

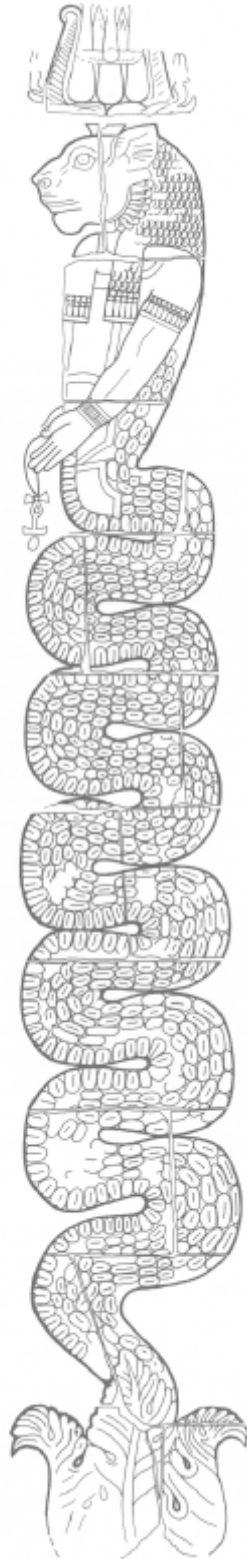
## The Archaeological Sites of The Island of Meroe

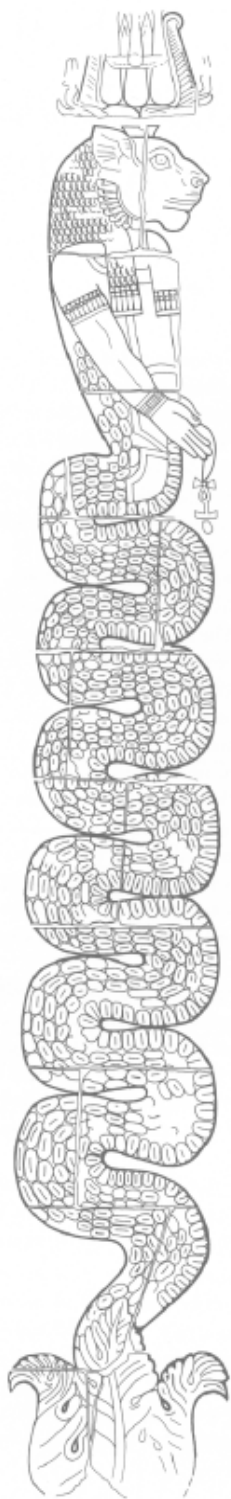


*Nomination File: World Heritage Centre*

**January 2010**

The Republic of the Sudan  
National Corporation for Antiquities and Museums





## **The Archaeological Sites of the Island of Meroe**

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The Republic of the Sudan  
National Corporation for Antiquities and Museums

### ***Preparers:***

- Dr Salah Mohamed Ahmed**
- Dr Derek Welsby**

### **Preparer (Consultant)**

**Pr. Henry Cleere**

### **Team of the “Draft” Management Plan**

Dr Paul Bidwell

Dr. Nick Hodgson

Mr. Terry Frain

Dr. David Sherlock

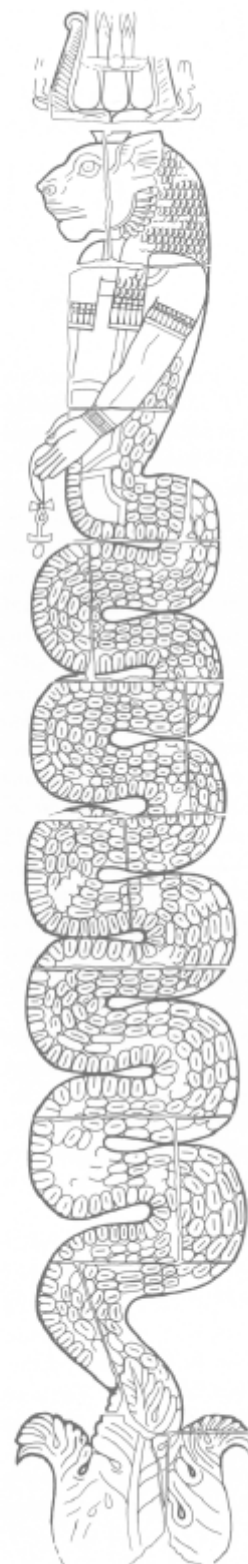
### **Management Plan**

Dr. Sami el-Masri

### **Topographical Work**

Dr. Mario Santana Quintero

Miss Sarah Seranno



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## ***Executive Summary***

**State Party** The Republic of the Sudan

**State, province, or region** River Nile State, Shendi Province

**Name of property** The Archaeological Sites of the Island of Meroe

### **Geographical coordinates:**

(maps 1-19)

Meroe town site (Meroe 1) latitude N 16° 56.111', longitude E 33° 42.852'

North and South cemeteries (Meroe 2) latitude N 16° 56.243', longitude E 33° 45.423'

Musawwarat es-Sufra latitude N 16° 24.649', longitude E 33° 19.705'

Naqa latitude N 16° 16.121', longitude E 33° 16.420'

### **Textual description of the boundaries of the proposed property**

*Meroe*: The site of Meroe is over 3 km east–west and more than 1 km north–south. It is bordered by the Nile on the western side, where the town site is located, and by the sandstone plateau on the edges of the desert, where the pyramids dominate the landscape.

*Musawwarat es-Sufra*: The monuments of Musawwarat es-Sufra are located in a basin surrounded on almost four sides of the site by a chain of hills.

*Naqa*: The ancient relics of Naqa are bordered by a chain of sandstone hills on the eastern side, while the areas to the north, south, and west consist of flat plains crossed by annual rain channels (wadis).

### **Statement of outstanding universal value**

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BCE into the 4th century CE. *Meroe* became the principal residence of the ruler, and from the 3rd century BCE onwards it was the site of most subsequent royal burials. It also has evidence for industrial activities, particularly iron-working.

The nominated sites (the Meroe town site with the North and South cemeteries, Musawwarat es-Sufra, and Naqa) comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its

wide-ranging contacts with the Mediterranean and Middle Eastern worlds: this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

**Criteria under which inscription is proposed (and justification for inscription under these criteria)**

- **Criterion ii:** *exhibit an important interchange of human values over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design*

The archaeological sites of the Island of Meroe provide a detailed insight into the interchange of ideas between central Africa and the Mediterranean world along what was the major corridor to and from Africa over a very long period during the ancient world. The interaction of local and foreign influences are demonstrated by the architecture, art, iconography, religion, and language.

- **Criterion iii:** *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

All aspects of Kushite civilization were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century CE. The nominated properties with their wide range of monument types, well preserved buildings, and potential for future excavation and other avenues of research are unique testimony to this, perhaps the greatest civilization of sub-Saharan Africa.

- **Criterion iv:** *be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history*

The pyramids at *Meroe* are outstanding examples of this highly distinctive Kushite funerary monument, and their intimate association with the well preserved remains of the urban centre is noteworthy. The evidence for iron-working is of considerable importance for studying the role of Meroe in the diffusion of metal-working technology in sub-Saharan Africa.

At *Naga* the ‘Roman kiosk,’ with its juxtaposition of architectural and decorative elements from Pharaonic Egypt, Greece, and Rome as well as from Kush itself, and the Lion Temple, which preserves superb reliefs of the Kushite gods and royalty, are of especial importance.

*Musawwarat* is a unique architectural ensemble with temples, courtyards, and domestic buildings, as well as major installations connected with water management, quarries, and industrial areas.

- **Criterion v:** *be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change*

The major centres of human activity far from the Nile at *Musawwarat es-Sufra* and *Naga* raise questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility through a detailed study of

the palaeoclimate, flora, and fauna of understanding the interaction of the Kushites with their desert hinterland.

**Name and contact information of official local institution/agency**

National Corporation for Antiquities and Museums (NCAM)

Address: PO Box 178, Khartoum, Sudan.

Tel. /fax: + 249 183 786784

E-mail: [teharga2008@yahoo.com](mailto:teharga2008@yahoo.com)



**The Archaeological Sites of  
The Island of Meroe (Sudan)**

**1 IDENTIFICATION OF THE PROPERTY**

**1. a State Party**

Democratic Republic of the Sudan

**1. b State, province, or region**

River Nile State

**1. c Name of property**

The Archaeological Sites of the Island of Meroe

**1. d Geographical coordinates**

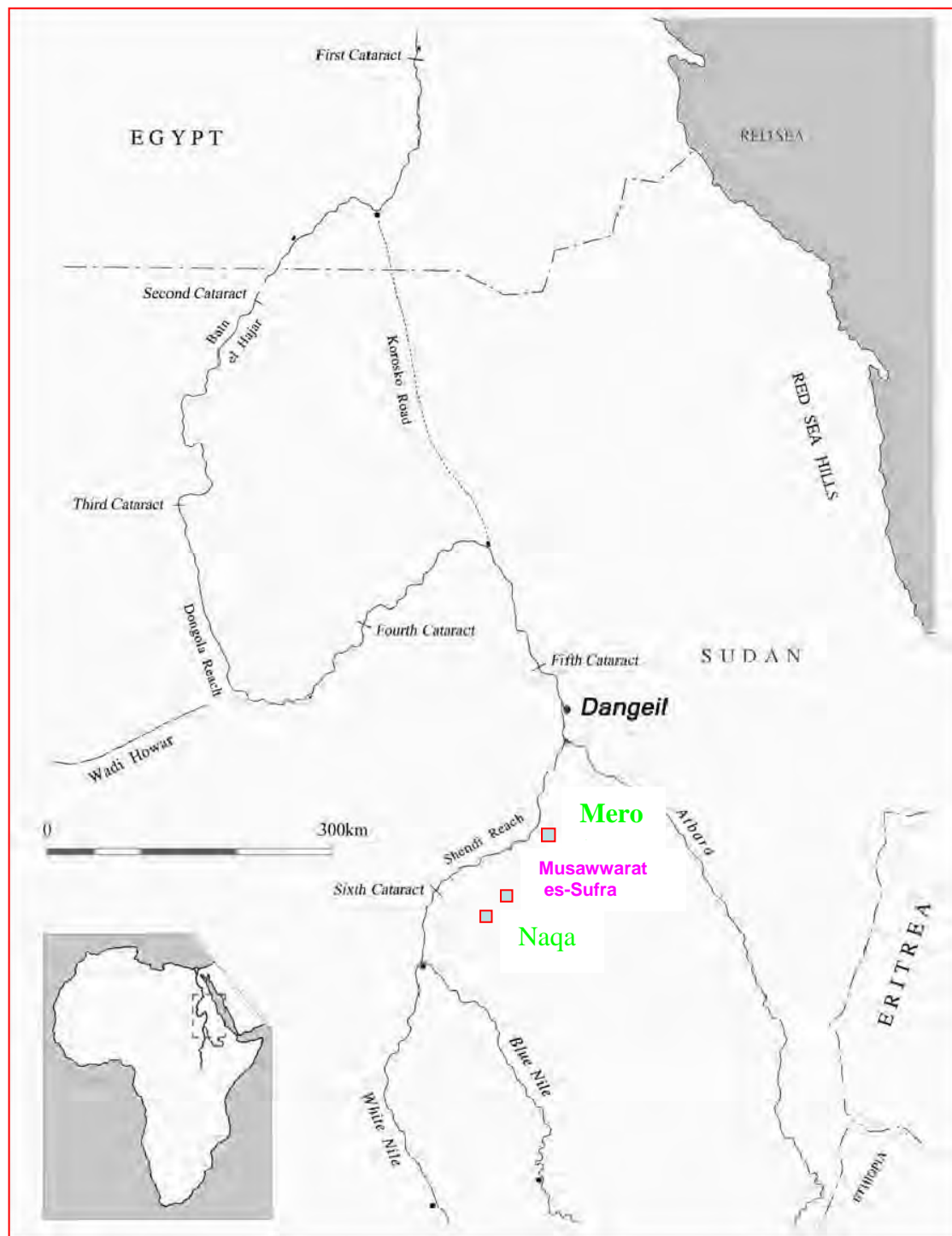
Meroe town site	latitude N 16° 56.111’
	longitude E 33° 42.852’
North and South cemeteries	latitude N 16° 56.243’,
	longitude E 33° 45.423’
Musawwarat es-Sufra	latitude N 16° 24.649’
	longitude E 33° 19.705’
Naqa	latitude N 16° 16.121’
	longitude E 33° 16.420’

**1. e      Maps and plans, showing the boundaries of the nominated properties and buffer zones**

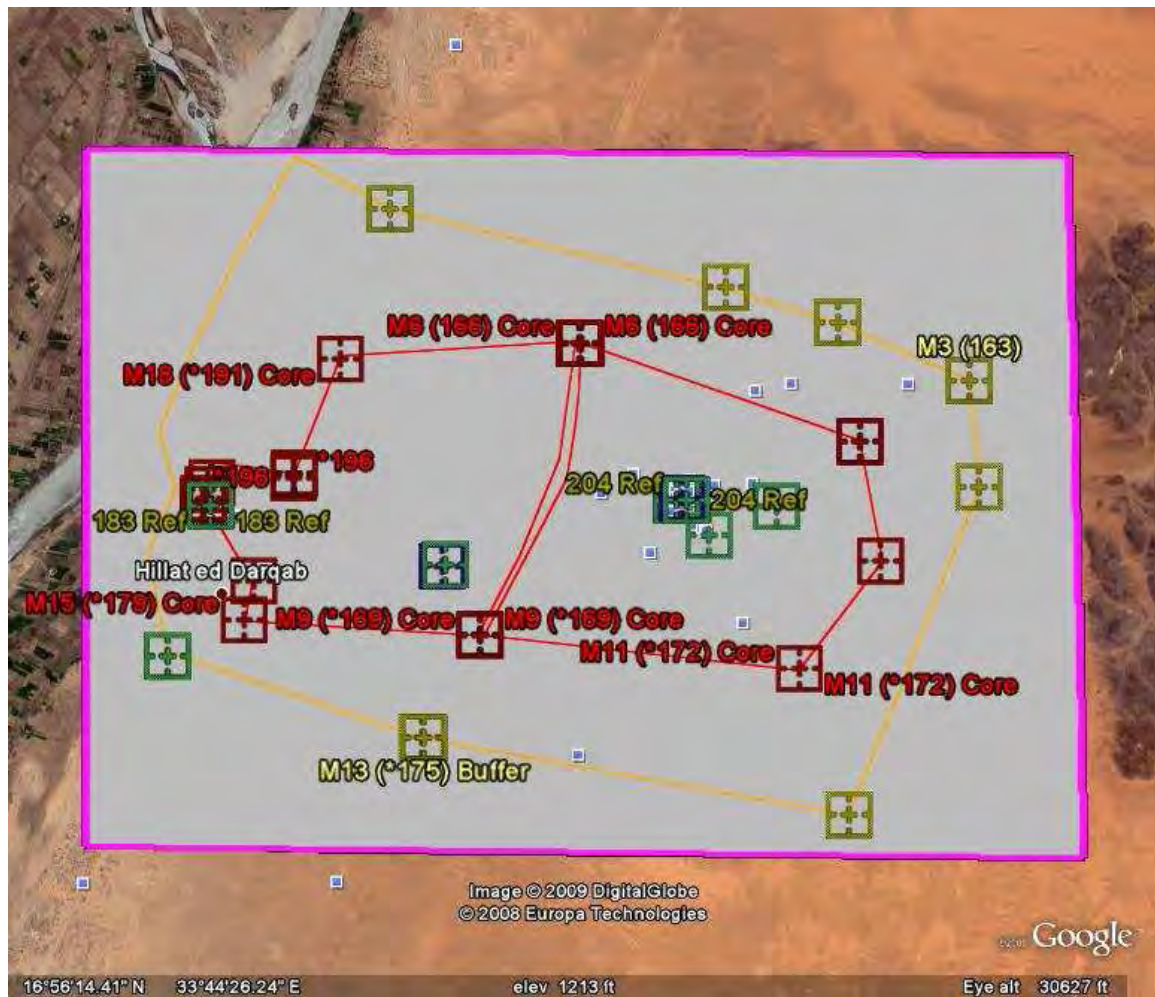
-List of maps and plans:

