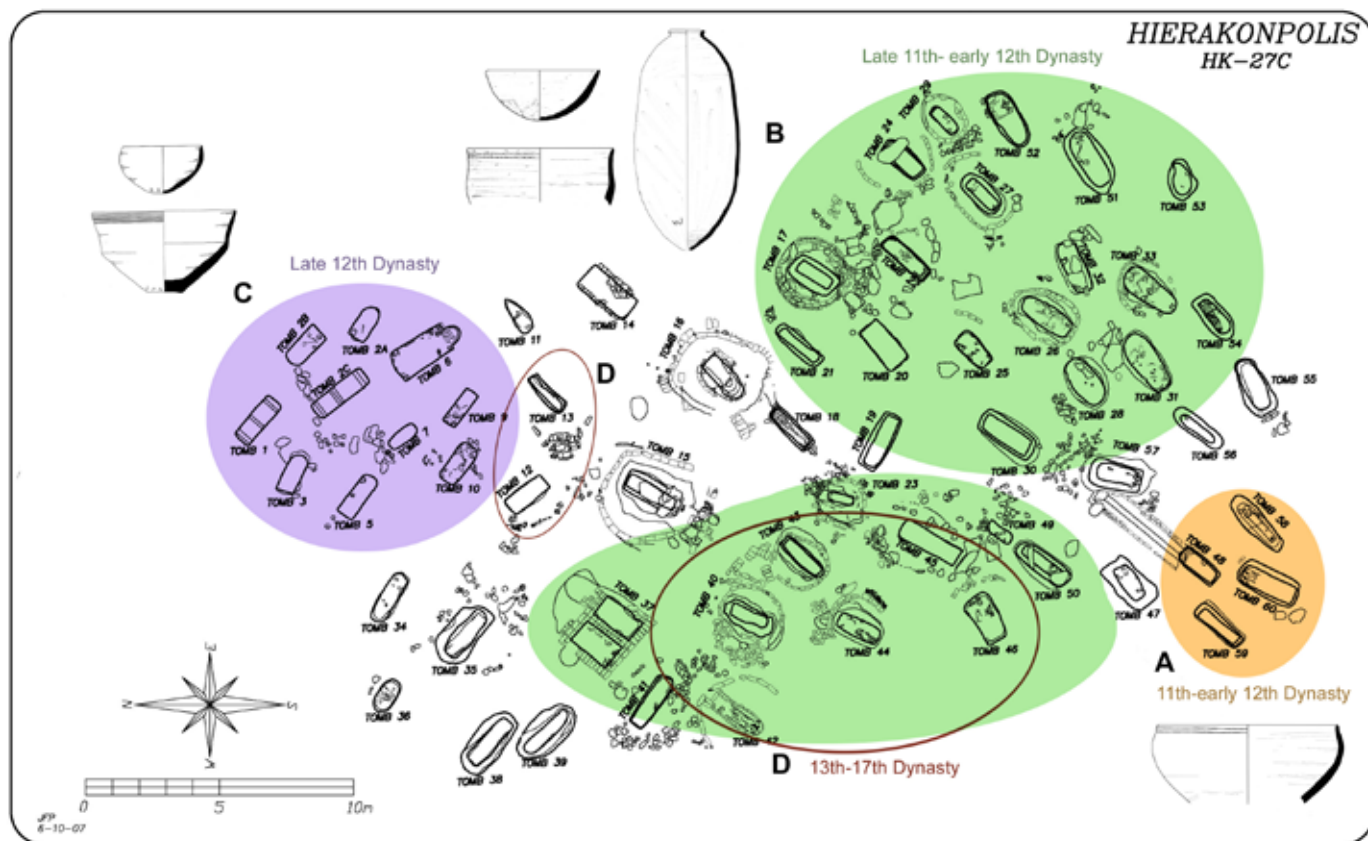
— Marie Millet, British Museum

Excavated in 2001, 2003 and 2007 (*Nekhen News* 13, 16 & 19), the cemetery at HK27C is the northernmost cultural presence of the Nubian C-group in Egypt. In all, 60 tombs were discovered, some with mud-brick superstructures, some topped by tumuli, and others too eroded to tell. Although the distinctive Nubian pottery placed around the graves has attracted the most attention, I was asked to re-examine the much more prevalent Egyptian pottery to get a better idea about the date and evolution of this unique cemetery as we prepare for its publication. Owing to the Nubian practice of placing the grave goods not in the tomb, but around the superstructure coupled with later disturbances, it was not always possible to determine to which grave the pots belonged; nor could pottery be attributed to all of the tombs. Nevertheless, since all of the sediment was sieved, giving us a pretty complete picture of the ceramic assemblage, by examining and then plotting the pottery by square some interesting patterns emerged. The change in the orientation of the graves had already indicated there were two main phases in this cemetery, but the Egyptian pottery allows us to make finer divisions.

The shapes encountered most frequently were hemispherical bowls, carinated bowls and jars. In lesser

quantities were dishes, restricted bowls, plates and miniatures. For dating purposes, the bowls were the most important. A bowl shape diagnostic of the 11th Dynasty (into the early 12th Dynasty), along with other pottery, places the earliest part of the cemetery around Tomb 60 near the highest part of the cemetery (cluster A). The cemetery then developed down the slope to the east and north (cluster B), the pottery from the northern tombs being more useful for dating. Characteristic shapes include bowls with red slip on the interior surface and exterior rim, hemispherical bowls in fine Nile B2 fabric and carinated cups, dating these tombs to the end of the 11th–early 12th Dynasty. Large storage jars of marl clay, popular grave goods in Nubia, were also common in all of these clusters.


