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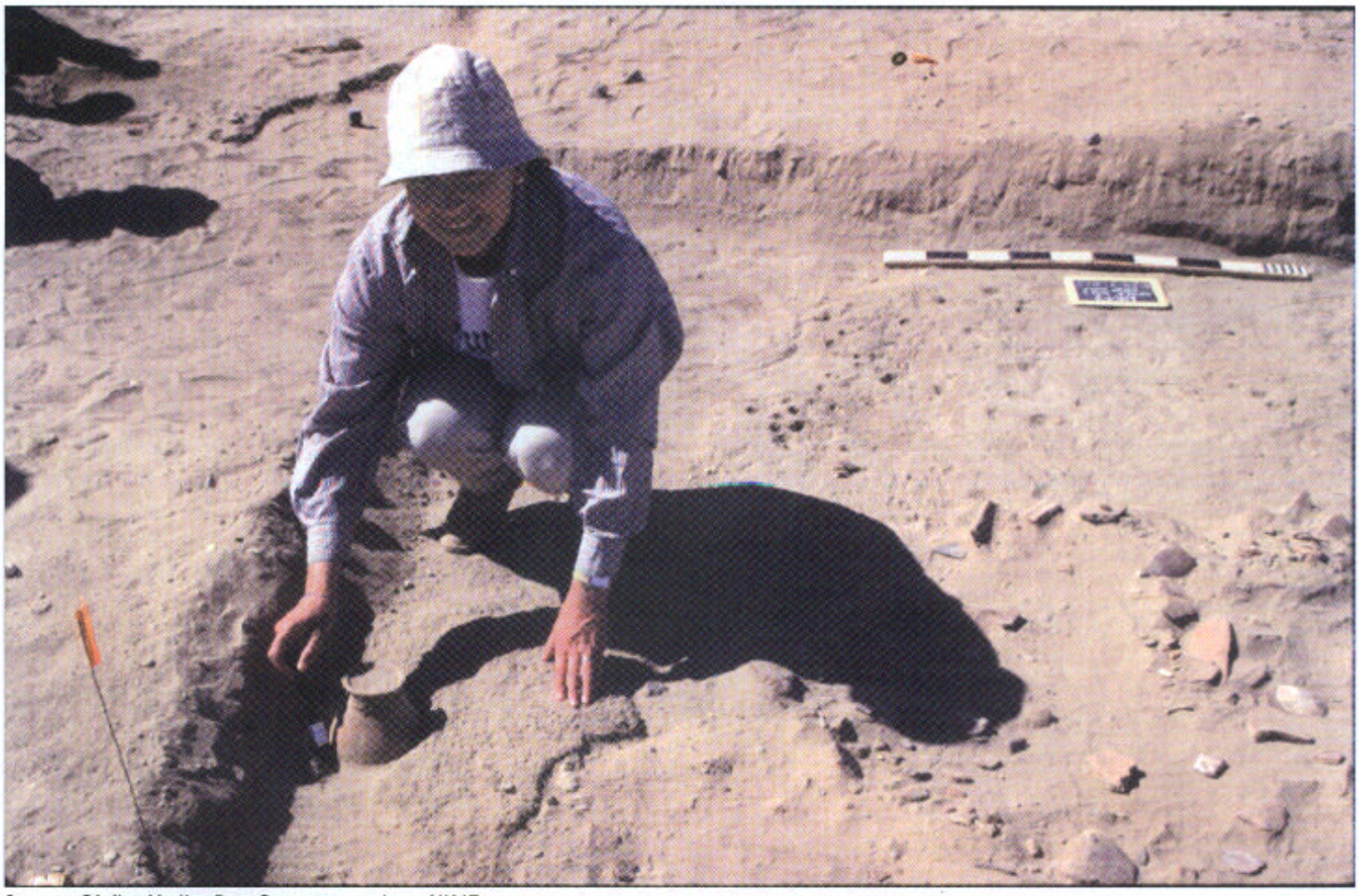

Serena Giuliani in the Pan Grave cemetery. HK47.

The Season of Surprises

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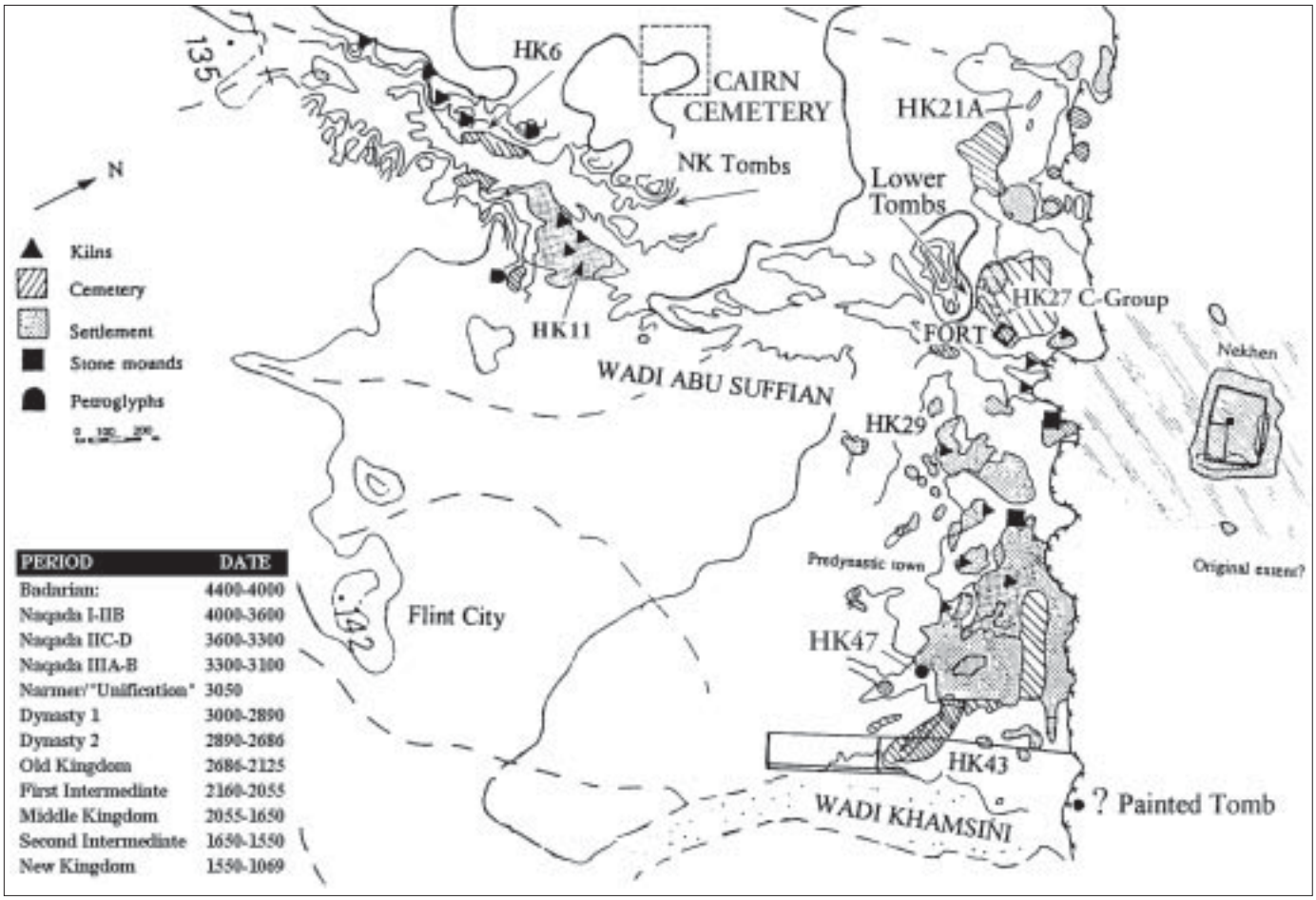
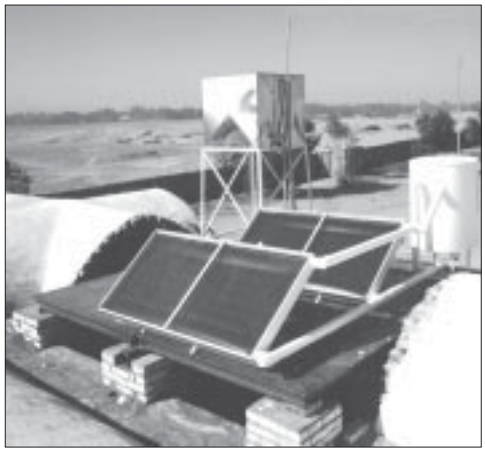


Acknowledgment

Fathy Abu Zeid, Director General of Edfu Antiquities

The members of the Hierakonpolis Expedition would like to extend sincere thanks to the Secretary General of the Supreme Council of Antiquities, Dr. Gaballa A. Gaballa, and the other members of the Permanent Committee for their kind permission to continue and expand our investigations. Our work would not be possible without the generous assistance of Fathy Abu Zeid, Director General of Edfu Antiquities, and our on-site inspectors, Adel Kalany and Osama Ismael Ahmed. We are grateful for their help in all aspects of this season's work and for their continuing efforts to protect the desert site of Hierakonpolis.



Solar hot water system.

Many many thanks to the Friends of Nekhen who made this possible. Your help is greatly appreciated !(See Hierakonpolis Home Page for further information.)

Tales of the Unexpected

—by Renée Friedman

Work at Hierakonpolis never fails to produce interesting discoveries, but the new and continued excavations, explorations, analysis, and conservation undertaken in the 2000/2001 season revealed new findings beyond even our (occasionally overambitious) expectations. From under the sand to under the microscope, amazing new things were found, the full ramifications of which we are only just beginning to understand.

As usual, Barbara Adams kicked off the season in November, 2000. While awaiting the publication of ESA4, *Excavations in the Locality 6 Cemetery at Hierakonpolis 1979-1985* (BAR 903), which came out in December 2000, she returned to the elite cemetery at Locality 6 with the very reasonable goal of finding more human remains. What she found instead casts a completely new light on the political, architectural, and sculptural history of Upper Egypt in the Naqada II period. Meanwhile, an afternoon's constitutional around the back wadis has led to the discovery of a previously unknown cemetery of mysterious cairns or tumuli, probably dating to the historic period.

Serena Giuliani examining a pot from the Pan Grave cemetery HK47.

In the second half of the season (January -March 2001), more of the historic side of Hierakonpolis was explored when we tested three known cemeteries with Nubian cultural traits dating to the Second Intermediate Period. To have three such cemeteries was already extraordinary, but when two turned out to belong to the Pan Grave people and the third to the Nubian C–Group, the northernmost evidence of this culture ever verified, it became a totally unprecedented discovery within Egypt.

Although the recovery of whole pots, beautiful beads, and an exquisite scarab was a hard act to follow, continued exploration into the Predynastic did not fail to impress. Excavation and examination have shed further light on the strange funerary practices as well as the lifestyle and very human concerns of the inhabitants of the working class cemetery at HK43. The results of the meticulous excavation in the domestic structure at HK11 complement the work in both this and the elite cemetery. As the specialists and experts work together on the wide range of material we have found at all of these sites, we are little by little getting an ever clearer view of the formative factors that led to the development of one of the world's most enduring civilizations.

It was all better than we could have hoped for, and even the tomb of Hormose, after three years of intensive conservation and recording, had more secrets to reveal. As each unexpected discovery was made, the buzz within the camp grew, as did the display we laid out for the many visitors we welcomed this season.

One unexpected guest was Phoebe the falcon, who, after an unfortunate encounter with the power lines, found a haven at the dig house while being nursed back to health by Helena Jaeschke of Barbara's team. Back in good flying form by December, she still comes to visit now and again.

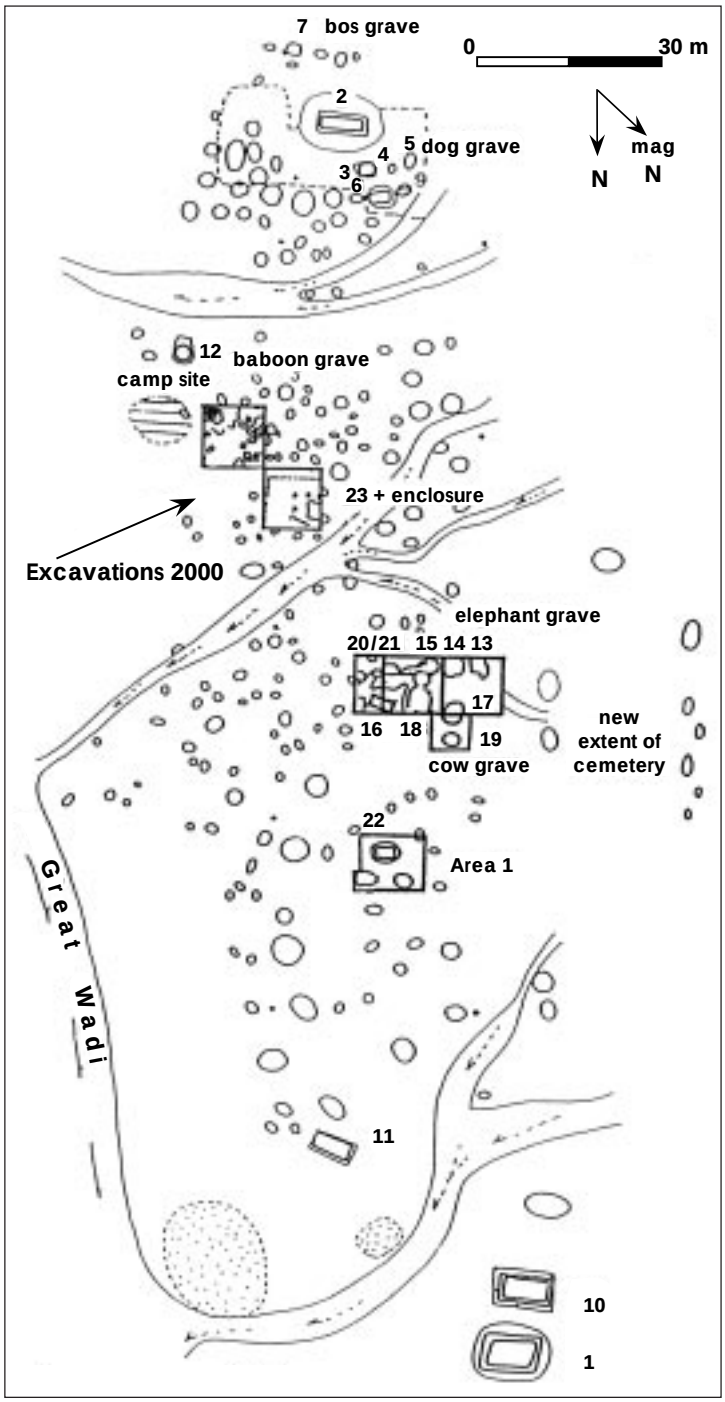
For helping to make the 2000/2001 season such an unexpected success, we are grateful to the British Academy and the Institute of Archaeology, University College London, who funded the excavations at Locality 6. Ethan Watrall's work at the Predynastic house at HK11 was in part funded by the William P. McHugh Award, a grant to young scholars pursuing Predynastic research, highlighted elsewhere in this issue. Many of the Hierakonpolis team members have been grateful recipients of this award over the years, and Bill McHugh himself was a veteran of excavations at Hierakonpolis

Donations from the Crow Canyon Archaeological Center, the Friends of the Petrie Museum, the Sussex College of Egyptology (the Narmer Palette Raffle) also made this season of field work possible and—at long last—allowed us to install the hot water system. Our thanks to Roger and Maissa Sanders as well for updating our First Aid kit, which we are pleased to report passed its "sell by" date without hardly ever being used. However, we reserve our greatest thanks for Dr. Raymond and Mrs. Beverly Sackler, Tom and Linda Heagy, the LaSalle National Bank, and our valued Friends of Nekhen, without whose continued support and encouragement we could never have come so far.

