Sudan & Nubia

The Sudan Archaeological Research Society

Bulletin No. 19 *2015*

ASWAN
1st cataract
Middle Kingdom forts
Egypt
RED SEA
Wadi el- Allaqi
2nd cataract
Wadi Gabgaba
Seleima Oasis
Sai
3rd cataract
Sudan
ABU HAMED
Nile
Kurgus
El-Ga'ab Basin
Kawa
Jebel Barkal
4th cataract
5th cataract
el-Kurru
Dangeil
Berber
Debba-Dam survey
ED-DEBBA
Ganati
ATBARA
Wadi Howar
Meroe
Hamadab
Atbara
Muweis
Wad ben Naqa
Wadi el- Melik
Wadi Muqaddam
6th cataract
OMDURMAN
Wadi Muqaddam survey
KHARTOUM
KASSALA
Eritrea
Blue Nile
MODERN TOWNS
Ancient sites
WAD MEDANI
White Nile
GEDAREF
Jebel Moya
KOSTI
SENNAR
N
Ethiopia
0
250 km
South Sudan

Sudan & Nubia

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Front cover: QSAP Dam-Debba Archaeological Survey Project. Site DS7, Ganati: the re-erected columns in the church (photo: Fawzi Hassan Bakhiet).

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In a Royal Cemetery of Kush: Archaeological Investigations at El-Kurru, Northern Sudan, 2014-15

Introduction

Geoff Emberling, Rachael J. Dann and Abbas Sidahmed Mohamed-Ali

The International Kurru Archaeological Project (IKAP) is a collaboration between the authors that focuses on archaeological investigation and cultural heritage preservation and presentation at el-Kurru in northern Sudan. Work at the site began in 1918, when George Reisner identified the pyramid burials of the kings of Kush who conquered Egypt and ruled there as its 25th Dynasty *c.* 715-653 BC (Dunham 1950). Very little fieldwork was conducted at the site between the end of Reisner's work in 1919 and the beginning of the present project in 2013 (but see Gasmelseed 1983; Garcea and Sebastiani 1998).

One component of the project, begun by Geoff Emberling of the University of Michigan in 2013 (Emberling and Dann 2013), has aimed to investigate settlement remains identified by Reisner in his 1918-19 season and published from Reisner's notebooks by Kendall (1999). A second component, begun by Rachael J. Dann of the University of Copenhagen in 2013, has begun to re-evaluate the mortuary landscape of the cemetery, and document and conserve the painted tombs. A third component of the project, begun by Abbas Sidahmed Mohamed-Ali of the University of Dongola at Kareima in 2014 with funding from the Qatar-Sudan Archaeological Project, is working to clean and protect the site and provide improved interpretation for visitors.

This joint preliminary report presents work being carried out at el-Kurru that focuses on the Kushite cemetery. Work on the Medieval (Christian) village settlement along a long stone-built wall discovered by Reisner, as well as reports on other aspects of the project, will be presented in a future report. We begin in the area of the royal cemetery excavated by Reisner (Figure 1) with cultural heritage work and further investigation of the area immediately around the tombs. We continue with a report on conservation in the royal tombs with well-preserved wall painting (Queen Qalhata and her son Tanwetamani and a presentation of two seasons of work on the largest (and only well-preserved) pyramid at the site, Ku. 1, which was only partially excavated by Reisner. The last sections present work in the mortuary temple designated Ku. 1500 by Reisner which we can now say was almost certainly associated with Ku. 1.

Cultural Heritage at El-Kurru

Abbas Sidahmed Mohamed-Ali

During the 100 years that have elapsed since Reisner's work, natural and human factors have filled the burial pits, staircases and burial chambers with drifted sand and trash. The Sudanese team has largely completed the task of cleaning and re-excavating the tombs.

The burials appear to have been arranged largely in sequential order across the site (Mohammed-Ali and Abdulla 2010). Therefore, cleaning began in the upper (western) part of the field occupied by six graves covered by tumuli (Ku. Tum. 1, 2, 4, 5, 6 and Ku. 19) of the ancestral elite. The earlier ones (Ku. Tum. 1, 2, 4 and 5) were made of rough stone with shallow circular or oval pits and a side niche. The mounds of the other two (Ku. Tum. 6 and Ku. 19) were surrounded by a horse-shoe shaped enclosure of shaped stones. The earliest chapel in the cemetery was a rectangular mud-brick structure added to one of these mounds (Ku. Tum 6).

Further east and down the slope lies a line of mastabas (Ku. 7-14, 20, 21 and 22) with rectangular superstructures covering rectangular shallow pits with side niches for the deceased. Chapels were added to the rectangular walls, all with well-cut stone masonry.

The next group in the main field and on the ridge across the southern *wadi* are the pyramids (Ku. 2, 3, 4, 5, 6, 15, 16, 17 and 18), of which the superstructures are preserved only as foundations. The staircases and burial chambers of these pyramids were filled with drifted sand and trash (Plate 1), tons

Plate 1. Doorway of the outer chamber of Ku. 4 before the start of cleaning.

of which were removed. The clearance went down to over 3m in some cases. Ku 8, the 'proto-pyramid' likely of Kashta, has a superstructure covering a rock-cut rectangular pit. Clearance revealed no evidence of a platform or post-holes. The rest of the pyramids have rock-cut stairways leading to one or two chamber burials of the kings (Piye, Shabaqo, Shebitqo and Tanwetamani) and some of their queens. Clearance went down to the floor revealing notched sandstone benches on

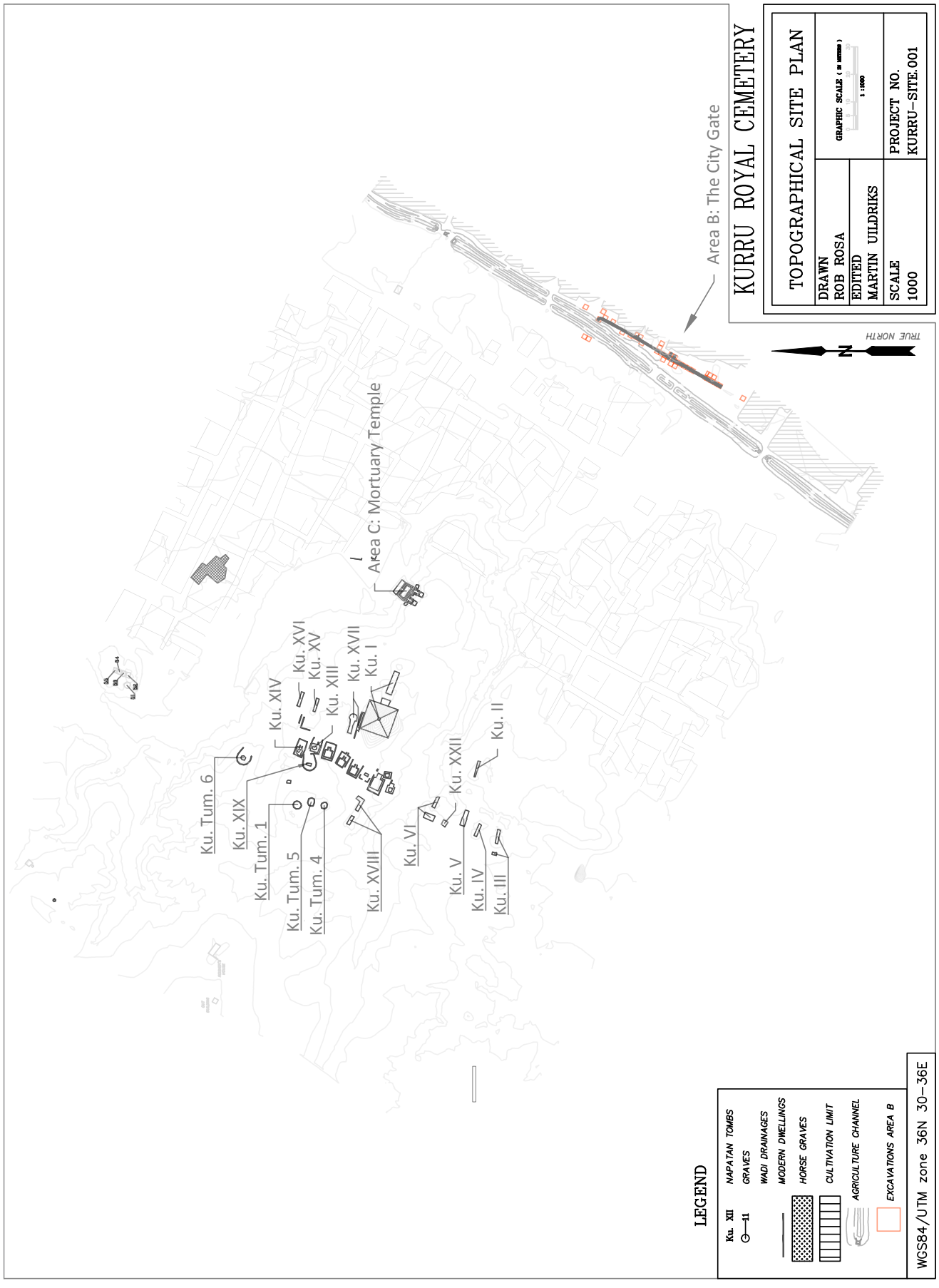

Figure 1. 2014 topographic plan of el-Kurru (courtesy Rob Rosa, Global Mapping Associates).

which the royal coffins were laid (Plate 2), surrounded with post-holes apparently to support a shelter over the coffin.

Plate 2. Doorway of the inner chamber of Ku. 4 after cleaning.

Some of Piye's queens and sister-wives of his successors have their tombs located on the ridge across the north channel (Ku. 51-55). These are rock-cut vertical shafts filled with sand, two of which (Ku. 51 and 52) have been cleared to *c.* 3m down to their floors. Each was equipped with a sandstone bench having notches at its corners for the legs of the beds on which the deceased was laid.