(2-7 and 9-18: Mario Santana; 9: D. Wildung; 8: Shinnie, Bradley and Grzyzmski)

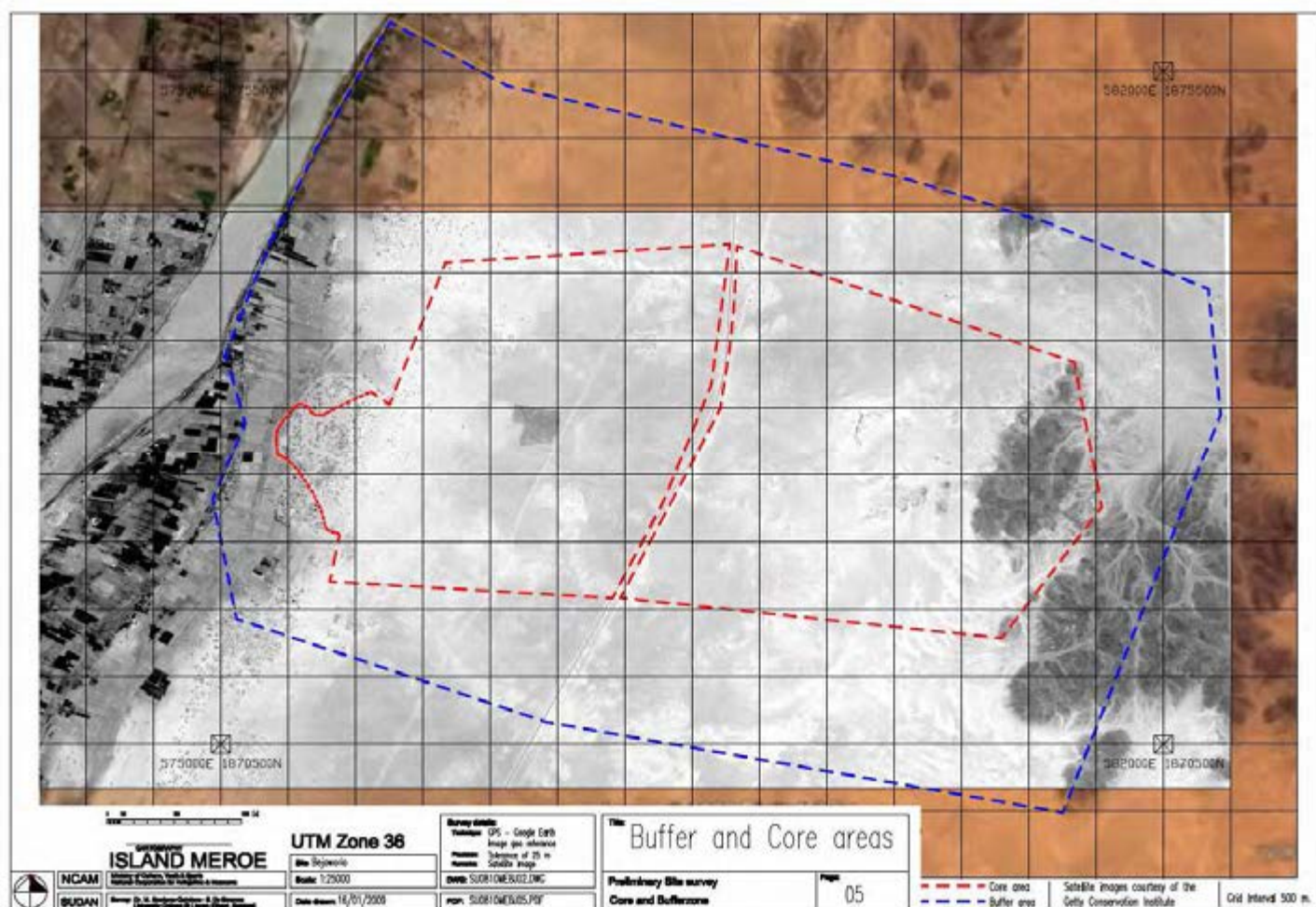
1. Map of northern and central Sudan showing the location of the nominated properties. (scale 1/300km)
2. MEROE (Begraveya) : boundaries on google image.
3. Meroe: Buffer and Core areas. (scale 1/100m)
4. Meroe: Core Area (west). (scale 1/100m)
5. Meroe: Core Area (East). (scale 1/1000m)
6. Meroe: Core Area: Specific. (scale 1/100m)
7. Meroe: Core Area: Specific. (scale 1/100m)
8. Meroe (west: Royal City) (after Shinnie, Bradley and Grzyzmski) (scale 1/100m)
9. Musawwarat el-Sufra: boundaries on google image.
10. Musawwarat es-Sufra Buffer and Core areas. (scale 1/100m)
11. Musawwarat es-Sufra Core area. (scale 1/100m)
12. Musawwarat es-Sufra Core area: Specific (hafir area). (scale 1/100m)
13. Musawwarat es-Sufra Core area: Specific (area of Great Enclosure). (scale 1/100m)
14. Naqa: boundaries on google image.
15. Naqa: Core and Buffer Areas. (scale 1/1000m)
16. Naqa: Core Area. (scale 1/1000m)
17. Naqa Core Area: Specific. (scale 1/200m)
18. Naqa Core Area: Specific. (scale 1/200m)
19. NAQA Site Plan (courtesy of Professor D. Wildung). (scale 1/100m)