Locality 6 in 2000: Amazing revelations

—by Barbara Adams

Last year *(Nekhen News* 12) I wrote about a season of excavation at Locality 6 that closed a chapter on the central part of the necropolis. The results of excavation within a relatively small area in the centre of the cemetery in the 1997-99 seasons showed that there are separate and possibly mixed graves of humans and animals dating to Naqada I, an individual early Naqada II animal grave, and a much larger human grave dating to Naqada III. Flushed with the success of finding graves with a relative abundance of skeletal remains in this plundered cemetery, the 2000 season was planned, funded by the British Academy and the Institute of Archaeology, with the aim of discovering more such Naqada I and II graves in the southern part of the cemetery. Our working hypothesis was that the cemetery grew from this point in the south and then extended to the north where the Naqada III tombs are concentrated. If successful, we would add to the meager corpus of human remains from this cemetery and provide skeletal material from an elite population to compare with the working class people in the contemporary Predynastic cemetery at HK43.



Locality 6: the Potato Map.

Once again the team (including some new members Alvaro Figueiredo, Nicola Midgely, Gregory Gilbert, and Iain Ralston) had recourse to the site map produced by Carter Lupton in 1980, now affectionately termed the "potato map" because it plots the abundant oval craters all over the surface of the cemetery. Our excavation has shown that these ovals do not always turn out to be graves, but the map is still useful. The excavation squares were selected this season on the basis of the cemetery map combined with surface observation. From this we expected that the southernmost square would be disturbed by a later Early Dynastic campsite, which indeed proved to be the case, but that it might retain a few small Naqada I or II graves, which it did not. Our assumption that a sizeable depression in the square to the north diagonal would reveal a large grave proved true, but the other ovals, which we hoped would be the small graves containing the human or animal burials we were looking for, turned out to be something else entirely.

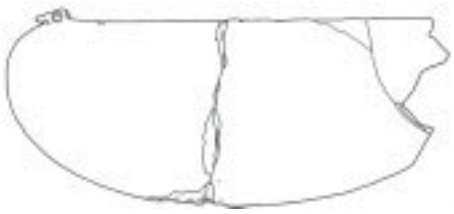
Remarkably, the 2000 season, fitting the advent of a new millennium as well as my twentieth year working at the site of Hierakonpolis, produced results that we could not have guessed at. We began work in the southern part of the south square, near an area that Michael Hoffman had identified as an Archaic campsite. Copious quantities of pottery sherds were lifted and at least three sequential charcoal hearths were found, located in almost the same spot but used at different times. The only flint sickle blade ever found in

this cemetery was discovered in a substratum of one hearth, thus emphasising its settlement (rather than funerary) character. Analysis of the campsite pottery, which includes beer jars datable to the reign of Qa'a, the last king of the First Dynasty (2890BC), and part of an orange streak-burnished pottery bowl, confirmed the First to Second Dynasty date that Michael had anticipated.

In contrast, the surface finds to the north and west of the campsite date to Naqada IC-IIA and include fine objects such as flint hollow-based arrowheads, ostrich eggshell fragments, a complete bifacial fishtail knife, and fragments of a porphyry macehead. Further investigation revealed a number of pits, some of which had been marked as grave ovals on the site map, but none of them are convincingly graves. On the western side of the square, wooden posts, sixteen in all, were found set in white sand, forming an east-west line.

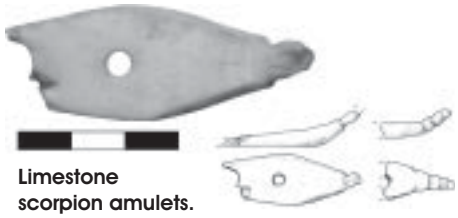
Fishtail knife.

We then concentrated on the excavation of the large tomb and the area around it in the north diagonal square. From previous experience, I expected this to contain a mudbrick-lined Naqada III grave that had cut into earlier Naqada I-II graves. When half of Tomb 23 was excavated however, there was nothing in or near it that could be dated to Naqada III and it was devoid of a mudbrick lining. All the pottery and other artefacts date to the middle Predynastic, Naqada IIAB in the relative dating scheme, or about 3600-3500BC, and what spectacular artefacts they are: a large greywacke cosmetic palette with a bird-head decoration, the first to be found in the cemetery; beautifully made bifacial flint arrowheads; calcite and limestone scorpion amulets; part of a pottery bed modelled in the shape of a cow, and delicate black-topped red pottery. Not only the objects, but also the size of Tomb 23 is unprecedented for its time. Only a longitudinal half of Tomb 23 has been excavated to its complete depth of 1.20m so far, but its width of 3.10m exceeds that of any known grave of its date from Egypt. Judging by the surface crater of the unexcavated half on the west, it will be at least 5m long. Before this, large rectangular tombs were only known from the Naqada IIC period in the decorated tomb cemetery at Hierakonpolis, where Tomb 100, the Decorated Tomb itself, was L: 4.5 x W: 2 x D: 1.5m, and Cemetery T at Naqada, where Tomb T5 was L: 4.0 x W: 2.80m. Three large wooden posts set close to its south and east side were found outside Tomb 23, which presumably were the supports for a superstructure raised over the tomb cavity.



Greywacke cosmetic palette from Tomb 23.

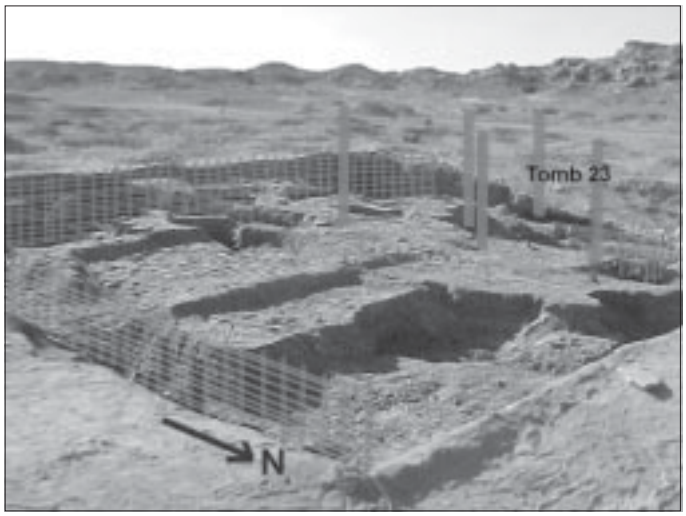
And these massive posts were not all the structural treasures around Tomb 23. The amazing revelation, never observed at any other site, is that this Naqada IIAB tomb is set in the earliest funerary complex yet discovered. Excavation south and east of Tomb 23 revealed trenches in which a line of evenly spaced wooden posts was set, forming a large enclosure around it. The longest extant section of this enclosure wall is 9m, running east-west. It then turns the corner and runs northward along the east side of the excavation square where it was burnt, most probably in antiquity. All indications suggest that the entire enclosure will be at least 9m wide and probably 18–20m long, forming a large rectangle around Tomb 23 when completely excavated.



Limestone scorpion amulets.

The preservation of the small posts forming this outer enclosure is good, and posts in the same spot at different levels indicate that it may have been repaired. One of the posts was still 56cm high. Their depths varied according to whether they were struck down onto the hard desert floor, or into softer sediments. Certain sections of the fence retain fragments of the twigs and the matting that formed the wattle that was attached to it, similar to the fence at HK11. Ahmed Fahmy has identified the posts as *Acacia* sp., with two posts identified as *Acacia raddiana* and another as *Acacia* cf. *nilotica*, and the matting as *Juncus* and *Phragmites australis*, all native Egyptian trees and reeds.

Even more tantalizing is the possibility that the puzzling posts in the south square could well be part of an even bigger enclosure wall. A study of the unexcavated pits marked on



Reconstruction of Tomb 23 enclosure.

the potato map suggests that it is just possible that this post line could continue along the south side and surround the entire complex! On a smaller scale is a sloping line of 14 small wooden posts excavated on the northeast side of Tomb 23. Michael Hoffman showed that the entrances to the post and wattle structures around the large, mudbrick-lined Naqada III tombs in this cemetery were located on the northeastern side of the tombs. The entrance to the enclosures around the tombs in the royal First Dynasty cemetery at Abydos is also situated here. If this is the first example of this architectural layout in a cemetery, then these posts are part of the entrance to the enclosure and further indications of this structure should be located just inside the square to the north.

As this amazing revelation sank into our consciousness, post by post, and we realized that we had discovered one of Egyptology's holy grails—the first funerary enclosure, presaging those set in brick and stone (most famously in the Step Pyramid)—an accumulation of another sort was taking place. Part of the process of digging in this robbed desert cemetery involves sieving all the sand to find artefacts and then bagging them by type. Further sorting and recording then takes place each day at the dig house, and it was there that we began to build a collection of worked limestone fragments that could not be related to any known type of Predynastic object.

By the close of the dig, 515 grey clastic limestone fragments, presumably imported into this sandstone area, had been collected from Tomb 23 and the surrounding area. Worked fragments and chips of stone such as these might have gone unnoticed in earlier excavations at major Predynastic cemeteries. In this case, however, their importance has been confirmed by the discovery in the northeastern part of the square of a sculptured, life-size human nose! (See color pages.) It is therefore most likely that all the fragments came from one life-size human sculpture. Helena Jaeschke, our conservator, has so far partially reconstructed two ears and made some joins among the other fragments, some of which bear angles and grooves that suggest they may be part of a stand or throne, so the figure may have been seated. The nose has nostrils similar to those of the pottery masks, clearly showing the drill holes at different angles, completely dissimilar to those on statues of later periods.

Helena Jaeschke piecing together limestone fragments

These discoveries also shift the debate about the relative importance of the elite cemeteries of Abydos and Hierakonpolis back in time a little. It has long been known that the cemetery at Abydos was extremely important just before and during the First Dynasty when it became the burial place of the kings of Egypt. Recent work by the German expedition directed by Günter Dreyer has shown the importance of the site at the beginning of the Naqada III period with the excavation of large mudbrick tombs in Cemetery U, including the spectacular multi-chambered Tomb U-j with its evidence for early writing. There has thus been discussion about whether Hierakonpolis or Abydos was the Predynastic capital of Upper Egypt during Naqada III and before. Further excavation in the early Predynastic portion of Cemetery U at Abydos has also uncovered many graves that contained important artefacts. These include red polished pots with hunting scenes depicted in white paint, prisoners being led in procession, and the earliest smiting scene. Figurines of animals and humans have also been found in Naqada IC-IIAB graves there, but so far no pottery masks, faunal graves, funerary enclosures, or stone sculpture.

Chert ibex.

Animals are also featured in another type of artefact characteristic of the Locality 6 cemetery: the fine bifacially knapped chert figurines. As a site, Hierakonpolis is particularly blessed with these fine objects, frequently found in museum collections labeled "unknown provenance" (see *Nekhen News* 12). Three intact examples have now been found in the cemetery, the first being the exquisite hippopotamus found on the surface by Hoffman not far from Tomb 1. The second is the head and neck of a giraffe that we found just to the south of Tomb 20/21 in 1999. The third, found this season, is an ibex with curved-back horn(s)—a surface find to the east of Tomb 23. Although grave robbing is the norm rather than the exception here, the fact that these carvings and other fine bifacial knives and fragments are most often found as surface discoveries that cannot be associated with graves suggests that they might have been used in the ceremonies which took place in the cemetery, rather than having been placed in the graves as funerary offerings.

The discoveries made so far suggest that the southern part

of the Locality 6 cemetery was a focal point for ceremonial activities and ancestral rituals celebrating the high status of the individuals interred in this cemetery during the formative stage of the Predynastic at Hierakonpolis. This serves to explain the special nature of the objects we have found within the inner and outer enclosures, including the intact fishtail knife, the precursor of the *peshes-kef* knife used in a ceremony at the graveside to "open the mouth" of the deceased. Scraps of human bone found in and to the east and southeast of Tomb 23 suggest that three individuals were originally buried in it. Interestingly, only animal bones were retrieved from the square to the southeast diagonal (except for one fragment of a human third metatarsal bone), a fact that surely relates to the differing function of the two areas. If the area to the south was part of the larger funerary enclosure as we postulate, the sacrifice of animals may have taken place within it at the time Tomb 23 was used (although it is possible that the cow, goat and dog bones could have been associated with the First Dynasty campsite). A partially burnt cow leg bone was found in the base of Tomb 23, the first indication of a possible funerary repast.

Never can an excavation that failed to achieve its seasonal research aims have ended with such a pleased and fulfilled director—I can hardly wait to get back to the site for another winter season late in 2001 to uncover the rest of the funerary complex. The likelihood that more stone sculpture fragments will be discovered, making possible the restoration of a statue that may have been set up to face the sun as it rises over the hills near the east side of the tomb within the sacred enclosure is also a most tantalising prospect.

A Wing and a Prayer

—by Helena Jaeschke

The first full day on site is always memorable as one clears the detritus from the surface and sees the area one is going to excavate. The first day at Locality 6, 7 November 2000, was made even more memorable by the unexpected arrival of the Horus of Nekhen at lunchtime. On the way to the excavations our foreman, Sidain, noticed something fluttering on the ground near the electricity pylons that march through the low desert to the cities of the north. He was surprised to discover an injured falcon, and managed to bundle it up with some string to keep it from injuring itself further.

Phoebe.

When we got back to Hoffman House, we gave the falcon emergency treatment of a crushed arnica tablet in some water through a clean pipette (conservation supplies are so useful). The left wing was badly broken, with bone protruding from the wound, and the middle toe of the right foot was almost severed. Shock seemed the biggest danger at this point, so the wounds were treated with calendula cream. The falcon was then wrapped with cotton bandage to keep the wing secure and placed in a comfortable cardboard box, where it sat, looking like a very irate mummy. Next day the bird was looking stronger and we managed to squirt a beaten egg down its beak. It's hard to say who was more astonished! We contacted local vets and the Edfu Clinic of the Brooke Animal Hospital but they all shied away from treating a bird.

Sidain again came up trumps and found a vet who occasionally treated turkeys. At the sight of the rather ferocious beak and talons his assistant left the building and refused to come back until we departed. However, after we taped the beak shut with micro-pore bandage and held the feet securely (with gloved hands), the vet was able to stitch the broken wing so that it would be able to set.

After that our guest, whom we tentatively identified as a female Lanner falcon and promptly christened Phoebe, spent several weeks convalescing in an airy bedroom made of palm branches so that her feet could keep muscle tone by gripping the bars.

Not having a refrigerator, we live on a meatless diet at Hierakonpolis, so special arrangements had to be made for Phoebe to receive a ration of chicken or beef every day. She cleaned chicken portions with a speed and efficiency that was amazing, tossing the spotless bones through the bars when finished. We removed the bandage daily and anointed her wounds with a cream the vet had provided. Despite our best efforts, the claw was too badly damaged to knit together and

Nicola caring for our injured guest.

was later removed. It was the middle claw, however, and the loss is unlikely to affect her ability to hunt or perch.

We later moved her to a large room so that she could rebuild her flying muscles. You could see her strength and confidence increasing daily and, after a day or two of hopping around, she essayed a few short flights.