The Spoil

The previous work left the surface of the site dominated by spoil heaps (Plate 3). So far, five mounds have been removed by wheel-barrow and truck, amounting to thousands of tons of sediment. Our strategy assumed that every mound is associated with the excavation of the tomb immediatetly to its west. We started with the heap in front of Ku. 17 of Piye. We rightly assumed that Reisner had missed some finds; we collected a number of fragments of shabtis bearing parts of Piye's cartouche. Samples of four other mounds were screened. We recovered a significant quantity of potsherds that may allow for detection of a Pre-Napatan phase and varieties of early and middle Napatan ceramics both local and imported. The sifting also revealed fragments of figurines, inscribed sandstone blocks and pieces of metal ornaments.

Plate 3. Removing Reisner spoil heap.

Demarcation of the Site

We hired eight teams of builders to begin construction of a mud (*jalous*) wall over 4km in length to secure the site and create a buffer zone (Plate 4). Clay was brought by truck from more than 20km away, and water was pumped from a well, then through pipes to ponds created along the wall. The course of the channels and the drainage of rainwater are problems that remain to be resolved.

Plate 4. Building a protection wall around el-Kurru.

The Survey

Toward the end of the 2015 season, we devoted two days to look in the vicinity for traces of ancient habitations or burials. We know of Palaeolithic and Neolithic sites in the village. Preliminary survey discovered a few graves containing what seems to be Kerma pottery, which we hope to investigate in future seasons.

Documentation and Conservation of the Painted Tombs: Progress Report

In 2015 analysis and documentation of the painted tombs of Qalhata and Tanwetamani, directed by Rachael Dann, continued, in preparation for conservation work and a full epigraphic survey.

VIL and XRF Analysis of the Painted tombs

Rikke Therkildsen

The wall paintings of Qalhata and Tanwetamani are uniquely valuable as the colors are unaltered by modern interventions and are, therefore, sources of information concerning original materials and techniques.

VIL (visible induced luminescence) is a non-invasive photo analytical technique used to identify and map the spatial distribution of the ancient synthetic pigment Egyptian blue ($CaCuSi_4O_{10}$). Egyptian blue shows strong luminescence properties with emissions in the infrared range when excited in the visible range, and even sub-microscopic amounts of Egyptian blue become visible, shining bright white. VIL-imaging was complemented by non-destructive X-ray fluorescence (XRF) analysis to determine the elemental composition of inorganic pigments used to decorate the tombs.

Except for the blue painted ceiling in the tomb of Qalhata, Egyptian blue was preserved in small, fragmentary amounts in the paintings. However, VIL images revealed its extensive use in both tombs, and intense concentrations of the pigments were documented on the skin, garments and other attributes of the deities (Plates 5 and 6). To a lesser extent representations of the deceased also showed traces of Egyptian blue, whilst decorative bands framing motifs and some hieroglyphs revealed a strong luminescence characteristic of Egyptian blue.

A limited color palette was used for the paintings: red, yellow and blue, alongside white, black, and grey. XRF analysis of the white background color which appears as a relatively translucent layer showed large proportions of calcium (Ca) and sulfur (S). White was also layered as a thick, opaque color and as background for Egyptian blue. Relatively large proportions of phosphorus (P) were also found in some of the opaque whites. Phosphorus occurred in the black pigment, but to be conclusive more research is necessary. The presence of Egyptian blue was confirmed, as XRF identified high proportions of copper (Cu). Red and yellow appear frequently in the paintings. The hue of the red outline is different from the brownish red used on skin and garments, but the chemical composition was generally similar, indicating high proportions of iron (Fe). Similarly, all yellows had iron as their main constituent.

Further characterization of the pigments is considered important, alongside scientific analysis of the binding media.

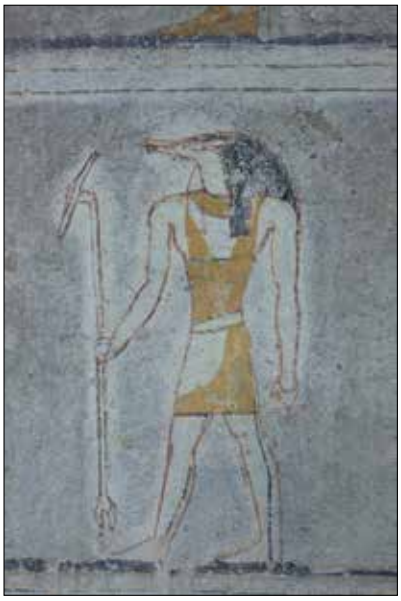

Plate 5. Tomb of Qalhata, Chamber B, North Wall (visual image). The red outline of the figure was drawn on top of a compact white layer. Final corrections on the legs were made in charcoal. Skin parts were originally painted with Egyptian blue and minute remains of the synthetic pigment can still be seen on close examination.

Plate 6. Tomb of Qalhata, Chamber B, North Wall (VIL image). Despite the physical losses, VIL imaging reveals extensive remains of Egyptian blue shining bright white. The blue color was applied after the final charcoal corrections. The amounts of luminescent particles are smaller on the face and apron and Egyptian blue could have been applied as a glaze, mixed with other pigments.

Knowledge of organic components of ancient paints is at present sparse, and identification of the deployment of media is crucial for the understanding of the ancient painting techniques and for future conservation treatments.

Visualizing the Painted Tombs

Sarah M. Duffy

During the 2014 and 2015 el-Kurru field seasons, painted tombs were surveyed using multiple digital recording approaches including Structure from Motion (SfM) and Reflectance Transformation Imaging (RTI). SfM is a computational imaging technique in which geometry and 3D models are generated from digital photographs. This survey approach is increasingly being incorporated into the process of archaeological investigation (Ashton *et al.* 2014; Hesse 2014; Olson *et al.* 2013; Green 2013). At el-Kurru, SfM was undertaken to accompany the 2014 excavations and preliminary survey of Reisner's Camp (Plate 7), in addition to 2014-2015 work in the Royal Cemetery in the painted tombs of Qalhata and Tanwetamani.

The ortho-imagery generated from the SfM capture approach has proved particularly useful in the remote investigation of the tombs. During the 2014 field season, these images were processed with D-Stretch, a filtering software often used to study aerial photography and rock art (Assefa *et al.* 2014; Tomášková, in press). The resulting files provide additional information about *pentimenti* (compositional changes to the original design) and potential deliberate destruction of the paintings (Plate 8) as well as highlighting conservation issues such as biological growth, salt movement (e.g., efflorescence and spalling) and water ingress.

The 3D models and ortho-images generated from the 2015 field season are being used to produce digital epigraphic drawings in preparation for 2016 fieldwork, to be undertaken by Rachael Dann (Plate 9).

In connection with the initial 2014 survey of Qalhata's tomb, I have also undertaken focused RTI in areas with evidence of deliberate damage. RTI is a multi-light imaging approach in which the surface of a subject is lit from various raking light positions as it is photographed. Although the technique is based on 2D imagery, the interactive lighting files generated from RTI photography provide users visual 3D lighting information. Thus it is considered 2.5D and sometimes reveals information not visible upon physical inspection. This visualization method has many applications within both archaeological and museum-based research (Duffy *et al.* 2013; Díaz-Guardamino and Wheatley 2013; Mudge *et al.* 2010). This technique clearly reveals chisel marks over the eyes and mouth of the painted figure of the god Imsety (Plate 10).

Plate 7. Model of Reisner's outhouse at el-Kurru (image by Sarah M. Duffy).

The exterior of Qalhata's tomb was also surveyed, allowing broader considerations of the cemetery landscape. Joining the exterior and interior models has provided an opportunity to visualize the relationship between the two in a virtual space. In addition, the exterior model has been used to generate a Virtual-RTI which can be interactively illuminated to reveal subtle landscape features (Plate 11).

Computational imaging techniques have been used in combination to record, study and virtually explore the painted tombs at el-Kurru. The integrated, and reflexive approach to

Plate 8. Imagery from Qalhata's entry chamber processed using color enhancement filters in D-Stretch. Analysis reveals changes in the original design and potential anthropogenic damage (image by Sarah M. Duffy).

Plate 9. Ortho-image of the north wall in the main chamber of Qalhata's tomb produced using Structure from Motion (SfM) capture and processing approach (image by Sarah M. Duffy).

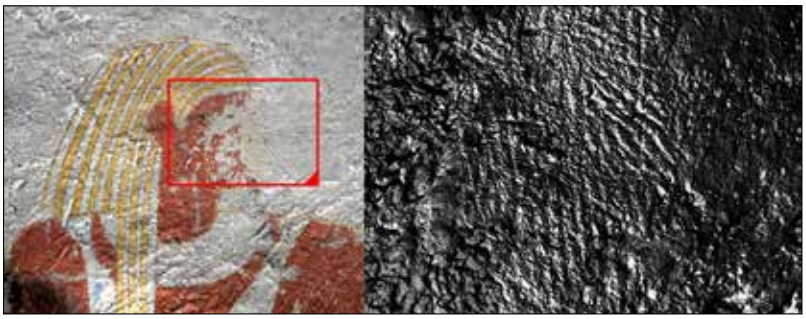

Plate 10. Left: static image of the painted figure of Imsety from Qalhata's Tomb, Chamber A, North Wall; Right: screenshot of area bound by red box of PTM-fitted Reflectance Transformation Imaging (RTI) viewed with specular enhancement which reveals signs of deliberate damage (image by Sarah M. Duffy).

documenting the Royal Cemetery has led to an enhanced record and understanding of the ancient tombs. The visualizations of both above and below ground spaces have allowed the connection of spaces (e.g., for the living and the dead) and broader considerations of landscape and re-use of space (e.g. later targeted destruction of paintings). This work also supports the preservation program at the site, as it records the current condition of the tombs and highlights potential conservation issues. The ortho-imagery will be used to annotate areas of deterioration/loss and aid in the generation of a condition assessment and conservation plan for the two painted tombs.