As the cemetery developed further to the north (cluster C) several changes can be seen. Not only do the tombs change their orientation, but the amount of pottery also diminishes markedly. Pot stands in Nile B2 are found here and nowhere else in the cemetery and there is a higher proportion of hemispherical bowls in fine Nile B2 without red slip or red painted rim. These two types point to a 12th Dynasty date, and the lack of red slip suggests more



Phases of the Nubian cemetery according to the Egyptian pottery.

specifically the latter part of this dynasty (reigns of Sesotris III/Amenemhat III). The large jars in marl clays so widespread earlier are now practically absent and the pieces that are present are highly eroded and probably intrusive.

In reality the divisions are not as strict as they appear on the map, but at least three phases of occupation for the HK27C cemetery are clear. Beginning in the 11th Dynasty, the cemetery reached its peak in the early 12th Dynasty before apparently dwindling away by the end of that dynasty.

However, this is not the end of the story, as pottery of the 13–17th Dynasty was also recovered (D). Although no specific tomb could be ascribed to this date, this presence may indicate continued ritual activities and veneration for those buried here. Thus, while the study of the tomb pottery indicates that this distinct cemetery of the Nubian population was used for a relatively limited period of time, full assessment of the ceramic assemblage suggests those buried here were not so quickly forgotten. 

The Lady in InfraRed

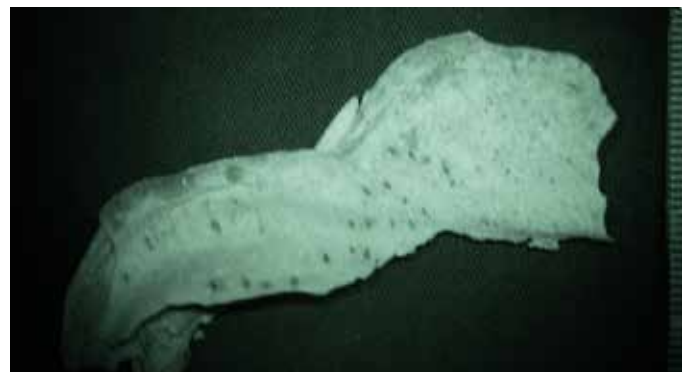
—Joel Paulson

There's more to light than meets the eye. Beyond the spectrum visible to the human eye are broad wavelengths: ultra-violet at lengths below violet and infrared at wavelengths above red. For many years, archaeologists have known the value of using photography sensitive to these extreme ranges of the spectrum for alternate views of artifacts and features, making nearly invisible lines stand out against their backgrounds.