Shortly before the end of the season we felt she was strong enough to try to return to the desert. The whole team paid her a farewell visit and then gravely opened the door and made way for her to leave. She walked outside and tested the breeze. She looked at the sky and flew up onto a wall. Local crows spotted her quickly and came to mob her. We dissuaded them with a few stones heaved in their direction. Phoebe seemed unconcerned. She flew to a nearby mound and inspected her surroundings. Shortly after that she took off towards the desert. We felt privileged to have been able to assist such a wonderful bird but were sad to lose contact with such an amazing character.

She has occasionally been seen since then, drifting over the house on her powerful wings and giving her high-pitched call. Sidain is sure she is waiting for more chicken.

It is wonderful to think that the falcons still watch over the ancient site that was dedicated in their honour.

Tales of Trash: Excavations at HK11

—by Ethan Watrall, Indiana University, Bloomington

Located at the mouth of the Great Wadi, Locality HK11 makes up one of the largest concentrations of relatively undisturbed Predynastic cultural activity on the Hierakonpolis concession. As readers of *Nekhen News* 12 will know, in 2000 we undertook a preliminary investigation of HK11 in an effort to understand better the Predynastic household and settlement patterns at Hierakonpolis. Based on the spectacular architectural discoveries in one 10x10m excavation unit, we were able to start seriously thinking about the household and its place in the larger Predynastic economic and cultural landscape in new and innovative ways. But this was only a beginning…

One of the main frustrations encountered during the 2000 excavation season was that only a limited area of the structural features, which included the remains of the intact post and woven reed fence, was actually uncovered. This posed an enormous problem because one of the most important sources of information for household archaeology is the actual shape and composition of the domestic structure.

Returning to the site in February 2001, our goal was to clarify further structural remains. To this end, two 5 x 5m excavation units were opened to the north and west of the main square (G) excavated in 2000. Through these new excavations, as well as some additional limited testing throughout square G, we hoped to determine the spatial and chronological relationship between the various features.

Uncovering the mat and post fence at HK11. The twine holding the mat to the posts was still in place.

Our success far exceeded our expectations. By careful and meticulous excavation, we were able to identify six distinct occupational and activity phases (designated Phase 1-6), which combine to form an overall picture of habitation spanning from the Naqada IC to IIB period, with later incidents of trash disposal in Naqada IIC. This is the first time that the stratification and phases of a house structure have been so clearly defined within the desert portion of Hierakonpolis. In addition, the first phase of the compound represents the earliest Predynastic domestic occupation so far found *in situ* anywhere within the desert at Hierakonpolis. Although detailed analysis of the variety of materials recovered is still in progress, preliminary observations indicate that the stratified remains of the HK11 structure bridge a period of significant technological and social change in Predynastic society.

Phase 1 represents the earliest evidence of occupation uncovered thus far at HK11, dated by pottery to the Naqada IC-IIA period. Evidence for this phase is comprised of a subrectangular house floor in which numerous domestic features were located. These features include an extensive wall trench that ran the length of the northern edge of the structure, postholes (most of which line up with the wall trench), a series of small circular features, which may represent postholes in which small, non-load bearing posts were placed, numerous pot emplacements, and a large stone-lined hearth.

Beyond the features directly associated with the Phase 1 floor, excavations in an adjacent square uncovered the upper and lower stones of a large ovoid quartzite grinder. This grinding stone is the first *in situ* artifact of its kind discovered during the excavations, and effectively creates an exciting link between the huge amount of botanical material recovered at HK11 and Predynastic subsistence behavior.

Phase 2 is primarily characterized by a large refuse pit that cuts directly into the habitation material of Phase 1. The pit fill is comprised of a relatively loose dark brown/grey sediment, in which a large amount of faunal remains, ceramics, lithics (debitage, cores, and tools), high amounts of charcoal, and botanical remains resided. This type of material suggests it originated in a domestic context, possibly from a nearby house, and was deposited after the Phase 1 structure was abandoned (apparently only for a short while). Because they served as a convenient and contained locale, abandoned houses were often used by nearby households to dispose of their trash.

Phase 3 represents the second major period of habitation and a major change in the architectural layout of the area. The miraculously preserved post and mat fence that runs across the entire southern side of the excavation units was constructed in this phase. Discovered last year, this fence line was cleared this season, revealing over 40 posts and lengthy sections of reed mat fencing still tied on with twine. The fence was coated on its exterior with mud. The continuation of the fence line to the south contained a deliberate gap that may possibly have served as an entrance to the compound.

Other features of the structure in Phase 3 include a hard-packed grey floor bordered on the west side by a wall trench that once held wooden posts, now reduced to only very light concentrations of wood fragments, and a rock-lined hearth surrounded by reddened soil and ash concentrations.

Unexpected was the discovery of a small copper needle and a finely-made copper fishhook. These items, although clearly used, were in good condition. Their discovery amongst the debris discarded on the floor suggests that copper was not as rare and valuable a metal in the middle Predynastic as originally thought. The fishhook is also of interest in conjunction with the number and variety of fish bones (discussed below) found at the site, currently some 4km from the river. They also provide an important indication of the range of subsistence activities in which one household engaged.

Copper needles and fish hook found discarded in the debris.

Phase 4 is represented by a significant trash disposal episode on the floor of the Phase 3 structure. Much of the debris was pushed up against the post and reed mat fence and need not necessarily indicate a period of abandonment, but rather shoddy housekeeping.

Phase 5 is characterized exclusively by a second hard-packed grey floor that was placed over the trash disposal event of the preceding phase; however, significant amounts of trash continued to be dumped beside the fence. This trash was heavily mixed with animal dung, suggesting that cattle and other domestic animals were kept in this part of the compound during this phase. Of particular interest was the discovery of a second copper needle mixed in with the refuse, along with several fragments of worked cedar wood (*Cedrus libani*, identified by Dr. Ahmed Fahmy). In some cases charred, the beveled ends and dowel holes on some suggest that these cedar fragments may have originated from a small wooden box that, when no longer valued, was broken up and burned as incense for fumigation.

The final phase identified during the 2001 excavations, Phase 6, is represented by a large refuse pit that was dug through Phases 1-5, all the way to the hard-packed Pleistocene Wadi sediment. The pit itself, some 86cm deep, was undoubtedly excavated after the abandonment of the Phase 3/4/5 structure and the ceramics within it date to the Naqada IIC period.

We could not have hoped for better results from this season's work. Not only do we now have a tantalizing spatial view into the household archaeology of the Predynastic period, we have a stratified, time-sensitive view as well. In addition, the artifact assemblage uncovered during the 2001 excavations is of outstanding importance for understanding household consumption and production in the larger Predynastic Hierakonpolis economic system. The discovery of imported materials such as copper and cedar suggests that households were far more integrated into the complex economic system than anticipated.

Ultimately, however exciting our discoveries to date may be, they need to be thought of as a small piece within the large puzzle that is HK11. We continue our investigations in order to find the missing pieces. Sadly, we must also continue our excavations so that no further information is lost to the ever-present dangers that threaten this unique site.

Phase 1at HK11: floor with wall trench and postholes. The hearth is right side, center.

The Home of the Giant Catfish

—by Salima Ikram, American University in Cairo

Narmer.

The excavations in the domestic structure at HK11 yielded, among many other things, finds of several fish bones coming from *Clarias* (catfish), *Synodontis*, *Tilapia* (St. Peter's fish), and *Lates* (Nile perch) species. Within this assemblage of bones, one of the most striking was the hyomandibular preoperculum quadrate complex (part of the head and jaw) of an enormous catfish (*Clarias* sp). It measured about 90mm, suggesting that the fish itself was over 1.5 metres in length. Several other bones of different catfish were also identified, including large portions of the distinctively textured, knobby dermocranial (head) bones, from fish that must have measured over a metre in length. Clearly, ancient Nekhen was the site of enormous catfish.

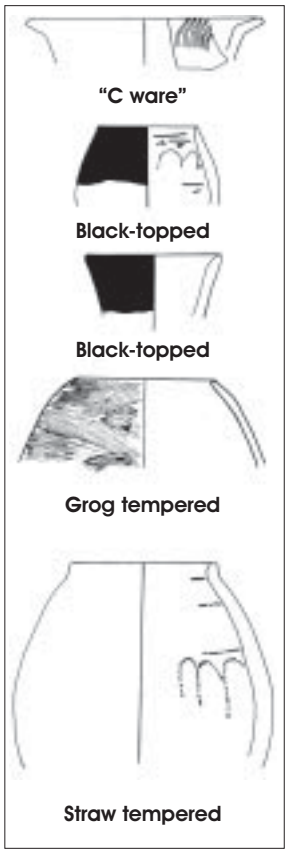
Catfish are known for their hardiness: their headbones, covered by bumps, are extremely hard and act as armour, their fins have sharp spines, and, due to their breathing mechanism, they can exist in muddy, stagnant water or almost no water at all. *Clarias* have been known to wriggle 200m or more from a disappearing body of water in order to reach another water source. They eat smaller fish, mollusks, and small crustaceans. The large individuals found at HK11 would have put up quite a fight for fishermen! No doubt these giant catfish were regarded as fierce, aggressive fighters with a strong instinct for survival; thus it is not surprising that Narmer, the noted warrior, would have included "catfish" in his name. Quite possibly, like the kings to follow him, Narmer had other names (possibly including Menes), but perhaps "Narmer" was his preferred moniker in Nekhen, home of the aggressive giant catfish, and it was this "pet" name that was most closely associated with him then as it is today.

Giant catfish bones recovered from HK11.

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

The Beginning of Consumer Society? Ceramics from HK11

—by Renée Friedman



Pottery from the early phase.

The pottery collected from the 2001 excavations at HK11 form potentially one of the most significant assemblages of ceramics ever excavated at Hierakonpolis. Within the stratified sample it is possible to see for the first time the gradual, but no less dramatic, transition in ceramic production and technology. This is the change from homemade production of cooking wares in a range of shale tempered and grog (ground potsherd) tempered fabrics to the mass production of straw tempered domestic pots by specialists. While this may seem but a minor change, it signals a major escalation in craft specialization within Predynastic society. It appears that the fine black-topped red wares were always acquired from specialist potters; nevertheless, the early Predynastic household was, for the most part, self-sufficient in its ability to produce what it really needed. When cooking pottery ceased to be made in the home, then society reached a new level of integration. This new level of interaction is also becoming evident in other aspects of the material culture at about the same time—the beginning of Naqada II. For example, see "Bound for Eternity" in this issue.

Pottery from the excavations was fully quantified by fabric and temper type with the assistance of Lamia El-Hadidy. All rims, bases, body sherds, and reused pieces were counted. The quantification reveals the gradual change in the composition of the assemblage. In the lowest levels of the excavation, the Phase 1 habitation, the assemblage is roughly divided into thirds with homemade shale tempered and grog tempered cooking pottery, fine black-topped and red polished table wares, straw tempered mixing bowls and storage jars more or less equally represented. This changes over time, as straw tempered pottery becomes more and more prevalent until it makes up over 85 percent of the assemblage in the Naqada IIC trash pit of Phase 6.

In the first phase of occupation the table wares take the form of red polished bowls of all sizes, carinated bowls, black-

Easy to make and easy to break: straw tempered sherds dominate the assemblage.

topped cylindrical beakers, and a few extremely fine jars. These forms, together with a ledge rim bowl of red polished pottery decorated with a series of lines in white pigment, an example of Petrie's C ware, suggest a date not later than Naqada IIA for this early assemblage.

In this early stage the straw tempered fabric appears to be used mainly for large forms: large storage jars and mixing bowls that would be difficult to create in other denser or coarser fabrics. There are also a few jars with a bag-shaped body. Soot found adhering to the exterior suggests that some were used for cooking; however, the majority of cooking pots were composed of shale or potsherd tempered pottery. These homemade vessels took the form of slightly restricted bowls with hard, wet-smoothed exteriors. The numerous mending holes found within the homemade wares suggest that these vessels were highly prized and even after they had broken, the sherds were shaped into a variety of tools—scrapers, lids, and squares of unknown function.

The shale temper fabric was also used to make large mixing bowls. Fragments of shale appear on the interior forming a hard surface for mixing or grinding. Although no doubt more difficult to make than the straw tempered vessels with their soft malleable temper, they were clearly more suited to this function. The hard exterior surfaces are less porous and the shale or grog temper also promotes thermal stability, allowing the pot to withstand differences in temperature without cracking for much longer than would a straw tempered vessel. Nevertheless, straw tempered cooking pots eventually prevail and the production of homemade cooking vessels ceases. Any homemade pots are probably relics by Phase 5 and almost all examples of this fabric are found among the reused sherds.

The straw tempered pots must have been very inexpensive, for as their proportional frequency increases, so does the amount of pottery in general. Easy to make and easy to break, straw tempered pottery in its many forms comes to dominate the assemblage, not just at HK11, but throughout the site of Hierakonpolis. Clearly, the potters, like the one who lived at the Burnt House at HK29, were on to a good thing.

HK43: Deeds of the Disturbers

—by Gabriel Wrobel, Indiana University, Bloomington

Excavations in the Predynastic cemetery HK43 during the 2001 field season continued to reveal curious cultural practices. All thirteen bodies, which were exhumed from ten graves (Burials 151-160) within an area measuring approximately 55m^2, had been disturbed to some extent. Seven of them were completely disarticulated. Of the remaining six that had some portions of the skeleton left intact, all had had their heads removed. Two of these heads were not recovered in the excavations and the rest were found in the disturbed grave fill above the bodies. After careful evaluation, it appears that these two patterns of grave disturbance are the result of two separate episodes during which the graves were reopened.

The cemetery is focused in an area of loose white sand. The steep slopes of the grave walls seem to have been maintained during the excavation of the burial pits by lining the sides with a wet mixture of sand and ash, typically found in house debris. The bodies were carefully placed in a flexed position on mats on the flat floor of the cylindrical pits, after which they were covered by reed mats and more of the sand and ash mix. Though the bodies can be as deep as 2m beneath the surface, even today their graves can be easily detected with minimal effort. After scraping away the first few centimeters of sand and small rocks that have been churned for centuries by the combined effect of foot traffic and wind, a deep layer of pure white sand emerges. Standing in stark contrast to this uniform white sheet are regularly spaced circles of darker grave fill, now often mixed with pieces of human bone or pottery fragments from the disturbed burials below. Whether or not perishable grave markers were used at the time of burial, the graves would have been easily located even after the markers were gone. In other words, the graves have always been easily accessible.

The presence of circular burial groupings in HK43 probably indicates that the cemetery was organized into discrete family plots. Sex and age distributions support this hypothesis, since all age groups and both sexes are represented. While there is a surprisingly low number of infants for a pre-industrial working class population, which can have infants representing a third to half of all deaths, this may point to the presence of an as yet undiscovered cemetery for infants, similar to the one found at the nearby site of El-Kab.

R. Sanders

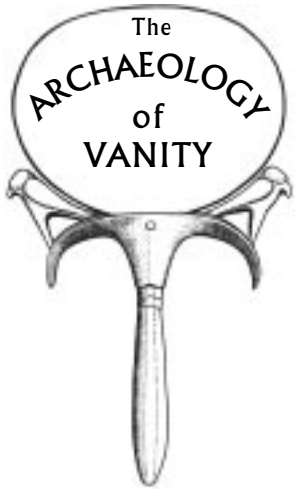
Sample of the "head snatchers" work.