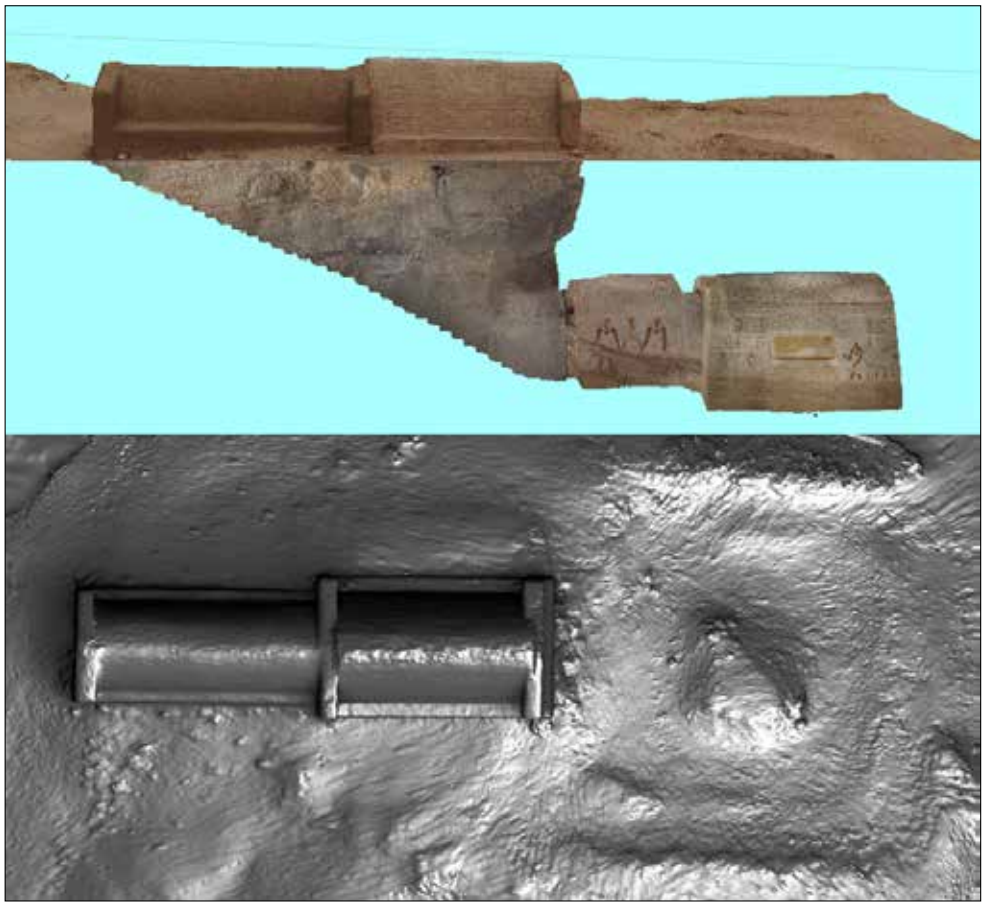

Plate 11. Top: exterior and interior models of Qalhata's tomb have been joined together in virtual space; Bottom: screenshot from Virtual RTI in which the exterior model of Qalhata's tomb has been virtually illuminated (viewed under specular enhancement) (image by Sarah M. Duffy).

Excavation of Pyramid Ku. 1

Geoff Emberling

The only well-preserved pyramid at el-Kurru is Ku. 1 (Plate 12), whose intended occupant has been unknown since Reisner only partially excavated it and those excavations recovered no inscribed material. It appears from its size and form to be considerably later than the other burials in the site, and this raises interesting questions about ancestral memory, competition among powerful lineages in the Kushite elite, and the importance of el-Kurru as a place within the political landscape of Kush.

The pyramid superstructure is now approximately 9m high, built of three rows of dressed sandstone with a rubble filling. The pyramid has a single vertical plinth course that is 26.65m long on each side. Upper courses, each about 500mm in height, are slightly stepped back one from the next and are cut at an angle of 70-75º. The original height of the pyramid would have been close to 34.5, some 25m higher than today, and with much steeper sides. We have begun clearing the fallen rubble around the pyramid and the steeper sides are now more apparent (Plate 13). These newly cleaned surfaces are notable for the large number of boat graffiti (some accompanied by camels) that definitely pre-date Reisner's time.

Plate 12. Kite photo of the el-Kurru royal cemetery, with pyramid Ku. 1 in the center (photo: Kathryn Howley).

Reisner had cleared the corners of the pyramid to remove corner blocks and excavate the foundation deposits there, and he cleaned out the chapel, in which some incised blocks remained in place (see Yellin below).

Plate 13. Cleaned northern face of Ku. 1.

Reisner also excavated the massive, monumental descendary (about 23m long, 2.5m wide, 8m deep at the doorway) and the first underground chamber (about 5m long and 4.5m wide), which he labelled Room A (and which he found completely empty). He excavated a meter or two into the second room (Room B) and encountered a large structural flaw in the ceiling – a hole in the stone through which (he said) he could see the base of the pyramid. This apparently led to his decision to stop excavation for safety reasons (Dunham 1950, 23).

We began excavation in 2014 expecting that our architect, Ignacio Forcadell Utrilla, would be able to build protective structures that would allow us to excavate to the back of Room B and perhaps beyond. In Room A (Figure 2), 12 post-holes not noted by Reisner had been cut into the floor in three rows, perhaps to support a canopy over the king during a stage in the mortuary ritual. Room B was also disappointingly empty of objects from the original burial, and an array of post-holes was also cut into its floor.

Reisner did not know if the pyramid contained a third burial chamber (although it was suspected in Dunham's 1950 publication, which contains the notation "B and C not cleared"). When we excavated into Room C at the end of the 2014 season, its ceiling had collapsed – probably a good thing, because the sandstone above was much more solid than the poorly consolidated mudstone stratum that collapsed.

A portion of a stela niche was found on the back wall of Room C (Plate 14), but the wall itself was extremely irregular. About 750mm above the floor of the chamber, we found a large granite slab (Plate 15), about 3.3m long and 650mm wide, which extended in a line from the doorway to the stela

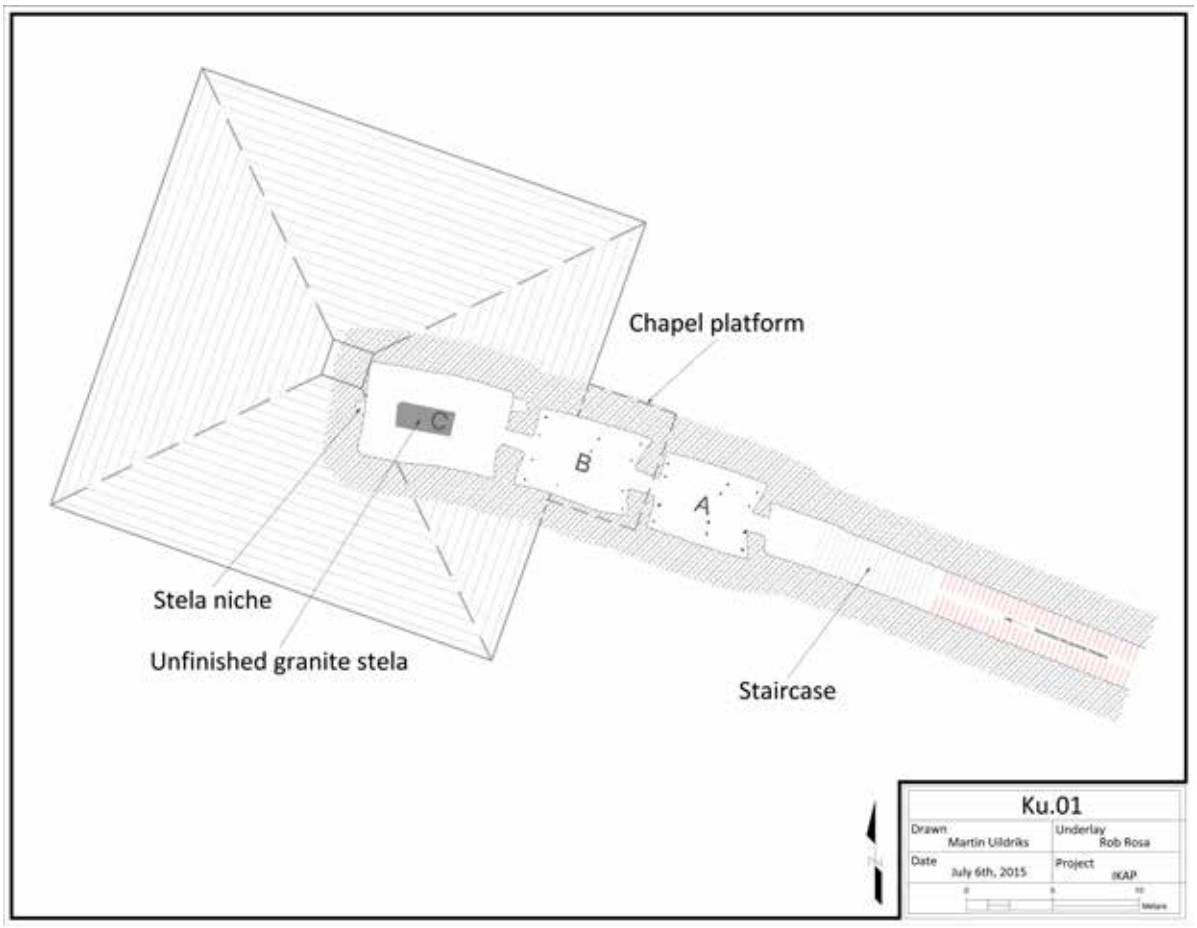

Figure 2. Plan of pyramid Ku. 1 (prepared by Martin Uildriks).

