Report to UNESCO: Gebel Barkal and the Sites of the Napatan Region

National Corporation for Antiquities and Museums, Sudan Dr. Abdelrahman Ali January 25, 2019 Compiled with the assistance of Dr. Geoff Emberling, University of Michigan

Introduction

UNESCO Decision 42 COM 7B.59, relating to the World Heritage site "Gebel Barkal and the Sites of the Napatan Region" in Sudan, expressed a number of concerns about management of the site. Upon receiving the UNESCO decision, Dr. Abdelrahman Ali, Director-General of the National Corporation for Antiquities and Museums of Sudan (NCAM), conveyed UNESCO concerns to the directors of the thirteen archaeological missions working on the five component parts that comprise the World Heritage site: Gebel Barkal, Kurru, Nuri, Sanam, and El-Zuma. Gebel Barkal is the location of 6 archaeological missions; El-Kurru has 2 missions; Sanam has 2 missions; and El-Zuma has 1 mission.

At the conference of the International Society for Nubian Studies in Paris (September, 2018), the directors of many of these missions met with representatives of NCAM as well as the Qatar-Sudan Archaeological Project (QSAP), which is currently funding most of the archaeological, conservation, and heritage development work at those sites, to discuss UNESCO concerns.

The UNESCO decision requested information on the "overall strategy and status of project activities...[and of] urgent management and monitoring issues" at each of the sites. It also requested information on "mapping to clearly identify boundaries" at each site.

The mission directors have worked together to compile responses to UNESCO concerns and these responses are provided here in anticipation of a monitoring mission in early 2019. It is recognized that more effective coordination of the missions within the framework of a comprehensive management plan is necessary; this document is intended as the first step in remedying past deficiencies.

The research and conservation strategies and activities at these sites over the past five years are reported below. The most current maps of each component part are gathered at the end of the document (pp. 72-76).

Gebel Barkal

The missions working at Gebel Barkal are:

- An NCAM mission directed by Timothy Kendall and El-Hassan Ahmed Mohamed working on the temples
- A mission of the University of Venice ca' Foscari directed by Emanuele Ciampini working on the Meroitic palaces
- A joint mission of the Instituto Superiore per la Conservazione ed il Restauro in Rome and NCAM, directed by Maria Concetta Laurenti, Claudio Prosperi Porta, and Iglal el-Melik, working to restore the rock-cut Mut Temple
- A Spanish mission of Wahat Projects directed by Maria Montserrat Diaz de Cerio working on a temple just outside the Barkal zone in the neighborhood of Abasseya and recently discovered pyramids in the West Group

- The Qatari Mission for the Pyramids of Sudan, directed by Alexandra Riedel, working first on a sustainable tourism plan for the Barkal region; as this project has done only preliminary work, it is not reported on below.
- The University of Dongola at Karima, directed by faculty members, has conducted several field schools at the site. The results of field schools are not reported on below.

In addition, work has been done on the Gebel Barkal Museum, supervised by Murtada Bushara Mohamed, Director of Antiquities for Northern State.

NCAM Mission for the Barkal Temples

T. Kendall and El-Hassan Ahmed Mohamed

Work area of the mission

Approximately 260 x 300 m, extending from the edge of the Jebel Barkal cliff in a southeasterly direction to the old roadway in front of the mountain, incorporating all of the major temple or palace structures, from B 500, B 1700, and B 561 on the northeast side to B 200, B 1200, and B 100 on the southwest side. (The NCAM Mission has assumed responsibility for investigating, recording and publishing the rock cut chambers of the Mut Temple (B 300) and of undertaking steps to preserve and protect them (Fig. 1).



Figure 1: Site Map of the Jebel Barkal Temples, showing the licensed areas of the Missions

General condition of the ancient buildings within the work area

The monuments are in generally poor, fragmentary, and—to a varying degree—unstable condition. Their degradation is the result of a combination of factors: a) the inherent fragility of the original building materials (soft sandstone, mud-brick, fired brick, and painted plaster), b) long exposure to extreme climatic conditions, such as heavy rains, violent NE winds, blowing sand, and repeated flooding (prior to 1990), and c) destructive and uncontrolled human activity, both deliberate and unconscious.

During the 19th and early 20th centuries, local residents engaged in a wholesale destruction of the temples in order to take stones from them for the lining of the graves in the neighboring cemetery just west of the mountain. Modern archaeologists, like Reisner (1916-1920), also left the site radically altered by his large excavation dumps, and, without realizing the danger, he left the cleared temples open, exposing them to the ravages of the harsh natural environment and the destructive tendencies of human visitors.

Today, despite the best efforts of NCAM, the site continues to suffer from unmonitored, unregulated human access and illegal motor traffic.

Excavations 2013-2014

- B 200: complete documentation of temple. Prepared a complete list of all Reisner finds and notes from Temple B 200. Prepared a report on Temple B 200
- B 500: complete excavation and documentation of early phases: B 503, 505-507, 508-511, 514-519, and 522.
- Kiosks B 501, 502, and B 551. Prepared records, drawings of each and full reports
- B 560: excavation of newly discovered kiosk in front of B 561.

Excavations 2014-2015

- B 500 (first court B 501): exposed NE, SW, and SE walls, recorded all reliefs, both Napatan (Piankhy) and Meroitic (Natakamani);
- B 561: discovery of Meroitic Mammisi temple, approximately one half exposed; recorded reliefs in sanctuary and Meroitic hieroglyphic texts on columns, created detailed plans and temple model, collected and recorded all objects found and hundreds of pottery sherds. (B 561 and its kiosk B 560 are the first of probably six such temples that line the causeway leading to B 500. We positively identified the second such temple, "B 570", which remains unexcavated).
- B 1700 (small Meroitic "palace," parallel to B 500, possibly high priest's house) recorded plan; created 3D photoscans of all excavations.

After 2015, excavations were halted; QSAP funds were suspended and resumed in 2016, focus henceforth was placed entirely upon survey data collection, preparation of didactic materials for site visitors and site management issues

Completion of Site Survey

Each structure mapped; all blocks shown in situ.

Production of 3D reconstruction temple and pyramid models

Each temple and pyramid restored in a computer model based on all recorded data, in order to complete a 3D site model to be used in an animated film to be shown in Visitor Center.

Completion of 3D topographic model of site

Data collected with aerial drone photography.

Site Management Projects, 2014-19

- Each year picked up the trash from the site (mostly plastic bottles and airborne plastic bags, blown in from Karima). Each year approximately 60 trash bags were filled.
- Removal of town public trash dump in front of archaeological site and preventing its further use. (Summer 2018)
- Each year cut down the trees and bushes growing on the site and hauling away the cuttings to the roadside to be carted by truck into the desert (2013-17).
- Removal of ruinous, unsightly modern wall, built in the 1990's to protect the site on its SE side. This wall, never finished and in an advanced state of decay, had been built over ancient remains and served no purpose. Its removal much improved the appearance of the site (Summer 2018).

- In 2014 and 2015, cleared and sifted select spoil heaps of Reisner, with the goal of both removing the mounds of debris from the site and examining them for significant objects. (In 2014 this operation recovered a solid gold amulet that had been missed by Reisner's workmen.)
- Mapped the perimeter of the archaeological site and began to mark it with a barrier of cement posts to control motor vehicle access and to clarify the bounds of the protected area. The posts were cylindrical, 2 m long and 50 cm in circumference inserted into the earth at a depth of 1 m. and standing 1 m in height above ground level about 1.5 m apart. The barrier was to prevent encroachment by the town (Unfortunately, one section brought us into conflict with the Karima and Merowe Town Authorities, which had already sold for development the land we had hoped to protect: across the road from the Barkal pyramids)
- Erected signs forbidding vehicular traffic in the antiquities area.
- Constructed a new Visitors' Center (2015-16) beside Jebel Barkal Museum: includes a cafe, toilets for men and women, curatorial offices, and an air-conditioned exhibition space and lecture hall.
- Prepared texts and photo panels for didactic signs for display in Visitors' Center.
- Prepared materials to enhance visitor experience: bilingual signs (Arabic-English) and a bilingual tourist guidebook.
- Prepared an overall site conservation report (2015)
- Prepared a proposal with stone conservators for the conservation and partial restoration of temples B 600 and 700 (but with no offers of funding forthcoming).
- Prepared a proposal to construct a protective shelter over the temple B 561, excavated in 2015 (but with no offers of funding. The temple was reburied for its protection.)
- Prepared a proposal to upgrade the exhibits, labeling, lighting and appearance of the Barkal Museum. The response was the production of a design for a new Museum on the site. (No funding for building this museum has yet been offered).
- Considered the creation of a protected open-air block storage exhibit area beside the Barkal Museum, with raised benches onto which significant or decorated blocks can be placed for public display.
- In 2019 will move all finds into the Barkal Museum storeroom and put them all on a digitized database.

Suggested future strategies

- Better manage and control human access
- Prevent vehicles from driving through or parking on the site,
- Enlarge the site security staff; with guards posted at opposite ends of site.
- Create a prescribed tourist walking route through the site, using informational signage, marked pathways and new stairs and walkways where necessary.
- Create rest areas at opposite ends of the site.
- Upgrade the present Barkal Museum with a new museum, or with focused didactic displays describing local sites. The objects need expanded, well-lit, well-labeled, air-conditioned exhibition spaces with modern display cases, including 3D architectural models and possibly 3D printed reproductions of statues from Jebel Barkal now in foreign museums.

Publications

Dobieslawa Baginska, "The Meroitic Pottery from B 560 at Jebel Barkal," in M. Honegger, Ed. Nubian Archaeology in the XXIst Century: Proceedings of the Thirteenth Conference for Nubian Studies, Neuchatel, 1st-6th September 2014, pp. 489 ff.

Dobieslawa Baginska, "The Meroitic Pottery from B 561, the Mammisi at Jebel Barkal." Paper presented at the 14th International Conference for Nubian Studies, Musée du Louvre, Paris. Sept. 10-14, 2018. (To be published in the Jebel Barkal final report, forthcoming)

Timothy Kendall, "B 100: A little-known Meroitic palace at Jebel Barkal," *Orientalia* 83, fasc. 1 (2014), 63-75.