The two distinct patterns of disturbance tell us that the graves were reopened in very different ways, presumably for different reasons. In the cases where only the heads were disturbed, obvious care was taken with the bodies. The intrusive holes were made small enough to exhume the head only so as to disturb the body as minimally as possible, despite the trouble this would cause in the loose sand. In one case, the intruders seem to have dug down at the wrong end of the grave, coming upon the feet and hips of the flexed burial. Instead of simply expanding the hole, the pit was filled and a small pit was dug in the other end of the grave to retrieve the head. Efforts to find the heads could be extremely precise. There are examples in which the head has been neatly removed, while delicate basketry and good stuffs remained untouched. However, they were often less than accurate, resulting in the disturbance of portions of the upper body. In these cases, the disturbed bones were neatly stacked at one end of the grave and carefully covered again. The purpose for this "head snatching" is unknown and is particularly bizarre because the heads were often left in the disturbed grave fill. However, it does seem that extreme care was taken with the remains, which suggests that the graves were reopened by individuals who were respectful of the dead. Perhaps they had known them in life or were related to them.

While this practice may be seen as evidence of visitation of the recently deceased by family members, the dry conditions of HK43 may have extended the decomposition of soft tissue considerably. The general accuracy of the intrusions to remove the heads indicates a familiarity with the cemetery that could only have come from the presence of grave markers (of which no traces remain) or by direct observation of the original interment. The exact relationship of this practice to that of cutting the throat as known from several previously discovered graves (*Nekhen News* 1999) remains to be determined; however, they are likely to be connected.

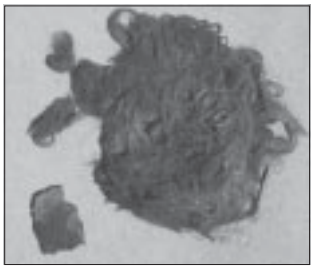
In the case of the completely disturbed graves, bones were scattered throughout the grave fill instead of being neatly piled and reburied at the bottom of the grave. Pots that had been included as grave goods were smashed and similarly scattered. None of the broken and scattered bones from these deposits are articulated, which indicates that there was no substantial soft tissue left on the bodies at the time of these disturbances. This by itself suggests that this intrusion occurred long after the original interment. Pottery and other evidence indicate that this type of disturbance took place at about 1000AD, though the impetus for these actions is a mystery. The extent and severity of the pillage resembles grave robbing, although it's difficult to imagine what the looters found in such a poor cemetery. Perhaps it was a superstitious act meant to clear the area of spirits—or simply the efforts of curious children.

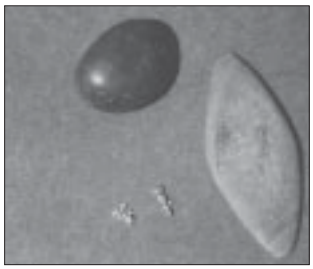
Other cemeteries at Hierakonpolis have been looted in modern times for items to sell in the antiquities trade, a desecration that the cemetery at HK43 has been spared for the most part, thus allowing us to ponder the strange deeds of the disturbers some five and a half millennia ago.



—by Renée Friedman

Looking one's best for the afterlife was a high priority for the ladies of Predynastic Hierakonpolis who were buried at HK43. Henna dyes, hair extensions, and carefully arranged curls were all featured beauty treatments. Men, too, shared the desire to look good, as the well-trimmed beard from Burial 54 showed (see *Nekhen News* 1998). But even more revealing was the discovery made during this year's excavation of Burial 154. Although disturbed, this double burial contained the bones of a subadult along with those of an older man, who apparently was somewhat follicly challenged and was not happy about it. This only became clear at the end of the season when the mass of wavy brown animal hair, either sheep or goat, which had been found at the edge of the grave, was carefully examined. Around the edges on the underside were darker, straighter strands of hair, apparently human, with bits of scalp adhering. These strands, it would seem, served to secure the animal hair to the head. In other words, he had a toupee!


Egypt's oldest toupee?


Cosmetic palette, rubbing stone, and malachite.

Vanity didn't stop here. This season's work at HK43 also produced the first cosmetic palette to be discovered in this cemetery, found in the grave of a young man who died between 16-20 years of age. The small, diamond-shaped slab of greywacke is decorated with two raised bands at one end. It was heavily used on one side for grinding cosmetics, probably malachite (a green copper oxide), fragments of which were found in the same grave. A smooth river pebble, like that found in Burial 157, may have been used for this purpose.

Vanity is obviously of some antiquity—one is never too old to look one's best!—and the excavations at HK43 are making it clear that it wasn't restricted to women alone.

Bound for Eternity: Examination of the Textiles from HK43

—by Jana Jones, Macquarie University, Sydney

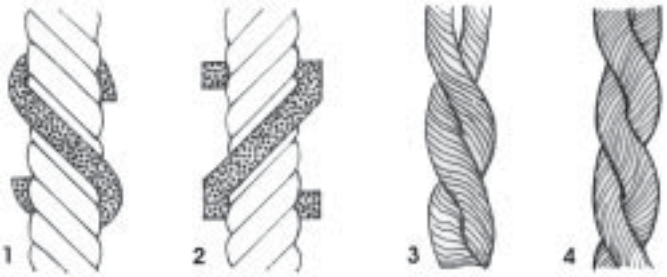
The textile evidence from Hierakonpolis represents one of the most exciting corpora of early material to become available for analysis by modern scientific techniques. Great opportunities to further our knowledge of early Egyptian textiles have largely been missed in the past. Predynastic sites with comparable material were excavated during the late 19th and early 20th centuries but the textile remains were inadequately studied and recorded. So, after almost a year's exchange of photographs and emails with Renée, it was with unbridled excitement that in March 2001 I finally came "face to face" with Paddy, the Mudira, and the other unnamed females in the HK43 cemetery, who had been so carefully wrapped for their interment. Together with fragments of textile and yarn from the rubbish dumps of the almost contemporaneous settlement area (HK11), these samples are providing intriguing new evidence for technological development in this early period.

The difficulties encountered in hauling 30kg of microscope around Egypt (on one occasion, seven hours by train—third class!) were forgotten when the pads of textile from the mummies were examined. It was clear that these thick pads consisted of multiple layers of linen of different qualities, soaked in molten resin and firmly wrapped around the various parts of the body, consistent with later mummification practices (see color pages). It was possible to distinguish a thin layer of light reddish-brown resin applied directly to the blackened skin before the bodies were wrapped with the saturated bandages, seemingly covering a mat of fungal growth on the body surface.

The resin-impregnated textiles were in an extremely fragile condition, completely desiccated and powdery. Many were in the process of degradation. Attempts to humidify and delaminate the compacted layers in order to determine the number of layers and analyze the various weaves were unsuccessful. It was also impossible to separate the resin-impregnated threads into ultimate (individual) fibres to prepare slides for fibre identification by transmitted light microscopy. Although the outer structure of the threads appeared intact, the internal structure of the fibre had disintegrated, and the microstructure had virtually disappeared. However, the outer wrappings or shrouds contained only traces of resin or none at all, and examination in brightfield and crossed polars established that the fibre used in the production of these textiles was flax. Further microscopic examination of some of the better preserved inner and outer layers of the pads also provided information on the direction of the spin, diameter of threads, and density of the weave.

J. Reid

Jana Jones at her microscope.



Left to right:
1=S-spun thread, 2=Z-spun thread, 3=two-ply thread S-spun and S-twisted, 4=two-ply thread Z-spun and S-twisted.

S-spin refers to a spin direction that follows the central bar of the letter "S", while a Z-spin follows the direction of the central bar of the letter "Z".

Generally the finer textiles were against the body, the coarser on the outside. The threads were predominantly single, S-spun (clockwise rotation), with some two-plied (doubled), threads. The plied threads were S-spun and S-twisted. Thread diameters range from fine to medium (0.15 to 0.3mm) and the angle of the spin ranges from loose to tight. The weave is plain, or tabby, with a thread count in the ratio of 1:1 (warp to weft), typical of Predynastic textiles. There is a variety of densities, from loose, open weaves of 21 x 25 threads per square centimetre to tight weaves of 18 x 25 threads per square centimetre (see color pages). These counts are surprisingly high for such early textiles. Very few weaving faults are evident.

The significance of the spin direction of the threads lies in what they can tell us about technological innovation and the development of the textile industry. The oldest preserved example of woven linen in Egypt comes from one of the very earliest settlements, that of Fayum A (c. 5000 BC). Analysis of this piece reveals a technique that is probably in an early, experimental stage, which is perhaps not surprising, given its age. It is loosely woven from threads that are spun in a Z direction; that is, they are twisted from right to left. These threads are then plied, or doubled, probably to increase their strength, with an S-twist (left to right). However, a textile recently recovered from Cemetery U at Abydos shows no change of technique at the end of the Naqada I period (c. 3600 BC). It has been suggested that these early yarns were simply rolled by hand, unlike the later S-spun yarns, which

were produced with a drop spindle.

At some stage during the Predynastic period a change occurred in the direction of the spin from Z to S. Because the S direction is the natural rotation of flax fibre when it is drying, yarn spun in this direction is stronger and finer, and therefore does not need plying (or doubling) to increase its strength. The S direction of the spin distinguishes Egyptian textiles from those of the rest of the world, throughout the Dynastic period and beyond. The outstanding question has remained when exactly was the S-spin developed and adopted. We may now be closer to answering that question.

Fragments of well-preserved, clean, woven textile and scraps of spun yarn discarded in the rubbish at HK11 are particularly informative. Unlike the textiles from the cemetery, these contained numerous two-plied threads. The discovery that one of these fragments was woven from a combination of single, S-spun threads *and* Z-spun threads plied with an S-twist was especially exciting. Another fragment appears to have been woven entirely of two-plied threads, using Z-spun, S-twisted and S-spun, S-twisted threads. This latter piece is tightly crumpled, and will be humidified and unfolded next season to verify these observations. The fibre from these fragments was also identified as flax, well-prepared and processed.

This evidence from HK11 suggests that the spinners and weavers of Hierakonpolis at the very beginning of the Naqada II period were in the midst of a technological change—a transitional stage when the early technique of yarn preparation was being superseded. Significantly, the textiles so far examined from the Predynastic cemetery at HK43 (Naqada IIB) are all produced from yarns spun by the new method, and are considerably finer than the examples from the settlement site. The working class inhabitants appear to have used only their best to prepare the deceased for the journey to the afterlife. Further excavation and investigation may also reveal what impact the changing textile production methods had on the development of these first mummies.

I am extremely grateful to Mr. Ron Oldfield, Senior Research Fellow, Department of Biological Sciences, Macquarie University, who has spent many hours enlightening me on the mysteries of the microscope.

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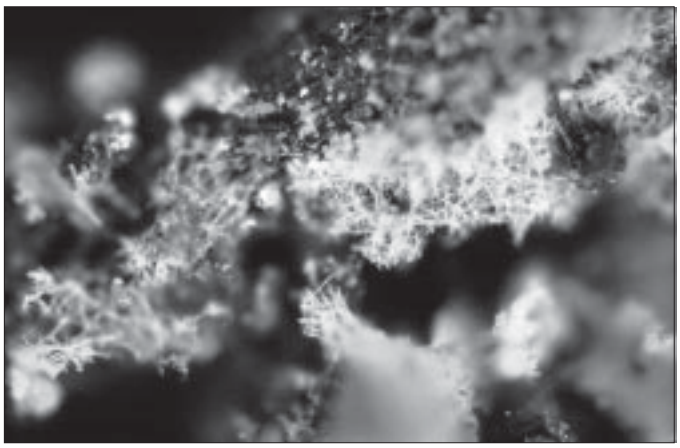
renee.f@virgin.net.

Something New out of Something Old

—by Jana Jones and Ron Oldfield, Macquarie University, Sydney

The undisturbed graves as revealed in cemetery HK43 at Hierakonpolis are an excellent source for helping us understand the mummification rituals of 5600 years ago. Although the major interest is in the condition and treatment of the human remains, the textiles that were used for body-wrapping are themselves an area of intense investigation. In the past there has been a tendency to discard these wrappings as worthless scraps, but researchers from Sydney, Australia, have subjected the fragments of material to searching microscopic examination. Through a little-used technique known as darkfield epi-illumination, in which light is directed at highly oblique angles to the surface of the textiles, some barely discernible whitish fragments appear to be fossilized remnants of fungal hyphae. These are the threadlike branching filaments that make up the furry growth as observed on rotting fruit or on cheese well past its prime. When present on the textile, the hyphae are confined to the innermost layer of the body-wrapping material. A heavy presence of resin is also especially noticeable.

Further study is planned with electron microscope and molecular techniques to establish the identity and origin of the fungal growth. Is it of human or textile origin? If the observations are confirmed, and the fungus identified, there is a potential to increase our understanding of the mummification process of these early times. For example, if human, we may be able to determine the time between death and wrapping. We do not know of any other observation of this type of fungal growth. Who knows what we might learn by examining Dynastic mummy-wrappings in the same way?



Fossilized filamentous forms interpreted by the authors as ancient fungal hyphae. The hyphae are held in place by heavily resinated textile fibres. HK43, Burial 16.

Join the Friends of Nekhen and help us continue making these exciting discoveries.

Buried in her Bark Pyjamas

—by Rowena Gale (Honorary Research Associate, Royal Botanic Gardens, Kew) and Renée Friedman

Among many interesting graves discovered during the 1998 excavations at HK43 was the intact burial of an older woman (Burial 120) who had sustained a fatal blow to the left side of her head (*Nekhen News* 1998). Carefully cleaned and prepared, she was laid in her grave with hands crossed over her chest. In addition, she was covered with a fibrous organic material, orange in color, which the excavator, Gail MacKinnon, likened to bark pyjamas. Botanical analysis has confirmed that her pyjamas are composed of tree bark, but it is the identity of the tree from which the bark derives that is the real surprise. Although these results are still preliminary and pending further tests, it looks as if we may have yet another first for Hierakonpolis: the first material evidence for frankincense or myrrh in Egypt.

Burial 120 in her bark pyjamas.

The woody material is extremely degraded and difficult to examine; however it is aromatic and rich in resin and/or gum-resin that is clearly visible macroscopically. Most of the material consists of bark, which includes abundant large secretary cells (producing the resinous substance) scattered throughout the cortical tissues and, apart from the periderm (corky bark cells) and small groups of phloem fibres, few other diagnostic features have survived. The resin/gum-resin has infiltrated into the neighbouring structures, thereby obscuring cellular details. As far as it goes, the structure matches that of bark from *Boswellia* (frankincense) and *Commiphora* (myrrh), both of which are members of the family Burseraceae. The arrangement of the groups of fibres in a discontinuous concentric band may suggest *Boswellia* as the more likely, since in some species of *Commiphora* the fibres form a continuous cylinder. However, it is impossible to attribute the sample to either genus with certainty at this time.

The sample was compared both macroscopically and microscopically to reference material of species of *Boswellia* and *Commiphora* held in the Centre for Economic Botany and in the Jodrell Laboratory at the Royal Botanic Gardens, Kew. It was evident from the Kew specimens of *B. frereana, B. carteri* and *C. myrrha* that the amount of resin produced was very variable even within the same species. Although there were few diagnostic features to work with, it was possible to rule out some of the other resinous plants used in ancient Egypt. These included broadleaf species such as *Liquidamber*, a large tree, shrubby *Pistacia* (pistachio) and *Cistus* (labdanum), and the herbaceuous plant *Opopanax* (opopanax). The conifers, e.g., *Cedrus* (cedar), *Cupressus* (cypress), *Juniperus (*juniper), *Pinus* (pine) and *Picea* (spruce), can also be ruled out based on the cellular structure visible in longitudinal section. In our material the structure consists of narrow vessels and fibres, the former being considerably wider than the latter. This arrangement is consistent with that of broad-leaved species and does not conform to that of conifer wood, which is basically composed of axial tracheids. Although these features are insufficient for positive identification of either frankincense or myrrh, they are still consistent with the structure of both. It is hoped that chemical tests on the resin/gum-resin exuding from the bark cells may pinpoint the identification.