Plate 14. Burial chamber ("Room C") in Ku. 1.

niche, and rested on roughly shaped sandstone bedrock that was probably intended to be finished into a coffin bench. The granite slab was roughly shaped but was unfinished. It was presumably intended to be finished in place, but instead

Plate 15. Unfinished granite slab in Room C, Ku. 1.

was abandoned there. The pyramid burial chamber was never used – there was not a single scrap of material from the period of construction or a possible phase of use.

The size, angle, and construction technique of Ku. 1, along with confirmation that it contains a third burial chamber, support Dunham's (1950) proposal that this pyramid was built during the 5th-4th century BC. In all these features, it is most similar to a group of royal burials at Nuri (particularly Nu. 12, 13, 14, and 15 – Irike-Amannote, Harsiotef, Akhratan and Nastasten) and Barkal (Bar. 11 – perhaps Arnekhamani). All are approximately 26.5m square at the base, have blocks

carved at an angle of about 75º, are built of stone blocks around a rubble core and have long stairways leading to three chambers under the pyramid, which are of comparable size. Additionally, all have chapels of similar form. The Nuri examples had foundation deposits at the corners, as did Ku. 1, while Bar. 11 does not. It is interesting to note that burial chambers of the Nuri pyramids of this date were also left unexcavated by Reisner because of structural problems (see Dunham 1955; 1957).

Significant for the dating of Ku. 1 is its possible association with the mortuary temple at el-Kurru (see below). The only clear parallel for this mortuary temple is at Nuri (Nu. 400 – Dunham 1955, 271), where the temple was associated with the pyramid of Taharqo – probably not the original pyramid, but its later significant enlargement (to a base of 51.75m). It is not clear when Taharqo's pyramid was enlarged, but it is possible that it was significantly after the construction of his original pyramid – the expansion covered the chapel and no new chapel was constructed, suggesting that perhaps mortuary rituals were to be performed in the adjacent mortuary temple.

Ku. 1 is sited immediately adjacent to the pyramid of Piye at el-Kurru (Ku. 17). Clearing the interface between them, we found large blocks from the enclosure of Piye's pyramid, and directly behind them, the smaller blocks of the foundation of Ku. 1 (Plate 16). Here we have the siting of a new pyramid next to another important ancestral figure, and it may be that this group of constructions is a material symbol of political conflict among elite families that would eventually result in the moving of the royal burials of Kush to Meroe.

While it is difficult to be certain, one interpretation of the unfinished state of Ku. 1 is that it was unused because of political competition among ruling families in Napata and that this competition was part of what led to the movement of royal burials to Meroe by the end of the 4th century BC. The impression that the pyramid was unfinished is strengthened by the blank lines for a hieroglyphic inscription in the chapel and by unfinished blocks on the pyramid superstructure.

Despite never having been used, the pyramid was looted during Christian times. High up in the fill of Room B, about 2.5m off the floor, were a series of large stone blocks. In and around these large blocks were substantial Christian period sherds, perhaps to hold food and water to sustain looters. The fact that these sherds were found high up in the fill shows that the burial had been opened previously (or indeed was never closed) and that silty-sandy sediments had washed in to a height of 2.5m when the second looting event took place. The washed fill in Room C also contained some fragments of Piye shabtis.

We removed about 350m^3 (weighing perhaps 350 tons) of sand, silt, and stone from the staircase and Rooms A, B and C. The scale of this work is comparable to that recently undertaken by Rilly and Francigny in a large and possibly unfinished burial near Sedeinga (Rilly and Francigny 2013, 61-2).

Plate 16. Top view from 3D model of the north face of Ku. 1, the platform around Ku. 1 and the southern enclosure wall of Piye's pyramid (Ku. 17). (model by Martin Uildriks).

Work to cover the staircase of Ku. 1 (Plate 17) has included preparation of the site to appropriate levels to prepare for rainwater runoff, construction of foundations and installation of support columns, welding of steel beams in place, and construction of walls in red brick and in shaped sandstone blocks that will support a concrete roof that we plan to build next season. The result will be very low profile on the landscape and will preserve sightlines to the pyramid itself.

Plate 17. Construction of the cover for the descendary of Ku. 1.

The Pyramid Chapel Decorations of Ku. 1

Janice W. Yellin

The pyramid chapel of Ku. 1 is one of the few Napatan ones whose decorations have been documented and recorded. Its south (Plates 18 and 19) and west walls (Plate 22) were published (Dunham 1950, pl. VI A-C), but not its north wall (Plates 20 and 21). In addition to Ku. 1, only Nu. 4 (Siaspiqa, 487-468 BC: Reisner photograph C8118_NS), Nu. 6 (Anlamani, 623-593 BC: Dunham 1955, pl. XX A-C), Nu. 11 (Malowiebamani, 463-435 BC: Dunham 1955, pl. LIII, B, C) and Nu. 15 (Nastasen, 335-315 BC: Dunham 1955, pl. LXII C, D) were photographed and documented by Reisner. None of the decorated Napatan period pyramid chapels at Barkal has survived. Ku. 1's decorations reflect actual Late Napatan/early Meroitic funerary ceremonies. Its lateral walls show a series of rituals performed at the time of the chapel's consecration, which is the culminating rite in the burial process of the tomb owner. Comparison to the chapels at Nuri and Begrawiya South offer some insight into its date.

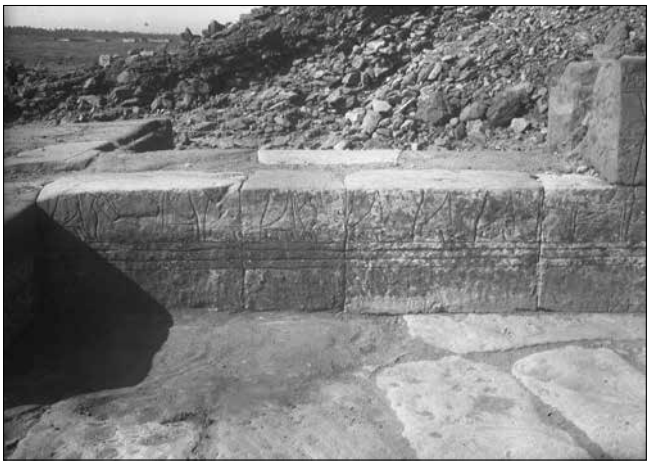

Plate 18. Ku. 1 chapel south wall (east section); Reisner photograph B3698_NS (photograph ©1923 Museum of Fine Arts, Boston).

South Wall

The lowest register of the wall is documented by Reisner photographs B3698_NS (Plate 18) showing the wall from its eastern to middle sections and B3700_NS (Plate 19) showing the middle to western end of the wall. Photograph B3700_NS also records part of the upper wall. Like all other known Napatan and Meroitic lateral pyramid chapel walls, a series of ritual scenes to inaugurate his/her on-going funerary cult are performed before the enthroned tomb owner who sits at the western end of the wall. On this wall, the rites are performed before a king who is seated on a lion throne with his queen standing behind him. The queen's costume appears to be similar to the one worn by the female standing before the king on the opposite wall. The throne is raised above the

Plate 19. Ku. 1 chapel south wall (west section); Reisner photograph B3700_NS (photograph ©1923 Museum of Fine Arts, Boston).

ground line by three stone slabs, but there is no evidence for a baldachin around the seated ruler as is known from the Begrawiya South pyramid chapels.

Beginning with Reisner photograph B3700_NS (Plate 19) and reading the rituals being performed from west to east (i.e. first to last rituals) on the assumption that this is an actual funerary ceremony being depicted (Yellin 2014, 400-1), the first and most important rite was the presentation of food offerings on a large offering table to support the afterlife. The offering table on this wall has a lotus-formed pedestal and is surmounted by a series of tall reed plants that are the Egyptian hieroglyphic spelling for 'offering field'. Their use is an archaizing feature not found in the earliest chapels in Begrawiya South, Meroe, but which can be seen on Nu. 15's north wall (Dunham 1955, pl. LXII C, D). On the right side of the offering table base is a large, lugged jar entwined by a lotus flower and on the left side is an amphora in a wood frame base. Three striding male figures, probably holding offerings such as libations and incense, approach the offering table (Plate 18). They, like all the figures in the lower register, wear a fitted, long kilt that wraps around their lower torsos with a curved edge. The figure after them pours a libation into an amphora on a small stand. The wall and thus the rites end with a scene in which two figures, facing each other, butcher a cow lying on its back. This same scene appears in all the Begrawiya South chapels in the same location. The preparation of the meat might well refer to the final ritual, a funerary meal, which was shared between the living and the dead celebrating the dead's ability to partake of nourishment outside the confines of his/her tomb.

North Wall

What survived of the entire wall, the lower register, is documented by Reisner's photographs C8392_NS (Plate 20) and B3699_NS (Plate 21), which reveal similarities and differences in the ritual depictions on the opposite wall. Like the south wall, the king sits on a simple lion throne on three raised slabs wearing a long skirt and sandals with a flared thong. The

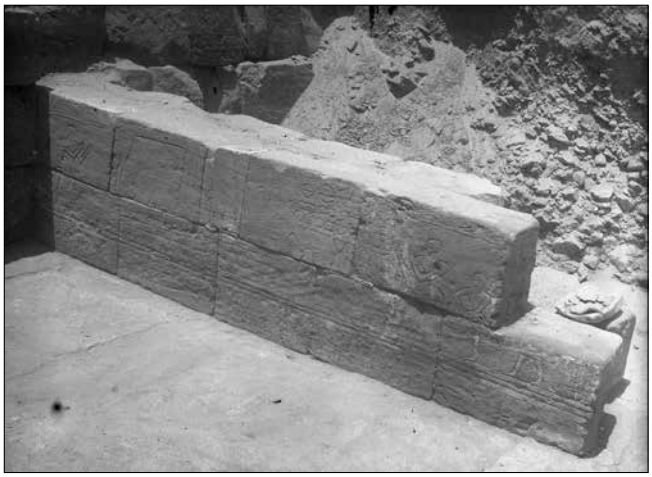

Plate 20. Ku. 1 chapel north wall; Reisner photograph C8392_NS (photograph ©1922 Museum of Fine Arts, Boston).