1. Map of northern and central Sudan showing the location of the three sites of nominated property

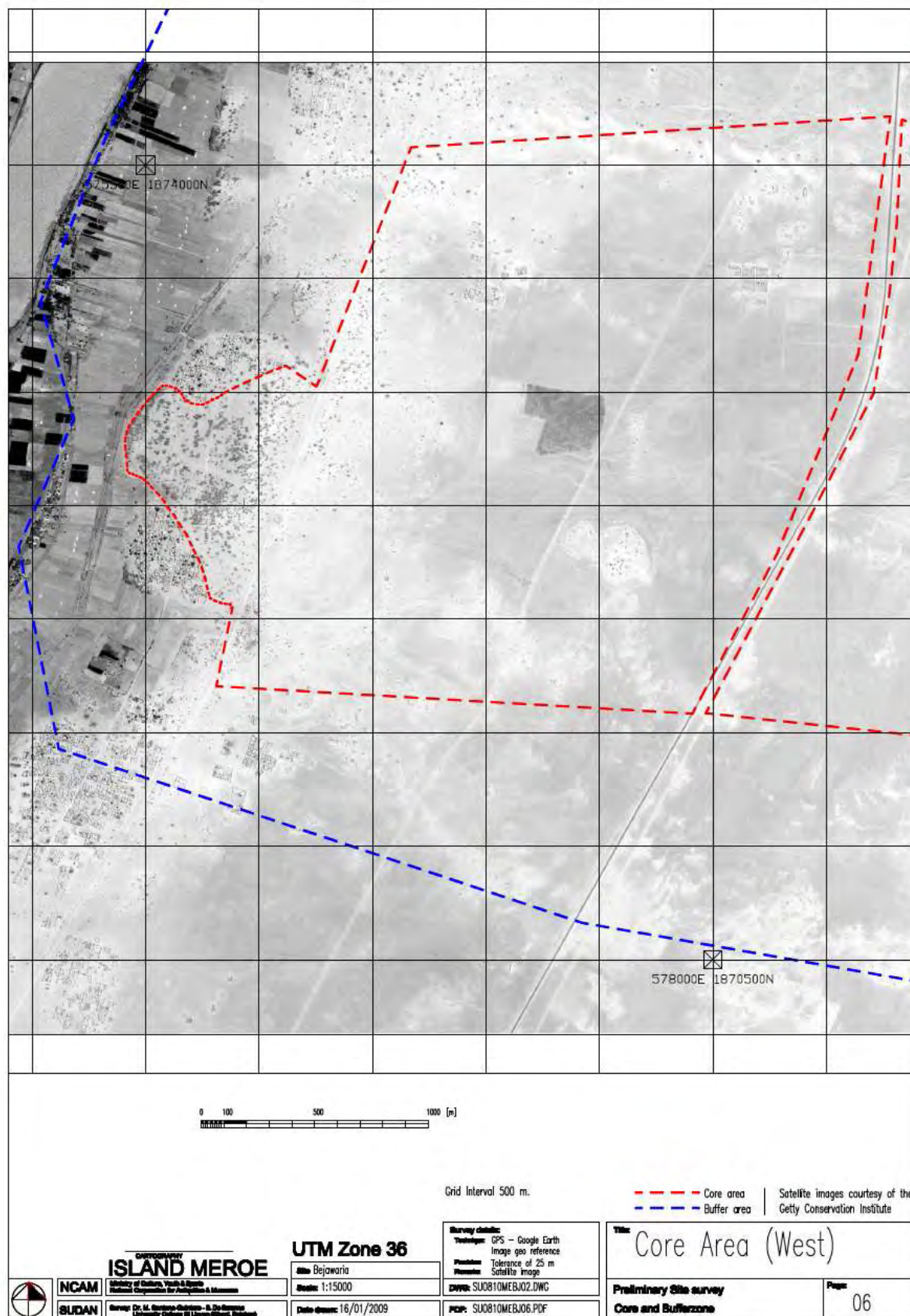


## 2. MEROE (Begraweya) : boundaries on google image

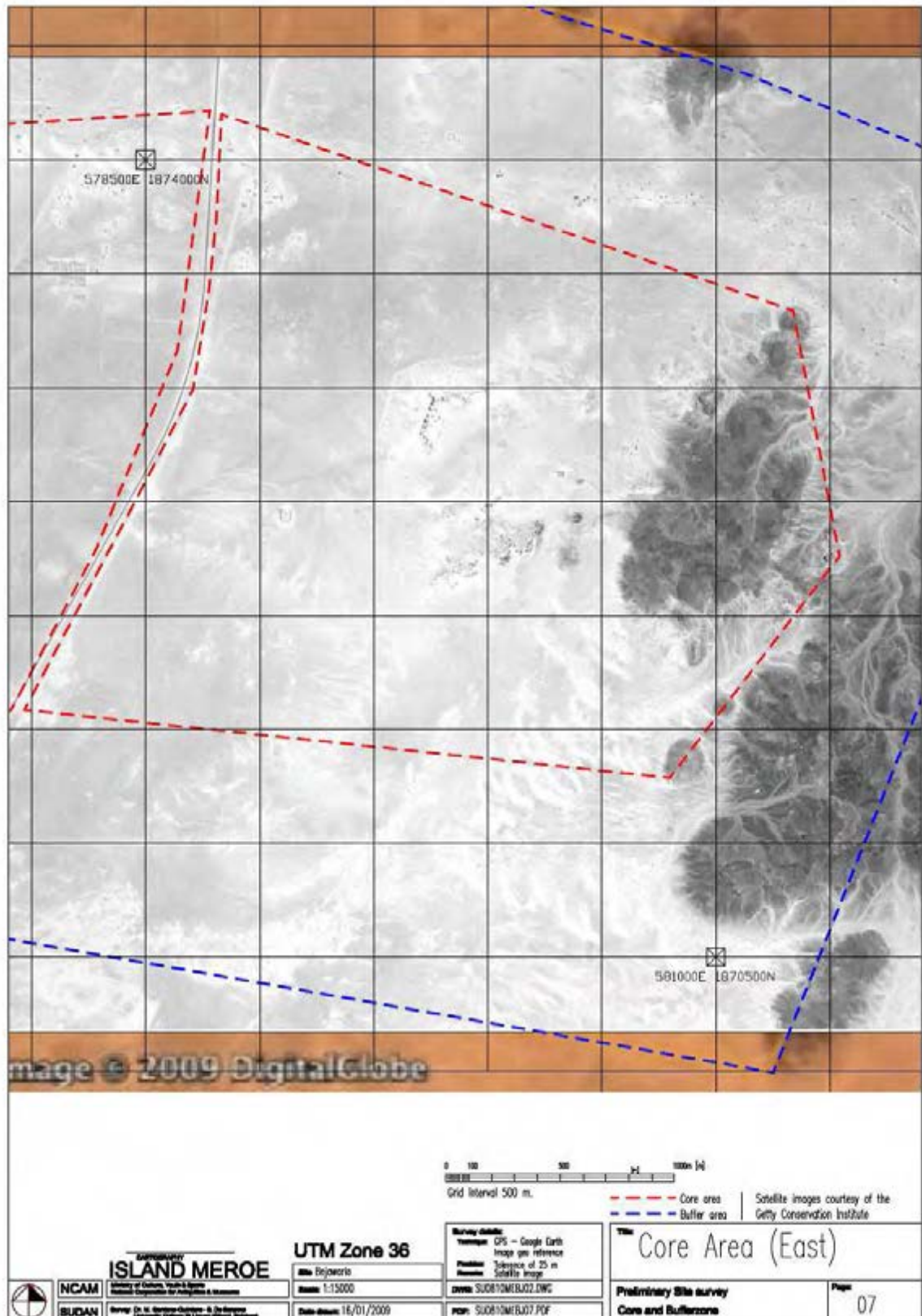


### 3. Meroe: Buffer and Core areas





#### 4. Meroe: Core Area (west)

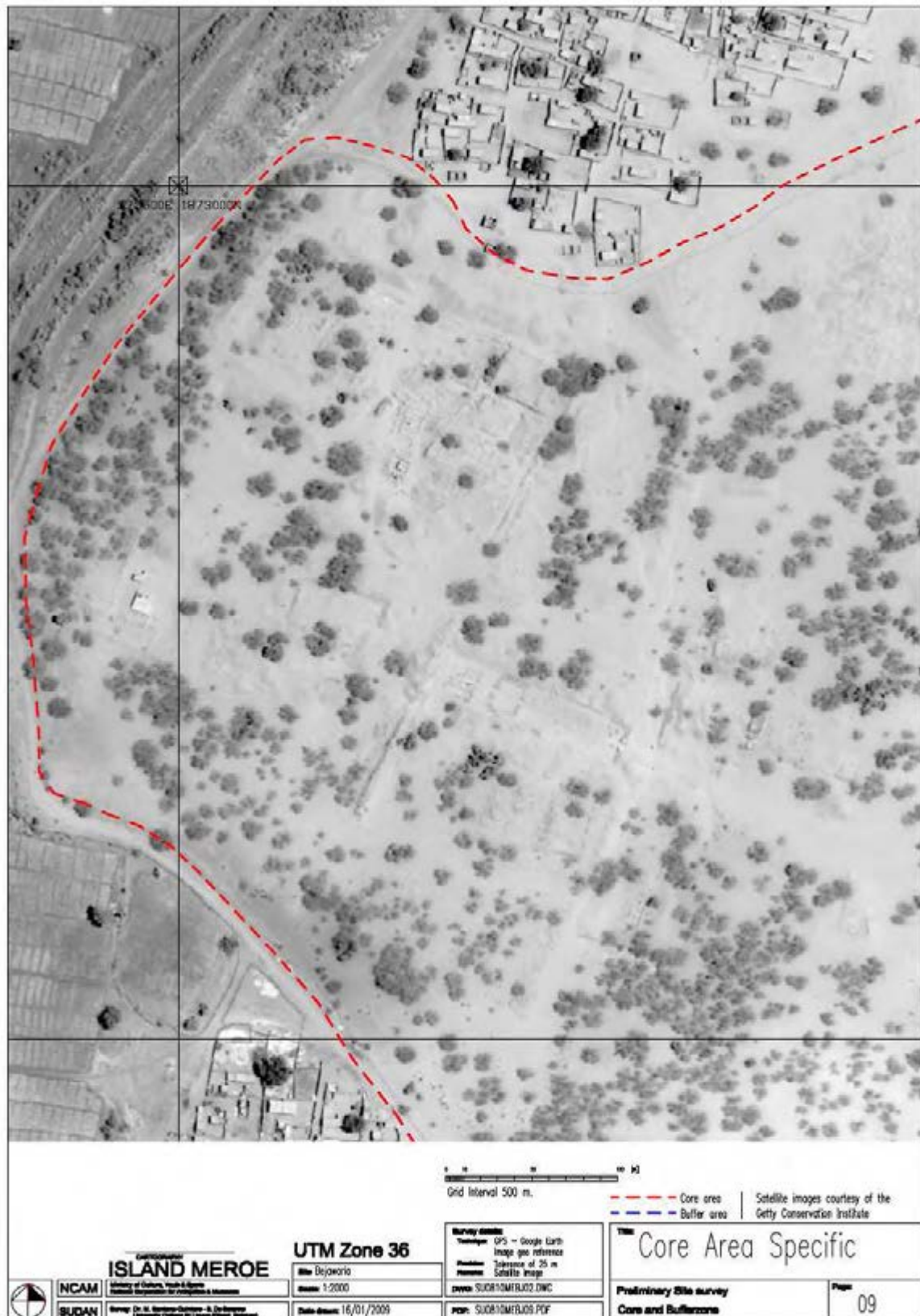


## 5. Meroe: Core Area (East)

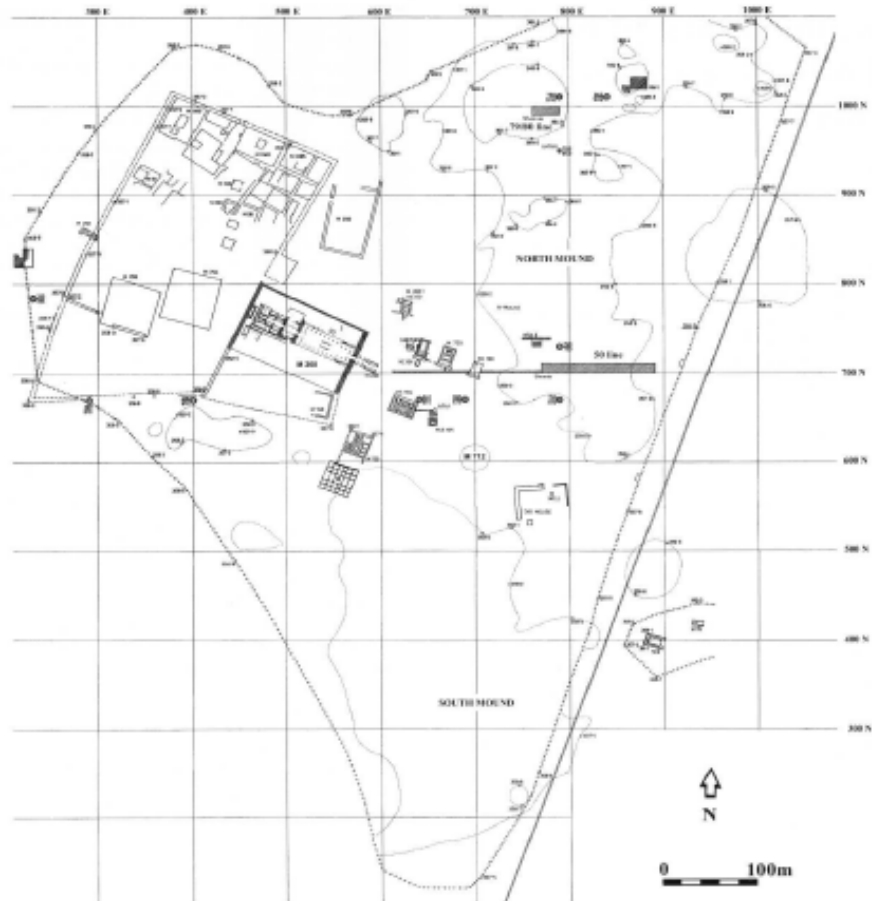


## 6. Meroe: Core Area :Specific





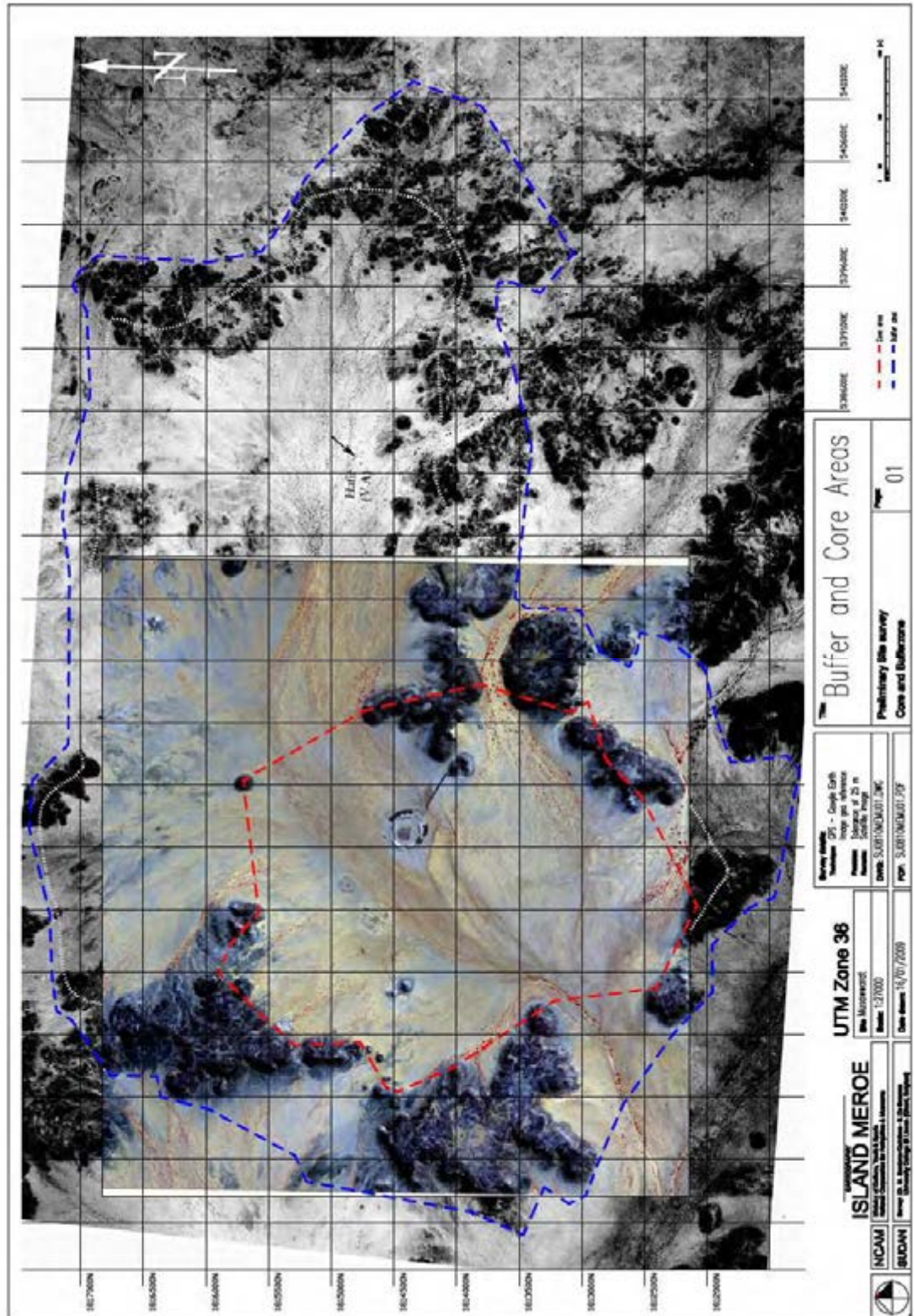
## 7. Meroe: Core Area: Specific



**8. Plan of MEROE (after Shinnie & Bradley and MJE, with addition by K. Grzyzmski) 8. Meroe (west: Royal City) (after Shinnie, Bradley and Grzyzmski)**

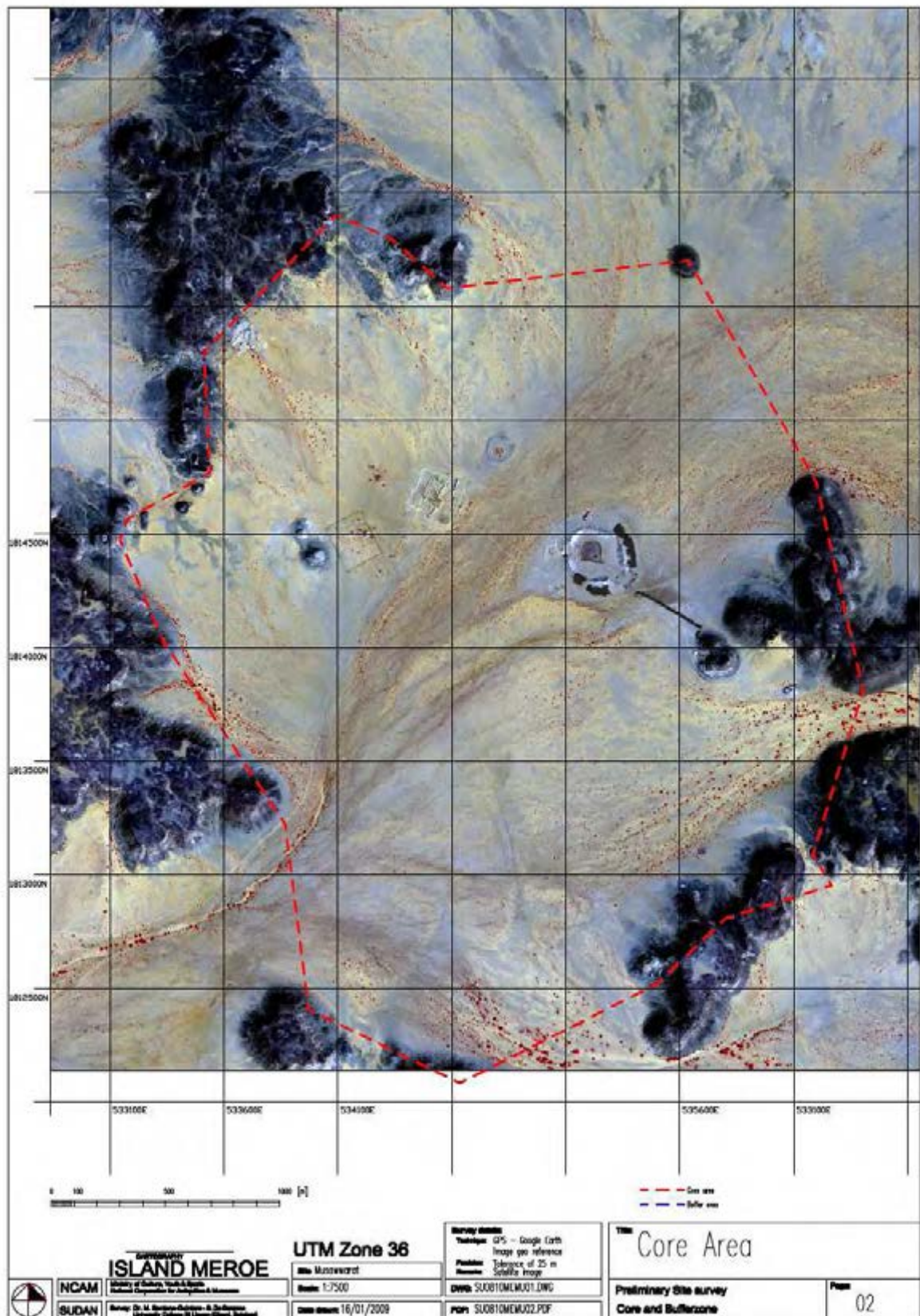
## 18





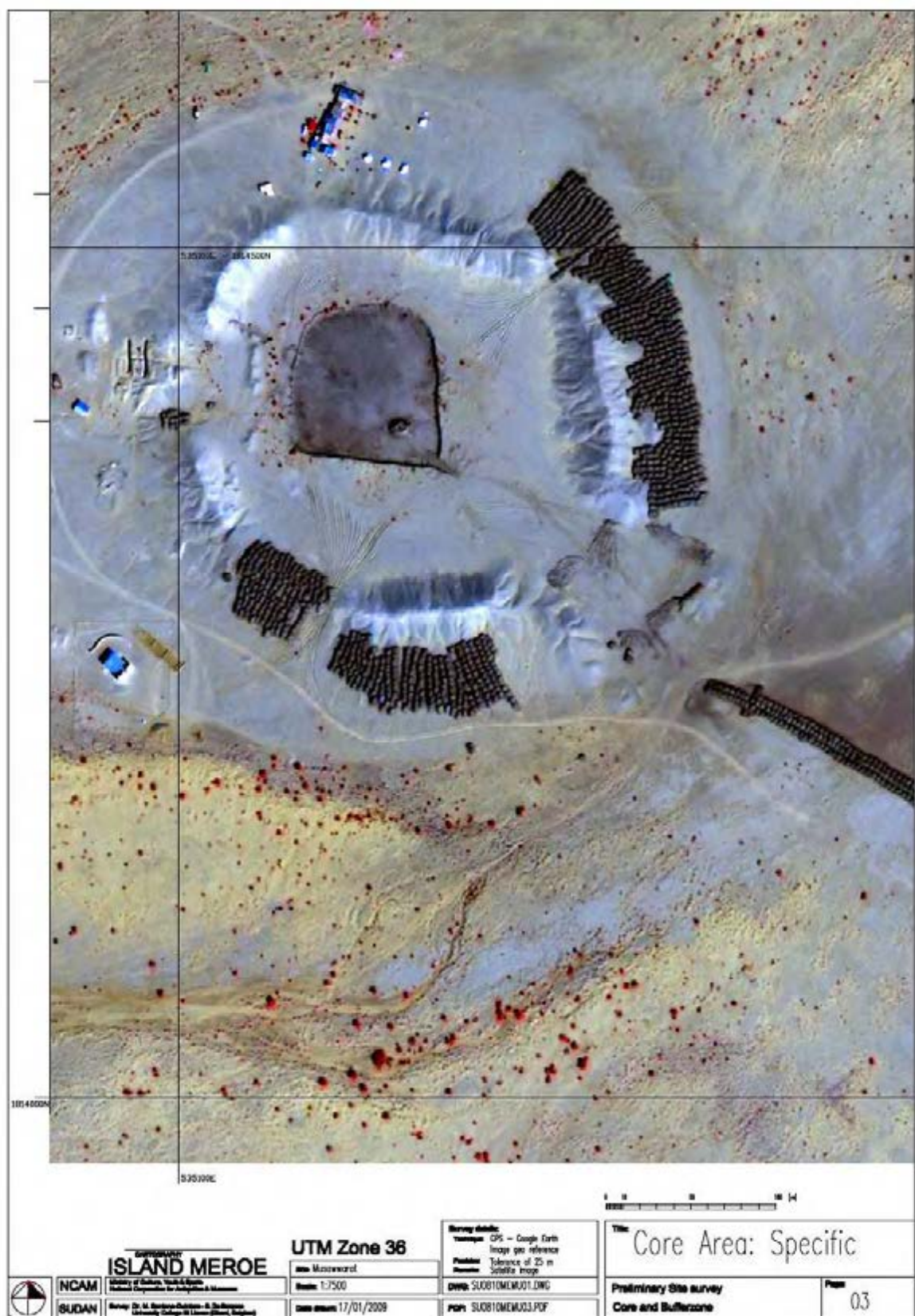
10. Musawwarat es-Sufra Buffer and Core areas