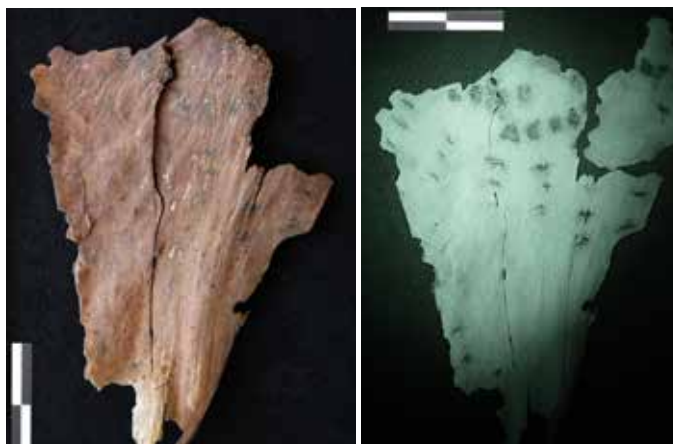
During the 2003 season of excavations in the C-Group cemetery at HK27C, considerable amounts of skin were found preserved on the body of the woman in Tomb 9 (*Nekhen News* 16: 24–26). At the time a number of tattoos were observed and their distribution and significance discussed.

In 2012, we decided to revisit the tattoos with an infrared digital camera. The use of infrared photography for the detection or clarification of tattoos is well documented in forensic literature and has been used on mummies before, notably on the Siberian Pazyryk mummies (3–6th century BC) to illuminate their spectacular body art.

The remains from Tomb 9 were photographed in daylight with an IR 940 lens filter that screens out most light of the




Before and after: revealing tattoos with infrared.



Seeing things in a new light: new tattoos on the lady from HK27C.

visible spectrum, and again, with more success, in the dark using the infrared emitter built into the camera for illumination. The results were remarkable. The infrared creates a greater contrast between the skin and the tattoo and tattoos that could barely be seen showed up as a sharp series of dots. The infrared photographs show that the tattooing is even more extensive than previously thought and clarified the design on the lower arm where what looked like an irregular line of dots appeared as a distinct row of dotted lozenges.

These examples show that this type of photography is essential for the identification of details not readily seen by the human eye. Easy to use, digital infrared is a great addition to our detection tool-kit and we will be using it again soon to see what else it might bring to light. 

Hierakonpolis in Edinburgh

—Renee Friedman

As early subscribers to the Egypt Exploration Fund (now Society), the National Museum of Antiquities of Scotland (later amalgamated into the National Museums of Scotland) received a share of the objects from the excavations that were available for distribution. From the 1897-99 work at Hierakonpolis, the Museum received a small, but representative selection of the smaller votive objects from the Main Deposit. These include faience figurines of a scorpion, oryx, baboon and a rather wonky falcon, several spiral beads, a few of the over 200 mace-heads that formed part of that deposit and some stone vessels. But along with these, they also received something very special, which seems to have passed into the collection unrecognized.

Among the hundreds of objects of the Early Dynastic age recovered from the so-called Main Deposit at Hierakonpolis, the most famous are the larger-than-life palette of Narmer and the great mace-heads of Scorpion and Narmer. Aside from their important decoration, what is fascinating about these objects is their size. Taking useful objects and super-sizing them in the service of the gods has been called gigantism. While the palette and mace-heads are familiar examples of this, lesser known are the giant knives, blades of remarkable size. Three are illustrated in *Hierakonpolis I* and *II*. Two were given to the Ashmolean Museum, Oxford (one now on display!), but the third and the largest seemed to have wandered off, as much as a knife of this size can.

Happily it has finally been rediscovered, safe and sound in Edinburgh, hiding under the description it was first given in 1900: Large Flint Flake. Obviously it is more than that, measuring 79.2cm long, 28cm wide and 4.2cm thick. Found together with fragments of

the great Narmer mace-head, there can be no question of its ceremonial significance. But unlike the mace-heads and palettes, which were made large to hold smaller decorative details, all three of the giant knives are just big all over. The marks from trimming the edges may look rough, but they are in fact proportional to the object. Everything is scaled up as if it had been placed under a magnifying glass. Probably all mined from the same tabular flint (more properly chert) deposit, it is not hard to imagine the impression these three great knives must have made when carried out in procession.