Plate 21. Ku. 1 chapel north wall (detail of west section); Reisner photograph C8836_NS (photograph ©1919 Museum of Fine Arts, Boston).

forked bottom of his scepter is visible above his feet. Again there is no evidence that he was seated within a baldachin. On this wall, rather than a queen, a male with his arms raised in adoration stands behind the lion throne. He is only as high as the seat of the throne and above his head, two large feet wearing the same type of sandals as the king indicate that a second male member of the royal family stood behind the king. Again there is a large offering table on a lotus-form base in front of the king. However here its offerings, different types of breads and trussed fowl, are consistent with others in the same Napatan/early Meroitic contexts particularly Beg. S. 7 (Yellin 2014, fig. 6) and Beg. S. 10 (*ibid*., fig. 12). Like the offering table on the opposite wall, under it is a tall jar with an entwined lotus flower on its left side and what may be an identical jar on its right side. However, in place of the male officiants, a royal female with her arms raised in adoration stands facing the king. She is clearly a family member because her proportions, lack of divine insignia and close-cropped hair are very Kushite in appearance. She may be wearing a royal mantle since a cord hangs from her right shoulder down the whole length of her long garment. She is followed by a male wearing what might be a fringed mantle draped over his right shoulder. Atypically his arms are flexed to meet in the center of his upper torso, but unfortunately the object(s) he is holding cannot be distinguished in this photograph and the block is now missing from the chapel. The presence of these royal persons recalls the procession of family members on the lower register of Beg. S. 10's north wall (Yellin 2009, fig. 12). The preserved part of the wall ends with the lower torso of a male figure and damaged images of offerings carved in front of and behind him.

West Wall

The west wall (Plate 22) was never completed. The top wall of the niche shows the marks of the masons' chisels and the columns for inscriptions that would have flanked the funerary niche are blank even though these walls were smoothed and prepared for carving. Isis (south corner of the wall) and Nephthys (north corner of the wall) kneel while pouring a libation for the tomb owner. Their presence on a west wall is not documented in any of the Begrawiya South chapels further indicating that a different liturgical tradition was followed for those chapels in some cases.

Plate 22. Ku. 1 chapel west wall in 2015.

Conclusions

While the decoration of Ku. 1 generally looks different from that of other pyramid chapels (with the exception Nu. 15, for which see below) because of its specific iconographical details, the content of their decorations is very similar. The carving techniques appear to be quite similar in most of the chapels. Even with such a small sample of known chapels, the consistency in the rites and their sequencing as carved on the lateral chapel walls suggest that there was a similar, traditional burial ceremony used to inaugurate the tomb owner's mortuary cult during both the Napatan and early Meroitic periods. Like the early Meroitic burials at Begrawiya South, Meroe (Yellin 2014), similar rites in the same sequence in Ku. 1 and other Nuri chapels show only funerary offerings

being made by workers, priests and family members whose presence also inaugurated the ancestor cult of their deceased relative. The final act was the funerary meal, which is well attested throughout Nubian history, as represented by the slaughter of cattle.

Stylistic similarities in the decorations of Ku. 1 and Nu. 15's north wall (King Nastasen, *c.* 335-315 BC) (Reisner photograph C8065_NS), such as the similarities in the wrapped kilt worn by officiants, the offering table surmounted with the hieroglyphs for 'offering field' and the motif of the rounded jar with accompanying (but not entwined) lotus flowers beneath it indicate that Ku. 1 is indeed chronologically closer to Nu. 15 than to the first royal burials at Meroe to which it bears no striking iconographical similarities. However, some of the results from this preliminary study, such as the very Kushite features of the female and male depicted before the offering table on its north wall, marked participation of family members and the similarity to the offering table iconography in Beg. S. 7 and Beg. S. 10 suggest it may be a bit later in the sequence than typically proposed, i.e., perhaps after rather than before Nastasen.

A Mortuary Temple at El-Kurru

Geoff Emberling

We began excavation of a structure identified by Reisner as a mortuary temple (his Ku. 1500) in 2013 (Emberling and Dann 2013), clearing portions of a room with columns as well as portions of two underground rock-cut rooms with columns and stone roof beams. Further excavation of the temple has now entirely cleared two outer rooms (Rooms 1 and 2 – Figure 3), each approximately 15m long, 4m wide, and buried in over 2m of sediment. Room 1 (Plate 23, foreground) was entered by a staircase from the south and seems to have contained few features or installations. Its northern wall of massive stone blocks (750 x 400 x 320mm average size) was destroyed by an ancient *wadi* flood, perhaps during the construction of the building as the fallen blocks had not been well finished (see Karberg, below) and they lay on the stone quarry floor rather than on the higher sand floor that was probably intended as a living surface.

Plate 23. Rooms 1 and 2 of the mortuary temple with the rock-cut doorways to Rooms 3 and 4.

Room 2 contained 26 columns and was originally roofed around the edges with a system of stone beams and perhaps palm fronds. A few of the stone beams were preserved in the fill of the room, but no column capitals were recovered.

The first underground chambers, Rooms 3 and 4, were decorated with columns and stone beams – the system seems to have been decorative rather than functional as there are gaps between the beams and the ceiling, and the beams are placed in a location that is not structurally weak. In Room 3 the columns had two different types of capitals – five volutes around one set, and palm fronds around the other (Plate 24). In Room 4 all four columns had the same lotus capital (Plate 25). Both Rooms 3 and 4 were provided with a secure door (round holes at top and bottom to support a pivoting door, and a square slot for a bolt at the top of the door).

The column capitals provide parallels to Ptolemaic Alexandria (as noted by Cheng in Emberling and Dann 2013), and are also echoed by finds of diverse sets of column

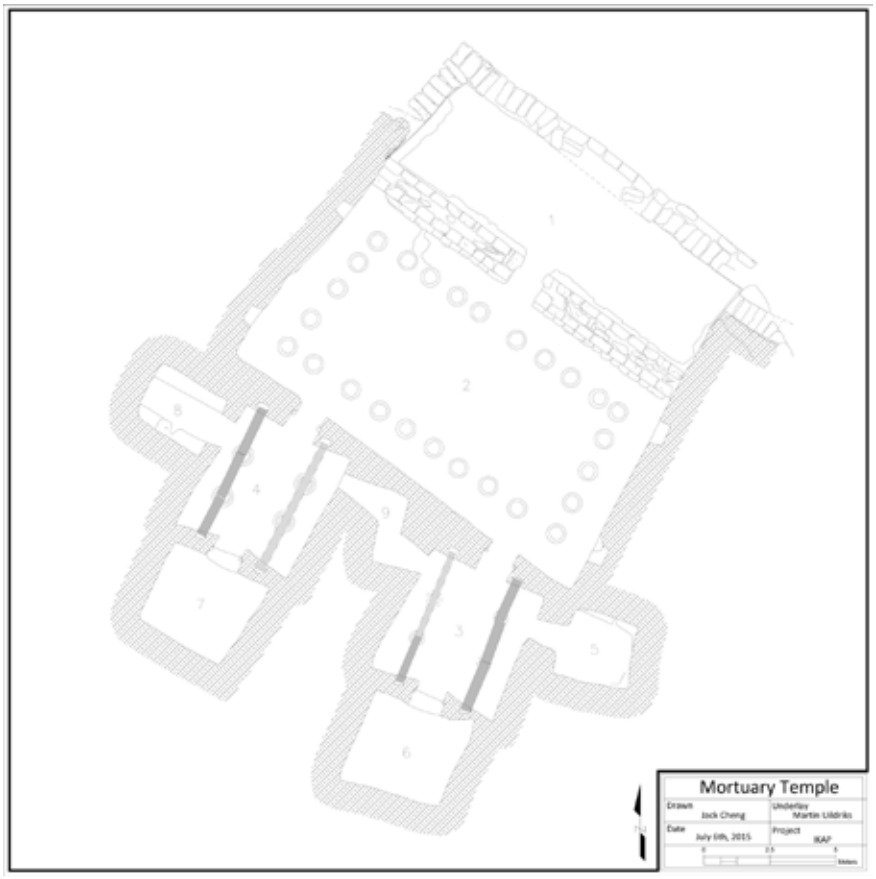

Figure 3. Plan of mortuary temple (prepared by Jack Cheng).

capitals in the area of the Natakamani palace at Jebel Barkal (Ciampini 2015).

Directly behind Rooms 3 and 4 were Rooms 6 and 7, respectively. Each was a square room approximately 4 x 4m in size, and was also provided with a mechanism for securing doors in place.

Two small side rooms lead from Rooms 3 and 4. The eastern room (Room 5) was featureless. The western room (Room 8) is smaller than the other rooms, both in floor area and in its relatively low ceiling, which was just over 2m in height. Two low benches ran along the long walls of this room.

The function of this structure and especially of its underground rooms remains something of a mystery, as is the date of its construction, because no portable objects were found in the lower levels of the fills. There are no inscriptions to date its initial construction and use. The complete absence of archaeological remains, combined with the evident concern with security, leads one to suspect that these were intended as storerooms for valuable objects that were to be protected. Our best guess for the date of construction is 5th-4th century BC (later Napatan), based on the assumption that its construction was associated with construction of pyramid Ku. 1 (for hypotheses on the date of Ku. 1, see above).