Leafy shoot of the frankincense tree, *Boswellia sacra*.

The frankincense species *Boswellia frereana* and *B. carteri* (now both synonymous with *B. sacra* and *B. papyrifera*) are multi-stemmed bush-like trees growing to about 13m in height in valleys but are smaller when on rocky slopes. These species occur in arid, but seasonally moist, regions of Somalia, Arabia, Ethiopia, and Sudan. The resin, a pale exudate, is tapped from slits in the peeling papery bark. Since ancient times frankincense has had religious and ritual uses; however, its actual presence in Dynastic Egypt is yet to be proven scientifically. A sample from a 5th Century AD context at Kasr Ibrim is the only documented example known to date.

C. myrrha is a shrub with a thorny trunk, growing to about 2m in height in semi-desert in Somalia and the Yemen. The reddish resin is tapped from the bark.

Certain ancient Egyptian words, particularly *senetjer* and *'antyw*, mentioned in numerous texts from Old Kingdom times onward, are believed to refer to resinous substances used as incense. Attempts to determine the botanical identity of the plants to which these terms refer have been on going for a number of years but success has so far been limited. While recent scientific analysis has suggested that *senetjer* may refer to *Pistacia* resin, as identified in several archaeological samples, the depiction at the temple of Deir el Bahari of the importation of frankincense and myrrh

Myrrh, *Commiphora myrrha*.

plants from Punt by Queen Hatshepsut demonstrates the knowledge and status of these trees.

The apparent use of incense-laden bark in a burial at Hierakonpolis suggests that the properties of these plants and their products were recognised and valued already in the Predynastic period. This early example of the actual tree parts, not just the resin, should it be proven to be frankincense, clearly has wide-ranging ramifications. It may suggest that the climate in Predynastic Egypt at about 3600BC was quite different and this tree did indeed grow locally, or it could be important evidence of far-flung trade patterns at this early time. It may also help determine the location of the almost mythical land of Punt.

It is interesting as well to note that objects covered with bark held special significance to the Egyptians in later periods. The strange circumstances surrounding the death of the woman in Burial 120 and the extraordinary care shown in her burial suggests that she was indeed of special significance. What exactly that was, of course, remains a mystery.

We are grateful to the Director of the Royal Botanic Gardens, Kew, for allowing access to the collection of reference slides in the Micromorphology Section, Jodrell Laboratory and the museum collection in the Centre for Economic Botany.

Frankincense or myrrh trees being transported to Egypt. Hatshepsut's Temple, Deir el Bahari. (From N. Hepper, 1992. *Illustrated Encyclopedia of Bible Plants*, p.136.

Articulate Articulations: The Bones Tell the Tale

—by Nora L. Denton, University of Alaska, Fairbanks

In the past few decades it has become possible to determine habitual human behaviors from skeletal remains. This is due to the ever-increasing research in the areas of degenerative joint diseases, muscle attachment site changes, and long bone shaft geometry, also known as robusticity. Although sample sizes are small at present, excavations at HK43, the working class cemetery, are beginning to produce enough complete remains to allow this type of research at Hierakonpolis. My attempt to reconstruct Predynastic behavior at Hierakonpolis using osteological markers began in February 2001, with two weeks of on-site data collection.

Data pertaining to osteological markers were divided into three classes: osteoarthritic changes, general robusticity, and muscle attachment evaluation. Degenerative joint changes were examined for four features: porosity, lipping, osteophyte development, and eburnation (or the rubbing of bone on bone). Also recorded was the extent of the joint surface that was effected by the changes. Four joints were considered: shoulder, elbow, hip and knee. The bone surfaces of each joint and muscle origin and insertion sites were each evaluated separately. This study included ten upper body muscles, and ten lower body muscles. Robusticity was evaluated by a series of metric measurements on the humerus (upper arm), femur and tibia (upper and lower leg). For the present study seventy burials were examined, and thirty-six met the criteria of having at least two intact long bones. The thirty-six burials contained twenty-three females and thirteen males.

Before examination of the remains, a series of variables was selected and used to create data collection sheets. Osteoarthritis, also called degenerative joint disease (DJD), is a deterioration of the cartilage that protects bone in joints. Degenerative changes were scored using a modified version of *Standards* (J. E. Buikstra and D. H. Ubelaker, eds., 1994). This is a document that allows each researcher to measure bones in the same way so that populations can be compared. Muscle attachment sites were recorded using a modified method created by Dr. Diane Hawkey *(Use of Upper Extremity Enthesopathies to Indicate Habitual Activity Patterns*, Arizona State University, 1988). These collection methods will allow the HK43 sample to be compared with other excavations at Hierakonpolis and regional sites, as well as other human populations throughout the world that used similar economic practices.

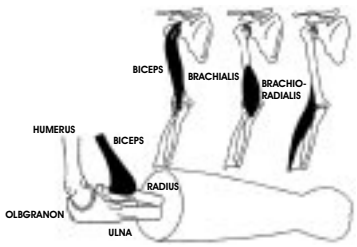
In general, women showed a characteristic pattern of osteoarthritis, muscle attachment, and robusticity. On the upper body the muscles that controlled fine motor movement were more robust. On the lower body the adductor muscles

were often very robust. These markers may be linked to several activities. Holding a grinding stone between the knees while grinding grain might be one explanation for the lower body muscle development. The spinning of thread and weaving of cloth might explain the upper body musculature. These and other potential activities will be considered when the data are evaluated.

Men generally exhibited different and distinct patterns. Upper body muscles that were involved with lifting and carrying were well developed. There are several possible explanations for these patterns. For example, irrigation using a *shaduf* might result in the characteristic patterns observed. A *shaduf* is a simple machine that raises water from the Nile to the higher levels of the fields. It consists of a pole that is weighted on one end by a stone, or a dry lump of mud. At the other end is a bucket. The combination of the weighted end and manual labor raises the bucket to a higher level to be emptied into an irrigation canal or a cistern. Other agriculturally related activities to be considered include tilling the soil and harvesting. These are only examples, and in no way exhaust the possibilities that will be considered during analysis.

There were also some interesting anomalies. A small set (n=4) of very young women, preadult to 20 years of age, exhibited porotic lesions on their shoulder and hip joint surfaces, but had none of the other symptoms of degenerative diseases, such as lipping, osteophyte development or eburnation. In addition, their muscle attachment included characteristics of both the typical female and typical male patterns. A groove, called a preauricular sulcus, suggests that one of them (a subadult, 16-19 years of age) had given birth.

From a biological anthropologist's point of view, we have not scratched the surface of what these people can tell us. Further work at HK43 will allow us to conduct a temporal study of the working class population. We may be able to identify specific changes in behavioral practices that correlate to the momentous changes taking place in the society at this time. Closer observation may also permit us to make distinctions among persons of differing status by specific activity. The research at Hierakonpolis is vital. Each year the excavations add a little bit more to the understanding of this growing settlement. The work that goes on here is essential to our understanding of how we came to live in large sedentary groups, and the political and religious structures that allowed that process to occur.



Muscles of the elbow.

Health at Hierakonpolis: A Mortality Profile of HK43

—by Jeanette Matovich, University of Alaska, Fairbanks

In February 2001, I spent two weeks at Hierakonpolis examining the skeletal material from HK43. My goal was to interpret the overall health of the Predynastic population buried at HK43, based on skeletal stress markers. The study focused on ten characteristics that are exhibited on or derived from skeletal remains, which included stature, linear enamel hypoplasia (LEH), cribra orbitalia (CO), porotic hyperostosis (PH), trauma, dental caries, and degenerative joint disease (DJD). Pathologies were rare and included abscesses of the teeth, periodontal disease, and an unknown condition that results in curvature of the leg bones (tibiae, femora and fibulae). These characteristics are markers of nutritional and physical stress. Sex and age of the individuals were also recorded.

Data was collected and scored according to conventional osteological methods. Of approximately seventy-five relatively complete skeletons, fifty-two were examined. Of these, sixteen were male, twenty-seven were female and nine were scored as "unknown." Most of the unknown individuals were children and subadults whose secondary sex characteristics, such as pelvis shape, had not yet developed.

The mode height range for mature females was 5'1–5'4 (n=20) and the mode height range for mature males 5'5–5'8 (n=10). Height has not been estimated for children and subadults as yet. Complete long bones were measured by using an osteometric board, a handy contraption that resembles a miniature vice. A bone is placed in this vice, and a ruler positioned on the board's base gives a reading of the bone's length (if the ends of the bones are missing, the length may be cautiously estimated by the researcher). The resulting measurements are then entered into a regression statistic, which produces a height range for that individual. Reliable weight ranges have not yet been established.

Porotic hyperostosis (PH) and cribra orbitalia (CO) are pathologies that appear on the skull in response to red blood cell disorders, or anemias. Anemias are caused by a variety of conditions, including dietary deficiencies, diseases, and parasitic infections. The typical skeletal responses to chronic anemias are similar, making the diagnosis of a specific disorder difficult. An increased production of red blood cells causes swelling of the bone marrow and porosity of exterior bone. The skull is especially useful in identifying the presence of anemia because the bone walls are relatively thin and it is easy to see how the interior "spongy" bone of the cranium has thickened while the outer bone becomes very thin. The exposed sponge-like bone creates porous patches on the skull and these lesions may be scored according to their severity. An individual may be thought to have mild PH if the "holes"

continued on page 20

continued on page 20

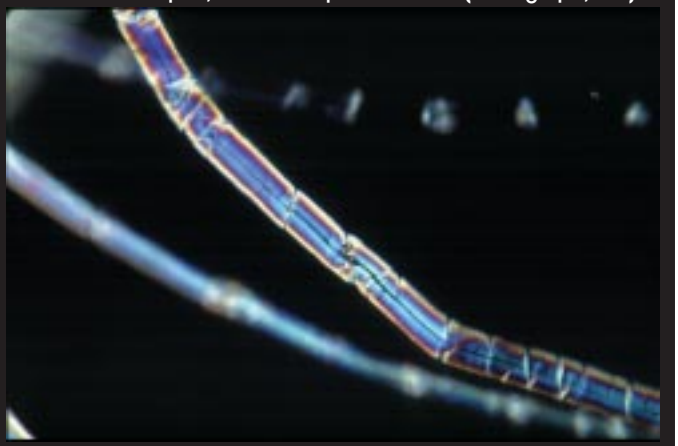
1. Resin-impregnated layers of linen textile, with bone and blackened tissue adhering. HK43, Burial 16. (5x enlargement)

2. Loosely woven, resin-impregnated textile from inner layers of wrappings of Burial 16. (10x enlargement)

3. Tightly woven, coarser textile from outer layers of the same pad from Burial 16. (10x enlargement)

4. Linen textile from HK11, woven from a combination of S-spun single threads and Z-spun, S-twisted 2-plied threads. (Micrograph, 12x)

5. Detail of a 2-plied thread, Z-spun and S-plied, from HK11. (Micrograph darkfield, 25x enlargement)



6. Flax ultimate fibre, with fine central lumen and X-shaped dislocations characteristic of flax. HK11. (Micrograph in crossed polars, 400x)

J. Rossiter

Scarab from C-Group cemetery.

J. Rossiter

The woven bead pattern on the leather bag from HK47.

Buried in her bark pyjamas, HK43 Burial 120.

J. Rossiter

Spouted jar and drinking cup with turtle potmark found in C-Group Burial 2B.

R. Sanders

Beads from the Nubian cemeteries restrung based on the original patterns.

Mat and Post fence with the twine still in place. HK11.

Uncovering the pots in the offering deposits in the C-Group cemetery.

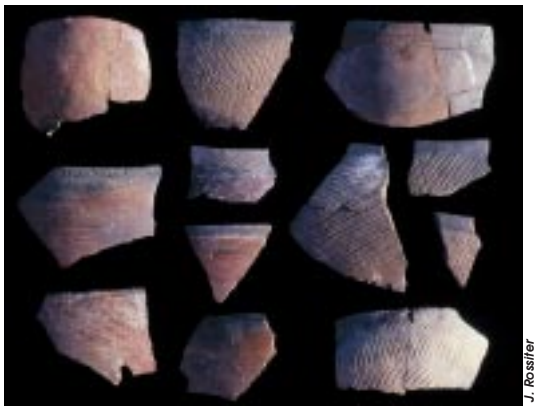
Garnet bracelet from Burial 10, HK47.

Jar and leather pillow (?) from offering deposit at HK47.

The panther on the ceiling, Tomb of Hormose.

Nose and ear of limestone statue, HK6.

Note the bits of scalp adhering to the wavy mass of animal hair, presumably used as a toupee, found in Burial 154 HK43.



J. Rossiter

Pan Grave pottery.

continued from page 17

are small and finely scattered. Holes that are large and concentrated, and create more obvious lesions, may indicate moderate to severe PH.

PH and CO are differentiated by their location on the skull. PH appears on the cranium, while CO appears on the roof of the orbits, or eye sockets. Varying forms of PH and CO were observed on many of the HK43 individuals. Typically, these stress markers were very mild and appeared to be healing in the adults. As of yet, occurrences of CO and PO do not appear to correlate with age or sex.

The dentitions of twenty-seven individuals showed evidence of dental caries, or tooth decay. Most of the cavities were small and occurred in the grooves of the molar crowns. Cavities were observed more frequently in younger adults as their teeth were less worn, although severe decay and abscesses were noted in older adults with moderate dental wear. Possible periodontal disease was noted in nineteen individuals.

The presence of linear enamel hypoplasia (LEH) may be identified by transverse grooves across the surface of the teeth. LEH is an interruption of enamel formation due to general environmental stress, like disease and malnutrition. Twelve individuals showed between one and four hypoplastic grooves. Multiple LEH lines may be related to seasonal periods of stress. Future research will emphasize possible metabolic stressors associated with the occurrence of LEH in the HK43 sample.

There was relatively little evidence for pathology and trauma. Amy Maish likewise noted a low incidence of pathology and trauma (see *Nekhen News* 10, 1998). Healed fractures were observed in two individuals, and the bones affected were an ulna and a radius. Two others displayed curved leg bones. One showed distorted femora and tibiae, and one showed a bowed fibula. The shape of the fibula in particular appears similar to that seen in individuals affected by rickets. Lack of exposure to sunlight and subsequent malabsorptian of vitamin D are the principle causes of rickets. However, it must be emphasized that lack of sunlight was certainly not the cause of bone deformation in the HK43 sample. Congenital conditions, disease, severe malnutrition, and chronic bacterial infections also result in varying forms of bone curvature. Interestingly, the two individuals who exhibited bowed leg bones also showed presence of LEH. The causes of these disorders are unknown, but possible factors may emerge once the Hierakonpolitans' diet, diseases and lifestyles are better understood.

The majority of HK43 individuals appear to be fairly young and in good health. *How* they died still remains a mystery. Whatever caused their death is not immediately apparent from their skeletal remains, but it is hoped that the present research will instead contribute to the growing knowledge about the quality of their lives.

A Tale of Hope

—by Renée Friedman

In May 2001 an important "Workshop on the High Water Table in Antiquity Areas" took place in Luxor. The damaging effects of land reclamation and the consequent rise in ground water come in a variety of forms. At Hierakonpolis, where the ambitious Wadi Sayidda land reclamation project is underway, the damage is quite different but no less disastrous from the more obvious and publicized salt infiltration eating away at Egypt's monumental stone temples.