The giant knife is just one of the hidden treasures from Hierakonpolis in Edinburgh. Presumably by design, the museum also received a large proportion of objects pertaining to the site's often overlooked later history. Mainly dating to the New Kingdom, these include some fine statuary, well-carved stelae, a small votive plaque showing the worship of Horus of Nekhen and architectural elements from his temple. Overwhelmed by

the sheer richness of the earlier material, a single plate in the publication (*HKI*: pl. 46) illustrates some, while others get only a brief mention in the text. Nevertheless, both their quality and their inscriptions demonstrate that Hierakonpolis was far from being the provincial backwater it is sometimes portrayed to be. Still an important cult center worthy of royal attention, it was also part of a region that was on the forefront of developments especially in the early New Kingdom with significant implications for tracing the origins of later ritual and artistic practices as the hitherto unpublished stela discussed in the next article illustrates. 🗡️

We are grateful to the Dept of World Cultures at NMS for facilitating our visits and photography.



Ross Irving and the giant knife from Hierakonpolis, now in Edinburgh.



Votive figurines from the Main Deposit on display in Edinburgh.

Sun Worship at Hierakonpolis: Insights from Edinburgh

—Vivian Davies, British Museum

One of the most important of the overlooked objects uncovered at Hierakonpolis in 1898, and now in Edinburgh, is a limestone stela commemorating the senior members of a local family and their roles in the temple-cult. The photograph taken on site shortly after its discovery was for some reason passed over during publication and it goes unmentioned. Dating to the early 18th Dynasty, the stela (measuring 56 x 35cm) was dedicated to a priest of the god Horus, Hornakht, and his wife, Ahmose, by their son, also a priest of Horus called Hornakht. They are depicted in the scene at the top, the son on the left making offerings to his father and mother, all three identified in the columns of inscription. Father and son feature again in the long offering-text underneath (the father here referred to as Ahmose, his second name), which also mentions other family-members, among them two sons, one a priest, the other a sculptor. It reads:

‘(1) A gift which the king gives and Horus of Nekhen, great god, lord of heaven, and Osiris who dwells in Nekhen, that they may give a thousand of bread, a thousand of beer (2) a thousand of beef and fowl, a thousand of cloth and alabaster, a thousand of incense and oil, a thousand of everything good and pure (3) on which the god lives, which the sky provides, which the earth creates, which Hapy brings from his perfect cavern, (4) a smelling of the sweet breath of the north wind, a drinking of water at the pool of the river, (5) for the ka of the priest-who-enters of Horus of Nekhen, Ahmose, true of voice. It is his son who causes to live his name, (6) priest-who-enters of Horus of Nekhen, one excellent in following the god, one high of voice in the place of (7) silence, clear-sighted in doing right, bearing the book of worshipping Re, priest Hornakht, (8) (also) his son, priest Nai-nefer, his son, sculptor Neb, his daughter Ti-nub, his daughter Henut-ta, his daughter Nai, (9) [his daugh]ter May, his daughter Ahmose, his sister Ah-hotep, his sister Djab-res.’




Djehty and wife worshipping the sun on the jamb of their tomb at Hierakonpolis.

The principal title ‘priest-who-enters’ (*wab ak*), held by both father and son, denotes a priest with right of entry to restricted areas of the temple. But what makes the stela special is the reference in line 7 to the son’s role in ‘bearing the book of worshipping Re’, which provides us with valuable,



The stela of Hornakht in archival photograph of 1898 (courtesy of the Petrie Museum of Archaeology, London).

contemporary evidence on the content of the temple rituals of the period. The ‘book of worshipping Re’ is otherwise known only from elite tomb-contexts in Thebes, as the title of a royal funerary compilation usually referred to nowadays as the ‘Litany of Re’. It is concerned broadly with the various forms of the sun-god and with the king’s assimilation to the deity. At Hierakonpolis, this ‘book’ (possibly a variant compilation) evidently had a different purpose: carried, and probably recited, by the appropriate priest it formed part of the temple-liturgical and the cult of the local god.