The temple was re-occupied during the Meroitic period (Emberling and Dann 2013), when a layer of charcoal, pots, and stone alignments within the temple were used. Pots found *in situ* in the north-east corner of Room 2 were storage jars, but others were found upside-down, with their bases broken off, and with the resulting upside-down basin being used for fire, as hearths or incense-burners. AMS dates of the burned material (Figure 4) suggest two periods of use, with one ranging in date from about 180 BC to AD 5 (Beta 407674, 407675) and a later date of AD 5-125 (Beta 407673).

Almost certainly associated with the occupations are also a series of graffiti (see Anstis, below).

Finally, it should be noted that the interpretation of this structure as a mortuary temple is by no means certain. We are tentatively following Reisner in his conclusions, but further comparative research or new finds may alter our understanding of this complex and its only close parallel, Nuri 400 (partially excavated by Reisner, and schematically published by Dunham 1955).

OxCal v4 Bronk Ramsey *et al.* (2013); r:5 IntCal13 atmospheric curve (Reimer *et al.* 2013).

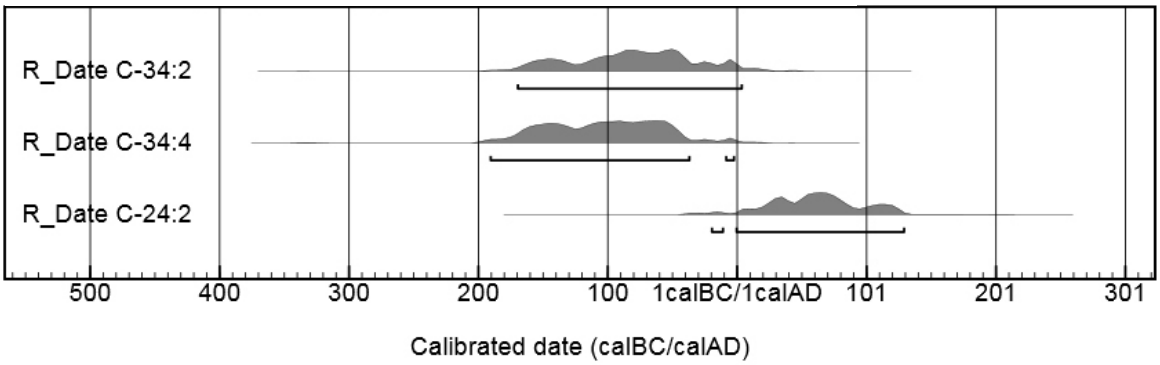

Figure 4. AMS dates from reoccupation of the mortuary temple.

Plate 24. Column capitals in the mortuary temple's Room 3.

Plate 25. Lotus capitals in the mortuary temple's Room 4.

Meroitic Graffiti in the Mortuary Temple

Sebastian Anstis

A survey was conducted of the graffiti found on the columns and walls of the temple at el-Kurru. A preliminary typology was established, and the graffiti were mapped within the structure. The graffiti, while evocative of those found at contemporary sites such as Musawwarat es-Sufra (Kleinitz 2014), do not closely resemble them.

A total of 552 individual graffiti were identified (Table 1), of which 395 were circular cupules with diameters ranging from 5mm to 20mm. These appeared either by themselves or more often in geometrically arranged groups of up to 20.

The remaining graffiti can be divided into representations of animals, everyday objects, human shapes, masons' marks, and varied geometric shapes. Birds were the most commonly portrayed fauna, while boats were the most commonly portrayed everyday objects. It is also worth noting the distinctive graffito of an 'Amun Ram' – a ram portrayed with a sun disc above its head (Plate 26). A graffito of an ankh was also

Table 1. Occurrence of motifs among graffiti in the mortuary temple.

No.	Shape	Category
1	Amun Ram	Animal
11	Bird	Animal
3	Cattle or fox	Animal
1	Fox	Animal
1	Gazelle	Animal
1	Giraffe	Animal
3	Horse	Animal
1	Ostrich or camel	Animal
4	Arrow	Everyday objects
10	Boat	Everyday objects
6	Cross	Everyday objects
6	Textile or mat	Everyday objects
39	Misc geometric figure	Geometric
12	Symbol 1	Geometric
5	Symbol 2	Geometric
3	Symbol 3	Geometric
3	Symbol 4	Geometric
9	Symbol 5	Geometric
5	Symbol 6	Geometric
5	Human figure	Human
13	Bisected triangle	Mason's mark
4	Bisected V	Mason's mark
11	X	Mason's mark
22	Groups of cupules	Cupules
373	Individual cupules	Cupules

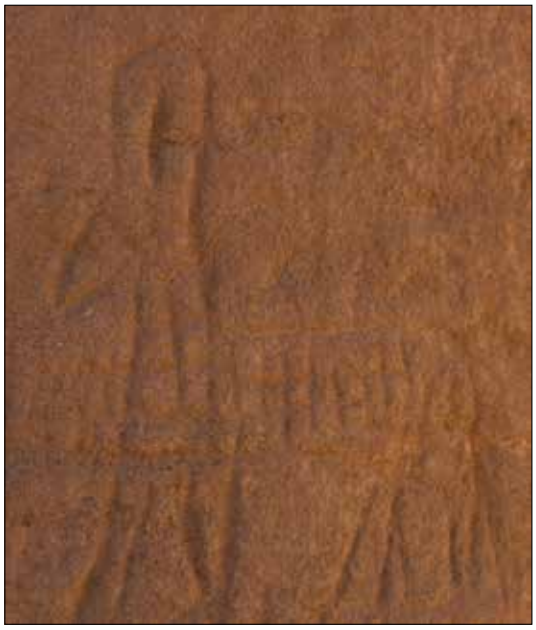

Plate 26. 'Amun ram' graffito from a column in the mortuary temple.

identified, as well as six graffiti resembling textiles or mats. Graffiti with geometric shapes which do not evoke recognizable objects can be divided roughly evenly into unique shapes, repeating shapes or symbols (Figure 5), and masons' marks.

The graffiti were positioned foremost on the columns and then near the entrance in the walls dividing Rooms 1 and 2 (Figure 3, above). With few exceptions, the graffiti were found at an elevation of between 1.2m and 1.9m above the bedrock floor of the temple. The few exceptions to this include two birds, one at the level of the floor, and one at a height of approximately 800mm above that. Also identified were a few cupules between 0.45m and 1.2m, and four geometric graffiti between 0.9m and 1.2m, which were found at all elevations.

The graffiti have been photographically documented and high-resolution three-dimensional photo-models have been made. In forthcoming seasons, we aim to document significant graffiti in more detail, to conduct a spatial analysis of their locations within the site, and to compare them to the rest of the corpus within the region.

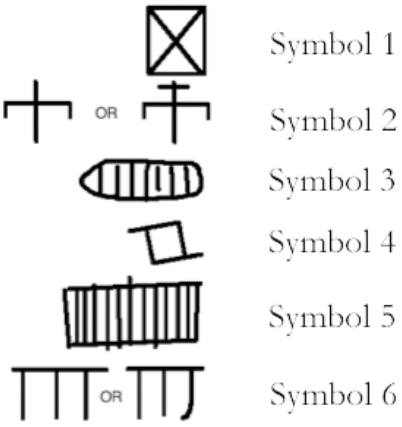

Figure 5. Repeated shapes among graffiti in the mortuary temple.

Some Remarks on Stonemasons' Marks in the Mortuary Temple

Tim Karberg

Masons' marks are clearly evident on cut-stone blocks in the mortuary temple at el-Kurru. They are only found in the outer walls of Room 1 (Figure 3, above) on the surface of still quite roughly finished blocks, as well as on the tumbled blocks found within Room 1. In the columned inner Room 2, the walls are finished too carefully to preserve remains of masons' marks.

The masons' marks in the mortuary temple are geometric signs, and there are three different forms. On the south-western wall of Room 1, an x-shaped mark is predominant. On the southern side of the south-eastern wall, also some x's are found, but more masons' marks consist of two or three small, parallel strokes on the long side of the block. The most prominent mason's mark at el-Kurru is an arrowhead-shaped mark, which predominates on the northern part of the south-eastern wall. That sign has two variants: in one case the arrowhead points to the edge, in the other case to the centre of the block. The first variant only occurs at the bottom layer of blocks, the second one at the upper block layers.

As on other Kushite and Egyptian buildings, masons' marks are found quite frequently on the 'standard' blocks, but not on more specialized pieces such as column sections – these usually show layout marks to assist the builders in fixing them into their intended position, but not identification marks like 'standard' blocks.

In general, the layout of the masons' marks at el-Kurru allows comparisons with examples from other Kushite buildings. Comparable marks are found, for example, at Musawwarat es-Sufra (Karberg 2001). The arrowhead-shaped sign at el-Kurru is one of the more common masons' marks, but interestingly more often in the first (edge-pointing) variant. The second (centre-pointing) variant, found predominantly at el-Kurru, is relatively rare at Musawwarat. The other marks, especially the x, are (because of their simplicity) very common and widespread in the Kushite world as well as in contemporary Egypt.

The quite precise distribution pattern of the different types of marks is relatively unusual. Indeed, the masons' marks corpora of other Kushite buildings (e.g. the temples of Musawwarat es-Sufra) show significant distribution patterns as well, but the sharp differentiation even between the different block layers at the same wall, as here, seems unique.

Assuming that masons' marks are to be divided into general categories (like x or arrowhead) representing different stonemasons' workshops, and variants within these (like the arrowhead pointing to the edge or the centre of the block) representing crews or single workmen within one workshop, it seems that the workshop responsible for the left side of the south-eastern wall exchanged the person in charge for

some reason at a very early point of the work, after only the first layer of the wall was finished.

As in other buildings, it is obvious that stonemasons' marks are quite well preserved only on rough walls without any smoothing. It remains unclear whether these walls were left that way intentionally (maybe because these rooms were subject to other, less strict ritual requirements than other parts of the building), or whether they document the fact that the building as a whole remained unfinished.