I addressed the workshop on the impact of agriculture on the Predynastic cemetery at HK43. Thanks to the dedication of the Edfu Inspectorate, the immediate danger to this cemetery has been halted and the borders of the concession are relatively secure, but we can only watch in despair as the once arid desert all around us is prepared for cultivation and planted with water intensive crops. It is only a matter of time before the disastrous results of rising ground water will be obvious at a number of places throughout the site.

It is not just archaeology that is suffering. Drainage water from the Wadi Sayyida Project is already having its effect on the villages in the cultivated plain, where the ground is so wet that the mudbrick houses are actually melting. To alleviate this situation, the government began the construction of a deep canal to capture and divert the ground water. The only problem was that its proposed course was right through the middle of HK43 and Hierakonpolis' Predynastic town!

This conference provided an opportunity for archaeologists and administrators to meet for a much-needed exchange of information—just in the nick of time. I was able to arrange a visit to Hierakonpolis with representatives of the land reclamation, irrigation, agriculture, and culture ministries, and once the situation was explained, a solution was found. By moving the canal (requiring an extension of 1km) to the western edge of the concession where antiquities are much sparser, both the villages and the archaeological remains will be protected.

It is rare for such stories to have a happy ending, but let us hope that with the kind of understanding and communication fostered by the Luxor workshop, solutions, or at least compromises, can be found that will satisfy the needs of both archaeology and Egypt's growing population.

A more extensive discussion of the Luxor workshop will appear in the Egyptian Archaeology *19, the bulletin of the Egypt Exploration Society. I thank Ray Johnson for putting me in contact with Dr. Jane Gleason, who invited me to attend the workshop. We are deeply grateful to her and to Dr. Ahmed el-Behery for their interest, assistance, and unflagging belief that there can be hope at Hierakonpolis.*

The Secret of the Gebel

—by Iain Ralston

A fresh chapter is about to be opened in the history of the great city of Hierakonpolis with the discovery of a new cemetery. The burials, consisting of cairns, are unique in the area and are reminiscent of the great tumulus burial fields of the Sudan. With the recent investigation of the Pan Grave and C-Group burials, indicative of a Nubian presence, one wonders at this stage, if they could possibly be connected.

Who would have believed that late on a hot November afternoon, dirt-laden from a hard day's work, a newcomer to the team would stumble across such an exciting new find? It all started when I was chosen to accompany Barbara Adams to help excavate in the elite cemetery at HK6. On occasion, when free from other duties, I would take advantage of the last two to three hours of daylight to explore the vicinity around the dig house, our joyful home of two months. On one of my exploratory "walkabouts," I took the 20-minute walk over the desert to the hills where the New Kingdom tombs are located. From here the gebel range stretches in a northwesterly direction, forming a series of peaks before fizzling out into comparatively small and somewhat insignificant looking hills.

Over the following weeks I made numerous visits to the gebel, systematically exploring along its length. On ascending one of the last of the smaller hills, I came upon my first cairn burial, later numbered C.1, located on a small ridge approximately halfway up the south face. On closer examination, I found the disturbed skeletal remains of its occupant lying to one side together with a large quantity of textile fragments, possibly from mummy wrappings or the burial shroud. More cairns were encountered as I walked around the area. These cairns, previously undetected, required further investigation, but given the limited time available I concentrated my efforts on conducting a preliminary survey of the cemetery in order to establish its extent and make it easier to relocate in the future.

My preliminary survey commenced at the end of the dig season between periods of packing and closing up camp. On 8 December at 7:30 a.m., I arrived on the summit of the small hill overlooking the cemetery, which by that time had been named affectionately "Gebel Ralston." Here I proceeded to establish my temporary benchmark. From there, using a magnetic compass, a 30m tape, and a few marker flags, I was able to collect sufficient coordinates to allow me to plot the relative positions of the cairns later onto paper. A total of twenty cairns were plotted in this manner, though several more may be present. The true scale of the cemetery is difficult to ascertain due to the difficulty in distinguishing badly damaged man-made cairns from the naturally occurring stone clusters that are common in the area. For that reason, only cairns that fitted strict criteria were plotted: those that were 1) still sufficiently intact to be unmistakably man-made; 2) had evidence of an internal burial chamber or trough; or 3) had associated human bone and/or potsherds. Unfortunately, the small quantity of potsherds was nondiagnostic and has not yet provided us with a date for the cairns. The survey showed that there are four main topographical areas where cairns cluster, covering a fairly wide area of desert to the northwest (see site map on page 2).

Iain inspecting a cairn.

The internal structure of the cairns appears in the main to consist of a burial chamber constructed from large blocks of stone, either naturally split or cut by man, laid side by side to form a rectangular recess, or, alternatively, a trough cut into a protruding bedrock prominence. This chamber/trough feature was then evidently covered over to form the cairn, using whatever stone was closest at hand.

In January 2002 I shall return to the cairn cemetery. It is hoped that the excavation of one or two (or maybe more) of these mysterious cairns will enlighten us about the internal burial arrangements beneath them, and provide information about their date and the cultural affiliation of those that built them.

Excavating in the Nubian Cemeteries

—by Renée Friedman

Portrait of a Pan Grave warrior.

Site surveys undertaken by Michael Hoffman in 1978 and Fred Harlan in 1983 revealed not only interesting facets of the Predynastic occupation, but also the presence of three discrete cemeteries with Nubian cultural traits. The three cemeteries are widely spaced (see map). The cemeteries at HK47 and HK21A are located on opposite sides of the concession, while HK27 is found in the center, near the Fort.

We initially thought that all three cemeteries belonged to the mysterious Pan Grave culture, which was first identified by Petrie (AKA the father of Egyptian prehistory). At Diospolis Parva (north of Luxor), in addition to finding important Predynastic sites, he also found two cemeteries of these strange people, previously mistaken for Predynastic as they too used black-topped pottery. He coined the name Pan Grave because of their shallow round burial that he thought looked like frying pans, and indeed he was correct—some do! Pan Grave cemeteries were subsequently found in a number of sites in Egypt, and their distinctive pottery has a wide distribution throughout Egypt, Sudan, and into Ethiopia; yet these people remain a mystery. It is not quite clear who they were, although it does seem that they were semi-nomadic Nubian people, who can be equated with the people the Ancient Egyptians called the Medjay—fierce Nubian bowmen who served as mercenary soldiers in the Theban war of liberation against the Hyksos.

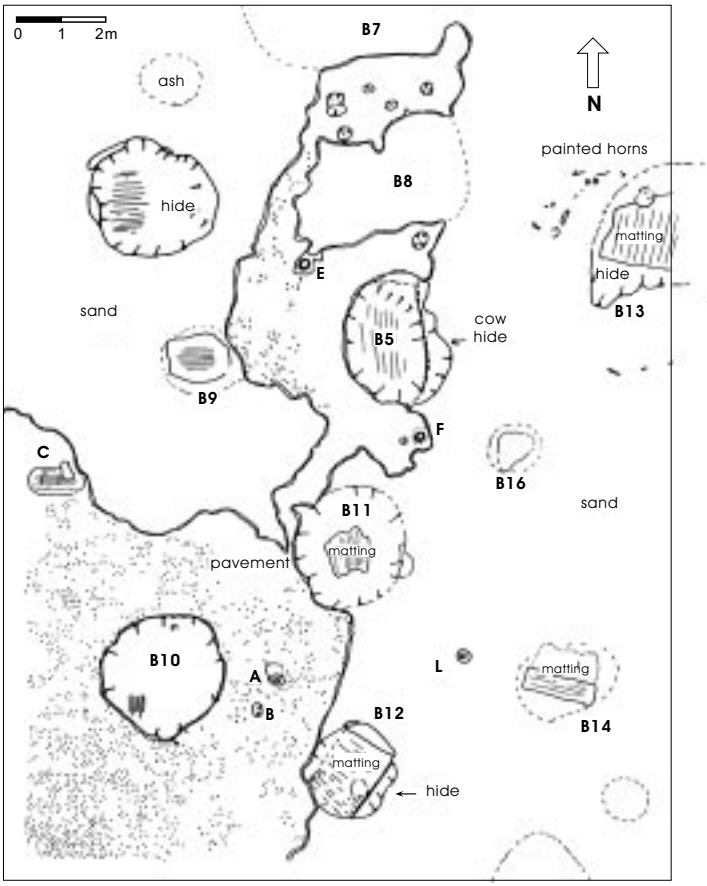
Despite this rather rich documentary history, the Pan Grave culture appears suddenly near the end of the Middle Kingdom and disappears just as quickly with the beginning of the 18th Dynasty, a period of about 150 years encompassing the Second Intermediate Period. Where exactly they came from, and where they went remains an unsolved mystery—did they assimilate into Egyptian culture or did they simply go home? While in Egypt, were they mobile troops making the rounds of Egypt, or were they settled guardians at strategic sites?

These are just some of the questions that Italian scholar Serena Giuliani is trying to answer for her dissertation; a task that is not easy, based on excavations undertaken over 80 years ago, with incomplete records, and finds distributed all over the world. Clearly new excavations were required, so we agreed to help out in January-February 2001 with test excavations in each of our Nubian localities. These excavations were undertaken by Renee Friedman with the assistance of Serena Giuliani, Andrew Bednarski, Gillian Pyke, Ethan Watrall and Osama Ismael Ahmed.

Excavating a hide-lined Pan Grave at HK47. The wavy line is cow hide.

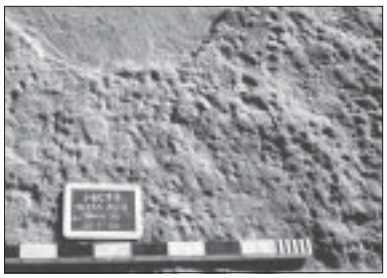
At the Pan Grave cemetery at HK21A, excavations revealed six shallow, pan-like graves. While Pan Grave pottery, most of extremely fine quality, was found on the surface, all of the graves were essentially empty. Clearly this cemetery had been extensively plundered, but our disappointment was soon forgotten when we began work on the opposite side of the site, at HK47.

The cemetery at HK47 was dug into a sandy rise, about 200m away from the Predynastic cemetery at HK43. Here,



Excavated section of Pan Grave cemetery, HK47.

even as we were stringing out the square, quantities of characteristic beads and pot sherds were observed. In fact, our excavations were so successful and the amount of material recovered was so great that the full 10x10m square could not be completed in the time allotted for the investigation.



The pavement at HK47 with the mourners' fingerprints preserved .

The graves were dug deeply into dry white sand, thus preserving hide, leather, and matting. In places, this sand was covered by a natural layer of Nile silt about 20cm thick. This silt served as a pavement around the graves, on which Pan Grave people left their fingerprints (often in sets of four fingers, no thumb) and the impressions of baskets and other funerary offerings. They also dug a number of small holes into it, in which they deposited pottery (see cover) Within one of these holes (feature E) an Egyptian beer jar was found intact with the cloth straining bag still inside. With this jar was a decorated leather bag filled with reeds, perhaps meant to be a pillow.

J. Rossiter

The bead making kit once held in a leather bag (feature A).

Another Egyptian jar was found placed within a thick deposit of ash on top of the pavement (feature A). Next to this small marl jar was a leather bag containing a kit for making carnelian beads, which included a flint core for making microdrills, several polishing stones and a number of carnelian cobbles. The leather of the bag itself had deteriorated badly; however, we were fortunate to recover the band of woven beads that once adorned it. White, blue, and dark blue faience beads were used to create an intricate diamond pattern, which appears to have been one favored by Nubian people. (See color pages.) Thanks to modern consolidants, we were able to recover the entire band of beads still in position by using several coatings of Paraloid B72 in acetone—a delicate task not made any easier by the blowing, gale force winds!

Pots were not the only things deposited around the graves. On a more poignant note, infants and toddlers were also placed within or beside the grave superstructures, which were composed of mounds of potsherds. In one case, we found the desiccated remains of a small child within a basket beside a tomb—we initially thought it was a food offering until we noticed it was dressed in a pleated garment.

The burials themselves have been extensively and repeatedly plundered. Nevertheless, we were successful in finding unexpected new information about Pan Grave funerary practices and ritual. Most of the burials were about 1m in diameter at their base and lined with two pieces of carefully cut cowhide, the hairy side inward. Upon this hide was laid a leather-edged reed mat and the body, which must have been

Well preserved hide and mat lining of a Pan grave.

tightly contracted, was placed upon this mat. A layer of ash from the burning of goat dung was deposited either below the hide or below the matting, perhaps as part of a purification ritual.

Despite the disturbance, many graves still contained a great deal of decorated leather, often dyed red and occasionally decorated with leather tassels. We also found sandals and elaborately woven fringed cloth. Weapons were also recovered, including arrow-shafts with the trimmed feather fletching remarkably still in place.

Feather fletching on arrows.

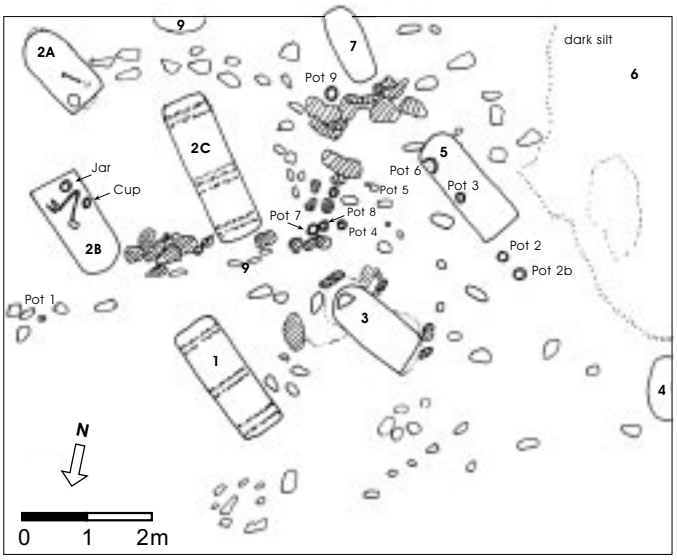
The numerous beads were studied with infinite care. The recovery of many lengths of beads still on their original string allowed Maissa Sanders to restring the loose beads based on original patterns into several beautiful necklaces. Another exciting discovery was a garnet bracelet still on its original string in Burial 10. This was lifted intact after consolidation.

Examination by physical anthropologists shows that the people interred here were young, between seventeen and twenty-five at time of death, mostly men of over average Egyptian stature, (171–180cm; 5'6"-5'9"), with strong muscle attachments in their legs as one might expect of military bowmen. They must have been impressive, colorfully adorned

with tasseled leather garments, fringed kilts, and bespangled with beads at neck, arms, wrist, and ankle.

But what was their relationship to the site? Were they mobile troops, mercenaries, or resident guardians? The number of children interred in discrete graves suggests that the population included family groups living here on at least a semipermanent basis. Additional clues were provided by the comparison with the unexpected remains at HK27.

The excavations at HK27 truly are tales of the unexpected. Our first surprise was the exquisite scarab found on the first day (see color pages). Our second revelation was that this cemetery actually belonged to the Nubian C-Group. This was indeed a surprise as C-Group presence in Egypt has long been considered limited to the Aswan region and southward.



Excavated section of C-Group cemetery, HK27.

From uncertain origins, the C-Group people appear during the late Old Kingdom as the inhabitants of Lower Nubia and archaeological evidence of them is clear into part of the 18th Dynasty, when they disappear or become so Egyptianized that their burials are no longer distinguishable. This Egyptianization is a process that can be traced throughout their history, and the degree to which they picked up Egyptian traits has actually been used as a means of relative dating.

The C-Group cemetery at Hierakonpolis is one of the last in existence as the rest are now beneath the waters of Lake Nasser. Our latest surprise is of considerable importance for that reason alone, but it will also allow us to investigate the process of assimilation in the face of a dominant culture from the historical perspective, a concept with certain relevance today.