Timothy Kendall, "Kiosks at Jebel Barkal." Paper presented at the 12th International Conference for Meroitic Studies, Prague, Sept. 5-9, 2016. (To be published in the Jebel Barkal final report, forthcoming)

Timothy Kendall and Al-Hassan Ahmed Mohamed, "Jebel Barkal in the New Kingdom: An Emerging Picture." In *Nubia in the New Kingdom: Lived Experience, Pharaonic Control and Indigenous Traditions*, N. Spencer and A. Stevens, eds. British Museum: London. 2018 pp. 155-185.

Timothy Kendall with El-Hassan Ahmed Mohamed, "The Monument of Taharqa on Jebel Barkal (B 350)." Paper presented at the 14th International Conference for Nubian Studies, Musée du Louvre, Paris. Sept. 10-14, 2018. (To be published in the Jebel Barkal final report, forthcoming)

Timothy Kendall and El-Hassan Ahmed Mohamed, "Jebel Barkal: 'Karnak' of Kush" in G. Emberling and B Williams, eds. *The Oxford Handbok of Nubia*. In Press.

Maksim Lebedev and Simone Nanucci, "B 1700: A new Meroitic palace at Jebel Barkal?" Paper presented at the 12th International Conference for Meroitic Studies, Prague, Sept. 5-9, 2016. (To be published in the Prague Proceedings, forthcoming)

<u>Italian Archaeological Mission in Sudan – Jebel Barkal (Meroitic Royal City)</u> Emanuele M. Ciampini

History of the excavations in the Meroitic Royal City

Although the archaeological site of ancient Napata was described since the Nineteenth Century, the discovery of the Meroitic Royal City in Napata is very late. The investigations started in the 1970s when Sergio Donadoni (University "La Sapienza" of Rome) dug two Meroitic temples (B1300, B1400, not on map in fig. 1). Some seasons later, the investigation moved to the area next to the Jebel (March 1978), where the team of the Italian Mission discovered the remains of a monumental royal palace, built upon a platform (B1500); in 1984, the discovering of a stela with a Meroitic inscription identified the founder and owner of the palace as king Natakamani.

Year by year, the investigation around the palace added several other structures, showing the wide architectural plan of Natakamani: an older palace (B2400), a monumental pavilion (B3200), a columned structure, probably part of a bigger building (B2100) and the so-called Edifice of the Basins (B2200); to these, were later added other two monumental kiosks (B1800 and B2300).

Work Area of the Italian Mission

The area in the capacity of the Italian Mission extends approximately north of the temples, with a southeastern border signed by the old road. The area comprises the Meroitic Royal City, consisting of the main palace of Natakamani and the other edifices built around it. The main evidence on the ground can be listed as follows:

- The square platform of B1500 (Palace of Natakamani, 1st century CE)
- Part of the building B3200 (a pavillion connected with the royal palace B1500)
- The building B2400 (another palace, older than B1500)
- Part of a columned edifice (B2100)
- The two basins of B2200 (the so-called Edifice of Basins)
- Two monumental kiosks (B1800 and B2300)

GEBEL BARKAL GENERAL SITE PLAN



Figure 2: Map of the monuments excavated in the Meroitic Royal City by the Italian Archaeological Mission in Sudan – Jebel Barkal.

State of conservation of the site

The monuments in the Royal City are characterized by a wide use of mud and red bricks, being the stone (mainly the local sandstone) is used for some specific parts (columns, portals, architectural elements). This technical features let us understand the reason of their poor state of conservations: already in ancient times, the monuments were plundered of their precious equipment and materials; later, also the mud bricks have been removed by the sebbakhin for nearby cultivation. At the same time, the still standing parts of the edifices have been exploited by the people living in the area; this phase is testified by poor dwelling places (mainly ovens) and few tombs.

To this destruction and systematic damages, we have to add some more recent activities that have threatened the monuments. The passage of cars in the area has been a constant threat for the

antiquities, and the protection wall built for the safety of the archaeological area created other problems; indeed, it was built on a Meroitic monument (B2400), thus its investigation needed a preliminary, partial removal of this wall (now, it has been quite completely destroyed).

The most important and precious materials unearthed by the Mission are kept in the Museum of Karima. The presence of this institution in the same archaeological site has supported the activities of the Mission, ensuring the protection and the exhibition of some objects (three lion statues from B1500, some fragments of glazed tiles with Dionysian representations, and the stela with the Meroitic inscription mentioning the king Natakamani and the queen Amanitore).

Overall strategy and status of project activities

Since the season 2014-2015, the Italian Mission has been supported by the QSAP (Qatar-Sudan Archaeological Project); at the same time, the excavations have the institutional and financial supports of the Italian Ministry of the Foreign Affairs and of the University Ca' Foscari, Venice.

The activities of the last seasons can be summed up as follows: Excavation:

- 2011-2012: resuming the digging in B1500 south side, west of terrace. Two capitals belonging to a canopy standing on the terrace were found. Recording of pottery.
- 2012-2013: digging on the western side of B1500, southern half. Finding a podium covered on all sides by the fallen peripheral wall of the B1500 palace in front of the western staircase. Checking the architectural features on the four outer façades of that building and more topographical points by a total station.
- 2013-2014: complete excavation of the peripheral wall in B1500 (SW side) and round the corner the southern wall. Fragments of glazed tiles, clay sealings and painted pottery.
- 2014-2015: Season partially funded by the QSAP. Recording of the archaeological materials from the Mission storeroom (pottery and finds). Opening of the digging in B2300 (kiosk near the mountain).
- 2015-2016: the QSAP funds were suspended; nevertheless, the Italian Mission succeeded in ensuring the field thanks of the balance of the previous year. Work in B1500: investigation in the inner side of the southwestern corner. Identification of the pre-palatial foundations along the western outer wall and the southern wall. Restoration of stone architectural elements stored in the museum and in the site (B2300). Organization of the antiquities with some new shelves.
- 2016-2017: Season funded by QSAP. Work in B1500: investigation of the inner structure of the platform, in correspondence of the western entrance. Discovering of a sector used for storing and cooking; evidence of pre-palatial structures, partially used in the foundation of the palace. Pottery and clay sealings. Processing of the archaeological materials stored in the Museum and in the Mission storeroom.
- 2017-2018: Season funded by QSAP. Work in B1500: investigation in the area next to the southwestern corner of the peristyle. Defining of the casemates structure of the southwestern sector of the platform, with other monumental evidence of pre-palatial foundations. Sounding in the peristyle, with the identification of a more complex system of foundation walls. Processing of archaeological materials (pottery and finds).
- 2018-2019: Season funded by QSAP. Work in progress; the field is operating in the area between B2100 and B2200; here, a complex system of mud brick walls join the outer red brick wall, closing the Edifice of the Basins (B2200) on the east side. Restoring in the south-west sector of the main palace (platform of foundation).

The strategy in the work undertaken by the Italian Mission merges the work on field with the processing of the data and the elaboration of models, for a better comprehension of the site and its history.

Site management and monitoring:

The regular presence of the Mission on the site ensures a constant monitoring of the threats for the antiquities; besides, we also mention the check in the change of the phisical environments, due to climate change (see the action for restoring the walls in B1500, badly damaged by the heavy rain of the last season, see below). These activities comprise:

- Cleaning of the area in the capacity of the Italian license (removing of trash, cutting the bushes, etc.)
- Regular management of the visible remains of the monuments for the visitors
- Annual report with the activities undertaken by the Mission, sent to NCAM and QSAP.
- Regular monitoring of the archeological materials stored in the Museum of Karima. Plan of a renewing of the presentation of the materials of the Meroitic royal City in the exhibition of the Museum
- Prepared presentation of the site to the visitors: a short guide (pamphlet) and a brochure, already available on the site (N.B.: due to the last updates from the excavations, the pamphlet is going to be enriched with new data. The next version will probably be ready in 2019). Both the texts should offer a clear presentation of the Meroitic royal City, and can be the main support for the visitors on the site

New project and strategies in management and protection of the antiquities

In the season 2018, because of the damage of the restored sectors in the palace of Natakamani (B1500) just investigated, a new action on the monument has been carried out: we are dealing of a water proof plastered cover, that should ensure the protection of the walls and, and a better understanding of the structure as well. If the test in the southwestern sector of palace platform shall work, it is highly desirable a specific project in the main edifices of the Royal City (at first B1500). This action perfectly fits with the wider plan in the management and protection of the archaeological site in Jebel Barkal. The next step is already planned in the first months of 2019, with the restoration of the edifice B3200.

Future plans

Last, we would like to mention an exhibition planned in Rome at the end of 2019, concerning the activities of the Italian Archaeological Mission in Sudan – Jebel Barkal, and directly with the site. After about 30 years from the last exhibition in Rome, a new event will be focused on the archaeology of the Jebel Barkal and on the site: we really hope that this event could represent an indirect action in the presentation of the archaeological area and, widely, of the archaeological activity in Sudan.

In the frame of this event, we would like to stress the elaboration of 3D reconstructions of (parts of) edifices and archaeological materials in the capacity of the Mission, and of some panels that could be also used in the Museum of Karima.

In the frame of the activities on the site, we would also like mention the collaboration with the Department of Archaeology of Karima (University of Dongola), season 2018: this collaboration comprised activities in the field, training on physical anthropology (in the excavations and workshop in the Museum of Karima), and a workshop in the Faculty in Karima.

Conservation of the Temple of Mut at Gebel Barkal Maria Concetta Laurenti Since 2013, the Italian Institute for Conservation and Restoration (ISCR) has been conducting an important initiative at Gebel Barkal in northern Sudan to improve the conditions of conservation and documentation of a temple dedicated to the goddess Mut. The activities described below were conducted in partnership with the NCAM represented by Mrs. Iglal el Malik, head conservator of the National Museum of Khartoum, financed by MIBAC (Italian Cultural Heritage Ministry) and by the Qatar-Sudan Archaeological Project.

As known, the Temple of Mut is one of the few monuments in Sudan that contains an important cycle of wall paintings that are well preserved and need to be protected and documented.

The need for a conservation intervention had been highlighted by the UNESCO scientific mission that took place in 2005, just after the site's inclusion on the World Heritage list in 2003, which had highlighted some critical aspects.

Thanks to funding by Qatar and MIBAC, the project was able to start in 2013; since then, five campaigns have taken place for about two months each year, focusing on activities aimed at:

- clarifying the monument's overall state of conservation;
- investigating the previous conservation history;
- carrying out tests and restoration work on the wall paintings;
- carrying out works of preventive conservation;
- setting up a project for architectural restoration.