## 11. Musawwarat es-Sufra Core area





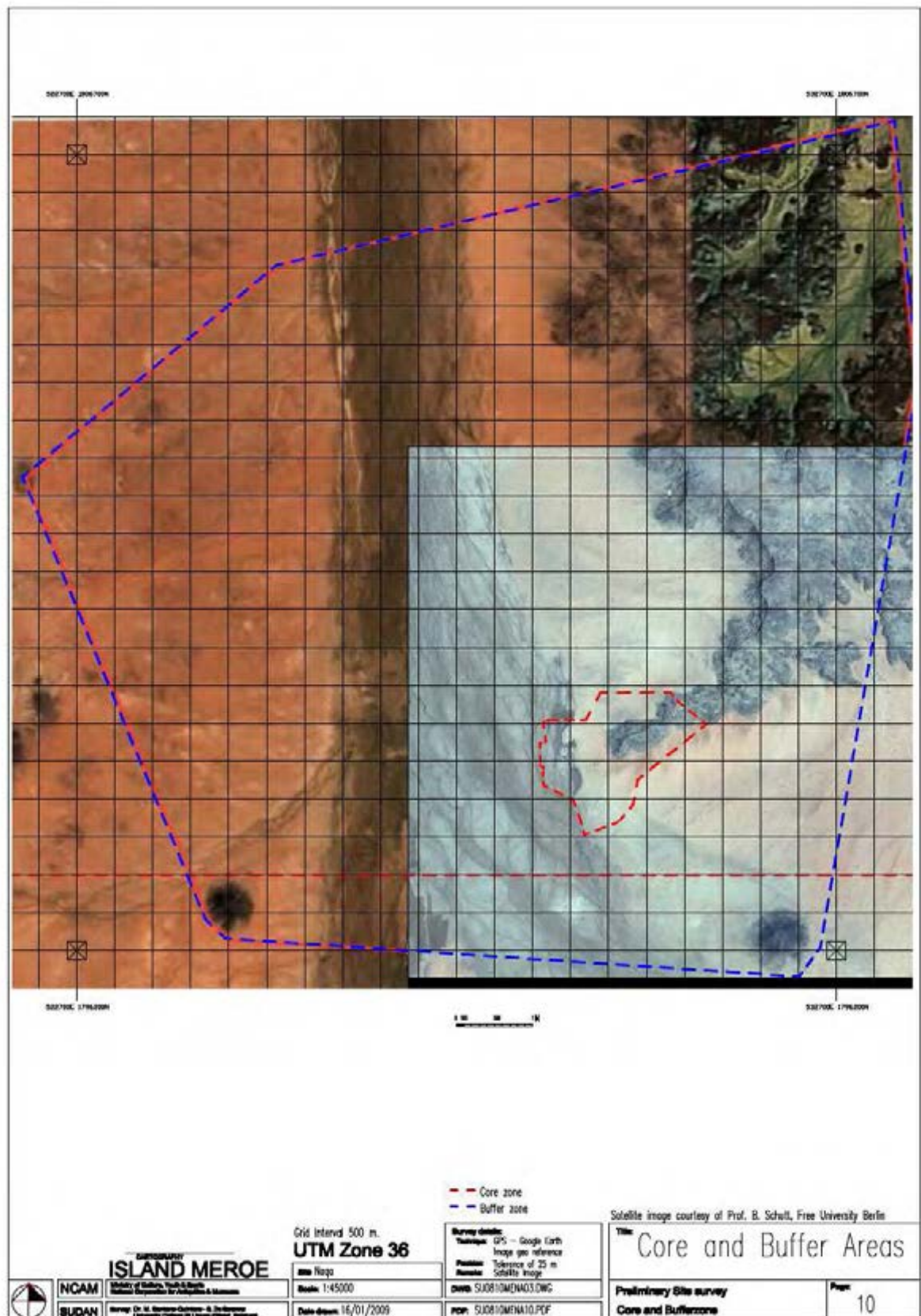
12. Musawwarat es-Sufra Core area: Specific (hafir area)



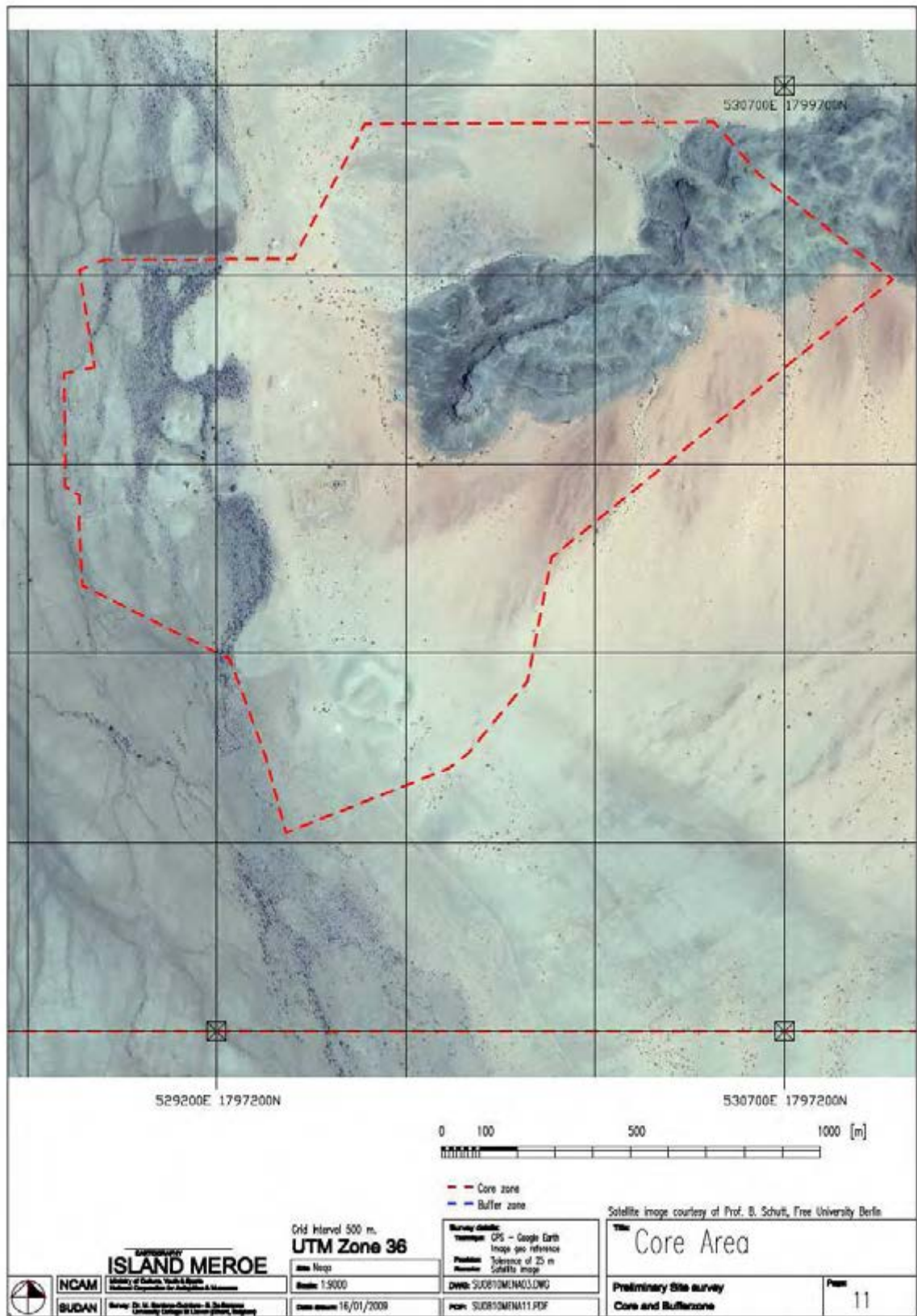








## 15. Naqa Core and Buffer Areas

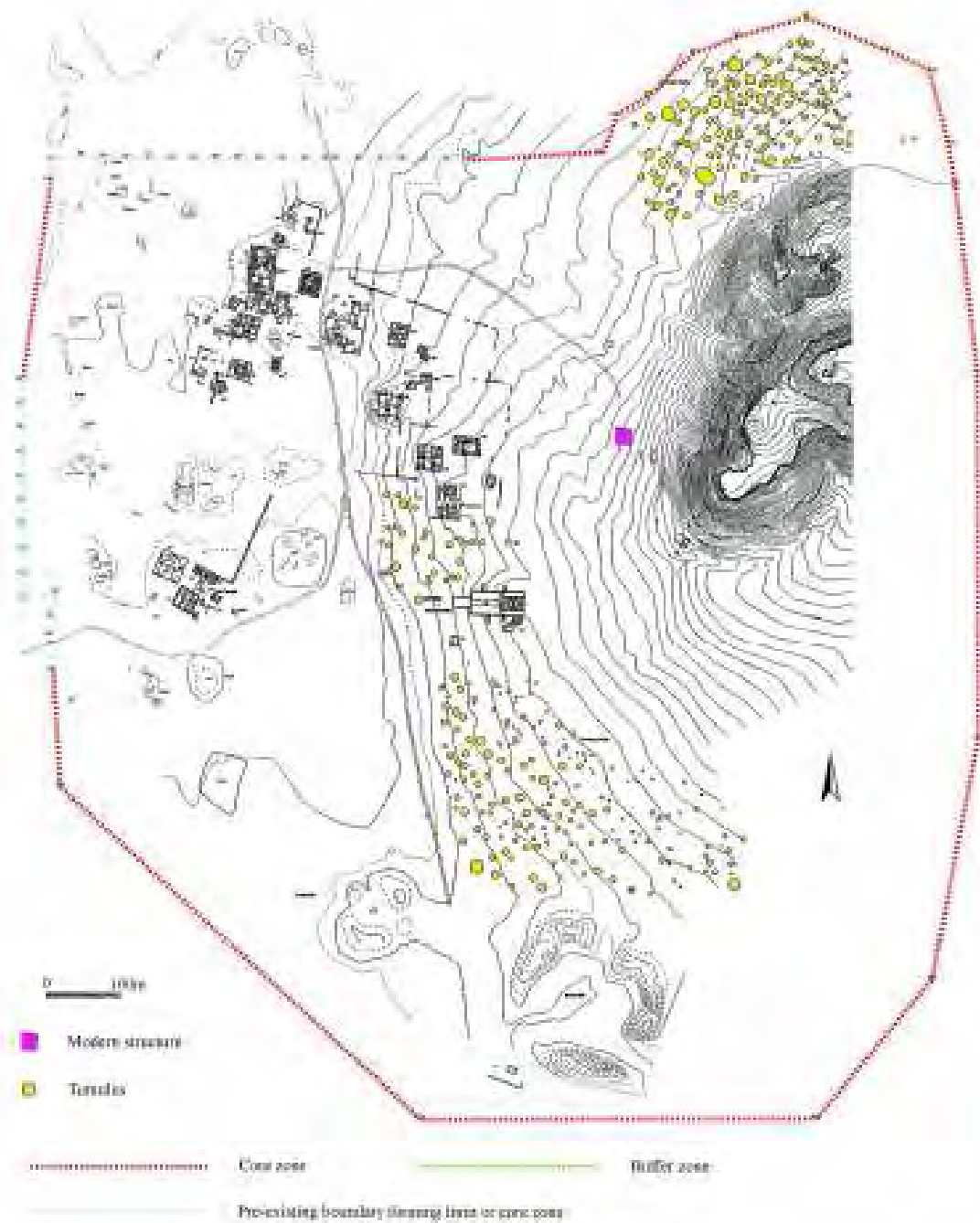


## 16. Naqa Core Area









**19. NAQA Site Plan (courtesy of Professor D. Wildung)**

**1. f Area of nominated properties and proposed buffer zones**

Site n°	Name of the component part	Region(s) District (s)	Coordinates of the central point	Area of nominated property (ha)	Area of the buffer zone (ha) if any	Map n°
001	Meroe 1	River Nile State	latitude N 16° 56.111', longitude E 33° 42.852'	612,551	1718,031	1,2,3,4,7 and 8
002	Meroe 2	River Nile State	latitude N 16° 56.243', longitude E 33° 45.423'	674,904	The same	1,2,3,5 and 6
003	Musawwarat es-Sufra	River Nile State	latitude N 16° 24.649', longitude E 33° 19.705'	836,570	2653,64	1,9,10,11, 12 and 13
004	Naqa	River Nile State	latitude N 16° 16.121', longitude E 33° 16.420'	231,852	9509,92	1,14, 15,16,17, 18 and 19
Total area				2357,36	13881,7	

## 2 DESCRIPTION

### 2. a Description of the Nominated Property

#### 2. a. 1 General introduction

The nominated property, ‘The Archaeological Sites of the Island of Meroe,’ comprises the sites of Meroe, Naqa, and Musawwarat es-Sufra. The term ‘Island of Meroe’ refers to the area of the present-day Butana and Keraba regions between the Blue Nile, the White Nile, and the Atbara River, located between longitudes 33° 07’ and 33° 56’ E and latitudes 15° 30’ and 17° N. The geology of the region consists mainly of four formations:

- a. the basement complex;
- b. the Nubian series;
- c. the alluvium; and
- d. the surface deposits of wind-blown sand.

The basement complex consists of metamorphic and sedimentary rocks and is assumed to be of Pre-Cambrian date (Whiteman 1971, 5). It also includes some igneous rocks thought to belong to later geological formations. The largest outcrop of the basement complex in this region is located at the Sixth Cataract of the Nile about 80km north of Khartoum. Another outcrop lies at Gebel Qeili, about 120km north-east of Khartoum. A broad ridge of small outcrops extends from the Sixth Cataract to Gebel Qeili. This ridge corresponds to the watershed north and south of it (*ibid*, 112). With the exception of these outcrops, the region is mostly covered with thick layers of clays (*ibid*, 140). The Nubian series dominates the majority of the area and rests on the rocks of the basement complex (*ibid*, 52–53).

Large areas of alluvium dominate the area located close to the Nile. The wind-blown sands are found in areas of extreme aridity with an annual rainfall of less than 500mm. In the Butana, the main concentrations of these “sands” are found at the headwaters of wadis such as the Wadi Hawad and Awateib. These sands are thought to be the product of alternating wet and dry climatic phases working on the underlying rock (Khidir A. Ahmed 1984, 10). The so-called Hudi Formation, named after a locality in eastern Sudan, occurs at isolated spots to the south-east of Meroe.

Sources for the study of early climates in the Sudan are extremely limited. Most palaeoclimatic reconstructions deal with the period before 3000 BP. The evidence is primarily derived from geomorphological and biological data. The evidence for climatic change in Sudan during the Quaternary is based partly on the distribution of Neolithic implements and sub-fossil shells on drainage systems such as the Wadi Howar in northern Darfur. These indicate much greater rainfall in the region: sub-fossil snail shells provide excellent indicators for the aridity of the present-day climate compared with that in the Neolithic Period.