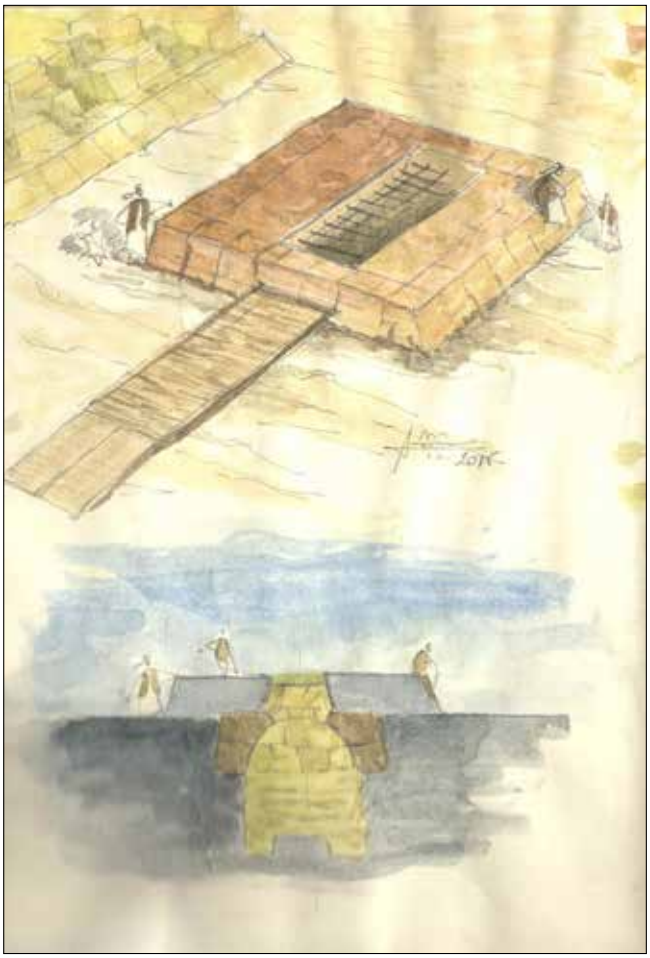

Plate 27. Proposal for covering the burial chamber of Piye to evoke its pyramid superstructure. (drawing by Ignacio Forcadell Utrilla).

Conclusion and Prospects

Geoff Emberling, Rachael Dann and Abbas Sidahmed Mohamed-Ali

This report sets out the preliminary findings of the work so far undertaken at el-Kurru by the co-directors and their collaborators. We have also published a small guidebook for visitors to the site, as required (and supported) by the Qatar-Sudan Archaeological Project, and a National Geographic film ('The Rise of the Black Pharaohs') featured 2014 work at the site. We have also worked with the project's architect, Ignacio Forcadell Utrilla, to develop a proposal to protect the other 25th Dynasty tombs at the site (Plate 27), with newly cut sandstone blocks to evoke for visitors the pyramid superstructures, which are otherwise entirely missing.

Future seasons will see the continuation of survey, documentation, conservation and excavation across the cemetery plateau and by the city wall. We will also aim to begin more comprehensive discussions with the local community at el-Kurru about developing site presentation plans.

Acknowledgments

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Bibliography

Ashton, N, S. G. Lewis, I. DeGroot, S. M. Duffy, M. Bates, R. Bates, P. Hoare, M. Lewis, S. A. Parfitt, S. Peglar, C. Williams and C. Stringer 2014. 'Hominin Footprints from Early Pleistocene Deposits at Happisburgh, UK', *PLoS ONE 9(2): e88329*.

Assefa, Z., D. Pleurdeau, F. Duquesnoy, E. Hovers, O. Pearson, A. Asrat and Y. M. Lam 2014. 'Survey and Explorations of Caves in Southeastern Ethiopia: Middle Stone Age and Later Stone Age Archaeology and Holocene Rock Art', *Quaternary International* 343, 136-147.

Bronk Ramsey, C., E. M. Scott, and J. van der Plicht 2013. 'Calibration for Archaeological and Environmental Terrestrial Samples in the Time Range 26–50 ka cal BP', *Radiocarbon* 55 (4), 2021-27.

Ciampini, E. M. 2015. 'The Royal District of Natakamani at Napata–Season 2014-2015. Preliminary Report'. Online at http://www.unive.it/media/allegato/DIP/Studi_Umanistici/2014/RICERCA/Report_Jebel_Barkal_2014.pdf. Accessed 19th July 2015.

Díaz-Guardamino, M. and D. Wheatley 2013. 'Rock Art and Digital Technologies: The Application of Reflectance Transformation Imaging (RTI) and 3D Laser Scanning to the Study of Late Bronze Age Iberian Stelae', *MENGA, Journal of Andalusian Prehistory* 4, 187-203.

Duffy, S. M. with contributions by P. Bryan, E. Graeme, G. Beale, H. Pagi and E. Kotoula 2013. *Multi- light Imaging Techniques for Heritage Application: PTM Guidelines.* English Heritage, UK.

Dunham, D. 1950. *El Kurru.* The Royal Cemeteries of Kush 1. Cambridge, MA.

Dunham, D. 1955. *Nuri.* The Royal Cemeteries of Kush 2. Boston.

Dunham, D. 1957. *Royal Tombs at Meroë and Barkal.* The Royal Cemeteries of Kush 4. Boston.

Emberling, G. and R. Dann 2013. 'New Excavations at El-Kurru: Beyond the Napatan Royal Cemetery', *Sudan & Nubia* 17, 42-60.

Garcea, E. and R. Sebastiani 1998. 'Advantages and Limitations of Surveys: The Case of the Napatan Region', *Archéologie du Nil Moyen* 8, 55-83.

Gasmelseed, A. 1983. 'Prospection dans le secteur d'El-Kurru', *Meroitic Newsletter* 22, 5-7.

Green, S. 2013. ' Creating a Virtual Reconstruction of the Seti I Inscription at Jebel Dosha', *Sudan & Nubia* 17, 18-23.

Hesse, R. 2014. 'Combining Structure-from-Motion with High and Intermediate Resolution Satellite Images to Document Threats to Archaeological Heritage in Arid Environments', *Journal of Cultural Heritage* 16(2), 192-201.

Karberg, T. 2001. 'Bericht über die Aufnahme der Steinmetzzeichen der Großen Anlage', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin* 11, 38-40.

Kendall, T. 1999. 'The Origin of the Napatan State: El Kurru and the Evidence for Royal Ancestors', in S. Wenig (ed.), *Studien zum Antiken Sudan*. Meroitica 15, Wiesbaden, 3-117.

Kleinitz, C. 2014. 'The Graffiti of Musawwarat es-Sufra: Current Research on Historic Inscriptions, Images and Markings at the Great Enclosure', *Sudan & Nubia* 18, 93-103.

Mohammed-Ali, A. S. and A. Abdulla 2010. 'The Origin of the 25th Dynasty, as Reflected by the Royal Cemetery of Kurru', (in Arabic). *Human Studies Magazine* 3, 26-49.

Mudge, M., C. Schroer, G. Earl, K. Martinez, H. Pagi, C. Toler-Franklin, S. Rusinkiewicz, G. Palma, M. Wachowiak, M. Ashley, N. Matthews, T. Noble and M. Dellepiane 2010. 'Principles and Practices of Robust, Photography-based Digital Imaging Techniques for Museums', in A. Artusi, M. Joly, G. Lucet, D. Pitzalis and A. Ribes (eds), *The 11th International Conference on Virtual Reality, Archaeology and Cultural Heritage VAST – Short and Project Paper Proceeding.* Aire-la-Ville, Switzerland, 111-137

Olson, B. R., R. A. Placchetti, J. Quartermaine and A. E. Killebrew 2013. 'The Tel Akko Total Archaeology Project (Akko, Israel): Assessing the Suitability of Multi-scale 3D Field Recording in Archaeology', *Journal of Field Archaeology* 38(3), 244-262.

Reimer, P. J., E. Bard, A. Bayliss, J. W. Beck, P. G. Blackwell, C. Bronk Ramsey, D. M. Brown, C. E. Buck, R. L. Edwards, M. Friedrich, P. M. Grootes, T. P. Guilderson, H. Haflidason, I. Hajdas, C. Hatte, T. J. Heaton, A. G. Hogg, K. A. Hughen, K. F. Kaiser, B. Kromer, S.W. Manning, R. W. Reimer, D. A. Richards, E. M. Scott, J. R. Southon, C. S. M. Turner and J. van der Plicht 2013. 'Selection and Treatment of Data for Radiocarbon Calibration: An Update to the International Calibration (INTCAL) Criteria', *Radiocarbon* 55(4),1-23.

Rilly, C. and V. Francigny 2013. 'Sedeinga 2012: A Season of Unexpected Discoveries', *Sudan & Nubia* 17, 61-65.

Tomášková, S. in press. 'Digital Technologies in Context: Prehistoric Engravings in the Northern Cape, South Africa. *Digital Applications in Archaeology and Cultural Heritage*.

Yellin, J. W. 2009. 'La transition entre le Napatéen tardif et l'Époque méroïtique d'après les recherches sur la nécropole royale sud de Méroé', *Bulletin de la Société Française d'Égyptologie* 174, 8-28.

Yellin, J. W. 2014. 'The Kushite Nature of Early Meroitic Mortuary Religion: A Pragmatic Approach to Osirian Beliefs', in A. Lohwasser and P. Wolf (eds), *Ein Forscherleben zwischen den Welten. Zum 80. Geburtstag von Steffen Wenig*. Berlin, 395-404.