Preliminary studies and surveys were essential to evaluate the monument and the work of art it contained, as well as its surroundings; an integrated approach to conservation means that the deterioration of the wall paintings must be examined in relation to the building's state of conservation and the condition of its surroundings.

In addition to scientific investigations, it was also necessary to understand the monument's architectural components by carrying out topographic and 3D laser surveys. Together with photographic documentation, 3D laser survey provided the basis for mapping the degradation in order to design the restoration project.

The analysis of the architectural components is also an important methodological step towards identifying possible design solutions in order to help the protection of the monument and its better presentation and fruition.

A brief description of the site

The denomination of the site as a pure and sacred mountain (Gebel Barkal) derives from the religious importance that the ancient Egyptians gave it, as the primitive site of the god Amun, represented by the cobra-shaped pinnacle, and as such, the many temples in the area include one dedicated to Mut, erected towards the end of the Egyptian 18th dynasty.

The temple that we know is of the tripartite kind, located just below the pinnacle, and some of the columns and Hathor capitals still exist; the temple is also known from drawings and engravings made by travelers who visited the site from the 19th century onwards (namely, Linant de Bellefonds, Cailliaud, Lowell, and Lepsius).

These visitors provide us with valuable documentation on the state of the temple at that time and of the wall paintings (figurative and hieroglyphic) which are still the basis for iconographic studies of the temple.

The temple dates from the Napatan age particularly under Taharqa (7th century BCE) when many buildings were erected.

The new temple (called B300 by Reisner) differs from the previous one because it is partially carved into the mountain, and because it has a large courtyard area with external colonnades enclosing

the remains of the pre-existing temple columns (pillars in the shape of Bes and columns with Hathorshaped capitals), realigning them along a new axis.

Figure 3: Plan of the Temple and the Hypostyle Hall (relief made by Pietro Gasparri 2014)

Within the sandstone platform, three areas were excavated: a wider central one and two narrower ones on either side, as well as much of the atrium that preceded them. The ceiling of the inner chamber (atrium) was originally supported by two massive Bes-shaped columns, recalling images of Greek Typhone, hence the historical name of the temple as *Typhonium*. On the outside, the temple was enclosed by two massive walls; to the west are a few rows of stone blocks that helped to establish that the walls were approximately 1.90 meters thick, while to the east, there is a groove on the rock that appears to be the base of a wall running parallel to the previous one.

The overlying rock face shows clear signs of the cavities to support the beams of the flat roof. The surviving remains show that the temple extended for 29 meters though this figure does not correspond to the original extension of the temple, since the outer colonnade is missing.

Clear traces are on the rock face of cavities for beams placed at different levels, which suggest different building phases occurring perhaps in the time of Taharqa himself.

Today much of the damage to the architectural elements and the wall paintings is the result of an earthquake which occurred at an unknown date, as well as centuries of neglect. Particularly serious was the collapse of the western atrium column and a large part of the southwest ceiling and masonry structure, whose remains can still be seen on the ground. There are large blocks of broken stone on the ground, as well as the corner part of the atrium which collapsed in a huge block, hence exposed to the elements for centuries. Parts of the Bes-shaped column and lintel lie across the west side of the atrium obstructing access to the D side chamber.

Today, these events are the source of serious structural instability making it necessary to take action with static measures to protect what remains of the temple. Deep vertical cracks run parallel down the back wall of the atrium, and affect the rocky surface of the remaining coverage, rising up the exposed rock face. At the time of our first visits, the temple remains were protected by a light covering made of joists and corrugated metal sheets covering the atrium where the ceiling was missing. This was clearly unsuitable because of the type of materials used and the poor maintenance (the metal sheets led to overheating, and damaged parts gave access to harmful elements such as sand, wind, etc.).

Restoration work of mural paintings: Scientific investigation

To ensure the best conservation of works of art and decorative elements, we know that microclimate conditions must be stable, and that daily and seasonal fluctuations of temperature and relative humidity must be reduced.

The microclimate conditions were checked by installing battery powered sensors inside (inner chamber, atrium) and externally. Monitoring has confirmed the proper operation of the filter area, the roof covering and the environment.

The behavior of areas A and B in the year 2014 was as follows: the temperature in early February reached 35° and remained constant until November, due to the thermal inertia of the rock. The relative humidity remains very low, around 30% (excluding water infiltration in the rooms). Some rainy days occur from July to September with a small increase in relative humidity reaching 35/40% in the summer months, showing that external conditions have little influence on the interior microclimate.

Regarding the painted decorations, the walls and ceiling of the atrium and inner chamber were completely covered with figurative paintings and hieroglyphs, while carvings and painted decoration appear to be less complete in the side rooms; in room C a wall surface is unfinished, while the decorative phase in room D is at a more advanced stage.

State of conservation

The walls show large patchy areas affecting not only the painted decorations but also the rock surface. In some cases, the rock surface shows through the painted layers; in other cases, there are breaks in the rock walls resulting from geological instability caused by earthquakes, aggravated by water penetration through the cracks in the rock causing erosion in the lower parts.

A lot of damage can also be explained by the state of abandonment and neglect. Over the centuries the site probably provided shelter for travelers' bivouacs and housed colonies of bats that are responsible for much of the damage found on the painted surfaces, blackened by deposits of bat droppings and perhaps also the soot produced by camp fires.

The bat droppings produced calcium oxalate which covered the pigments in a mixture of color, dust and black smoke; the result is an extremely resistant layer of dirt that obscures the original surface (already visible in Breasted's photos). The whitish efflorescence which can be seen on the ceilings is due to urea crystals produced by the bats. These layers of dirt are chemically stable making their removal difficult; hence it was necessary to use various solvents and methods of application. Finally, congealed mud deposits are remnants of wasp nests that have caused the paint film to flake off in some areas.

Restoration work

The first tests were carried out in 2014 to develop a plan of action; then, in 2015 and 2016, the two long walls of the inner chamber were restored ; the paintings on these walls depict the pharaoh Taharqa proffering gifts to the Theban triad of gods, characterized by their traditional attributes on the west wall, and their Napatan attributes on the east wall; two other deities accompany the Theban triad.

The cleaning operation proved to be the most complex, but the results have been extraordinary, revealing the original colors under the thick layer of dirt.

From the methodological point of view, the criterion for the chemical cleaning and restoration operations is that of minimum intervention combined with the use of widely tested materials. The cleaning was carried out in a differentiated manner, taking into consideration the original constituent

materials and the state of preservation of the works, with particular regard to the gypsum present in the preparatory layers and to copper-based pigments (Egyptian blue and greenish paratacamite). It was a gradual, progressive and delicate operation.

Various solvents and different products were employed depending on the situations, such as alkaline solutions of ammonium carbonate, and ion-exchange resins as gel or applied with swabs depending on the condition of the surface. The extraction of dirt residues, in particular due to the bats, was carried out using deionized water in the form of paper pulp, or applied with swabs. In 2016, a laser instrument was used to supplement the chemical cleaning.

Cleaning was carried out using a laser EOS QS in QS mode, supplied by the Florence-based EL.EN company that allowed us to use the tool for the entire 2016 season, in order to remove superimposed layers of organic and inorganic material. Laser cleaning was combined with chemical cleaning where necessary; in places where the dirt deposits were thicker, the layer was first lightened by using very rapid chemical cleaning.

Further restoration operations involved consolidation to restore the cohesion of the original constituent materials and adhesion between them, as well as the stone support where it was loose. The latter, however, turned out to be not very widespread and localized especially on the edges of the missing areas. Special attention was given to the aesthetic aspect of the works, acting in accordance with the minimum criteria for intervention and respect for the authenticity of the original in order to ensure a better understanding of the figurative text and to improve appreciation of the aesthetic and artistic values. The picture recovery was truly extraordinary.

Figure 4: West wall--the pharaoh Taharqa proffering gifts (necklaces) to the god Amun, followed by Mut dressed in a transparent gown, Khonsu with the crescent moon, Min (god of fertility) and Horus.

Figure 5: East wall--Taharqa proffering the statue of Maat (goddess of justice), Amun (cryptocephalus), Mut, Khonsu, Montu and Thot. The wall masonry is interrupted but the representation continues with two scenes depicting river gods, etc.

The architectural restoration works

The collapse of the load-bearing structures on the northwest side of the atrium has led to a situation of structural instability. In fact, the upper part of the platform is without support and has a pattern of cracks consisting of parallel sub-vertical fractures going up the rock face; monitoring has shown that this situation is unstable.

We feel that resolving this problem is an essential first step before restoring the wall paintings. This has made it necessary to create the conditions for a static support system by removing the collapsed material covering the lower levels in order to make space for the provisional supports, at the same time opening the area of the missing column depicting Bes. This objective required some archaeological investigation in the collapsed area, close to the area of the new supports and against the main blocks in the passageway, in order to check the floor levels and the stratigraphy of the collapsed material. The operation is extremely complex not only because the blocks have sculpted and painted surfaces that need to be protected, but also due to the considerable weight and the difficulties of maneuvering the blocks in a confined space. During the campaign of February 2017 were moved three collapsed blocks, the two leaning the wall, using tackle available from NCAM, after enveloping them with a protecting shell. Two more blocks were moved in February of 2018. The area, already investigated, beside the wall, has been prepared, lying down the metal plate in which will be inserted the metal pipes of the provisional supports.

The architectural project and future plans

- Developing the architectural project. The intention is to connect the new supports, in the definitive restoration scheme, to the structural system of the new roof covering; this could be supported by a reinforced frame within a wall of earth or by a another column replacing the oblique restoration wall. This solution is put forward in the preliminary project. The fragments of the Bes column can be reassembled and exposed in the nearby Museum. The project includes the technical plans (lighting, fire, intrusion, electric)
- Completing restoration of the wall paintings and the ceiling in Chamber B (during the mission 2018-2019)
- Restoration of wall paintings in the Atrium
- Archaeological survey outside in the area in front of the Temple to individuate the original extension of it. Cataloguing of every architectural item and stone carved piece.

Publications

- Poster presentation at CRE in Naples (May 2017)
- Attending the workshop on the Italian missions in Sudan at Ca Foscari University (October 2016)
- Poster presentation at APLAR Conference in Florence (September 2017) in press

Summary of Activities of the Spanish Mission at Abasseya (B2500, B2600, and B2700) Montserrat Diaz-de-Cerio, Director

Definition

Abasseya site is located in the urban area of Karima and comprises the structures identified as B2500, B2600, and B2700 (Fig. 6). Although the site is currently outside the modern boundaries of Barkal archaeological area, historically it would have been part of the Jebel Barkal religious center.