In addition to its role in the temple, this ‘book of worshipping Re’ might well have served as a source of material for the solar hymns that decorate the doorways of tombs of the early New Kingdom. These hymns form part of a scene showing the owner with arms raised in adoration, described as ‘worshipping Re when he rises ...’ Such scenes are well represented in tombs at Hierakonpolis of the same date as the Hornakht stela, themselves the source of new information on religious practice, now under renewed study. 

The Rock Inscriptions at HK64

— Marcel Marée, British Museum

No locality at Hierakonpolis is so densely inscribed with drawings, petroglyphs and inscriptions as HK64, close to the concession's northern limits. This sandstone outcrop offers wide views to the north and east, and was much frequented by ancient visitors. Archaeological discoveries in previous seasons (*Nekhen News* 4.1:3–5; 8:4–7) have revealed that their activities included ritual celebrations, apparently in honour of the goddess Hathor. People carved souvenirs of their visits on every available rock surface. A full epigraphic and photographic record is now nearing completion. The study also covers detached inscription fragments found scattered around the hillock.

Due to the considerable damage suffered by the site, through natural erosion and human interference, we can only begin to imagine its appearance when all the drawings and inscriptions were intact. Extant material includes tantalising but isolated fragments of large-scale hieroglyphic inscriptions, most of them crudely carved, others carefully composed in the manner of formal art. Most texts give only personal names and titles, but there are portions of at least five offering prayers (*hotep di nesut* formulae), invoking gods such as Horus of Nekhen. The sunk hieroglyphs of one carefully executed prayer were even painted red.

The inscriptions cover a remarkably short time span — the same as that of the majority of decorated tombs at Hierakonpolis and its twin town Elkab. Most of the inscriptions are from the Second Intermediate Period (SIP: late 13th, 16th–17th Dynasties). Typical names include Renseneb, Neferhotep and Ibiau, all common at the time. The remaining inscriptions are all from the early 18th Dynasty, with



Inscriptions at HK64 of the chiefs of the tens of Upper Egypt and a figure of a man named Thutmose.

typical names such as Nebseny and Thutmose, plus two crudely scratched cartouches of king Amenhotep I (see back page). Other noted names, such as Awibhor and Hormose, were in use during the entire time span but only popular in the Hierakonpolis/Elkab/Edfu region.

Among the commemorated are priests, military men, and administrators. One SIP inscription mentions a lector priest named Neferhotep, and the dedicator was the chief priest ('god's servant') of a temple. Another contemporary lector priest was apparently called Horheriat, literally 'Horus-on-the-mound'. This name is rare, and all known namesakes were from Hierakonpolis and Edfu. Military figures include two river fleet officers ('commanders of the ruler's crew', previously understood as royal bodyguards). One of them was called Renseneb, but his name and title are so widely attested that he cannot



View of HK64 from the south.

be automatically identified with the famous owner of Tomb 9 at Elkab, contra earlier claims. One large inscription lists various officials with the title ‘chief of tens of Upper Egypt’, while another cluster names various men with the title combination ‘dignitary, mouth of Nekhen’. Both types of officials became very common in Upper Egypt (not just Nekhen) in the late Middle Kingdom; their exact duties are unclear but they stood in close communication with the bureau of the vizier. Perhaps the most interesting inscription names an ‘overseer of a unit (*waret*) of sculptors’. Just a handful of people with that title are attested across Egypt, all of SIP date. Only traces of his name remain, but they rule out identifying him with any of the other known examples. In all probability the sculptors he oversaw were chiefly engaged in the production of small private monuments such as statues and stelae. The range of people represented at HK64 is a salutary reminder of the region’s importance in the late SIP and the early New Kingdom — one that increases with every new discovery. 🏺



Photo: J. Rositer

Detached fragment naming the overseer of a unit of sculptors.