The C-Group cemetery is located on a low but prominent rise between the Fort and a lower group of rock cut tombs (see back cover). Unlike the Pan Graves, this cemetery is in a place of some prestige. Seven graves were excavated in the short time available. They were of two types: most of the graves were oval with one squared end, about 1.5m long and 50cm deep, in which the owner was buried in the traditional contracted position on their right side, facing river north, but we also discovered two long rectangular graves (L: c. 2m W: 80cm, D: 50cm), in which the owners had been buried within wooden coffins. Cuttings were made into the floors of the graves to accommodate the external wooden cross planks of the coffins, and fragments of degraded wood, some still covered with white plaster, were found within these furrows. Both graves were completely plundered, so we have no evidence to determine whether this Egyptian style of burial also included laying the body out in Egyptian extended style as well. Perhaps it's only a coincidence that the occupants of both were (fashion conscious?) teenagers.


J. Rossiter
C-Group grave for a coffin burial.

Despite Egyptian influences, the amount of stone strewn throughout the area suggests that a traditional Nubian tumulus, a rubble-filled stone ring, covered most of the graves. These superstructures became the focus for traditional offerings of Nubian pottery, many of which were discovered remarkably intact, rim down covering the libation just as they had been deposited.

Yet, within the graves, what little pottery we have found is of Egyptian manufacture and includes a large spouted jar


A C-Group grave of the traditional type.

and a drinking cup with an ink potmark of a turtle. Also of Egyptian make is the beautiful glazed steatite scarab which was found in conjunction with ostrich eggshell and faience beads still on their original string, thus providing us with evidence of the original pattern.

The size of the cemetery and the orderly arrangement of the graves suggest that there might be over one hundred graves here. This indicates that there was a sizable population of Nubians at Hierakonpolis. The finds, even after severe plundering, show that these people had access to a certain level of wealth to be able to afford wooden coffins, scarabs, and so forth, yet they retained their Nubian burial practices and ceramic technology.

Comparison of the Pan Grave and C-Group cemeteries shows many differences in burial practices, grave goods, and physical remains. All three cemeteries are dated to roughly the same time period—the early Second Intermediate Period, making them some of the earliest dated cemeteries of their type. The C-Group cemetery at Hierakonpolis is the northernmost one now known. In New Kingdom times, Hierakonpolis was administered as part of Nubia under the control of the Viceroy of Kush. The reason for its inclusion in the land of Nubia may well have been because of this sizable and varied Nubian population. As work continues we hope to understand more fully the relations between the different Nubian people and their place within Hierakonpolis and, indeed, all of Egypt.

The turtle cup.

For a more in-depth look at the Nubian cemeteries at Hierakonpolis, see Sudan & Nubia *5 (2001), the journal for members of the Sudan Archaeological Research Society. For more information, email sars@thebritishmuseum.ac.uk or write to The Honorary Secretary, SARS, Dept. of Ancient Egypt and Sudan, British Museum, London WC1B 3DG England.*

R. Sanders

Maissa Sanders stringing beads.

Adornment, Circa 1700BC

—by Maissa Sanders

Since time immemorial, jewelry has been an answer to the profound human need for self -adornment, and thus is one of the oldest forms of decoration and self-expression. Wide ranging evidence suggests that there was an eruption of symbolic expression between 33,000 and 12,000 years ago. Our developing capacities and cognitive powers aided in making cultural objects and this extended human talent to creating objects for personal adornment.

A wide range of raw materials for making beads had been available for centuries, including organic elements such as shells, seeds, and bones. In Africa, some of the earliest known beads, disc-shaped beads made of ostrich eggshell, were found in Haua Fteah in Libya dating to c. 10,000BC.

Mother of Pearl plaque beads with original leather thong.

Faience, the most characteristic of all ancient Egyptian bead making materials, was already used in the Badarian period (c. 4000BC). This man-made material is a glazed composition consisting of a sandy core and powdered quartz with a vitreous alkaline glaze on its surface and is considered to be the forerunner of glass.

Even though it is clear that from the earliest times materials were fashioned to "beautify" the human form, the recent finds at HK47 tell us for certain the exact elements used by the Pan Grave people, and in which format they were used.

Having been a jewelry designer for many years (in addition to my other vocations), I had secretly hoped that I might encounter some jewelry while at Hierakonpolis. I could not have been happier when Renee delegated bead-related tasks to me!

Prior to my involvement, the beads had been grouped by site and burial. My first task was to photograph and catalogue each discrete collection by type, shape, size and count. The majority of the beads were made of ostrich eggshell, faience, and a black stone (obsidian?). There were also rare beads of orange and red carnelian. In addition, the Pan Grave people produced very characteristic armlets formed from rectangular plaques of mother of pearl pierced at the top and bottom and strung together in a palisade arrangement with a leather thong.

Several lengths of beads were found still on their original string, providing a vignette of the original stringing designs. All of these lengths were left intact. However, to re-create some of the original pieces, loose beads were restrung, closely conforming to the ancient patterns. To do so, the loose beads were first cleaned by soaking them briefly in distilled water and gently brushing them with a very soft brush. They were then left to air dry.

Next came the thrilling experience of designing and stringing several necklaces and bracelets. Holding in my hands such delicate elements, which someone had lovingly used to create things of beauty some thirty-seven centuries ago, was indeed a privilege. I marveled at the use of materials and at the symmetry of the beads. I wondered about the tools the ancients must have used to generate such perfectly shaped beads in so many varying sizes, some even as small as the head of a straight pin!

Creating new pieces, replicating the ancient patterns was my most exciting and rewarding activity. Pan Grave necklaces were apparently formed from a single string of beads. Although Pan Grave patterns did not include spacers, different colored beads were used to punctuate the simple dichromic designs. Quite frequently the necklaces were fashioned of ostrich eggshell, with faience or black beads as accents.

As a designer of modern jewelry, I admire their ability to create so many patterns and designs utilizing only a few different elements. But what I think is truly remarkable is the fact that those ancient patterns are still stylish, fashionable, and remain in vogue to this day.

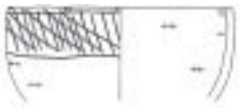
Pottery from the Nubian Cemeteries

—by Serena Giuliani, Istituto Universitario Orientale, Naples

Pan Grave pottery.

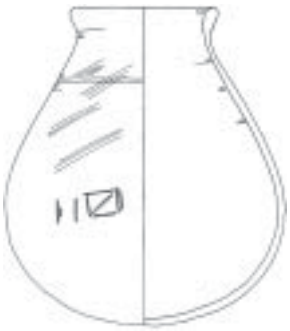
Hierakonpolis' Nubian cemeteries are amongst the most interesting finds in the field of Nubian Culture studies in recent times. To finally have a chance to open new excavations in Pan Grave and C-Group cemeteries after so many years is very exciting. Moreover, the remains at Hierakonpolis provide an opportunity to study cemeteries of these two similar yet distinct Nubian cultures simultaneously.

It has been hypothesized that the Pan Grave culture was strongly linked to the Egyptian state, which used these people in the armies as mercenaries or as "police/guards" in the mining areas of the desert. This population, despite the quantity of evidence, has rarely been the subject of in-depth research. Until now, the studies carried out have more or less referred to specific sites and single findings, and no overall comparative analysis has focused on the social and economic structures of this culture. The material from Hierakonpolis will form an important base from which to launch a re-examination of all available data on the Pan Grave culture, in order to understand, at least partially, its development, its social models, and the economic and political relations it had with the Egyptian state and co-existing Nubian cultures.



Typical Pan Grave pottery.

Pan Grave pottery with impressions and incisions.



Marl C jar from HK47.

The cemetery at HK47 was heavily plundered; notwithstanding, it revealed an extraordinary richness and provided a large quantity of Nubian and Egyptian pottery from the graves and the surface. More than 150 hand-made Nubian rims and body sherds were recovered, most of which could be reconstructed on paper. All of the principle Nubian "surface treatments" are present: black-topped, black burnished, red burnished, and uncoated. The black-topped and uncoated wares were the most common, the red and black burnished wares were sporadic.

This pottery is particularly interesting for the number of unique decorative patterns observed. In addition to the common Pan Grave criss-cross incised pattern, there were new patterns combining incised and impressed decoration, rare elsewhere but frequent in the Hierakonpolis area. Further study of this may confirm a strong cultural dynamism, highlighting the uniqueness of each Pan Grave necropolis.

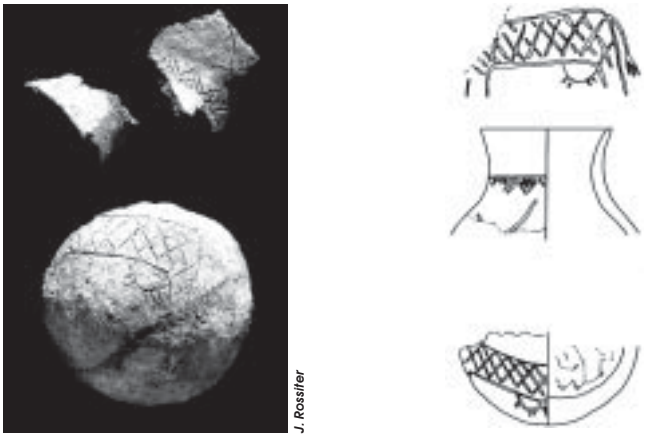
Egyptian pottery was present in quite minor amounts in the Pan Grave sites, but is particularly notable within the offering places. It is also interesting to point out the presence of a few Egyptian jars made of Marl C2 (according to the Vienna System). Vessels of this type and fabric have a long history in the northern part of Egypt where they were produced. They are completely absent in the C-Group cemetery and further excavation is required before we can determine whether these vessels indicate that the Pan Grave people had special contact with the northern part of the country or whether the lack of such vessels in the C-Group cemetery is of chronological significance.

The C-Group cemetery of Hierakonpolis is the northernmost occurrence of this culture in Egypt. This very important discovery will lead us to a new interpretation of this culture. In fact, the limited excavations have already revealed characteristics that seem to differ from the chronological and typological divisions generally proposed for this culture.

The prevalent Egyptian pottery at HK27 allows us to suggest a tentative date for this cemetery ranging from the end of the 12th to the middle of the 13th Dynasty. The Egyptian and Nubian pottery traditions are easily distinguished by different production technologies, decorative techniques, surface treatments, and raw materials. Nubian pottery is exclusively handmade from Nile clay.

C-Group black incised.

Several black-topped ware bowls typical of the C-Group culture were found, as well as a small "milk-jar" with an incised motif showing a cow and calf, confirming the cultural affiliation. This roughly made vessel is, in fact, very common in C-Group assemblages in Nubia. Moreover, we found a fragment of a characteristic black-ware bowl incised with triangles filled with white paste. Of note is one wheel-made Egyptian bowl coming from an offering place. It is particularly interesting because of its surface treatment—it had been painted black and red to imitate a C-Group black-topped bowl. Evidently the presence of pottery of the Nubian tradition and perhaps especially black-topped bowls was of great importance to C-Group funerary ritual to support both cultural and religious traditions.



Milk jar incised with cows from C-Group cemetery.

The characteristics of the C-Group and Pan Grave cultures may be considered well known but several new observations can be made as a result of the excavations at Hierakonpolis. In particular, it is noteworthy how percentages of Egyptian and Nubian pottery vary and how the pottery of both traditions differ between the cemeteries with regard to both technological and functional aspects. In the C-Group cemetery Egyptian pottery represents 80 percent of the total pottery production, whereas in the Pan Grave cemetery Egyptian production represents less than a third of all pottery found. It is also interesting to note that large Egyptian storage jars found in the C-Group graves do not seem to be present in the Pan Grave cemetery, where medium to small jars were preferred, perhaps because they were easier to transport.

All of this leads us to suggest different socio-economic models for the two Nubian communities, as well as perhaps a slight chronological difference between them. It seems likely also that different socio-political relations linked the two Nubian groups to the powerful Pharaonic state.

C-Group pottery sherd.

The Tomb Team Returns

—by Renée Friedman

In 2001 we rounded up most of the usual suspects (and some new ones) for a final big push in the decorated rock cut tombs. Through dogged determination Gillian Pyke managed to refit another twenty-five plaster pieces to the walls of the Second Intermediate Period tomb of Horemkhawef, including more fragments of the artist Sedjemneteru (see *Nekhen News* 12). Meanwhile, Vivian Davies, assisted by Ilona Regulski and Jake Wilson, collated the drawings in the tomb and completed the facsimile recording of the decoration in the neighboring tomb of Itjefy/Ny-ankh-Pepy. This tomb originally belonged to a late Old Kingdom official named Itjefy and was later taken over, probably in the Middle Kingdom, by the nomarch (provincial governor) Ny-ankh-Pepy. Remnants of the original decoration can still be seen on almost all walls, making the recording of both the old and the new decoration quite a challenge. Conservators Eric Miller and Lamia El Hadidy were also on hand to assess the conservation of the tombs and apply the final touches.

Up at the Burg el Hammam, we managed to pry off the bicycle lock to the early 18th Dynasty tomb of Djehuty, bent out of shape but thankfully still doing its job after an attempted break-in, and Kate Spence returned to extract the last secrets from its invisible walls (see *Nekhen News* 12). By meticulously recording the merest traces of paint on the recalcitrant north wall, she revealed not only the elaborate banquet scene—which she always swore was there, but no one believed her—but also amazing details, such as a dog under the tomb owner's chair. It really *is* there!

Thanks to the kindness of Ray Johnson, Director of Chicago House in Luxor, we were able to borrow artist Will Schenck, who is now a full-time artist there. Will finished up the drawings of the late New Kingdom tomb of Hormose as Betsy Bryan collated the inscription. Progress was on track and relatively uneventful until they made the fatal error of looking up. As they glanced up at the freshly cleaned and conserved ceiling of the antechamber (courtesy of three years of effort by Lamia El-Hadidy), disconcertingly they caught an eye staring back down at them! We were all soon to suffer from neck strain, but there was no mistaking it—centrally placed just above the door into the main chamber a panther with fiery eyes was carefully scrutinizing all visitors.

This unique scene incorporates the sign for the horizon (akhet-sign), but instead of the usual solar disk rising between the mountains, this golden panther head takes its place. And that was not all—flanking this panther to either side are elaborate female-headed winged sphinxes (shown curiously with three breasts!). The bodies are recumbent and the hands are placed in a position of worship toward the panther head. Flanking them in turn are images of Hormose kneeling in

The panther on the ceiling.

adoration and beyond are further solar images: the sun disk rising from another horizon sign on one side, and an elaborate solar barque riding on the sloping rays of the sun on the other.

Clearly the artists in the tomb of Hormose were extremely imaginative and talented. The ceiling is not an easy space to paint (or conserve, or copy), but they carried out the work with expertise and care. As the full nature and details of these remarkable scenes were being worked out, it became obvious that, as Betsy put it, "These guys had more ideas than space!" Working at a time when artistic endeavor of a funerary nature was increasingly restricted to coffins and Books of the Dead, objects with only limited visibility, it seems that these artists were not going to waste this rare opportunity for public display of their full repertoire, no matter how difficult. Such unexpected treasures certainly make all the hard work (and neck strain) worthwhile, and suggest that more secrets may be lurking if we just look up.