Figure 6: Map of the Abasseya site showing the distance from Barkal archeological site

Background

The initial license of the Spanish mission led by the foundation Aula Ægyptiaca comprised the archaeological remains in two contiguous squares within the town of Karima. One of these squares has become part of the modern cemetery, becoming inaccessible to any archaeological intervention. Therefore, the project focused in the other square taking the name of Abasseya, similar to the surrounding neighborhood. The first archaeological intervention was performed by a team from the University of Dongola in February 2000. Late in the year 2000, the NCAM granted an excavation permit to Aula Ægyptiaca (a private foundation from Barcelona) with the collaboration of University of Dongola to continue the research at the site of Abasseya. This foundation performed two seasons in the site. In 2012, as a result of a university reform in Spain that affected the institutions linked to universities, Wahat Projects resumed the archaeological project in this site. Since 2012 Wahat Projects have uninterruptedly worked in Abasseya.

Outstanding Universal Value (OUV)

The remains found in the Abasseya site have been identified as interrelated buildings that would form an arrangement called a Meroitic religious complex. So far, this type of complex, related to religious and coronation ceremonies had only been identified in the Meroe area. Abasseya is then, the first complex of this type documented in Napata.

The religious character of Abasseya complex, its architectural characteristics and colorful decoration clearly relates the site with the ancient religious center of Barkal, allowing us to expand the geographical limit of the so-called royal district and providing new information about the occupation of this area between the II century BC to I AD.

Objective

The initial objective of the archaeological mission was to determine the nature of the remains identified as B2500, B2600 and B2700 which were barely visible at surface, their chronology and relationship with Barkal religious center. After B2500 was excavated, a second objective was to restore and preserved the building in order to prepare it for permanent exhibition.

General condition of the licensed area

- B2600 was excavated and documented during the campaigns of 2000, 2003 and 2012. Given the
 original state of conservation and being in a public area it was decided to cover the entire area
 with sand. Currently the remains are not visible.
- B2700 was excavated and documented during the 2013 campaign. Given the original state of conservation and being in a public area it was decided to cover the entire area with sand. Currently the remains are not visible.
- B2500 was excavated and documented during the campaigns of 2003 and from 2012 to 2018. It
 presents a clear and unprecedented architectural structure and a good state of conservation.
 Therefore, parallel to the archaeological work, restoration and conservation work has been
 carried out. Likewise, an exhibition project was developed to allow the permanent display of the
 site.

The building B2500 is exposed to two main degradation factors common to other sites in the area:

- Harsh environmental conditions: direct sunlight exposure, drastic changes in temperature between night and day, and the seasonal winds that contains a high level of sand particles which produces a high degree of erosion.
- Human activity, which is a very particular case as the site is in a square fully integrated into the daily life of the Karima town.

Other degradation factors that must be taken into account, although with less damaging potential, are those of biological origin such as actions caused by animals or invasive living plants.

2014 - 2018 intervention highlights

The last five seasons focused on B2500, which was identified as the main structure of this complex. Three of these seasons were sponsored by QSAP: 2015, 2017 and 2018.

- Finalized the complete excavation of B2500 including all the podium chambers and both ramp accesses.
- Surveyed the contiguous areas to the west and the east of B2500.
- Rebuild the stele found at the entrance of the eastern ramp access.
- Registered a total of 68 column pieces including capitals, bases and drums which belong to 10 columns. Several pieces were decorated with color bands.
- Moved all the column pieces to the southeast area of the B2500, to continue with the excavation work.
- Reconstructed inside Barkal museum a decorated column from B2500 (Fig. 7).
- Restored all the exterior and interior walls of the podium and the plaster covering the building.
- Restored both ramp access and stairs.
- Elaborate an exhibition project for B2500 permanent display.
- Built the definitive protection wall around B2500 as per the exhibition project.
- Stored all the column pieces in a storage room build as part of the protection wall.
- Produce 3D model of the excavated B2500 remains based on the photographic record.

Produce a 3D reconstruction model of most likely aspect of B2500.

Figure 7: Column reconstructed inside the Barkal Museum

Site Management:

The preparation of B2500 for exhibition has involved the reconstruction of all the walls adding a protective layer of new material above the ancient levels. The inside of the podium has been filled with sand mixed with mudbrick debris to lighten the pressure on the walls. A final layer of small stones gives the whole podium some homogeny (Fig. 8). The plaster layer has been cleaned and repaired.

Figure 8: Final general view of B2500 (3D model)

The protection and exhibition plan has taken into account the environment in which the remains are located by closing the display area with a minimal visual impact. A perimeter footbridge has been built, which takes advantage of the natural slope of the land and allows a view of the archaeological site from different angles to let the visitors understand the building plan (Fig. 9). The wide stepped ramp also allows easier access to visitors with limited mobility or the movement of larger groups.

Figure 9: 3D model of the enclosure according to the exhibition project

- The outer fence combines strength and lightness to avoid a cage effect. In the southeast corner
 a door gives access to the interior of the archaeological site. A small reception area has been
 built where information about the site can be consulted.
- For the sustainability of the protection and preservation initiatives it is very important to obtain the collaboration of the local population. For this purpose, the value of the site must be recognized, making citizens aware of the historical and heritage value. The production of small guides or brochures could contribute to the understanding and diffusion of the existence of the site. To integrate this site into the tourist circuit, the information will be available at the visitor center of Barkal, since this center is expected to be the starting point for visits to the Napata area. The fact that Abasseya is currently within the population but close to the main hotel of the area, should be seen as an advantage since the visit can be scheduled in a short period of time.
- In the restoration and conservation of B2500, local materials have been used, which facilitates the preservation tasks that would be carried out in the site. The maintenance has a low cost since only one person is needed to keep the site clean and perform control tasks of the archaeological remains. The visit could be done with a guide or alone because the information about the importance and interpretation of the site will be available in situ.

Digital media

- A web page with a summary of each intervention season and several pictures is available at www.wahatprojects.com
- Comments and real time pictures of the excavation campaigns has been shared through Facebook.

Publications

Díaz-de-Cerio, M., "A new Meroitic complex. Abasseya project (Karima, Sudan)". Paper presented at the 13th International Conference for Nubian Studies, Neuchâtel, Sept. 1-6, 2014.

Alcobé, M. and Bermejo, E., "Conservation and restoration in Abasseya B site (Karima, Sudan)". Paper presented at the 24th Annual Meeting of the European Association of Archaeologists: Reflecting Futures, Barcelona, Sept. 5-8, 2018.

Summary of Activities of the Spanish Mission at Barkal West Group Montserrat Diaz-de-Cerio, Director

Definition

Barkal West Group covers an area of approximately 6,000 square meters and comprises an accumulation of burials geographically located south west of Barkal mountain, within the necropolis area (Fig. 10).

Figure 10: Site map of the Barkal West Group, showing the licensed areas under the Spanish mission

Background

The cluster of burials was discovered in 1995 by a Spanish mission sponsored by the *Fundació Arqueològica Clos*. This institution conducted two campaigns, in which two pyramids (Bar.26 and Bar.27) and 5 small tombs were discovered. The burial chambers of the pyramid Bar.26 were found fully decorated with paintings representing funerary themes and an astronomic ceiling. The project was closed in 1996. In 2017, a license was granted to another Spanish mission, under Wahat Projects association, to reopen the site and perform archaeological work in the area.

Outstanding Universal Value (OUV)

This cluster of tombs brings new information about Barkal necropolis not only suggesting its use outside of the royal family, but also extending the chronology of the cemetery prior to IV century BC and expanding the area dedicated to such use. Furthermore, Bar.26 is the only tomb registered in Barkal necropolis that preserves the decoration of the funerary chambers. The astronomic ceiling motif found in this pyramid, together with the one found in Meroe (Beg.S.503) are the only two examples of Egyptian astronomic ceilings in Nubia.

Objective

The main objective of the archaeological mission was to re-study the pyramid Bar.26, registering the paintings found in this tomb with the new technology available and to evaluate the conservation of the burial chambers. A second objective was to identify and register more burials in the area.

General condition of the licensed area

At surface level there are no prominent remains, the superstructures of the pyramids are completely destroyed. Still, there is some scattered debris, basically sandstone blocks and pottery fragments. With regard to the sandstone blocks, the weather condition has contributed to their bad conservation. Also, the uncontrolled human activity, motor vehicles circulation and large agglomeration of population (i.e. the Barkal festival) are contributing to the general destruction of the surface remains. Besides, it is difficult to evaluate the impact of the mentioned human activity on the subsurface structures, especially in the funerary chambers.

On subsurface, the estate of preservation of Bar.26 is good. There are no visible fractures in the chamber walls or ceiling that could affect its integrity or represent an evident collapse risk. The remains of the plaster coating the walls are preserved in a heterogeneous manner. The best-preserved section is the north side of the first chamber, where the three caps forming the coating and the different colors used, can be observed (Fig. 11). The main factors of degradation are not only the water filtrations, capillarity and humidity condensation which affects the pictorial decoration, but also the activity of small insects like spiders, scorpions, and scarab beetles.

Figure 11: Astronomical ceiling inside chamber A in Bar.26 (detail)

2017 and 2018 intervention highlights

- Re-excavate the stairway entrance and surface remains of Bar.26.
- Update and complete a map of the structures found in the fenced area.
- Map the conservation status of Bar.26 paintings and evaluate their condition.
- Take samples of the pigments and plaster covering Bar.26 burial chambers to perform chemical analysis.
- Four new tombs were identified, three of which are in the process of being excavated.
- Draft the conservation strategy to be applied in the Bar.26 paintings.
- Produce a 3D-model of the Bar.26 burial chambers based on the photographic record.

Site management

- At the beginning of each season, the accumulated trash has been picked up and disposed in the nearby town.
- Bar.26 burial chamber access has been closed with a temporary brick wall to prevent the sand from entering the structure.

- The stairway entrance of Bar.26 and all the small tombs found around have been covered with sand.
- The excavation area has been enclosed with a temporary fence that aims to isolate the sector and identify it as an archaeological area (Fig. 12). This temporary closure has been done because the Barkal necropolis area is not fully delimited by any fence or signal posts. Moreover, this sector is at the southeast end of the site, further away from the other two groups of pyramids.

Figure 12: Temporary fence at Barkal West Group

Digital media:

- A web page with a summary of each intervention season and several pictures is available at www.wahatprojects.com
- Comments and realtime pictures of the excavation campaigns has been shared through Facebook.