The climate has become gradually drier from Neolithic times onwards: drier conditions have been attested by comparison with those of the Early Khartoum phase. The Shaheinab Phase is marked by the absence of swamp-dwelling animals. Two



radiocarbon dates have been obtained from Shaheinab:  $5060 \pm 450$  BP and  $5446 \pm 380$  BP. However, Arkell believed that rainfall was still about 400mm/year at Shaheinab at that time. Although this evidence is remote in date from the Kushite period, it nevertheless gives an idea of the desiccation process in central Sudan over time. Details on the climatic conditions for the Meroitic period are lacking. An absence of settlements in Lower Nubia has been noted for the period of the 1st millennium BCE (Firth 1912, 21–23; Griffith 1924, 116–117). Adams (1977, 242) related this phenomenon to a fall in the Nile flood levels. This is an indication of a drop in annual rainfall in the Upper Nile regions, particularly on the Ethiopian plateau, and consequently in central Sudan.

However, faunal and floral evidence from Meroe is indicative of higher rainfall at the time of the Kushite Kingdom by comparison with today's climate in central Sudan. In Meroe, the overall trend shows a steady decline in the relative importance of cattle in relation to caprovines (Carter and Foley 1980, 304). The change in the relative proportions of cattle and caprovines has been attributed to ecological changes in the exploitation territories of these animals:

‘.....the natural cover of the Butana is likely to have been almost continuous stands of the herb *Blepharis* sp. Both sheep and camels eat *Blepharis* by preference and only in dire necessity will they eat other grasses. On the other hand, cattle prefer grasses where available and will only eat leaves of *Blepharis* during the dry season if other grazing is not available. The marked change in the cattle/caprovine ratio could be accounted for by over-grazing of *Blepharis* stands in the immediate vicinity of Meroe by the caprovine population, resulting in a decline in the number of caprovines which the grazing could carry, and the concomitant increase in the proportion of cattle represented. The presence of the three subsidiary peaks in the caprovine graph ... subsequent to the initial peak in spit 16 could be interpreted as cyclic recovery of the *Blepharis* stands after the initial overgrazing’ (*ibid*, 304–5).

One conclusion based on the bone analysis is that the area in Meroitic times had a higher rainfall (*ibid*, 308), but evidence from other bone assemblages does not support this hypothesis. Moreover, in a urban centre like Meroe, variations are likely to occur in patterns of meat consumption and disposal of bone (*ibid*, 308). Other studies suggest that the climate in the region during Meroitic times was as arid as it is today. It has been also argued that the increase of goats (an animal with a large capacity for adaptation to difficult grazing conditions) in some bone collections is an indicator of an arid climate. The *hafirs* may also indicate both a period of water scarcity, with fragile ecological conditions and strategic measures taken to counteract this scarcity (Ali Tigani El Mahi 1991). However, Shinnie considered it impossible to establish a town the size of Meroe in a region of erratic rainfall such as that prevailing today in the area (Shinnie 1976, 90) and Pliny, writing in 61 CE, talked about greener vegetation and forest around Meroe (Shinnie 1976, 20). It should be noted that the present desert environment in the Meroe region is not itself totally a product of the climate but is partly the result of human intervention. This is clearly illustrated by observing the area within the archaeological site of Meroe, where protection from overgrazing and the cutting of wood has allowed the re-establishment of an acacia forest. The present dry conditions are to some extent a man-made phenomenon resulting from the over-exploitation of the natural resources.



There is evidence pointing to the fact that even as late as the 16th–18th centuries, the Sudano-Sahelian zone was much wetter than it is today. Arab sources record that ‘...the region is well-endowed with rainfall so that the famine could not break out’ (Nicholson 1978, 5). The earlier commentators identify the Butana as the area bounded by the Nile, the Atbara, and the Blue Nile, the term applying to a region which covers more than 3° of latitude and more than 450km in extent. This encompasses a vast area with marked variations in climate, topography, resources, etc. In a survey of the Meroitic hinterland Crowfoot (1911, 9) referred to the subdivisions of the area into the Keraba, a stony and gravelly country on the north-west, and the Butana, the clay plain to the south-east, and he noted that the majority of sites are located in the former area. Adams (1973, 2) referred to the Eastern Butana as an area of superior grazing resources and the Western Butana as having a higher agricultural potential.

Today, most of the region lies within the zone of tropical continental climate with variations in rainfall and temperature from south to north. The rainy season lasts five to eight months in the southern and only one to three months in the extreme northern part of the region. The annual rainfall ranges from 100 to 500mm and temperatures can rise up to 43°C (116°F). There are considerable fluctuations in the amount of annual rainfall from year to year.

As to the vegetation cover, the region falls within the zone of semi-arid desert acacia scrub and short grasslands of north-central Sudan. The vegetation consists of grasses and herbs and thinly distributed scrub bushes with bare areas between. The bare areas are increasingly extensive as one moves north. Various factors account for the distribution and growth of vegetation: topography, the texture, depth, and salinity of soil, and water conditions. This situation prevails in the soils of the Nubian Series. On the fringes of the Butana Plain to the south-east on the soils overlying the Basement Complex, repeating stands of grass can be observed. These consist of alternating small grass patches and bands of tall grasses, a pattern that is attributed to differences in surface soils.

## **2. a.2 *Kushite utilization of the Keraba and Western Butana***

Many factors (economic, political, etc) have encouraged extensive Kushite settlement in the Island of Meroe. The main urban centres were located on the banks of the Nile: the most important of these are the capital city of Meroe and the site of Wad-ban-Naqa. The sufficient amount of annual rainfall and the ideal distribution of alluvial deposits were the crucial factors behind the spread of settlement away from the Nile Valley. Naqa and Musawwarat es-Sufra are certainly the biggest centres of the area. The whole of the western Butana and Keraba is dotted with a series of small centres (Basa, Um-Usuda, Geheid, Muraba, Alim, Gebel Hardan, etc). With the exception of the sites of Naqa and Musawwarat, the settlement pattern is very simple and characteristic of the region: it consists of a temple and a *hafir*. This setting, beside the economic necessity, has ritual significance: this arrangement was respected even in sites situated within the Nile Valley where the need for the *hafir* as a source of water did not arise, such as the Sun Temple at Meroe M250 (Ahmed Hakem, 1972, 642). All these sites are religious centres, with the exception of Naqa, which is the only substantial settlement in the Keraba. Naqa is also exceptional in that it is the only site in the Keraba where an Egyptian-type temple can be found.

An important feature of these Kushite settlements is the absence of fortifications. Warfare and defence seem not to have had any effect in the shaping of the Butana and Keraba settlements as a whole nor on individual sites or structures. A religious importance was perhaps the strongest element in the stabilization of such a settlement pattern. The temples were the focal point of their respective surroundings, exerting great influence and power. It is no doubt through such religious institutions that the central government was able to exercise its maximum power and control on the population.

Another feature of this settlement pattern is the absence of extensive cemeteries in the area. Scattered groups of tombs are occasionally found along the courses of wadis and on the slopes of hills. It can thus be concluded that the sites of the western Butana and Keraba were possibly permanent centres for semi-nomadic pastoralists. There were no changes over time in the settlement pattern and even of individual structures. The temple and the *hafir* remained basically unchanged, suggesting a continuous occupation by the same cultural community. They formed an integral part of the Kushite kingdom, the other centres of which lay within the Nile Valley. The hinterland sites depended upon the Nile centres for political leadership, economic and trade outlet, and more importantly for the supply of building technology. At the same time they in their turn were important religious centres of the kingdom and provided the government with political and economic power (*ibid*, 645).

### **2.a.3 Meroe**

(maps: 1-8 ; plates :1 and 4-12)

The site of Meroe is located on the right bank of the Nile about 220km north of Khartoum (coordinates town site: 16° 56.111' N 33° 42.852' E – Map sheet NE-36-O). The protected area covers about 4km<sup>2</sup>. The settlement lies several hundred metres to the east of the Nile and is partly overlain by the modern villages of Deraqab and Kigeik. The north and south (royal) cemeteries occupy low hills at the edge of the plain 4km to the east. In the plain are a number of temples, a *hafir*, the western pyramid cemetery, and cemeteries of the less wealthy inhabitants of the city. The Atbara to Khartoum railway cuts through the eastern edge of the settlement. Today the site is frequently referred to as Begraweya.

## **RESEARCH**

The mention of Meroe by some classical writers has aroused the interest and curiosity of European travellers and adventurers since the early 18th century. The first suggestion that the ruins of Begraweya should be identified with the site of Meroe known from the classical sources was made by James Bruce during his passage through the area in 1772.

Burckhardt noticed the ruins of the town in 1814, but he underestimated their importance. A few years later two French scholars (Frédéric Cailliaud and Linant de Bellefonds) accompanied the army during the Turco-Egyptian conquest of the country (1821) and left valuable descriptions of the monuments of Meroe. The British traveller George Hoskins visited the site in 1833 and one year later the Italian adventurer Giuseppe Ferlini, motivated by the previous accounts, destroyed many pyramids there in his fruitless search for ancient treasures. The first scholarly work

was undertaken by the Royal Prussian Expedition (1842–44) led by Carl Richard Lepsius.

Bruce's suggestion was first tested and proved correct by the excavations of John Garstang (1910–14)<sup>1</sup> who uncovered large areas in the settlement as well as excavating parts of the vast popular cemetery. Less than ten years later, George Reisner excavated the three pyramid fields of the Kushite capital.

The site then remained untouched until the 1960s, when large sections of the town site were excavated by the combined mission of the Universities of Calgary and Khartoum. This was followed by a brief intervention in 1992–93 by the Humboldt University (Berlin). Today the town site is being studied by the mission of the Royal Ontario Museum and the University of Khartoum, whilst the German Archaeological Institute is dealing with the 'Royal Baths.' NCAM is conducting conservation and restoration work on the pyramids under the direction of the architect F. Hinkel.

### OVERVIEW OF THE HISTORY OF THE SITE

Occupation of the site began in the 10th century BCE and it had developed into an important settlement by the 8th century BCE, if not earlier. The site became one of the royal residences of the kings of Kush, who were buried in the south and north cemeteries from the early 3rd century BCE. The city was possibly captured by the Aksumites in the mid 4th century and it was probably abandoned before the introduction of Christianity into the area during the latter half of the 6th century CE.

In the 5th century BCE the Greek historian Herodotus was informed while on a visit to Egypt of a fabled city of the Ethiopians, 'the burnt faced ones,' lying far to the south (II,29). This is the first known mention of the city. Referred to in the Graeco-Roman world as Meroe, its Kushite name was variously spelt Bedewi, Medewi, and Bedewe. A number of later Hellenistic and Roman writers provide additional information on the city, but thereafter it lapsed into total obscurity. In the modern era it was rediscovered by the Scottish traveller James Bruce while on his way down the Nile from Ethiopia. He passed the ruin field in 1772 and saw 'heaps of broken pedestals and pieces of obelisks,' leading him to write 'It is impossible to avoid risking a guess that this is the ancient city of Meroe' (Bruce 1790). Archaeological excavations in the royal cemeteries by E.A.W. Budge of the British Museum were begun immediately after the conquest of the region by the Anglo-Egyptian forces in 1898, and in the city in 1909, and these have continued sporadically up until the present day. Unfortunately much of this work was only published in a summary fashion by the excavators, and in some cases, there is no detailed information about the history, development, and topography of the ancient city.

Meroe lies in the savannah belt on the south side of the Sahara in an area which today receives approximately 100mm of rainfall annually. However, it is its proximity to the Nile which makes the region viable for sedentary human activity, and this seems to have been the case throughout the city's history.

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<sup>1</sup> The excavations of the Liverpool University Institute of Archaeology at the site of Meroe began in winter 1909–10 and continued in December 1910–February 1911 (second season), winter 1912 (third season), winter 1912–13 (fourth season), and winter 1914 (fifth season). The funds were subscribed by a Committee that included members from Great Britain, Belgium, Denmark, and Germany.

Excavations have not unnaturally concentrated on the more monumental structures, and even in those areas have rarely penetrated through to the first phases of occupation. What little evidence there is indicates that the earliest inhabitants lived in circular timber huts, and this occupation has been dated to the 10th century BCE by the radiocarbon analysis of associated material (Robertson 1992, 45). At this time little is known about the political and settlement history of the middle Nile Valley. In the early 11th century BCE Egyptian control of the valley as far upstream as the Fourth Cataract lapsed. By at least the mid 8th century a new state had arisen, based at the downstream end of the Fourth Cataract, which was powerful enough to invade, conquer, and then control Egypt for almost 100 years. Meroe lay within the ambit of this kingdom, the Kingdom of Kush (not to be confused with the earlier kingdom of that name, which was based at Kerma).

The importance of Meroe can first be documented at the time of the Kushite invasion of Egypt. An extensive cemetery, situated on a projecting spur of the plateau 4km to the east of the settlement, contained graves, many of which are clearly of wealthy and important individuals (Reisner 1923, 36ff). The nature of the funerary customs, and of the artefacts buried with the deceased, indicate that these people were subjects of the kings of Kush. By this date Meroe, although displaying a few regional characteristics, was an important and wealthy centre of Kushite culture.

The earliest Kushite kings were buried at el-Kurru and later at Nuri, both in the original heartland of the kingdom. However, there was a royal residence from, at the latest, the reign of Tanwetamani (664–c 656 BCE). A cache of statuettes of deities and votive offerings found within an area at Meroe now known as the ‘Royal City’ contained pieces bearing the name of King Senkamanisken, who reigned from c 643–623 BCE. Architectural fragments bearing inscriptions that refer to Aspelta (c 593–568 BCE) and several of his immediate successors indicate that those kings were erecting religious monuments within the settlement (Török 1992, 115ff). Among the temples was one to the chief god of the Kushite state, Amun. Several inscriptions, the earliest of King Irike-Amanote (c 431–405 BCE), make it clear that by that date Meroe was the principal residence of the king, although it may not be correct to think of it in terms of a modern political capital. The religious centre of the state remained at Gebel Barkal and the kings continued to be buried there until the early 3rd century BCE.

King Arkamani-qo was the first ruler to be buried at Meroe, and most later rulers and their families were interred there, initially in the South Cemetery, the site of the early cemetery noted above. By the mid 3rd century BCE the royal burial ground was moved for reasons of space a few hundred metres to the north to an isolated rocky ridge, where all later rulers were buried. The typical royal funerary monument was the pyramid, of a form derived from those built by Egyptian dignitaries south of Aswan during the Egyptian New Kingdom. These monuments, ranging in size from c 4.5m up to 17.5m square at the base, were steep-sided, the faces usually at an angle of between 60° and 73° (the angle of the Giza Great Pyramid is 51° 52'). In the earlier period they were constructed of sandstone blocks revetting a rubble-filled core. The latest pyramids were faced in brick or coursed rubble. However, as many if not most of the pyramids were rendered in a lime mortar and then painted, the differences in quality of construction will not have been apparent.

Attached to the eastern face of the pyramids was a funerary chapel of from one to three rooms, often profusely decorated within with reliefs. These reliefs most

frequently show the enthroned ruler receiving offerings or approached by a priest with a censer. The iconography is basically Egyptian in inspiration but exhibiting many original features.

This typifies the attitude of the Kushites to Egyptian religion and kingship ritual, where they borrowed only what they considered to be useful and freely modified and added to what they borrowed. The pyramid was a solid structure, the burial being placed in a tomb hewn in the living rock beneath it and entered down a long sloping stairway.