Join the Friends of Nekhen and help us continue to make these exciting discoveries! See page 31 for details.



Death on the Nile (Apologies to Agatha Christie)

—Lee Young, Bath, UK

All of us at one time or another have fantasied about living during that golden era of remarkable discoveries (the Main Deposit among them) that occurred at the end of the 19th century. As exciting as it must have been, it was not without its perils as some sleuthing among the archives of Hierakonpolis’ most famous excavator has revealed.

James Edward Quibell was a master letter-writer who filled his missives with not only archaeological information but also interesting snippets about daily life on site and entertaining, occasionally poignant, tidbits of gossip and intrigue. While researching Quibell’s wife Annie (nee Pirie) at the Griffith Institute Archive in Oxford, I came across a letter written by Quibell to Percy Newberry from Hierakonpolis in March 1897. He wrote:

I daresay somehow the tragedy of this year has got round to you — Miss Yuill’s death, I mean. Miss Yuill was an old acquaintance of Miss Pirie’s whom she met by chance on the boat coming up and invited to come and stay with us for 3 days....She came, ought not to have come for she had already been ill 24 hours, took directly to her bed with acute dysentery and grew steadily worse for 15 days & then one Sunday night, died.



Kate Quibell and Annie Pirie at Hierakonpolis in 1898 (courtesy of the Petrie Museum of Archaeology, London).

The lady in question was one Margaret Skelton Yuill who had been born in Peterhead, Aberdeenshire on 13th December 1851. Annie, an artist initially sent out to work in Egypt by Flinders Petrie, was also from Aberdeen and had met Margaret there.

The letter goes on:

We have buried her in the desert behind our house here: Sayce (The Rev. A.H. Sayce) read the service, my men carried her: Miss Pirie, my sister (Kate Quibell), Scharlieb (the Northampton's doctor) & I were the others present.

The exact location of this grave is now unknown, but the following year, F.W. Green mentions in his diary (30 December 1898) that the tomb had been slightly disturbed and the stone inscribed with M.Y. pushed on one side. This gives us a clue what to look for.

The Rev. Archibald Henry Sayce, the Oxford Professor of Assyriology, owing to poor health, was spending the winter, as he had every year since the 1880s, travelling the Nile in a *dahabiyeh* fitted out with a working library. He also recounts this sad event in his book *Reminiscences* (1923). Writing from memory alone, he is wrong in several details, but sets the scene well:

At Assuan, owing to the lowness of the Nile, some of the river water had become contaminated, and several visitors to the only hotel which then existed there had unfortunately contracted typhoid fever. One of them, Miss Sandbach, had promised to spend a week with the Quibells in their tent at Hierakonpolis: on her way down the river in the postal steamer the disease declared itself, and by the time she reached Hierakonpolis after a donkey ride in the sun she was in a high state of fever. This was at first naturally supposed to be simply malarial, but after a few days it became evident that it was something much more serious. There was no railway in those days and before a doctor could arrive the poor lady was dead. We had some difficulty in finding a place for a grave where the soil in the rocky desert was sufficiently deep to prevent the wild beasts from scratching up the body at night. I read the funeral service, which was made all the more impressive by the solitude of the desert around us, where the only traces of humanity which we could see were the tombs of the prehistoric dead.

Quibell's contemporary report provides the true facts:

We had a nurse for the last 2 days only. Before that Miss Pirie & Kate had to take care of her between them. She was a heavy woman, as helpless as a 3 weeks baby, and for long she could not be left for a minute. That meant excessive work for the two ladies; it was dangerous for my sister & it has left her very fatigued; and after all it was in vain...



James Edward Quibell.

Kate had initially joined her brother in Egypt in 1895 for her own health but finding

the climate conducive and having developed a love for the place, she remained there for many years, opening a kindergarten school in Cairo during the First World War. Miss Pirie was to become Quibell's wife in 1900, the two having fallen in love nursing each other over a case of food poisoning contracted in Petrie's camp.