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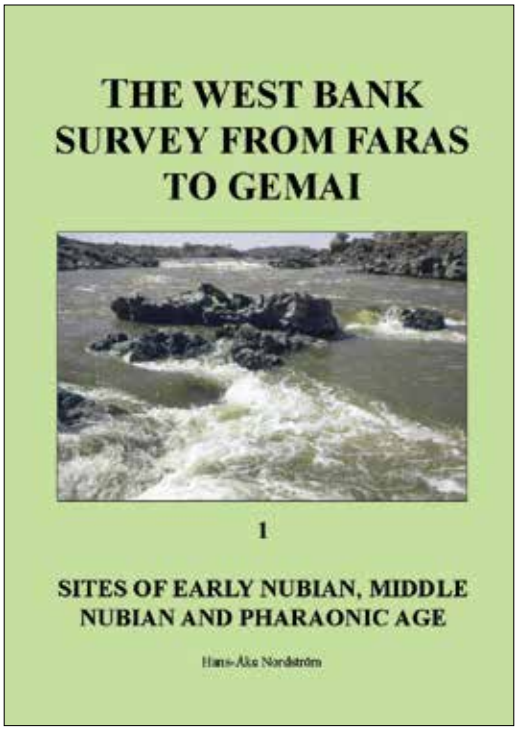

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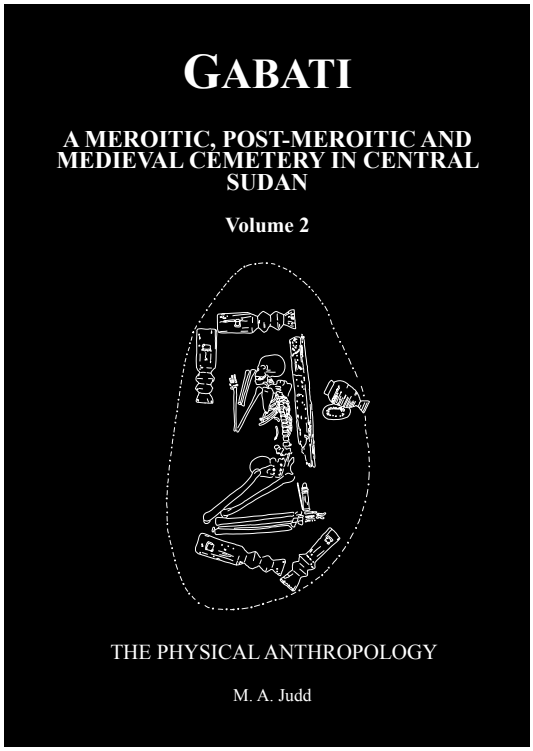
Gabati

A Meroitic, Post-Meroitic and Medieval Cemetery in Central Sudan. Vol. 2: The Physical Anthropology



by Margaret A. Judd,
with a contribution by David N. Edwards
London 2012

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The cemetery at Gabati, dating from the Meroitic, post-Meroitic and Christian periods was excavated in advance of road construction in 1994-5, the detailed report being published by SARS in 1998. This complementary volume provides an in-depth analysis of the human remains. A final chapter, a contribution from David Edwards, the field director of the project, in conjunction with Judd, assesses the archaeological results in light of continuing research in the region over the last decade and more.

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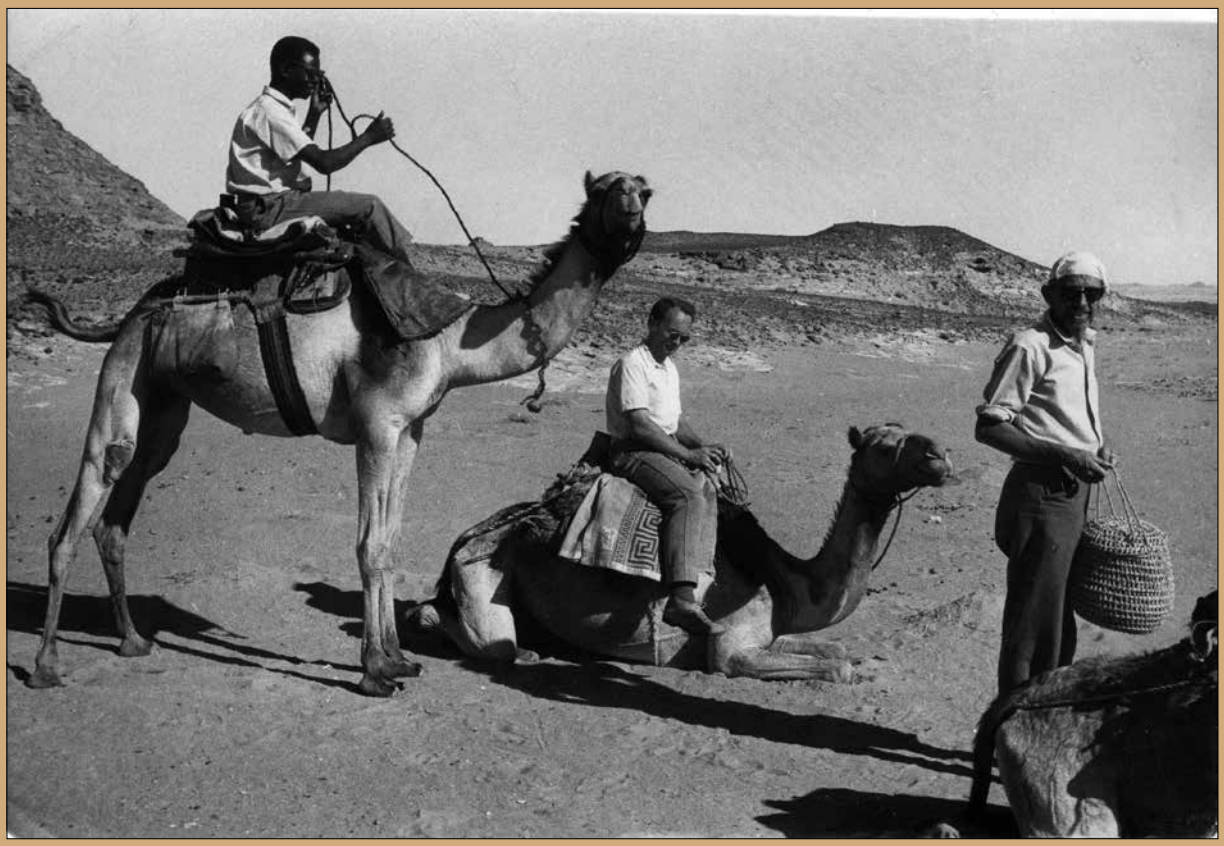
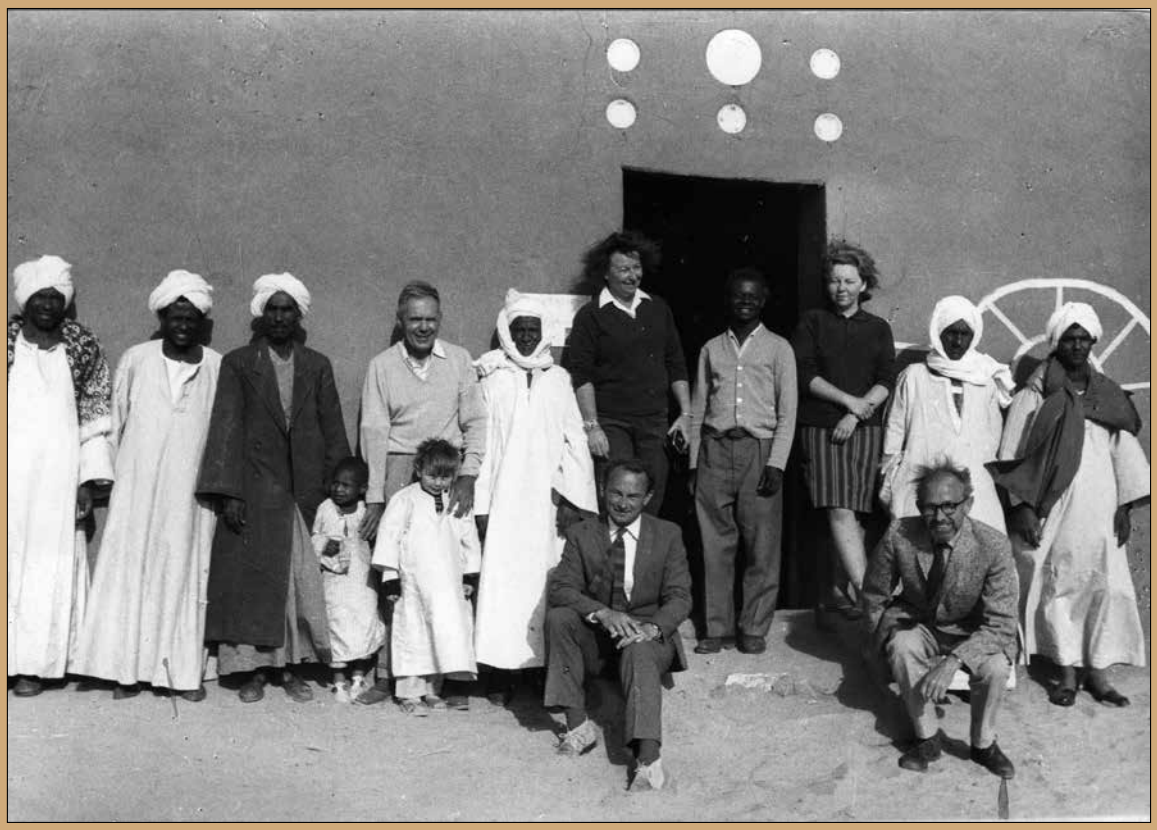


Members of the University of Ghana Expedition to Sudan. John Alexander (centre), James Anquandah (left), Tony Bonner (right) (photo: SARS Alexander Archive, ALE P003.05).



The Debeira West excavation team 1964 with amongst others, Peter and Margaret Shinnie, John Alexander, John Anquandah and Tony Bonner (photo: SARS Alexander Archive, ALE P003.04).