The rulers and their families were probably buried with rich grave goods, but all the royal tombs had been robbed well before the arrival of archaeologists at Meroe. One royal tomb was actually robbed by workmen building the adjacent tomb, by digging a tunnel through from one to another. This was carefully blocked and the crime was only discovered by the excavator George Reisner in the 1920s. One very fine cache of jewellery belonging to Queen Amanishakheto survives. This was found by Ferlini, the treasure hunter who in 1834 set about demolishing the pyramids in a quest for gold. There was a seemingly unique small chamber in Amanishakheto's pyramid near the apex in which her personal jewellery was buried.

In Nubia there was a long tradition of sacrificing or ritually slaughtering humans and animals on the death of a ruler and important personages, and this continued at Meroe. As well as humans, horses, camels, and dogs were deemed the most suitable victims (Reisner 1922, 181; Lenoble forthcoming). Broadly contemporary with the beginning of royal burials at Meroe, the official residences of the city were enclosed by a stout wall 3.5–7.75m thick, defining a roughly rectangular area (George 1914, 9). The function of this wall is unclear: although at first sight it appears to be defensive in character with its projecting towers, one temple was constructed abutting its outer face during its building phase, thus to some extent negating its defensive capabilities. Defence against flooding from the river has also been advanced to account for its construction.

A new Temple of Amun was erected on the east side of the Royal City (Garstang *et al* 1911, 11ff.). This was the second largest of the Amun temples in the kingdom and was presumably designed to replace the earlier temple of the god at Meroe which had stood in the Royal City. Unusually for Amun temples, it faces not towards the river but towards the desert. This is one of a number of indications that the topography of the area in the 4th century BCE was markedly different from what it is today. The Nile is a dynamic river and is constantly shifting its course, creating new islands and sometimes washing others away. Excavations immediately to the east of the 'new' Amun temple have found thick deposits of Nile silt and very little early occupation material, prompting the suggestion that when the temple was built the main river channel ran to the east of the city, which stood on an island (Bradley 1982, 167).

Within the royal enclosure the so-called 'Roman Baths' functioned as a water sanctuary, probably connected with festivals performed by the king on the occasion of the beginning of the annual inundation (Török 1992, 117). As the Nile rose, water passed along a system of conduits into the ritual basin. Subsequent modifications to this water system suggest that the river channel was progressively moving to the west away from the city, which was united to the mainland by the 3rd century BCE.

In the late 1st century BCE Egypt was conquered by the Romans, who immediately began negotiations with the Kushites at the southern frontier, at Aswan. However, it

was only after a large-scale raid by the Kushites on Aswan and full-scale military reprisals by the Roman prefect Gaius Petronius that a *modus vivendi* was established. Striking evidence of these operations was found at Meroe by Garstang. He uncovered the remains of a temple decorated within with fine wall paintings depicting the rulers with bound prisoners. Immediately in front of the threshold of the temple a twice life-size bronze portrait head of the Roman emperor Augustus had been buried which may well be loot from the Kushite raid on Aswan (Bosanquet 1912). The Roman writer Strabo wrote that the Kushites destroyed a number of imperial statues during their attack (XVII, 53-4). At Hamadab a few kilometres to the south of the city the entrance to a temple is flanked by two large inscribed stelae. One of these appears to contain an account of these activities. It would be extremely interesting to view the campaign through the eyes of the Kushites, but as the inscription is written in Meroitic it cannot unfortunately be deciphered (Griffith 1917, 168).

In the wake of these activities renewed contacts with the Graeco-Roman world appear to have brought about a renaissance, which can be observed particularly in Kushite architecture. The greatest builders of this era were the co-rulers King Natakamani and Queen Amanitore. They built temples throughout the realm and at Meroe constructed a kiosk within the forecourt of the Amun temple.

At this time a number of domestic structure that had been built on the Nile silt to the east of the Amun Temple were demolished and a monumental avenue leading up to the temple was laid out, flanked to right and left by smaller temples (Shinnie 1984). Developments continued elsewhere in the city. There were numerous modifications and new constructions within the Royal City, and before the end of the Kushite state the defensive wall had become totally obscured by the build-up of occupation material, in places overbuilt. A similar fate befell the water sanctuary which was superseded by a large building, perhaps to be identified as a store house (Garstang 1912, 5 and pl. VI).

In its heyday the city covered a considerable area, and today the large mounds strewn with pottery, brick, and stone testify to long and intensive occupation. Many of the mounds will cover the remains of domestic buildings belonging to the ordinary inhabitants of the city, the population of which has been put at 20,000–25,000 (Grzymski 1984, 289). Shinnie excavated two small areas of this kind and found a continuous sequence of domestic occupation from the 10th century BCE until the 4th century CE, most of the buildings being of mud brick (Shinnie and Bradley 1980, 13ff.).

The economy of the city will have been dependent to a large extent on the agricultural potential of the area. The fertile Nile banks will have been extensively irrigated, as they are today, with the help of the *shaduf*, a primitive water-lifting device. Whether the more technologically advanced and efficient *saqia* (water-wheel) was available at this time is still the subject of debate. The people will also have practised animal husbandry, and Shinnie found evidence for the consumption of cattle, sheep, and goats for food.

The presence of the royal court at Meroe at least for part of the year will have been a dramatic stimulus to the local economy. Service industries will have abounded as well as such specialist occupations as architects, master builders, sculptors, and wall painters. Fine craftsmen will also have been kept busy supplying many of the luxury items that have been found in quantity from the royal and aristocratic tombs to the east of the city.

The importance of iron working at Meroe has elicited much discussion. One early commentator, observing the large mounds of slag on the site, christened Meroe the 'Birmingham of Africa,' and many have seen Meroe as playing a pivotal role in the diffusion of iron working to sub-Saharan Africa (Sayce 1912, 55). However, more recent work elsewhere on the continent has now cast severe doubts on this and even on the scale of iron working at Meroe (Trigger 1969).

One complex of pottery kilns was excavated at Meroe towards the northern edge of the city but has yet to be published in detail. The diversity of forms and decorative motifs, particularly of the fine painted wares found at Meroe, suggests that the city was a major pottery production centre.

Trade may have been one of the main wealth-generating activities of the state. Large deposits of ivory and hardwoods have been found in royal palaces and storerooms elsewhere in the kingdom and these may have been two of the mainstays in this trade, gold being another. The large number of fine objects of Egyptian and Graeco-Roman manufacture found in the Meroe tombs indicates that this trade was not all one-way, although whether much of this material arrived at Meroe as a result of commerce or by gift exchange between rulers is unclear. Among the finest objects of this nature to have been found at Meroe is a *rhyton* of the Athenian potter Sotades, who worked in the period around 400 BCE (Dunham 1963, 383).

The last Kushite ruler who can be tied to an absolute chronology is Teqerideamani, who is recorded on a graffito at Philae executed during the reign of the Roman emperor Trebonianus Gallus (251–53 CE). Thereafter there were at least five further rulers, and scholars have variously suggested that the last of these was laid to rest in the north cemetery at Meroe with all the customary honours, around either 320 or 350 CE. Later burials in the Kushite tradition and under pyramids have been found in the western cemetery.

A number of factors have been suggested to explain the downfall of the kingdom and the loss of prominence of Meroe itself. One notable feature of the later burials in the north and west cemeteries is the redistribution of wealth, as illustrated by the grave goods and the size and elaboration of the tombs and tomb monuments. It can be observed that the rulers were becoming less rich relative to their upper-class subjects. This reduction in wealth differentials may have seriously affected the ruler's ability to undertake patronage and hence to guarantee the loyalty of his subjects. This may explain the fragmentation of the kingdom in the late period with the growth of local elites.

Also connected with the amount of the ruler's disposable wealth will have been a diminution of trade between central Africa and the Mediterranean world. This was partly the result of the impoverishment of the late Roman Empire and partly a result of the increased utilization of the Red Sea route as opposed to the Nile valley. The Aksumites of the Ethiopian highlands were the chief beneficiaries of the former trade route, and their status as trade rivals of the Kushites has even been cited as the reason for open conflict between the two powers. Two Aksumite inscriptions and one Aksumite coin are known from Meroe and have been related to the campaign of the Aksumite King Aezanes recorded on an inscription found at Aksum in Ethiopia. This may record activities by Aezanes in the Nile Valley in the mid 4th century CE.

In the plain to the east of the city, between it and the royal cemeteries, Garstang excavated a large number of graves of the more humble strata of society (Garstang *et*

al. 1911, 29). The latest of these appear to postdate the last royal burials. They are associated with new types of pottery and other artefacts and are laid to rest under tumuli rather than under pyramids. This evidence implies that many of the features of Kushite civilization had gone out of fashion by this time. To some extent the veneer of Egyptian civilization, one of the hallmarks of Kushite culture, was being stripped away and there was a re-emergence of many of the older cultural traits which are seen throughout Nubian history from the earliest times until the arrival of Christianity in the 6th century. Occupation material contemporary with these late burials has not been noted within the city, which appears to have lain abandoned from that date up until the present day.

#### MAIN FEATURES OF THE SITE: THE TOWN

**The Enclosure Wall:** The Royal City is the name given to the area within the enclosure wall which contains the so-called 'Roman Bath' and the remains of many structures of a palatial nature. The irregular trapezoidal enclosure, 295–365m long by 195m wide, is bounded by a wall which still stands in places to a height of 3.5m. There are four gates, possibly with guard chambers and *ascensi*. The wall thickness varies, the north wall between 3.5m and 5.5m, the south wall 3.85–7.75m, and the west wall 3.6–4.6m. The wall was built on sand and was the same thickness to its full height, with well dressed faces and roughly dressed blocks in the core. No bonding material was used and little attempt was made to bond the facing to the core. Blocks vary considerably in size: facing stones were 300–400mm high, 300–500mm wide, and 300–700mm long, blocks in the core were generally a little larger. Some of the blocks bear masons' marks in Greek. There is very little evidence from which to date the construction of the wall, but Török suggests the mid to late 3rd century BCE to the mid 2nd century BCE. By the 1st century CE some of the sections of wall were in such a state of disrepair that they were overbuilt by other structures, although elsewhere on the circuit gates remained in use.

**Building M 95, 194, and 195 (the 'Royal Bath')** The basin and apsidal structure lay in the centre of a complex of rooms, originally perhaps separate buildings within a *temenos*, but later linked by corridors. First-period walls were of red brick on broken-stone foundations. The basin was 2m deep and 7.5m square, and entered by a flight of steps along its east side. On its south side were six water outlets supplied by an aqueduct, brick-built, vaulted, and cement-lined, 700mm wide by 1.5m deep. The outlets of the spouts were plugged by stoppers. The south wall survives 1m above the ledge of the basin. It is decorated with faience plaques, alternate figures of lions and bulls in stone, two painted serpents and an elephant, and three free-standing statues, the central one a harpist, that on the left a musician playing the pipes. Originally the nearby *exedra* probably had seven seats, the ornamental arm rests in the form of griffins.

The building functioned as a water sanctuary but the falling level of the Nile made first the gravity-fed aqueduct and then the aqueduct fed by a *shaduf* inoperative. At that time the sanctuary was demolished after the statues and column drums had been carefully placed in the basin. Presumably it had only been operative at the time of the high Nile and was associated with the inundation, the New Year and, by extension, the cult of the ruler.



**Building M 292** This was a small rectangular temple, c 14m by 14.5m, orientated north–south, with its entrance to the south. Its 3m thick walls had been rebuilt several times, slightly altering the orientation and radically reshaping the interior. There was 3m of deposit between the earliest and latest floor surfaces. The earliest building had mud-brick walls, the second building was constructed partly of dressed sandstone blocks. The penultimate (third building) phase consisted of a rectangular chapel and a porch built of dressed sandstone blocks. The interior walls were all plastered and painted with scenes including enthroned gods with goddesses standing behind, and a footstool with images of bound prisoners. They are faced by a male and in the other case by a female ruler. The similar size and pose of the male and female rulers, implying that they were of equal status, suggests that they are Natakamani and Amanitore. The iconography is unusual but not unique: there are parallels in Temple F at Naqa. The burial of the head of Augustus was associated with this phase. It is of the *Prima Porta* type, which first appears on coins in the east in 27/26 BCE, but did not become dominant before 25/23 BCE. Although it is generally considered to be part of the booty taken from Syene in the autumn of 25 BCE, Török suggests that it came from a statue erected at Qasr Ibrim during the Roman occupation of that site from 25 to 21 BCE, although he does not explain how it subsequently came to Meroe. The head had been placed in a pit filled with clean sand 1m in front of the threshold.

It has been suggested that the temple was dedicated to Amun. In the two later building periods the floor was raised by 1.3m, new bases were placed on the cut-down columns, and the interior was filled with rubble to form a plinth above the level of the contemporary floor, which had been plastered and moulded on the edge.

#### OTHER MAJOR STRUCTURES OUTSIDE THE ROYAL CITY

The **Temple of Amun** is the largest structure on the site (about 135m long). It is oriented east–west with the main entrance on the east. It is constructed of mud and red bricks with door jambs, columns, pylons, and the main sanctuary of Nubian sandstone. It is approached along a *dromos* which over time was lined with small temples and, close to the pylon, by two stone rams on either side. As in many of the Kushite temples of Amun, it consists of an outer courtyard, a hypostyle hall, several ancillary rooms, and a sanctuary. The western end of the building lay adjacent to the eastern wall of the Royal City.

The **Lion Temple**, dedicated to the cult of Apedemak (Lion God), is located on a heap of iron slag immediately to the east of the town site. It is a double-chambered temple built of sandstone and decorated with reliefs. The entrance to the building is approached by a flight of steps and originally was flanked by two lion statues.

The **Sun Temple** (M 250) is located approximately 1km from the town. Older foundations in the *temenos* are to be associated with fragments of an inscription of Aspelta (593–568 BCE). The site was used for over 600 years. The temple plan was influenced by Ptolemaic models: it is an amalgam of local and foreign architectural influences. The *temenos* wall, of red brick 2.7m thick, encloses an area 112m square, and was entered through two stone gateways on the main axis and also by two openings to north and south. The temple was set on a podium 2m above the *temenos*. In its fourth building period it was provided with a stepped *crepidoma* (the *crepidoma* was inspired by Hellenistic architecture). Consequently, this building period cannot predate the turn of the 4th and 3rd centuries BCE. It may be dated perhaps to the first

half, or the middle of, the 2nd century BCE. Finally, in the fifth building period an exterior colonnade with 72 columns was added.

To which god it was dedicated is unknown, but it was almost certainly not an Egyptian deity. It is associated with the triumph of the sovereign over his enemies – perhaps the sanctuary was reserved for the cult of the dynasty. Queen Amanishakheto in the company of Akinidad was represented on the north *cella* wall. It is tempting to suppose that M 250 was the scene of the unification of the Amun worshipped in Meroe City with Re.

The decoration of the east front of the pylon towers of the court building consists of sunken relief representations of bound captives whose bodies are covered by large cartouches. On the south tower the cartouches were inscribed with Meroitic hieroglyphs, while the north tower cartouches were left blank. The topo- and/or ethnonyms in the south tower cartouches cannot be identified.

Various war scenes were recorded on the north front. From east to west these are:

- soldiers wounding the hind legs of horses with their daggers and fighting infantrymen;
- fighting infantrymen;
- marching soldiers and a chariot;
- a fortress;
- a village with native huts and trees.

The eastern third of the south front of the court building is occupied by massacre scenes, the ultimate models of which can be identified within the sphere of New Kingdom iconography.

Another relief presents a topographically and typologically accurate representation of the cult building complex as it appeared in the late 1st century BCE. At the northern end of the relief register are the *temenos* wall, trees in the *temenos*, and the temple with its pylons enclosing a colonnade. Further to the south stand the high altar and the kiosk. In front of the first pylon of M 250 is a man facing right and before him there are other figures walking to the right (south). The ritual act that constitutes the actual theme of the relief is performed at the high altar in front of the kiosk. The top of the high altar is approached by a ramp from the left. Two figures ascend this ramp. It has been suggested, probably correctly, that the altar is the scene of a human sacrifice. In this context the many jars filled with human bones and charcoal discovered by Garstang within the *temenos* are particularly relevant.