Publications:

Díaz-de-Cerio, M., "The unknown royal necropolis of Jebel Barkal (West group) – Preliminary typological study". Paper presented at the 12th International Conference for Meroitic Studies, Prague, Sept. 5-9, 2016.

Díaz-de-Cerio, M. and Baches, I., "Recent interventions in the pyramid Bar. 26 (Barkal West Group)". Paper presented at the 14th International Conference for Nubian Studies, Musée du Louvre, Paris. Sept. 10-14, 2018.

El-Kurru

The missions working at El-Kurru are:

--A mission of the International Kurru Archaeological Project (University of Michigan-University of Copenhagen) directed by Geoff Emberling and Rachael Dann working on excavation of structures around the royal cemetery and on study and conservation of the painted tombs

--A mission of the University of Dongola at Karima directed by Abbas Sidahmed Mohamed-Ali that has focused on cleaning the site, demarcating site boundaries, and preparing it for visitors

International Kurru Archaeological Project Geoff Emberling and Rachael Dann

El-Kurru is a royal pyramid cemetery of the kings and queens who ruled Kush from about 850 to 650 BCE. Among the kings buried there were kings who conquered Egypt and ruled there as its 25th Dynasty. Among these, King Piankhy is an especially important historical figure who remains well known in Sudan today.

George Reisner worked at the site in 1918-19 and excavated most of the royal burials, including two tombs that preserved painted decoration. His field diaries mentioned other structures around the site and it had been suggested that there could be a royal town around the ancient cemetery. The International Kurru Archaeological Project (IKAP) began work at the site in 2012 with a goal of providing broader context for the burials excavated by Reisner, including investigation of a possible town. IKAP has has conducted six annual field seasons since then, and the project's work has expanded to encompass excavation of one unexcavated pyramid (Ku. 1), epigraphic documentation and conservation of the painted tombs, and plans for a community heritage center that have been developed in extensive conversations with members of the village community.

Figure 13: Large funerary temple at El-Kurru (foreground) and large pyramid Ku. 1 in 2014

Excavation 2013-2018

IKAP's excavation included rediscovery of four structures that were initially discovered by George Reisner in 1919 but not investigated in detail or published. These were: two Late Napatan funerary temples dating to ca. 350 BCE (larger in Fig. 13 foreground; see also Fig. 17 below); a medieval town wall and gate with associated occupation (Fig. 14); and a medieval rock-cut well. Three of these structures are located in the modern village, and two had to be backfilled (the smaller funerary temple and the

rock-cut well). The larger funerary temple and town wall area have been left open and plans have been made to protect them and make them accessible to visitors to the site. The project also excavated the largest pyramid at the site, Ku. 1, which Reisner had only partially excavated (Fig. 13, background).

Figure 14: Medieval town wall and gate at El-Kurru in 2014

Documentation and conservation of painted tombs

The two tombs at El-Kurru that retain painted decoration are those of Queen Qalhata and her son king Tanwetamani. The tombs have similar use of Egyptian funerary images and spells, and they are highly significant documents for understanding the interaction between Egypt and Kush during Kushite control of Egypt.

Figure 15: Scene from inner chamber of Queen Qalhata's tomb at El-Kurru

Queen Qalhata's tomb retains painted decoration in both chambers of the tomb (Fig. 15). Lower portions of the walls in both chambers are devoid of painted decoration, which has dissolved from the wall surface after the tomb flooded in the past. The surviving polychrome paint retains good coloration, but is very thin, and is prone to flaking, and is at risk of loss. There is a coffin bench in situ in the burial chamber. The face of Queen Qalhata was defaced by human action at some point prior to the start of our work at the site. In the past, the tomb was capped by a protective barrel vaulted baked brick and mudbrick structure. The staircase down into the tomb was patched with poor quality concrete, which is now uneven. It is unclear who did these works. An attempt to stabilize the painted surface of the North wall of the burial chamber was undertaken in the early 1980's by Professor Salah Omar Es-Sadek (University of Khartoum).

King Tanwetamani's tomb retains painted decoration in both chambers of the tomb. Lower portions of the walls in both chambers are devoid of painted decoration, which has dissolved from the wall surface after the tomb flooded in the past. The surviving polychrome paint retains good coloration, but is very thin, and is prone to flaking, and is at risk of loss. There is some evidence of limited mold damage. In the past, the tomb was capped by a protective barrel vaulted baked brick and mudbrick structure. The staircase down into the tomb was patched with poor quality concrete, which is now uneven. It is unclear who did these works.

Site management and conservation

Project architect Ignacio Forcadell Utrilla designed a cover for the staircase of Ku. 1 that allows the burial chambers of the pyramid to be kept open without filling with sediment or rainwater from the occasional but torrential storms that can occur every few years (Fig. 16). The cover was designed to be level with

the existing ground surface in order to preserve the visual integrity of the site, but also to provide comfortable and safe access to the impressive underground chambers by way of a metal staircase set on the pyramid steps.

Figure 16: Cover for the staircase of pyramid Ku. 1 (2016)

A protective cover for the large funerary temple was also designed and built. As the recent UNESCO decision specifically asks for detailed information about this cover, details are provided here. This text is drawn from a report to NCAM in February 2018. Some of the work described has been completed, in particular the wall protecting against flooding from the wadi.

From 2013 to 2016, the International Kurru Archaeological Project (IKAP) excavated a semisubterranean funerary temple of the 4th century BCE at El-Kurru. The temple was built for a king that was buried in what is now by far the largest pyramid at the site. It had been built in a former sandstone quarry that was the source of some of the stone used for the earlier pyramids, and for its new purpose, six underground rooms were dug into the rock itself and new stone blocks were used to build a wall dividing the quarry into two rooms, the larger of which contained 26 columns that originally would have supported a partial roof. New blocks were also added to build a wall against the adjacent wadi, which apparently suffered a catastrophic flood that knocked of the wall at some point close to its construction (see Fig. 17, foreground). A flood in summer 2018 showed that our work had been effective (Fig. 18).

Figure 17: Funerary temple at El-Kurru with ancient wall collapse in foreground

Figure 18: Flood in wadi next to El-Kurru funerary temple, summer 2018

The structure was nearly completed but was never finished or used as intended. During the 1st centuries BCE and CE, Kushite pilgrims to the temple carved over 500 images in its walls and columns as devotional graffiti. This practice is well known from this time at sites further up the Nile (Musawwarat es-Sufra) and at the Egyptian border (Philae) but had not been documented extensively in between. The

pictorial graffiti will be the subject of an exhibit at the Kelsey Museum of Archaeology, University of Michigan in fall 2019.

Conservation assessments of the temple and its graffiti were made by Suzanne Davis (Kelsey Museum) and colleagues in 2016 in a report to NCAM and updated as they cleaned and photographically documented the walls of the temple in 2017 and 2018. These assessments identified three immediate threats to the temple: <u>erosion</u> of the very soft sandstone from rainfall, wind, and efflorescence of salts associated with water in the temple; <u>wear</u> from visitors; and <u>defacement</u>, as some visitors in 2016 carved their names into the sandstone.

With these threats in mind, we strengthened the fence around the site in 2017, which stopped new defacement, and strengthened a temporary wall that would reduce the likelihood of flooding from the adjacent wadi. But it was recognized that we would need to build a more protective cover to prevent damage from rainfall, reduce damage from wind, and to more effectively restrict access to the temple.

We worked on two different plans for covering the temple. One would be a flat and partial roof that may have resembled the original roof (although there were many uncertainties about its method and materials of construction). The other would be a fuller cover that would offer greater protection.

After consideration and discussion of concept sketches at the end of our winter 2017 season with Dr. Abdelrahman Ali, Director-General of NCAM, we decided to develop plans to fully cover the temple as well as to replace the current temporary wall of the wadi with a significantly stronger retaining wall.

Our current plan would build a structure over the temple as detailed in the following drawings:

Figure 19: Protective cover for El-Kurru funerary temple (dashed lines indicate the rock-cut rooms that are currently unroofed)

Figure 20: Profile view of cover for funerary temple at El-Kurru

Figure 21: Cross-section of cover for El-Kurru funerary temple

The funerary temple is located in a depression in the site next to a wadi rather than on the plateau that is the basis for the pyramids. The cover will stand about 3.5 meters above the current ground surface adjacent to the temple, but will barely be visible from other parts of the site. The weight of the cover will be supported entirely on bedrock outside the temple. The top will be reinforced polycarbonate over a steel frame. The translucent polycarbonate, also used in the reconstructed Lion Temple at Musawwarat es-Sufra in Sudan, would allow natural light into the space that will allow it to retain its distinctive feel. The sides will be a mesh that will allow viewing of the temple from outside and also to allow air circulation.

We recognize that the cover will alter somewhat the visual appearance of the site, and we recognize that this conflicts with one of UNESCO's principles—that World Heritage sites should retain their visual integrity. We thus propose six reasons why we think this solution is preferable to one that would more closely match the original roof of the structure in which the roof would be approximately at the modern ground level.

- 1. <u>Protection against rainwater</u>. The current plan, in conjunction with drainage ditches that have already been built around the temple, will provide complete protection from rainwater. The original roof was likely a portico around the inner room only.
- 2. <u>Greater protection against defacement (and safety for visitors)</u>. The current plan will prevent unauthorized access. A reconstruction of the original roof would only prevent access if a larger fence were built, and even barbed wire fences (as we have seen in previous experience at the site) are not adequate to keep some visitors out. Moreover, a roof at ground level would likely tempt visitors to walk on it directly, which would not be safe for them or for the roof itself.

- 3. <u>Greater protection for the structure of the monument</u>. In the current plan, the weight of the cover is supported by foundations into the bedrock located entirely outside the temple itself. A plan to reconstruct the original monument would involve resting some structural elements on the original construction, and this is not advisable given the current state of the stone.
- 4. <u>Ventilation for any groundwater moisture</u>. The current plan, with its high and open sides, will maintain current levels of ventilation necessary to prevent buildup of moisture on the sandstone blocks and columns.
- 5. <u>Greater safety during construction</u>. The current height of the roof, in addition to its conservation benefits, is necessary because of construction safety in local conditions. We plan to assemble the roof structure on the ground uphill of the temple, rather than over the delicate monument itself. We will then install a system of rails to move the roof over the temple. Local topography dictates a roof of this height. Were we to use a crane (which would be a significant increase in cost), we would only have been able to reduce the height of the roof by less than one meter—and as noted, this is not desirable from a ventilation perspective.
- 6. <u>Site visits</u>. The current fence around the temple is not enough to draw visitors from the pyramids to see this newly excavated and impressive monument. A larger structure would provide a visual attraction to see more of the site. Since the temple is located closer to the village, this is an important part of our plan—developed with the local community—to draw visitors to a heritage center to be constructed in the village and for visits to the site include experience of local culture.