Quibell continues:

Everyone has behaved awfully well & kindly to us ... Lady N. (Northampton) sent up a big Shetland shawl, a huge, light, warm thing saving the weight of blankets; that was just the thing that only one delicate woman would think of for another.

Lord Northampton, who had brought out his sick wife (along with her doctor) hoping the Egyptian winter would help her recover, was one of many doing the same. There was, naturally, much social interaction with dinner parties and entertainments of all sorts including 'dig' visitations. In a crisis, everyone was always willing to help as much as they could.



Sayce's dahabiyah


Unfortunately, Miss Yuill was not the only victim, as Quibell tells us:

There have been 12 cases of acute dysentery all contracted at Assuan within 2 or 3 days. Two sisters named Sandbach died of it in Luxor.

Two sisters did indeed die of dysentery as confirmed by Ms. E.C. Laurence, working in Luxor at the time, who wrote in her memoirs, *A Nurse's Life in War and Peace* (1912):

All the winter the tourists had been fit and well up the Nile (fortunately for me), but in January everyone seemed to get ill, and they had quite an outbreak of dysentery. It began up at Assouan, but two young ladies (travelling with a young brother) became very ill between Assouan and Luxor, and were carried ashore and brought to the hotel. Our night nurse went off to nurse them, and as soon as I was free I had to go straight on to help her, as they were both desperately ill.

It was my first experience of tropical dysentery, and in some ways it seemed almost more like cholera nothing seemed to check it. A very good physician came up from Cairo, and stayed some days trying everything to save them, and nurse and I were working night and day, but it was no use, and they both died within twenty four hours of each other.

Stories like this remind us of the human cost of archaeology in that golden age. Such stories bring us closer to the legendary figures in our field and show us what it was like to experience the real Egypt. 

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.

Help the Hierakonpolis Expedition to continue its important work. Your contribution (tax-deductible in the US) will support vital research that might not otherwise be possible. In return for your contribution you will receive the annual newsletter, the *Nekhen News*, produced exclusively for the Friends. Lavishly illustrated, the *Nekhen News* keeps you up-to-date on all of the Expedition's latest discoveries.

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As computing has improved over the years, it is now possible to do so much more with web sites and a redesigned and improved Hierakonpolis-online.org has been launched. More attractive and easier to navigate, it includes (so far) a comprehensive new and searchable bibliography of the site and related subjects, an index of all volumes of the *Nekhen News* (now online to 2011), updated biographies of Michael Hoffman and Barbara Adams, with more to be rolled out over the coming year. As part of the new format, an events panel will keep you posted on coming lectures and other happenings as well as when new entries and features come on-line.


Although we study the past, we are not averse to exploring features of the modern age. For non-US friends (or those not requiring a tax deduction) we will be trying out a Paypal account to make it easier to join and renew your membership or make special donations. And for everyone, we will be providing updates from the field on our Facebook page when we return to the site in January 2013. Please let us know if you like us.

We welcome your suggestions on what you would like to see at Hierakonpolis-online, so please let us know: webideas@hierakonpolis-online.org.

We hope you will enjoy the new features and we thank you for your continued support of our work as we strive to explore, understand and communicate the manifold features of the fascinating site of Hierakonpolis. 🐅

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Hierakonpolis 2012 Highlights



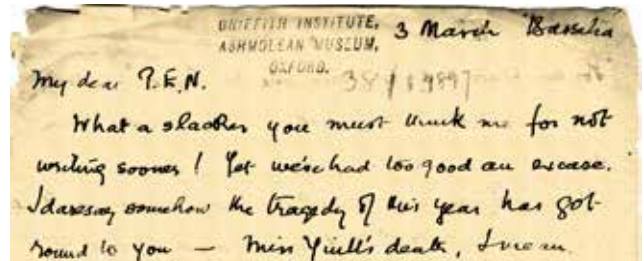
Sheep tales (p. 9) and Fort views (pp. 20–23)



An elephant sighting (p. 18)



Déjà vu! Another dwarf at HK6 (p. 7)



Death on the Nile (p.29)



A giant knife (p. 26)



Where is the beef? (p.7)



Return to HK64 (p. 28)