The **Western Cemetery** contains more than 500 graves, some of which are pyramids, and it is considered to be the burial ground for the princes and nobles of Meroe. Some of these burials were richly furnished. In Beg.W.5, five skeletons lay beside that of the main burial, a queen of minor rank. One of the skeletons was clearly that of a maidservant, who was found clutching to her breast her mistress's mirror and a bag containing the lady's jewellery (four bracelets of gold and carnelian, four necklaces of gold and cut glass, and six pairs of gold earrings). The excavators believed that all the servants had taken poison prior to the burial (Dunham 1924, 5 ff.; Dunham 1963, 118 ff.).

The **Southern Cemetery** contains more than 200 graves. The earliest burials can be classified into two types:

- Rectangular pits oriented east–west in which the non-mummified body was placed in a contracted position on its left (?) side on a wooden bed (?)
- Narrower rectangular pits oriented east–west or north–south, containing a mummified body in a wooden coffin frequently covered with a bead net in the manner that was typical for Egyptian Third Intermediate Period burials

It would appear that the graves of the earliest two or three generations can be dated to the decades extending from the late pre-25th Dynasty period to the early 25th Dynasty period, i.e. to the times before and around 747 BCE.

At least three members of the royal family were buried in this cemetery; Beg.S.132 is probably the burial of a wife of King Tanwetamani (664–after 656 BCE). Some of the graves are marked by *mastabas* and pyramids. When the burial of rulers began at Meroe in the 3rd century BCE they were initially interred in the southern cemetery, the tombs being crowned by pyramids.

The *Northern Cemetery* is exclusively the royal burial ground of the rulers of Meroe. It contains 44 pyramids, of kings, queens, and crown princes, all but six of whom were reigning monarchs. It would appear that the rulers were mummified in some fashion, laid in wooden anthropoid coffins on raised masonry benches whose sides were sometimes carved with divine figures. In Beg.N.16 the king's mummy had been hacked to pieces by the robbers, but the hands remained, with two gold bracelets at the wrists and nine silver rings on the right hand and ten on the left. A number of tombs contained evidence for sacrifice. In Beg.N.5, for example, there were the remains of several animals in the tomb, along with their human attendant.

Many of the pyramids of Meroe are in a good state of preservation. In the earlier period they were constructed of a single or double revetment of sandstone blocks enclosing a rubble-filled core. The latest pyramids were faced in red brick or were of coursed rubble. Little or no attempt was made to try to bond the facing stones into the core and hence these structures are inherently unstable. One pyramid, Beg.N.7, was originally of smaller size but was then encased in a larger structure. Pyramid Beg.N.16 is unique in that it has a chamber within. On the construction of pyramid Beg.N.36 it appears that the chapel of Beg.N.16 had to be demolished and the pyramid was rebuilt to include the funerary chapel within it. The pyramids were constructed using a *shaduf*, and four of them retain the upright timber (Cedar of Lebanon) in their centres.

The tombs beneath the pyramids were structurally independent. Sometimes they lie centrally under the superstructure, but frequently they are well off alignment and occasionally not even under their tomb monument. Hinkel maintains that often the pyramid could not have been constructed until after the tomb had been sealed and the descenderly filled. This is certainly the case for many of the funerary chapels, which are built on the descenderly fill. The latest tombs in the cemetery were entered via a vertical shaft and the mouths of these shafts were sealed by the pyramid, which here must postdate the burial.

Most of the funerary chapels were constructed of dressed sandstone blocks on which the reliefs and inscriptions, in both Egyptian and Meroitic languages, were carved. In the later chapels, however, the structure was made of red brick with thin sandstone slabs being used to veneer the interior so as to allow for the relief carving. At Meroe three major decoration types have been identified. The earliest, dated to the 3rd century BCE, comprises Egyptian offering scenes with inscriptions in hieroglyphs.

The second type, dating from the late 3rd century BCE into the early 1st century CE, has a mixture of scenes, Book of the Dead vignettes, and ritual scenes of the sort seen in New Kingdom temples. The latest type falls into two sub-groups, type C(1), confined to the chapels of King Natakamani, his queen Amanitore, and their son Arikhankharer, and type C(2) found in all later royal funerary chapels. The former subgroup illustrates a renewed passion for Egyptian religious forms and demonstrates a precise and scholarly knowledge of Egyptian sources. Type C(2) is very consistent, with the surviving walls almost invariably showing either a prince with an incense burner fumigating the enthroned ruler or Nephthys and/or Anubis pouring a libation offering. The ruler is usually depicted sitting on the Lion Throne under a canopy, often under the protection of a winged figure of Isis who stands behind.

Evidence for the *quarrying* of sandstone is to be found on many of the hills in the vicinity of the Northern and Southern Cemeteries. The quarries to the east of the Northern Cemetery are of especial interest because they have underground galleries.

Lenoble (1992) has suggested that there was a *ritual site* on the upper slopes of the prominent, isolated, flat-topped Gebel Ardeb, where vast quantities of pottery sherds are to be found, while on the top of the hill there are a few rock pictures and some stone settings

Heaps of iron slag in the immediate neighbourhood (east) of the town bear witness to intensive *iron making and working* on the site. The earliest fragment of smelting slag has been radiocarbon-dated to  $514 \pm 73$  bce, whilst the earliest smelting furnaces have yielded the dates  $520 \pm 100$  ce,  $310 \pm 100$  ce,  $280 \pm 100$  ce, and  $210 \pm 100$  ce.

#### **2.a.4 Musawwarat es-Sufra**

(maps: 1 and 9-13 ; plates :2-3 and 13-18)

#### **GEOGRAPHICAL LOCATION**

Musawwarat es-Sufra is situated at the head of Wadi el-Banat, in the Keraba region about 35km from the Nile and 180km north-east of Khartoum (coordinates:  $16^{\circ}24.649'$  N  $33^{\circ} 19.705'$  E). The ruins of the site are located in a large basin surrounded by low sandstone hills. The protected area covers over  $600,000\text{m}^2$ .

#### **RESEARCH**

The site, known to the Kushites as Aborepe, was first mentioned by Linant de Bellefonds (1822) and was visited a few months later by Frédéric Cailliaud. As with many sites of the Kushite civilization, the first detailed scholarly description of the monuments was made by Carl Richard Lepsius, head of the Royal Prussian Expedition. The first archaeological investigations were undertaken by the Butana Expedition (Humboldt University, Berlin) in the late 1950s and 1960s directed by the late Professor F. Hintze and then, after a gap of some decades, by Professor S. Wenig (during the 1990s and the early years of the present century). The Humboldt University mission is still active in its research and protection programme on the site under the direction of Dr Claudia Näser.

Over the last few centuries many functions have been suggested for the ruins on the site, among them a convent or college, a palace associated with hunting, a hospital for malaria sufferers, a *khan* or desert rest-house, a centre of pilgrimage, an elephant training camp, and a venue for the royal hunt.

### MAIN FEATURES OF THE SITE

The main features of the site are the so-called 'Great Enclosure,' the 'Small Enclosure,' the Lion Temple, the Great *Hafir*, a smaller *hafir*, the quarries, and some minor temples and other structures. An additional *hafir* lies some distance away from the main site further up the wadi.

The **Great Enclosure** is located at the western part of the site and occupies an area of more than 55,000m<sup>2</sup>. Constructed throughout of sandstone, it consists of a number of individual buildings, store rooms, workshops, kitchens, walled enclosures, and ramps. The walls were covered in a hard white plaster and were probably painted. Eight major phases of rebuilding dating from the Napatan period onwards have been recognized; the orientation of the different phases varies between 4° and 5° 20', presumably because it was determined by the position of certain stars. It is thought that the rebuilding was a religious necessity to re-orientate the complex as the stars moved, not the result of an architectural need to rebuild.

One of the main features of the complex is a central structure, Temple 100, built on a high platform and similar in some respects to the Sun Temple (M 250) at Meroe. The temple is surrounded by a colonnade and some of its columns bear very beautiful and interesting reliefs. There is some debate about the function of this structure. Some scholars consider it to be a royal throne room and that Musawwarat was a temporary royal residence. However, others maintain that it was a temple and cite a number of features to support their assertion:

*Case for temple* Many architectural features of a type confined, according to Wenig, to sacral buildings such as *torus* moulding, *cavetto* cornice, the *lisene*, the *uraeus* frieze, the slightly protruding plinth (but note his admission of the presence of a *torus* and *cavetto* in the royal palace at Wad ben Naqa!).

*Case against* Sanctuary with many openings into it, very unusual in temple architecture in the Nile Valley – no parallels, columns outside bear reliefs associated, according to Török, with the coronation.

According to Wenig the main entrance was for the king and the side entrance, surmounted by a triple *protome* with two female deities, was for the queen. Temple 100 is dated on stylistic grounds to the later 3rd century BCE.

The following reliefs have been identified on the columns:

*North column:*

- King before Amun-Khnum and Satis, squatting child represents the Nile source?
- King with archer's bow between Horus and Thoth and Isis offering crown of Lower Egypt – *coronation scene*

*North/central column:*



- King holds prisoner, before Apedemak and his consort Ameseme (falcon headdress) – *greeting scene*
- King before Sebiuwerker? (god of Aborepe), Isis behind – *election scene*

*South/central column:*

- Armed king with hunting sandals before Amun-Khnum, Arensnuphis behind – *election scene*
- Armed king with hunting sandals before divine couple, goddess Isis?

*South column:*

- King before Apedemak, crown prince? Behind – opening of the garments – *transfer of power*
- King before Amun and Mut. Amun offers *ankh*, king offers pectoral – *coronation scene*

The column bases consist of an elephant flanked by two lions and a lion flanked by two elephants in high relief.

Ramps and several corridors connect the central structure to other parts of the complex, which includes one similar (though two-roomed) building Temple 200, a palatial complex (Rooms 210, 211, 208, 209), and what has been claimed as a suite of bedrooms for royal use, for the cultic wedding, complete with high windows and an erotic graffito on its exterior south wall (Rooms 507, 508, 509). One of the courtyards contains a temple (Temple 300).

Recent Humboldt University excavations led to the discovery of a pottery workshop for the manufacture of Meroitic fine ware in the northern part of the complex and the remains of an extensive garden complex in one of the eastern courtyards (117), possibly irrigated through pipes (canals) from water tanks supplied from the Great *Hafir*, located several hundred metres to the east, via an aqueduct. Plants were brought from the Nile valley in pots, the pots were broken, and the plants, set in their Nile alluvial soil, were placed in the centre of pits dug in lines forming avenues. Although elaborate, this garden only appears to have functioned once.

Most of the walls of the complex bear graffiti: there are 2000–3000 pictorial graffiti and *c* 160 secondary inscriptions, many of the Meroitic period. Among them are many representations of elephants, which, along with the presence of the ramps, has led some scholars to assume that elephants played a important role in the use of the building (one graffito actually shows an elephant on a ramp). There are also mason's marks in Meroitic and Greek characters.

The ***Small Enclosure*** lies a short distance from the previous site, occupying an area of about 1883m<sup>2</sup>, and is built mostly of sandstone with minor usage of red brick. It consists of a large courtyard and 34 rooms, each approximately 8m long and 6m wide. There were at least three phases of construction. After its excavation in 1961–62, Hintze identified the building as a seasonal residence of the King of Kush.

No ***tombs*** of the Kushite period and no extensive ***settlement*** remains have been found at Musawwarat, although there are traces of occupation, probably for priests and workmen who may have lived in timber huts. A post-Meroitic and a medieval Christian cemetery are known.

The *Lion Temple*, dating to the second half of the 3rd century BCE on the evidence of the cartouches of King Arnekhmani still preserved on its walls, is located on the eastern part of the site across the wadi from the Great Enclosure. It is a single-chambered temple built entirely of sandstone blocks, oriented east–west with the main entrance (pylon) facing east. The temple was originally planned with four columns, but before the execution of the column reliefs the plan was altered and six columns were erected. The pylon collapsed shortly after the completion of the relief decoration of the exterior and interior walls and was quickly rebuilt from the blocks of the first pylon, but without relief decoration. These works were carried out by Arnekhmani. The inscriptions are in Egyptian hieroglyphs and among them is the earliest epigraphic evidence for Apedemak, here referred to as ‘lord of Naka and lord of Musawwarat.’

The temple’s single room combines the functions of the inner rooms of the traditional multi-roomed cult temples. In the interior are scenes depicting the king greeting individually the gods Apedemak, Sebiuwerker, and Amun. Other scenes show the election of the ruler and the coronation. The six scenes on column 4 present a summary of the principal concepts of legitimation: legitimation by Amun of Napata and Amun of Kawa (i.e. legitimation in the individual parts of the kingdom); legitimation by the royal ancestor[s]; legitimation by Apedemak, the god of the temple, and by the “local” god Arensnuphis. The concentration within the same room of cult acts which were usually located in different rooms of a temple not only indicates that one-roomed Meroitic sanctuaries, though built for a seemingly different type of divine cult, had in fact some basic correspondence with the traditional cult and ritual forms that were associated with the multi-roomed sanctuary type. In the same manner as the multi-roomed temple, the one-roomed sanctuary was conceived to explain the rules of cosmic order and present and embody the created world.

The lower parts of the columns bear reliefs of animals partly characterized as divine powers. It is a special feature of the 3rd century BCE architecture of Musawwarat that column bases were decorated with figures of a triumphal character. It appears that the griffin, as well as the lion, was taken from Ptolemaic Egyptian iconography on account of its triumphal connotations. The griffin was a form of Amun in Egyptian iconography and at the same time an image of the victorious ruler annihilating his enemies – an assimilation of the king and the god.

On the lower parts of the walls under the representation of the king before Amun in the southern half of the west wall are represented a lotus, a seated lion, and an elephant. In the northern half of the base register, a striding lion and an elephant are depicted under the representation of the king before Apedemak and his consort. On the eastern wall are two elephants and a further three prisoners, one elephant on a cord, the end of which is held by Sebiuwerker in the main register scene above, while elsewhere there are herds of cows being driven by herdsmen. The cows and their milk were gifts of Apedemak, not offerings being made to him.

The left half of the temple was, at least iconographically but probably also in other respects, dominated by Amun, while the right half ‘belonged’ in a similar sense to the Lion God. The side-wall reliefs depict in a concentrated form the legitimation of the king by Amun, Apedemak (and other gods), his acting as High Priest, and the adoration of the local (?) god Sebiuwerker.

On the exterior the side walls depict the king and prince before a group of gods with Apedemak, depicted as a god of war, in the lead. On the southern half of the back

wall the king stands before Apedemak while beneath are two elephants and nine prisoners. On the northern half the king is with the god Sebiuemker. Beneath this is a row of *ankhs* reflecting that god's fertility and life-giving aspects.

In ancient times the temple collapsed outwards and, when excavated in the 1960s, almost all the wall blocks survived as they had fallen. These were re-erected and a new roof was constructed for the temple.

A number of *other smaller temples* have also been excavated but were mostly in a bad state of preservation. One of these appears to have been re-used as a church. Temple IIa is still visible protected by a modern shelter.

Three *hafirs* were located in the vicinity of Musawwarat es-Sufra, of which the so-called 'Great *Hafir*' is the largest monument of its kind in Sudan. It is 250m in diameter, and excavated 6.3m into the ground, the upcast being deposited in a circular mound around the basin. Designed to collect rainwater, its storage capacity has been estimated at about 130,000m<sup>3</sup>.