Visitors to the site are now being directed to approach from the new asphalt road to the north of the site. The new temple cover would not be visible on initial approach, and would be seen after visitors have walked to view the painted tombs.

In addition, extensive conversations with the village community in El-Kurru have resulted in development of plans for a community heritage center that would supplement visits to the site and provide some ongoing income for the community. The community was enthusiastic about the idea that visitors to the archaeological site would also learn about local culture. We therefore plan to devote one exhibit space to local culture (centering on photos taken by people in the village and explained in their own words) in addition to having an exhibit space to supplement visits to the archaeological site. The center will also provide local food and drinks for visitors and will also sell and support local crafts.

Other site management and conservation projects at El-Kurru include:

- Testing of approaches to conserving the medieval city wall
- Testing of methods of sandstone conservation
- Monitoring of humidity levels in tombs (2013-2014)
- Scientific characterization of pigments and binding media in tombs to inform conservation program (2015-2018)
- Monitoring of mold in tombs (2015-2016)
- Stabilization of floor surfaces in Qalhata and Tanwetamani's tombs using geotextile and river pebbles (2018)
- Installation of new steps between chambers A and B in both Tanwetamani and Qalhata's tomb (fully removable) (2018)
- Development of conservation and stabilization plan (in collaboration with the Museum of Fine Arts, Boston)

Future plans

- Construction of community heritage center (2018-19)
- Installation of bilingual walking tour (2018-19)
- Stabilization of staircase descents into the painted tombs
- Installation of a handrail in the staircases to improve access and visitor safety.
- Installation of non-fixed LED lighting in the tombs.
- Installation of a metal rail to produce a perimeter fence around Reisner's hut.
- Completion of conservation of the two painted tombs

Publications

Dann, R. J. (ed) In prep. <u>Understanding Painterly Practice: art, science and conservation in the tombs of</u> Queen Qalhata and King Tanwetamani at El Kurru.

Dann, R. J. 2018. 'Looking for Trouble: Art, Archaeology and Interdisciplinary Encounters' commissioned article for <u>The Senses & Society</u>.

Dann, R. J. 2018. 'Recent work in the 25th Dynasty Tombs of Queen Qalhata and King Tanwetamani at El Kurru' in Honegger, M. (ed). <u>Nubian Archaeology in the XXIst Century. Proceedings of the Thirteenth</u> <u>International Conference for Nubian Studies, 2014</u>. Orientalia Lovaniensa Analecta, 273. Leuven: Peeters.

Dann, R. J. and Emberling, G. 2016. 'El Kurru 2015-16: Preliminary Report' in <u>Sudan & Nubia.</u> Vol 20. 35-49.

Emberling, G. and Dann, R. J. et al 2015. 'In a Royal Cemetery of Kush: Archaeological Investigations at El-Kurru, Northern Sudan, 2014-15' in <u>Sudan & Nubia.</u> Vol 19: 54-70.

Emberling, G. and Dann, R. J. et al. 2013. 'New Excavations at El-Kurru: Beyond the Napatan Royal Cemetery' in <u>Sudan & Nubia</u>. Vol 17: 42-60.

Selected presentations

Dann, R.J. '*Provocation/Response: Aesthetic Creation and Material Expression*' presented at the Leverhulme funded network on Evaluating Methods of Aesthetic Enquiry at the Medical Museum, Copenhagen. April 2016.

Dann, R.J. '*Lingering in the Liminal Space: Archaeology and Art Practice at El Kurru*', presented at a one day colloquium, Cultural Heritage in Sudan: Possibilities and Potentials, University of Copenhagen. April 2015.

Dann, R.J. '*Art, Archaeology & Sensory Knowledge at El Kurru: An Experiment'*, presented at 11th International Society for Nubian Studies, Université de Neûchatel. September 2014.

Dann, R.J. '*Excavations at El Kurru: Beyond the Napatan Royal Cemetery*', presented at the Sudan Archaeological Research Society, British Museum London, May 2013.

Dann, R.J. 'The International El Kurru Project' University of Uppsala, Sweden. November 2012.

Emberling, G. 'Memories of the Kings of Kush: New Excavations around the Royal Cemetery at El Kurru,' Annual Meeting of the American Research Center in Egypt, 2018.

Emberling, G. 'Archaeology and Heritage at El-Kurru,' Harvard Natural History Museums, 2018.

Media

'Rise of the Black Pharaohs,' 2014 film made by National Geographic

University of Dongola-Karima Mission to El-Kurru Abbas Sidahmed Mohamed-Ali

El-Kurru, the royal cemetery of the kings of the 25th Dynasty and their ancestors, 15 km south of Jebel Barkal, was first excavated by an American mission in 1918-1919. For 100 years it was exposed to misuse and neglect due to natural and human factors. Archaeological activities funded generously by QSAP have been conducted at the site by the mission of the University of Dongola-Karima.

Excavation and re-excavation

- 2 sandstone quarries for the stone blocks used in the cemetery (Fig. 22)
- 8 royal pyramids (Fig. 23)
- 10 mastaba burials (Fig. 24)
- 2 horseshoe burials
- 4 tumulus burials (Fig. 25)

Figure 22: Quarry

Figure 23: Re-excavated pyramid burial chamber

Figure 24: Re-excavated mastaba burials

Figure 25: Re-excavated tumulus burial

Survey

- 2 sandstone quarries at El-Detti
- mound burials 20 km west of the site (Fig. 26)
- mound burials at Dahasira
- Kerma pottery at Magashi (Fig. 27)
- Christian tower and graves at El-Kurru (Fig. 28)

Figure 26: Survey burial

Figure 27: Kerma pottery from Magashi

Figure 28: Christian watchtower

Management and protection

- 25 spoil heaps, some over 5m high, were partially screened and removed from the site
- A network of walkways for visitors was constructed (Fig. 29)
- Managed contours of site so rain water would slope away
- Constructed terrace 33m long, 1.2m high against the edge of the wadi (Fig. 30)
- Line of cement pillars 25 30cm diameter, 1m high, 1.2m apart (Fig. 31)
- Mud wall 1m thick, 2m high for 4km around the site and the buffer zone (Fig. 32)
- Solar panel system for lighting the site (Fig. 33)
- One major gate (Fig. 34)
- Temporary facilities (shelter, toilets, seats) (Fig. 35)

Figure 29: Part of the walkway

Figure 30: Terrace at edge of the wadi


Figure 31: Cement pillars marking site boundary



Figure 32: Mud walls around the site



Figure 33: One of the solar system stations



Figure 34: New gate for the site



Figure 35: seats for visitors

Finds

- Over 30,000 potsherds (Fig. 36)
- Metal objects (Fig. 37)
- Faience objects (Fig. 38)
- Alabaster objects (Fig. 39)



Figure 36: Pottery recovered from spoil heaps and re-excavating tombs



Figure 37: A gold amulet found in backdirt from Reisner excavations



Figure 38: Faience shabtis recovered from the site



Figure 39: Recovered alabaster basins

Analyses

- Physico-chemical analyses of pottery
- Radiocarbon analyses for dating

Work remaining to complete

- Preparation for visitors (signs, seats, etc.)
- Site protection (fence, etc.)
- Covering 2 burial chambers and stairways
- Re-excavation of Ku. 2 royal pyramid
- Re-excavation of 2 royal shaft burials
- Construct visitors and information center
- Continuation of awareness and smile programs.

Publication

- Abbas Sidahmed Mohammed Ali et al. 2016, "University of Dongola archaeological excavation at Kurru royal cemetery" ADUMATU 33:7-20.
- Hanaa Hafiz 2018, "The Kerma Napatan cultural continuity." ADUMATU 38:7-14.

Nuri

Two missions have worked at Nuri in the past five years:

--an NCAM survey mission directed successively by Mahmoud Suliman Bashir, Fawzi Bakhiet Hassan, and Abdelhayy Abdelsawy was responsible for an area from Debba to Nuri until 2017

--a mission of the University of Arizona directed by Pearce Paul Creasman began work at Nuri in 2018

NCAM survey mission

Abdelhayy Abdelsawy

- In season 2015, cement posts 1 m high were built around the site. They are placed with different interval distances
- On the western side along the asphalt road leading to Merowe Dam, the distance between posts is 30 meters (Fig. 40).
- On the southern side, bordering the village, the interval distance is 10 meters (Fig. 41).
- On the eastern side, bordering the village extension, between each two posts is 30 meters (Fig. 42).
- Two rows of cement posts enclosing the road. The northern row is to limit the illegal extension of the farms, with interval of 30 meters between posts (Fig. 43).
- One room was built with cement bricks for the guards of the site (Fig. 44).
- In 2017, a small local WC was built with local materials, for the guards of the site.



Figure 40: Nuri, western edge of the site



Figure 41: Nuri, southern edge of the site



Figure 42: Photo 3: Nuri, eastern side



Figure 43: Nuri, northern edge of the site



Figure 44: Nuri, WC and guardroom

University of Arizona mission to Nuri Pearce Paul Creasman

Work area of the Mission

On January 2nd, 2018, Prof. Pearce Paul Creasman of the University of Arizona was licensed by the National Corporation for Antiquities and Museums to initiate archaeological work at "Nuri archaeological site, the royal pyramids and the surrounding area." The site of Nuri (Northern State) as defined by its extant perimeter boundary markers includes approximately 65 hectares (Fig. 45). Most of the nearly 100 known archaeological features are concentrated in the north-central portion of the site, spread over an area of approximately 15 hectares. The major monuments of this central area were subject to excavations led by George A. Reisner, primarily during the winter and spring months of 1916–1918 (Fig. 46). Since Reisner, it appears that the only other work conducted at the site until 2018 was the effort by NCAM to survey it, establish the site boundaries/buffer, and to protect its heritage.