For a lavishly illustrated and detailed discussion of some of these tombs and their significance, be sure to see the contributions by Vivian Davies and Renée Friedman in the recently published Colour and Painting in Ancient Egypt, *edited by W.V. Davies, British Museum Press, 2001. ISBN 0 7141 1928 8. For more information, contact www.britishmuseum.co.uk.*

Bill McHugh (1932–1989) and the William P. McHugh Award

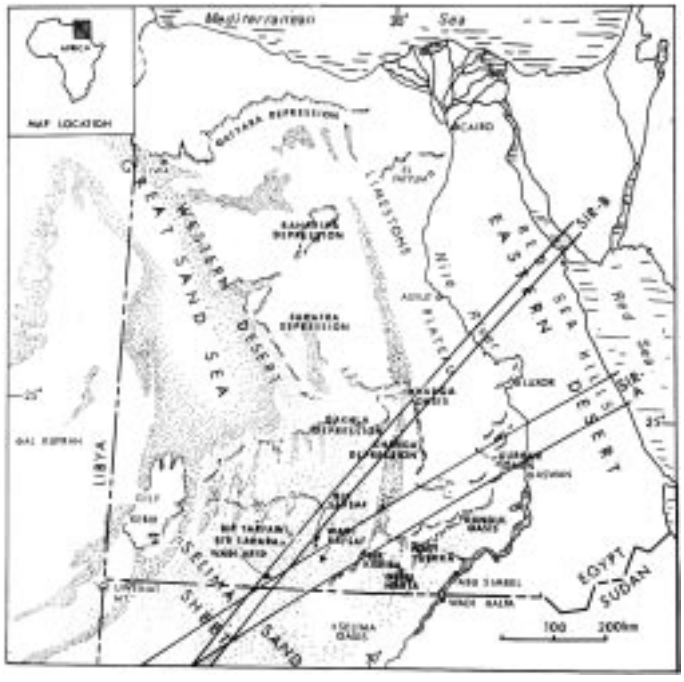
—by Owen McHugh with Dr. John McCauley and Dr. Carol Breed, USGS

When Bill McHugh passed away early in 1989, a number of his friends, colleagues and family shared a desire to remember him in some way. Bill was an archaeologist active in the Egyptian Sahara. Terry Walz, then Director of the American Research Center in Egypt, suggested the idea of a fund that would offer a grant to a field worker interested in pursuing Predynastic studies in Egypt, which was Bill's focus. The response was generous enough to sustain the fund for over ten years, during which time the McHugh Award has been granted on seven occasions.

Bill McHugh was a tireless field worker and writer, with a specific interest in archaeological possibilities in Egypt's Western Desert. A summary of his professional career, however, starts with his activities as a midwest archaeologist. While associated with universities, he participated and led digs in seven mid-western states. Bill later worked as a contract archaeologist, headquartered in Pittsburgh. Notably, at Smithsville, Missouri, he discovered a prehistoric circular post structure and determined that it had astronomical uses. A reconstruction of it, dubbed "Woodhenge," was erected on the shores of Smithsville Lake. He found his American archaeology interesting enough, but his great love was the Sahara. Bill had been an avid fan of Joseph Campbell's collections of myths and legends of early peoples, and was particularly entranced by Campbell's advice to "follow your bliss." Earlier research by several investigators had shown that the Sahara has not always been a total desert and Bill's Ph.D. dissertation focused on, prophetically, an expedition to remote areas of the Sahara.

His first field work in Africa was in 1963–4 with the Combined Prehistoric Expedition under the direction of Dr. Fred Wendorf at Wadi Halfa, Sudan. As part of the Nubian Salvage operation, sites were surveyed that would be flooded by the waters rising behind the Aswan Dam. In 1968-9, Bill conducted an archaeological site reconnaissance around Kharga Oasis, funded by the Smithsonian Institution.

In 1978 Bill finally had his first opportunity to visit some of the Western Desert sites that he had studied. He went to the Gilf Kebir as project archaeologist on a field expedition arranged by Dr. Farouk El-Baz of the Smithsonian Institution, under the direction of Dr. Bahay Issawi of the Egyptian Geological Survey and Mining Authority (EGSMA). The sites in and around the Gilf Kebir (now famous from the movie *The English Patient*) are some of the most remote and bleak in the world, and many hadn't been visited by anyone since the Second World War. It was on this expedition that Bill met geologists John McCauley and Carol Breed, whose ideas of geologic change had impact on possible timetables



The path of the Space shuttle over the desert.

of human habitation. A fruitful interaction between the geologists and the archaeologist began, which was to last for the rest of Bill's career. While awaiting opportunities for further investigation in the desert, Bill worked with Michael Hoffman at Hierakonpolis for two seasons, studying and ultimately publishing the lithics from the Burnt House at HK29 in *The Predynastic of Hierakonpolis* (1982).

In 1982, the USGS-EGSMA embarked upon field investigations of the "Radar Rivers" in southern Egypt and northern Sudan, with John McCauley as project leader and Bill McHugh as project archaeologist. This expedition was prompted by the images produced by the November 1981 test flight of the Space Shuttle Columbia over arid regions. John McCauley describes the results of that flight:

The Columbia carried a long wavelength imaging radar system (Shuttle Imaging Radar=SIR) that took pictures in the form of long 30–mile wide strips, that, more or less by chance, went over many of the areas that had previously been visited on the ground during the 1978 expedition… Carol Breed was the first to make the startling discovery that the sand, not so much in dunes but in the continuous flat sheets typical of the region, appeared to be missing in these pictures, and that a new surface, not seen by man for thousands of years, had emerged from below. Even more amazing was the presence of dark, sinuous, branching patterns that appeared to be parts of a major network of buried river channels that had gone unrecognized by previous workers. Knowing that these river valleys might well have been utilized as habitats during episodic wet periods by early man, Bill was asked to come along with us on the chance that there might be some archaeology associated with these old rivers. As they say, the rest is history!

With the help of a backhoe, trenches were cut in some of these river bottoms and on the banks. Lithics, including Acheulean hand-axes, were found in sediment several feet below the present desert floor. Success was such that Bill once said, "We've got sites on the deflated terrace of one river where there are so many hand axes that I stopped counting after 200!" Bill was involved in writing four major reports deriving from his participation in three of the four post-SIR expeditions. These reports were full of new data on how *Homo erectus* had preferentially utilized these old river valleys as habitats. Thus, Bill was the first archaeologist to use imaging radar from space as a tool of archaeological investigation. Funding for further fieldwork was pending from NASA and other sources at the time of his sudden death from a heart attack, in May 1989. In *Nekhen News* 1989, Michael Hoffman wrote, "Although the various "firsts" in climatology and chronology achieved by Bill McHugh often went unnoticed in the wake of more aggressive, publicly visible projects, his scientific achievements in the study of the prehistoric archaeology of Egypt's Western Desert provide the foundations for serious future research."

William P. McHugh

Bill McHugh's ideas and contributions can be summarized into the following points:

1. The long succession of people who episodically inhabited the eastern Sahara were basically riverine people.
2. Early on they were hunters, and later they engaged in cattle pastoralism.
3. The Sahara had had prolonged moist and semi-arid periods.
4. Nomadic use of the Sahara was common as recently as 7000-10,000 years ago.
5. As the last moist period in the now desert ended, those people may have gravitated to the Nile Valley.

On visits to his home or to ours, Bill would invariably do a slide show dealing with his latest trip to Egypt. His passion for his Egyptian work, his "bliss," really came across, and made everyone feel involved.

The McHugh Award started to fulfill its purpose of supporting field work on Predynastic Egypt with a grant to Renee Friedman* in l991 for work on early sites in the Delta. Other grantees have been Lamia El Hadidy* in 1992 to carry out research on rock art; Anthony Cagle in l993–94 to research lithic raw material used in the Epipaleolithic and Neolithic in the Fayum Depression; Dr. Abdul Rahman Al-Ayedi in 1995-96 to research Predynastic sites in the Sinai; David Anderson in 1998 to conduct excavations at the Predynastic settlement of el-Mahasna in Upper Egypt; Ian Casey* in 1999 to survey archaeological sites at Saqqara; and in 2001 Ethan Watrall* to conduct the excavations at HK11 reported in this issue. In addition, the Award contributed to a special ceremony in 1996 with ARCE in Cairo, with a special session devoted to radar geology and its uses for archaeology.

Family and colleagues of Bill McHugh have been gratified to learn of these interesting projects, and the ongoing work of all these investigators. We look forward to many more grants in the years to come.

*Hierakonpolis team members

The William P. McHugh Award is administered by the American Research Center in Egypt, Emory University West Campus, 1256 Briarcliff Road, NE, Building A, Suite 423W, Atlanta, GA 30306. The Coordinator of U.S. Operations is Dr. Susanne Thomas. Contributions to the William P. McHugh Award Fund can be made, specified for the award, through the ARCE U.S. office.

THE HIERAKONPOLIS HOME PAGE

Hapy-Horus Project Completed

—by Art Muir

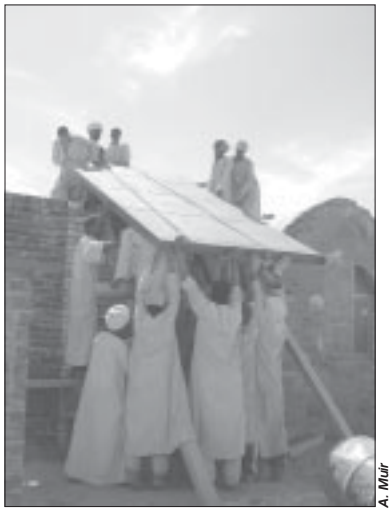
Thanks to the financial support provided by the Friends of Nekhen, we have now successfully completed the installation of a solar hot water system on the roof of Hoffman House's new wing. Hapy-Horus is a syncretization of Hapy, the Nile god, and Horus, the sun god—an appropriate nickname for a solar hot water project. And, indeed, it has made a lot of archaeologists *happy* as they can now take hot water showers even after the sun has set. When the new bathrooms with plumbed-in showers are completed in 2002, they will really be happy—no more filling of plastic solar shower bags and squatting to wash. As a by-product, we now have hot water for washing dishes as well.

The system included a one cubic meter (1000 liter) cold water supply tank on a support tower, a 300 liter hot water storage tank, two rectangular solar panels, and associated piping and valves. It was purchased from and installed by the Misr America Group, Cairo.

Before we could start we had to deal with the major engineering issue of designing and constructing a flat roof structure that would safely support the weight of the filled tanks, solar panels, and the associated plumbing—approximately 2,000 kg (4,400 lbs)—plus the weight of several men during construction and maintenance. The roof needed to span approximately 4x4m over a courtyard in front of the new shower rooms. To avoid breaking up the courtyard with interior columns and/or walls, we decided to use a roof structure of iron beams covered with a thin sheet of iron.

We enlisted the aid of the writer's son, Art Muir III, a professional engineer, to do the design. His efforts were hampered by the very limited data we could get from local metal shops in Edfu on the available sizes and shapes of beams, not to mention no data at all on the engineering strength of the material. The baseline design consisted of two frames of U beams welded together, each 2m x 4m, with welded cross supports to be held up by brick columns around the courtyard edges, plus a "beefy" metal beam across the center. This would meet the basic requirements, but without more specific information about the material we could not finalize a safe design. With a little persuasion, Art III volunteered to come from California, laptop computer in hand. After a day spent in the Edfu iron yards, he was able to come up with a final design.

The frames and the sheet metal covering were welded together in a shop in "Sugartown" (halfway between the site and Edfu) under Art III's supervision to ensure good engineering practice, and then trucked to the site. Then the fun began…how do you get very heavy metal panels (each well over 1,000 lbs) lifted 3m into the air and placed on top of the columns—all without a crane? The problem was solved the ancient Egyptian way: Egyptian ingenuity and *lots* of guys.



A. Muir

Raising the roof for the hot water system.

The afternoon of the day after the system was installed, we had an "acceptance test." The water was 64°C (about 150°F). We were all delighted, and celebrated with the Cairo crew in a roof top ceremony, at which we presented the check for the balance due. On the bright sunny following day, we checked the temperature again—82°C (180°F)! Hot enough for you?

After 5 seasons of research and extensive experimentation, we have now finalized the recipe for the famous and highly regarded

Hierakonpolis Iceless Martini

4 measures of gin (3.75 for the classic, or 4 for the very dry)
1 measure of dry vermouth
2 measures of water
Stir gently and serve with olive in the glass.

Explanatory notes and cultural comments (for the reader not familiar with the HK infrastructure): The Iceless Martini was developed because there is no ice at Hierakonpolis! Any gin will do, but *Baraka* brand bottled mineral water is essential. When the vermouth runs out, the choice is nothing or a local white wine—we usually take the former and the water compensates for the melt of the absent ice. The martini pitcher is a virgin aluminum Turkish-style coffee pot (Arabic *kanaka*), the long black plastic handle of which is particularly helpful in pouring equal servings to all. As conveniently sized measures seem to have a way of vanishing at HK, the measure of last resort is a 35mm film canister, in which case the recipe must be scaled up if there are more than two martini drinkers. The Iceless Martini is served in small, flat-bottomed glasses—stemware is not available. The olive is without toothpick—not that we don't have them, it is just that they are reserved for conservation work!

—contributed by Art Muir

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 is continually providing exciting new glimpses into this formative—and surprisingly sophisticated—age, and more.

Visit Hierakonpolis Online !
www.hierakonpolis.org

As a Friend of Nekhen you will receive the annual newsletter, the Nekhen News, produced exclusively for the Friends. Lavishly illustrated, the Nekhen News will keep you up-to-date on all the Expedition's latest discoveries, shortly after they have been made. Membership in the Friends of Nekhen also entitles you to special rates on Egyptian Studies Association publications.

Help the Hierakonpolis Expedition to continue its important work. Your contribution (tax-deductible in the US) will support important research that might not otherwise be possible Share in the excitement and the sense of commitment by making a genuine contribution to the search for understanding. Join the Friends of Nekhen.

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Membership Application

I would like to help the Hierakonpolis Expedition by joining the Friends of Nekhen. In return for my contribution (tax deductible in the U.S.), I understand that I will receive the annual newsletter and qualify for reduced rates on expedition publications.

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Save the Fort

For a second time the World Monument Fund has placed the Fort (the Enclosure of king Khasekhemwy) on its list of the World's Most Endangered Monuments. Since being listed in 2000, the Fort has been accurately surveyed and photo-documented for the first time (see *Nekhen News* 12); however, its physical condition continues to deteriorate. Large holes have been dug into the foundations by treasure-hunters and the walls have been pillaged by locals for clay to make bricks. Emergency repairs to this magnificent structure need to be made soon.. We will make a beginning in 2002, but we need your help. Your donations can help us save the Fort, so please remember to renew your membership today!

Special contribution for

The Fort Fund

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Milwaukee Public Museum
800 West Wells Street
Milwaukee, WI 53233-1478 U.S.A.
PH: 414.278.2797 • FAX: 414.278.6100
e-mail: lupton@mpm1.mpm.edu
Carter Lupton, Head, History Section
Editor-in-Chief

D.G. Park/The Edge
Graphic Design/Layout
519 W. Taylor 298A
Santa Maria, CA 93458 U.S.A.
PH: 805.348.0089 • FAX: 805.348.0060
e-mail: dgedge@aol.com

Renée Friedman
Co-Director, Hierakonpolis Expedition
Co-Editor of the NEKHEN NEWS

Barbara Adams
Co-Director, Hierakonpolis Expedition
Co-Editor of the NEKHEN NEWS

www.hierakonpolis.org

J. Rossiter

Nose of limestone statue. HK6.

Chert ibex from HK6 cemetery.

J. Rossiter

The C-Group cemetery at HK27.

J. Rossiter

Beads and scarab from C-Group cemetery HK27.

The real thing: C-Group black-topped pottery.

Bead making kit from HK47 laid out.