Figure 45: Map of the approximate delineated site and protected area at Nuri (in blue)



Figure 46: Map of northern-central Nuri from Reisner's excavations (Dunham 1955)

State of conservation of the site

The features above ground at Nuri reflect their considerable age, exposure to the elements, and long history as items of curiosity to people living or passing through the area. The use of comparatively soft stone with coarse grains in construction of the monuments has resulted in significant erosion, primarily as a result of a harsh natural environment. Faces of monuments exposed to the northeast are in the worst condition, being constantly sandblasted by the strong winds, which blow N/NE to S/SW for most of the year (Fig. 47). Additionally, these same monuments tend be have been built near the end of the site's primary period of use and appear to have been of lesser initial quality of construction than those on the western (better protected) portion of the site. Heavy rains have also contributed to the denuding of the monuments, leaving some to appear more as mounds than pyramids. Human activity in the intervening ca. 2500 years has not, as a whole, improved the condition of the ancient structures.



Figure 47: N/NE to the right of the image; note the poorer state of preservation for monuments taking the brunt of the prevailing winds

In 2018, three subterranean features at the site were re-excavated and entered in order to evaluate their condition. These three features, almost entirely devoid of material culture as a result of Reisner's thorough work in them, were in better condition than was anticipated. For example, a considerable amount of previously unknown text and artistic content was found in Nu. 53, the tomb of Yeturow (Fig. 48). The tomb paintings that were expected were more vibrant and better preserved than as suggested in records and publications resulting from Reisner's work. Each tomb very closely matched the general measurements taken in the 1910s, suggesting they have not degraded (e.g., collapsed, spalled). The subterranean features excavated appeared to have been untouched since Reisner.



Figure 48: Nu. 53 – the tomb of Queen Yeturow

However, of concern for all subterranean features at Nuri is rising groundwater (see Fig. 48). It appears that the groundwater levels at Nuri have risen three to five vertical meters since Reisner's excavations. The water level rise in the two-plus millennia from their original creation to Reisner's excavations appears to have been approximately 0.5m total. The exponential recent rise is likely due to climate change and the construction of the Fourth Cataract dam. It is likely that all of the large and deep tombs (i.e., king's burials) at Nuri are now fully submerged. Though submerged, this does not put them out of reach for archaeological and scientific inquiry, but complicates such an endeavor.

In sum, the biggest threats to Nuri are the natural environment (e.g., wind, water), environmental change, and encroachment. Encroachment can, in principle, be prevented or reversed. Implementation or in practice is another matter, governed by a complex constellation of considerations.

Overall strategy and status of project activities

The 2018 season was dedicated primarily to understanding the site of Nuri. That is, with such a large and complex site, it will take a considerable amount of time to come to fully comprehend what is at the site, what was at the site, and how to monitor and manage it. Initially, we conducted a transect survey of the entire site to identify the highest priorities and begin the understand the scope of the work at Nuri. This survey indicated the northern areas of the site were in greatest need of attention, so most was focused there during the season. As a complement to archaeological survey and excavation, a program of documentation and preservation was initiated, including:

documenting the site "as is" (via photography, satellite imagery)

- establishing a network of datum points that can be used anywhere on site to survey and link into a single, unified site plan and grid. This increases our ability to monitor and define change from season to season.
- began creating a comprehensive map of the site, as it stands today
- cleaning rubbish amassed at the site
- removing invasive plant/tree growth
- reburying exposed features not subject to immediate excavation
- removing invasive temporary structures
- extensive sondage to identify the archaeological limits of the site
- redirecting traffic patterns crossing portions of the site

Suggested future strategies

In order reduce the rate of degradation, improve monitoring, and aid site management, the below may be effective:

- Develop a comprehensive and practical site management plan.
- Increase archaeological excavation in order to learn about the site formation processes and record the history of the site.
- Add human resources (e.g., guards) to better observe, prevent, or report encroachment or human-driven change/damage to the site.
- Add an additional guardhouse, visitor center, and/or designated parking area to the south/southeast of the site. Encourage or mandate the use of this entrance to the site as it would utilize the paved road ringing the site and a single designated road in toward the site, but not on it.
- Build low walls (ca. 1 m) around the most encroachment-prone areas of the site exterior. This
 may both prevent encroachment by homes/farms (or allow is clear identification) and serve to
 better limit vehicle traffic from driving through the site.
- Create a prescribed tourist route using indiscrete signage to identify the monuments at the site and their story.
- Reconstruction or repair with local materials of the northeastern faces, in whole or in part, of the monuments receiving the worst wind damage.

Publications

No formal publications have yet been produced by the University of Arizona mission, having only begun in 2018. However, several scholarly presentations and updates have been offered, including:

Textual contribution to the Egypt Exploration Society's "Digging Diary" in *Egyptian Archaeology* 53 (Autumn 2018) summarizing the fundamental results of the 2018 field season.

Creasman, P.P. 2018. 14e Congrès international des Études nubiennes, Paris. 11 September. "University of Arizona Excavations at Difoi, Third Cataract (2017) and Nuri (2018)."

Creasman, P.P. 2018. Arizona Archaeological Society, Phoenix. 13 November. "Ancient Egypt's 25th Dynasty & The Pyramid Field/Royal Cemetery at Nuri, Sudan."

Sanam

The missions working at Sanam are:

--A Sudanese-Italian joint mission directed by Irene Vincentelli working on the settlement --A mission of New York University directed by Kathryn Howley working on the temple of Taharqo

Sudanese-Italian mission Irene Vincentelli

The Sanam archaeological area (around 650 x 900m) is located in the center of the town of Merowe, a short distance from the market. It is surrounded by houses, schools, and an important hospital. In the past, the track for Nuri, used by heavy vehicles, cut across the site causing severe damage to the underlying structures.

For some years now the archaeological area has been enclosed by a robust chain link fence with two gates, to the north and to the south. Over the years the fence has been cut in several places by the local people unwilling to take the longer way around the site. Despite the provision of the gates, intended to allow the passage of people and lighter traffic, the original fence has been cut in many places and, in the absence of proper surveillance, the continuous traffic crisscrossing the site causes damage to the archaeological area.

Over the years our objective has been twofold: firstly the restoration of all the buildings we have excavated so that the population can gain an understanding of these structures and of their importance; secondly their protection by preventing the transit of vehicles and people.

To this end it was resolved not to carry out repairs to the existing perimeter fence but to erect a protective fence around each one of the buildings already excavated. This approach has proved to be highly effective as a recent inspection showed that since 2015, there is no sign of damage to the structures thus protected. Looking at the future, and until such time as the site can be effectively guarded, we think that this is the best way of protecting the site.

Excavations and restorations under QSAP funding

The buildings brought to light to date are three: The Treasury, SA.C 400 and SA.K 300. All three are impressive structures but also very fragile as they are made of mud bricks and white, soft sandstone.

In 2015 we were able to fully restore the building SA.K 300 (which we had excavated in previous years), and to erect around it a protective metal fence allowing people to have a full view of it (Fig. 49). The results have been positive. Three years later, the building appears to be in good condition. In addition to the restoration work, the 3D reconstruction of the building helps the public to understand both its structure and purpose (Fig. 50).



Figure 49: SA.K 300 with metal fence



Figure 50: SA.K 300 plan and reconstruction

Since 2017 we have undertaken the excavation and restoration of the building called "the Treasury," where we had already worked in previous years. This is a large building (267 x 68m) which, in places,

comes up to ground level and at its deepest is only 50 cm below it. This is why the structure has deteriorated so badly, in addition to the fact that both sandstone and mud bricks are in themselves extremely fragile materials. The TST (total station theodolite) survey undertaken the first year of our activities, yielded results which, over the years, have had to be modified.



Figure 51: The Treasury showing porticos

We began excavating the central north and south rooms, 104N, 104S, 105N, 105S with the porticoes and courtyard in between (Fig. 51). The conditions in which they have been found were critical. The South walls had been completely plundered along with about half of the North and West walls as well as the corner between these two walls. The restoration work has been significant: walls have been completely rebuilt thus preventing the stone slabs of the floors from sliding down.

As the excavated area expanded, several inconsistencies concerning the general structure of the Treasury arose, hence further tests are needed in order to verify some details of its architecture. Tests were carried out below the perimeter walls and below some of the internal walls. These revealed that the foundation consisted of only two rows of mud bricks.

Cleaning the South portico we found a new and important element. The large wall between rooms 104 S and 105 S appears to be, in fact, a long corridor at the end of which is a doorway with two stone steps descending to the portico, which is at a lower level.

The existence of an entrance, probably secondary, has been the most important and unexpected discovery. As a consequence, we have to rethink the overall architecture of the Treasury.

A 3D reconstruction has been created to help understanding the whole structure (Fig. 52).



Figure 52: 3D reconstruction of Room 8 in the Treasury

The excavated area has also been surrounded by a metal fence.

In addition a magnetometric survey was carried out by Gregory Tucker, as part of the research project headed by Geoff Emberling (University of Michigan) with whom we have established a fruitful collaboration.

The detailed magnetic survey of the entire archaeological area has now been completed. An analysis of the data indicates that, while there does not appear to be any structure on the north strip of land, some stone elements in the south suggest the existence of a small building whose shape is not well defined. For next year we are considering carrying out a traditional test trench to ascertain what exactly has produced the magnetometric data.

Site management 2018

In 2018 Paolo Cannata, the Mission architect, has drawn up the plans for an Information Point which have been submitted and approved by the Sudanese authorities (Fig. 53). The Information Point, due to be built in January 2019, has been designed in a traditional style with a large portico and a veranda to provide space and shelter to both local population and tourists. There will also be a storage room for the use of the archaeological Mission. The large central room will be a display space for photographic and textual material illustrating the archaeological area, its history and the function and importance of all the structures excavated. This room can also be a center for lectures and cultural events.



Figure 53: Location of the Information Point

A pamphlet with photographs documenting the history of the site in English has already been published. An Arabic version will follow in 2019.

Publications

Vincentelli, I. 2011, 'The Treasury and other buildings at Sanam (Sudan)', in: V. Rondot, F. Alpi, F. Villeneuve (ed.), *La Pioche et la Plume. Autour du Soudan, du Liban et de la Jordanie. Hommages archéologiques à Patrice Lenoble*, Paris, 269-282.

Vincentelli, I. 2015, 'An Administrative and Trading District in the Napata Region', in: M.H. Zach (ed.), *The Kushite World*, Wien, 319-328.

Vincentelli, I. 2018, 'Long Distance Trade: the Evidence from Sanam', in: Honegger, M. (ed.), *Nubian Archaeology in the XXIst Century*, 127-134.

Vincentelli, I. 2018, 'Egyptian Pottery in the Sanam Royal Stores', in: David, R. (ed.), *Céramiques Egyptiennes au Soudan Ancien*, 177-88.

<u>Sanam Temple Project</u> [***add 23] Kathryn Howley

State of Conservation



Figure 54: Sanam temple

The site comprises a sandstone temple and surrounding areas, as delineated by the NCAM-installed fence seen in Fig. 54. The temple is mostly covered by windblown sand, which protects it from environmental and other damage; those parts of the temple still exposed have been subject to weathering and loss, due to the friable quality of the local sandstone from which the temple is constructed. The walls stand to a maximum height of approximately 1.8m when cleared of sand, with a maximum of approximately 1m exposed above the sand.

Archival photos from the original excavation of the temple by F. Ll. Griffith in 1912 allow some estimation of the damage the temple has suffered in the intervening century. The long Sanam Historical Inscription, located on the south wall of the first court of the temple, has lost approximately two hieroglyphs from the top of each column of the inscription (10-15cm). Since Griffith did not backfill the temple (his spoil heaps are visible in the satellite imagery in Fig. 54), environmental exposure is the most likely cause of this damage: the south wall is subject to the prevailing winds and therefore is particularly vulnerable to the effects of wind-blown sand. The top of the inscription may also have been repeatedly cleared by visitors to the site eager to see hieroglyphic inscription, again leaving it exposed to environmental damage.

The temple is surrounded by two gated barbed wire fences, installed by NCAM. The inner fence surrounds the temple walls tightly, with the outer fence delineating a larger area around the temple

(Fig. 54). The village of Merawi runs right up to the outer fence on three sides. Villagers, however, apparently rarely enter the enclosure.

Strategy and status of project activities

The site was first excavated in 1912 by F. Ll. Griffith on behalf of Oxford University in a single season. The work was done quickly, and poorly recorded and published by modern standards. Excavations of the Sanam Temple Project were begun in January 2018 under the directorship of Dr. Kathryn Howley (Institute of Fine Arts, New York University). The main focus of this new project is the areas around the temple, apparently mostly unexplored by Griffith, with work also undertaken on epigraphic recording within the temple.

Excavation

The first season of three weeks of work in January 2018 excavated a series of four test trenches around the temple to identify the potential for future excavation (the location of which can be seen in Fig. 55). Work was also carried out in the first courtyard of the temple to clear the renowned Sanam Historical Inscription for epigraphic recording. This was especially important for conservation reasons, as the inscription had fared poorly through environmental factors (described above). All trenches were backfilled at the end of the season. Work planned for the 2019 season includes the reopening of trenches 1 and 3, and a new unit to be opened to the south west of the first pylon.

Site Management

The friable sandstone construction and strong winds, with the quick accumulation of windblown sand, means that the site will be unlikely to be a good candidate for touristic development in the future. The best way to protect the temple will be to continue to backfill any exposed areas: the plan of the temple remains visible to interested visitors above ground.

Site management activities in the inaugural season included removal of trash and animal carcasses. A topographic plan of the area delimited by the outer fence was completed with modern geodetic equipment (Total Station and dGPS) to replace the inaccurate and limited hand-drawn plan of Griffith, and this will aid in future site management efforts (Fig. 55). The inner fence is locked during excavation seasons to protect exposed areas from curious visitors. The site is open to visitors while project work is not taking place, but visitor numbers appear to be low.



375240 375260 375280 375270 375280 375290 375300 375310 375320 375330 375340 375350 375360 375360 375380 375380 375400 Figure 55: Plan of Sanam Temple

Publication references

Howley, K. E. 2018. "Return to Taharqo's Temple at Sanam: the inaugural field season of the Sanam Temple Project" in *Sudan & Nubia* 22, 20-27

El-Zuma

The mission working at El-Zuma is the mission of the Polish Centre of Mediterranean Archaeology, University of Warsaw and NCAM directed by Mahmoud el-Tayeb.



Figure 56: Photo A. Kamrowski

General information

The Early Makuria Research Project was designed to contribute to better understanding of the beginnings of the Kingdom of Makuria in the Dongola Reach between the Third and Fourth Nile Cataracts. In particular, it has aimed to identify the social and political changes that took place in the period from the 4th to the 7th centuries A.D.—the transformation of the Meroitic state to the Kingdom of Makuria in the Dongola Reach. The excavation at El-Zuma constituted the first step in the Early Makuria Research Project. The objective of the project is to examine a number of burials with the purpose of identifying their cultural attribution and their place in the Nubian chronology.

El-Zuma village is located 20 km downstream of Karima.





The cemetery field that occupies the higher ground on the western fringes of the village contains about 29 tumuli of different types, size and state of preservation, as far as the superstructure is concerned. To date these are still visible on the ground surface. Although archaeologists had known about the cemetery since the 19th century, it had never been explored until 2004-2005 when the mission of the Early Makuria Research Project took the field. The fieldwork on the site is ongoing since 2004.



Figure 58: General plan of the El-Zuma site

The plan of the work has focused on:

- Exploration of the tumuli type III (the smallest type of the burials, lateral shape with rectangular vertical shaft provided with one burial chamber cut into the western wall).
- Exploration of tumuli type II (the medium type, with U-shaped shaft and more than one side niche, the main burial chamber hewn into the southern wall).
- Partial exploration of tumuli type I (with U-shaped main shaft, in addition to external shaft leading to an underground tunnel oriented south-north terminating to the main burial chamber). Two of the tumuli were thoroughly explored. In six of the tumuli only the external shaft and the tunnel were explored.

Excavation under the QASP funding 2013, 2014, 2015, 2017 at El-Zuma

2013:

• Exploration of the tumuli of type II and III (T.12, T.15, T.21)

2014:

- Exploration of the tumulus of type II (T.26), exploration of external shafts and the tunnels in tumuli of type I (T.3, T.6, T.8), (see Figs. 59, 60)
- Building of the Police station (see Figs. 61, 62)
- Building of the storeroom (see Fig. 63)
- Construction of the border line and the buffer zone of the site (see Fig. 64)

2015:

- Exploration of the external shaft and tunnel of the tumulus of type I (T.7)
- Construction of the border line and the buffer zone of the site. Continuation of the work (see Figs. 65, 66)

<u>2017:</u>

Exploration of the external shafts and tunnels of the tumuli of type I (T.1, T.4)

Continuation of the construction work of the border line and the buffer zone of the site (see Fig. 65).

Site Protection

Site protection comprises three elements.

- The site was mainly threatened by growing hunger for land ownership and heavy vehicle traffic; such activities are quite destructive for the site. Therefore, the 2km long perimeter of the tumuli field was provided with a borderline consisting of concrete posts, each of 1.5m in height with 0.5m buried in the ground. Only 1.5m distance is left between the erected posts. Along the direct borderline, other posts forming a buffer zone were also erected. Its width ranges from 30m to 5m depending on the topography on the ground (see Fig. 59).
- The second significant element of protection is the reconstruction and maintenance of an old house located close to the eastern border of the site to be used as a base for the tourism police that guarding the site.
- Additionally, a storeroom for artifacts gained from the excavation, was built in the abovementioned tourism police station.

As noted, the hunger for land ownership without any consideration or respect to the nearby archaeological site constitutes a real problem. On the other side, the provincial district officers usually do not cooperate to stop any wrong doing towards the national heritage. Obviously, if there is no cooperation between the local popular committees, local governments, Antiquities Service and the archaeological mission, then the result will be a total loss of the national heritage.

Future plans

Beside the research program, a major project for conservation and reconstruction of El-Zuma burial field is planned. The project aims at turning this important site into an archaeological park and cultural center to serve local inhabitants of the area and tourists as well. The rehabilitation plan includes building of a museum on the site, all needed infrastructure and reconstruction of the excavated tumuli.

Unfinished work that is still waiting is the exploration of two highly important burial chambers located in tumuli (T.6 and T.7). Exploration of these two chambers, which is expected to throw more light on their nature, needs special preparation of safety measures, which is an expensive operation. Yet, so far there is no funding on the horizon.



Figure 59: General plan of the El-Zuma Site concession



Figure 60: View of the site in 2014 r, kite S. Lenarczyk and A.Kamrowski



Figure 61: View of the tunnel of T.6, looking south, photo A. Kamrowski



Figure 62: T.6, view of the unexplored burial chamber, photo A. Kamrowski



Figure 63: Police station, El-Zuma, photo A. Kamrowski



Figure 64: Plan of the Police station, J. Juchniewicz



Figure 65: Storeroom for archaeological artifacts, in the Police Station area



Figure 66: Building of the fence, photos A. Kamrowski



Figure 67: Continuation work of the border posts line (in 2015 left, 2017 right),



Figure 68: View of the borderline from the drone, photo T. Wojtczak

Site protection, management, education, and future plans:

- Building the borderline on the site
- Lectures on the site for university students of archaeology (see Fig. 69)
- Meetings with local community to enlighten them about archaeology and protection of the cultural heritage
- Zuma Archaeological Centre and Socio-Cultural Community Club, prepared by Altakamul Alhandasi Architects and Engineers (see Figs. 70-73)
- Preservation work inside the large tumuli preparing tumuli for tour visits (see Figs. 74-75)



Figure 69: Lecture for students, photo M. Wyżgoł



Figure 70: El-Zuma Archaeological Centre and Socio-Cultural Community Club, Altakamul Alhandasi Architects and Engineers



Figure 71: El-Zuma Archaeological Centre and Socio-Cultural Community Club, Altakamul Alhandasi Architects and Engineers



Figure 72: El-Zuma Archaeological Centre and Socio-Cultural Community Club, Altakamul Alhandasi Architects and Engineers



Figure 73: El-Zuma Archaeological Centre and Socio-Cultural Community Club, Altakamul Alhandasi Architects and Engineers



Figure 74: Reconstruction of a tumulus (plan), Altakamul Alhandasi Architects and Engineers



Figure 75: Reconstruction of a tumulus (section), Altakamul Alhandasi Architects and Engineers

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Current maps of the five component parts of the UNESCO World Heritage site

Figure 76: Map of Gebel Barkal (2018)


Figure 77: Map of El-Kurru (rev. 2018)



Figure 78: Map of the area of Nuri (2018)



Sanam Abu Dom. The Archaeological Area

Figure 79: Map of Sanam



Figure 80: detail map of Sanam Temple (2018)



Figure 81: Map of El-Zuma (2014)