Three main *quarries* are located on the plateau to the east of the site, but there are several elsewhere in the vicinity.

## **2. a .5 Naqa**

(maps: 1 and 14-19 ; plates :3 and 19-20)

### **– GEOGRAPHICAL LOCATION**

The site of Naqa, the Kushite Tolkte, is located about 170km north-east of Khartoum, 35km from the Nile and about 15km south of Musawwarat es-Sufra (coordinates: 16° 16.094' N 33° 16.335' E ('Roman' Kiosk) – Map sheet NE36-O). The archaeological remains cover an area about 1km long by 600m wide.

### **– RESEARCH**

The site was, like Musawwarat es-Sufra, visited and described by most of the 19th century travellers and scholars who passed through the region, among them Linant de Bellefonds, Cailliaud, Hoskins, and Lepsius. Lepsius drew a largely accurate topographical map of the main features of the site. At the beginning of the 1980s the mission of the University of Tübingen (Germany) copied the reliefs and the inscriptions of the Lion Temple.

Since 1996, the investigations and conservation work on the site have been undertaken by the Archaeological Mission of the Ägyptisches Museum, Berlin.

### **MAIN FEATURES OF THE SITE**

The *Lion Temple (Building 300)* is located on the western side of the site. It is a single-chambered building, entirely built of well-cut sandstone blocks, and preserved to almost its original roof height. It is oriented east-west, with the main entrance (pylon) facing east, and measures 11.86m long and 10.41m wide over the pylon. Presumably the internal columns were made of wood and hence will have been devoid of decorative scenes. The temple is dated to the reign of Natakamani and

Amanitore in the 1st century CE. The extant building is not the first on the site: an earlier temple, perhaps of Apedemak, stood on the site of Natakamani's temple. Under the walls of the extant building remains of an earlier temple have recently been identified.

In this temple there are on the southern side (left of the temple axis) only male and on the northern (right of the temple axis) only female deities. The two temple halves are associated with different deities, the left half with Apedemak and the right with Amun. The iconographic equilibrium shifts there from the dualism of Apedemak–Amun to the dualism of king–queen. This reflects the co-rule of Natakamani and Amanitore, a new development or perhaps a unique case in Kushite history. The equal status of the king and queen is clear on the reliefs, nowhere more so than on the exterior of the pylon. Here the rulers are shown at the same scale and performing identical tasks, smiting the enemies of Kush.

Running up the edges of the pylon towers are unusual representations of Apedemak with the body of a snake rising from a lotus bud.

On the south external wall the co-rulers, accompanied by the prince, adore the lion god Apedemak, along with Horus, Amun of Napata, Khonsu (identified as Aqedise in the Meroitic hieroglyphic inscription accompanying his image), and Amun of Pnubs (Kerma). In the southern half of the west wall the king, and in the northern half the queen, are legitimated by Apedemak. In the north external wall reliefs the co-rulers and the prince adore Isis, Mut, the 'goddess with the falcon(s),' Ameseme, the consort of Apedemak, Hathor, and Satis. Here the co-rulers and the prince thus act as Osiris, Isis, and Horus and the scene articulates the concept of dynastic legitimacy viewed from the particular aspects of Horus, son and heir of Osiris, and of Isis. The queen wears a Kushite skullcap-crown with a diadem ornamented in front with two *uraei* wearing the Red and the White Crown respectively and a vulture head.

The scenes on the west (main) wall of the interior represent the legitimation of Natakamani and Amanitore by Apedemak and Amun in the presence of Prince Arikankharor. The deity in the other, northern, half of the main wall is identified as Amun by his crown superstructure (two tall plumes and a sun disc) and the ram's horn curling around his ear. He appears with the same attributes in the centre of the interior north wall as well, where he is represented *en face*. This indicates that he was fused with a Hellenistic deity.

On the southern half of the west and in the centre of the south wall Apedemak is represented with a bearded human head shown *en face*. The identity of the god is indicated by his elephant throne and *hemhem* crown. There can be no doubt that in these images Apedemak was fused with Serapis. In the north ("female") half the queen appears alone before the enthroned Zeus–Amun–Serapis.

There are two symmetrical scenes on the door jambs. On the left side stands the king, on the right the queen. Both appear dressed as a High Priest before the cult statue of the enthroned Apedemak.

The **Kiosk (Building 361)** is a small rectangular sandstone structure lying a few metres to the east of the Lion Temple. Today it is preserved almost up to its roof level. The monument shows architectural and decorative elements drawn from Pharaonic Egyptian, Hellenistic, and local artistic milieus. The excavators consider that it is a shrine devoted to the goddess Hathor.

The *Amun Temple (Building 100)* lies to the east of the previous mentioned structures. It is oriented east–west and built of sandstone and of red and mud bricks. The doorways, the columns in the hypostyle hall, and the sanctuary chamber are built of stone, whilst the walls are of mud brick with the external faces revetted in red brick. Special bricks with a *torus* moulding are found at the external corners of the building. Presumably the whole structure was rendered in plaster, masking the different constructional materials used. The temple is approached from the western side up a long ramp rising to a height of 2m, between two rows of six ram figures, each protecting statues of Natakamani as Khonsu,<sup>2</sup> interrupted in the centre by a sandstone kiosk. The kiosk, completely decorated on the inside walls, was the first station of Amun of Naqa after he emerged in his barque from the interior of the temple. The main pylon is decorated with reliefs of the king and queen (Natakamani and Amanitore) before various gods and with many inscriptions. Two columned halls are located before the triple sanctuary. A thirteenth ram is to be found at the back of the temple behind the sanctuary. This is an unusual feature in Amun temples: it is possible that this ram marks the beginning of an avenue leading to the mountain or to Temple F. This area may have functioned as a so-called ‘anti-temple,’ the ram and altars being an offering place for the general populace, who were able here to approach close to the sanctuary (they were not allowed entry into the temple itself). There are also other structures on the southern and northern sides of the temple. The central axis of the temple and the whole of the sanctuary chamber was floored in irregularly sized sandstone slabs, whilst the rest of the temple had hard earth floors.

The preserved Meroitic hieroglyphic scene legends distinguish four Amun gods in the temple: Amni Notete (Amun of Thebes), Amni Berote (Amun of Bero, perhaps of Meroe), Amni Tolkete (Amun of Naqa), and Amni Mede[w]i[te] (Amun of Medewi). The human-headed Amun of Thebes wears the double-feather crown with sun disc, a *uraeus* above the forehead, and the vertical crown streamer. Amun of Naqa is ram-headed and wears the double-feather crown with sun disc and a *uraeus* above the forehead. Amun of Bero and Amun of Medewi are similarly ram-headed. The obvious iconographic similarities between Amun of Naqa and Amun of Napata indicate that the god of Naqa emerged as a hypostasis of the god of Napata. The upper register of the north jamb of Door I represents the king being embraced by Amun of Thebes. In the corresponding inner thickness scene he is conducted into the temple by Amun of Medewi. In the upper register of the south jamb the queen is being embraced by Amun of Naqa and in the inner thickness scene she is conducted into the temple by Amun of Bero.

In this temple, as in the Lion Temple, the left side is associated with the king and with the god to whom the temple is dedicated, and the right side is associated with the queen and with the *synnaos* of the lord of the temple.

Lintel II presents the co-rulers wearing the panther skin which makes clear that behind Door II the rulers act as High Priests of the dual cult of Amun of Naqa and Amun of Thebes. The reliefs of Door III show the prince adoring Sebiuwerker (north jamb), Arensnuphis (south jamb), Amun of Naqa (north inner thickness) and Amun of Thebes (south inner thickness). In their traditional place left and right of the door, Sebiuwerker and Arensnuphis appear here as guardians of the inner rooms of the sanctuary.

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<sup>2</sup> The best preserved mummified figures of the king from between the ram’s legs were found hidden in the kiosk, others were in different rooms of the temple.



The cube-shaped column capitals in the hypostyle hall present a concentrated, symbolic summary of dynastic ideology: Their four sides display the cartouches of Natakamani, Amanitore, and Arakhatani side-by-side, surmounted by double *shu* plumes and flanked by the figures of the Two Ladies, the crown goddesses Nekhbet and Wadjet.

On the north side of the *pronaos* is Room 106, which was only roofed at its western end and is considered by the excavators to have been a solar court. Within it was a square dais 1.58m in size approached from the east by six steps. All its surfaces were lime-plastered, the sides painted with two pairs of Nile gods binding the *sma* symbol. On top of it is a small sandstone altar.

The sanctuary chamber was the only room built in its entirety in stone, all the walls being decorated with reliefs. On both sides of the room a procession of Nile gods behind the king and queen move towards the back of the chamber where two representation of Amun are seated, one in human form and the other ram-headed. Some of the huge roof blocks weigh 10 tonnes. The outer wall of the sanctuary are also decorated with reliefs. The sandstone altar was set in place before the floor was paved. It had been deliberately covered by re-used red and mud bricks. The sides of the altar depict Horus and Thoth binding the *sma* symbol, above which are cartouches of Amanitore and Natakamani. On the other two sides the lower registers have two crouching Nile gods binding the *sma* symbol which carries the names of the king and queen. In the upper registers the goddess Meretis is shown with behind her the kneeling king with his left fist raised, followed by the jackal- and the falcon-headed souls of Dep and Nekhen.

The temple appears to have been destroyed by an earthquake which caused the walls to fall, the east wall falling *en masse*. Lion gargoyles remain *in situ* in the fallen wall. However, in the hypostyle hall some of the columns in the northern half collapsed after those of the southern half, some of the drums from the southern columns being found beneath the fallen columns of the northern half. In the hypostyle hall and in Rooms 102 and 103 a great amount of charred wood from the roof, of palm trunks, lies very close to the floor level, along with fragments of carved timber and gold foil (furniture), a shrine, chair, and stool (Kroeper 2006).

The small **temple of Queen Shanakdakhete** (Temple F) is located close to the base of the *Gebel*. It was dedicated to the ram-headed Nubian Amun, who is enthroned at the east end of the building receiving visiting deities from the west. The Apedemak dwelling in Temple F was depicted on the main wall and on the opposite wall next to the entrance. By contrast, the enthroned Apedemak figure on the south-east wall must be the resident of another temple.

On one relief the curious object in the right hand and under the right elbow of the prince may be identified as a water sack, i.e. an attribute and gift of the Nubian desert hunter and warrior deities Apedemak and Sebiameker as well as of the Nubian Amun in the Meroitic period.

The earliest known inscription written in the indigenous language of the Kushites, Meroitic, runs around the niche in the centre of the back wall of the temple.

The Archaeological Mission of the Ägyptisches Museum, Berlin, is in the process of excavating another **temple** (Building 200) belonging to a poorly known Kushite king (Amanakharem) dated to the 2nd century CE.

The greater part of the *settlement* remains unexcavated and represents a big potential for archaeological research. There are large mounds covered with potsherds and remains of building materials. As part of the current project many of the buildings visible on the surface have been cleaned and their wall lines disengaged from the adjacent deposits to facilitate their detailed planning.

The *quarries* are located on Gebel Naqa to the east of the site at the edge of the plateau.

A large *hafir* is located on the southern side of the site.

On the northern side of the site is a vast *cemetery* of large stone tumuli that has not yet been excavated. One grave in the south cemetery, where the monuments are small stone tumuli, was excavated by Hintze in 1958 and found to be of post-Meroitic date.

## **2. b History and development**

### **2. b. 1 A brief history of the Sudan**

The Sudan is not only the largest country of Africa, it is also one of the regions of this continent that is richest in archaeological remains. The human presence in this part of the Nile Valley can be traced back over hundreds of millennia. The situation of the Sudan on the southern frontier of Egypt and its extension southwards into the heart of equatorial Africa, eastwards to the Red Sea Coast, and westwards into the Great Sahara, has made the country a meeting place for many peoples and cultures. The Sudan represents today a harmonious marriage between Arab-Islamic culture and those of traditional Africa.

During its very long history, the Middle Nile Region has witnessed the emergence of two powerful African civilizations. The first, the 'Kingdom of Kerma,' named after its metropolis located about 30km to the south of the Third Cataract of the Nile, occupied the Sudanese historical scene for more than one thousand years (c 2400–1500 BCE). This kingdom constituted a serious threat to Pharaonic Egypt, to the extent that it obliged the Egyptians to build a series of mighty fortresses at the Second Cataract to protect their southern frontier and to secure their trade routes tapping the wealth of Central Africa. The long conflict between the two states ended with the downfall of the Kingdom of Kerma towards the middle of the 2nd millennium and the annexation of the country down to the Fourth Cataract into the Egyptian Empire. The Egyptian occupation of the region lasted into the 11th century BCE.

The 9th century BCE witnessed the emergence of the second, centralized, Nubian power, the Kingdom of Kush. This civilization can be divided into two periods, the Napatan and the Meroitic, after their respective capitals. Napata is situated in the region around Gebel Barkal, about 50km downstream from the Fourth Cataract. The Napatan kings were the real inheritors of the Pharaonic kingdom. They occupied Egypt for nearly a century, at that time ruling over a vast empire extending from the Mediterranean Coast into the heart of Africa.

For unknown reasons and at a disputed date, the 'capital' of the kingdom was transferred from Napata to Meroe, located on the right bank of the Nile between the Fifth and Sixth Cataracts. However, neither of these two sites should perhaps be considered a capital city in the modern sense. The seat of power rested with the king, and it is known that he journeyed annually throughout his realm, at least in the earlier

Kushite period, when the capital will have been peripatetic. Kushite royal activity was to some extent concentrated from the 4th century BCE onwards in the so-called 'Island of Meroe,' the fertile region bounded by the Nile, the Blue Nile, and the River Atbara. Here, the Meroites developed one of the most glorious civilizations of Africa which survived up to the middle of the 4th century CE. They built highly decorated temples for the newly introduced god Apedemak (the Lion God), buried their kings and queens in chambers under beautiful stone-constructed pyramids, developed the technology of iron smelting, one of the earliest areas to do so in Africa, and introduced a new script, the 'Meroitic' language, which has not yet been deciphered.

The Kingdom of Kush collapsed, partly as a result perhaps of an Axumite invasion and the intrusion of foreign tribes into the Nile Valley, towards the middle of the 4th century CE.

A new cultural tradition prevailed in the Sudan during the 4th and 5th centuries CE, widely known as the Post-Meroitic Period. One of its most distinctive features is its burial mounds, often of considerable size. The country was converted to Christianity in the 6th century and three Christian kingdoms were established in the Middle Nile Region: Nobatia, in the north with its capital at Faras, Makouria in the centre, with its capital at Old Dongola, and Alodia in the south, with its capital at Soba East. Later, the two northernmost kingdoms were united into a single kingdom (Makouria), with Old Dongola as the capital. The Christian Kingdoms came to an end during the 14th and 15th centuries and an Islamic state of the Funj was established with its capital at Sennar on the Blue Nile.

The Islamic state of Sennar, in its turn, was brought to an end by the Turco-Egyptian invasion in 1821 and the country became part of the Egyptian state (the Ottoman Empire). Turco-Egyptian rule was overthrown by the Mahdist Revolution and the liberation of Khartoum in 1885. The Battle of Omdurman (1898) between the Mahdist army and the Anglo-Egyptian troops resulted in the annexation of the Sudan and its administration under the Anglo-Egyptian Condominium up to the independence of the country on 1 January 1956.

## ***2. b. 2 The Kushite Civilization and the Island of Meroe***

The Kushite State emerged in the 9th century BCE after a long period of Egyptian colonization (16th–11th centuries BCE) and a 'dark age' during which the political conditions in Nubia remain poorly documented.

The Kushites established their capital at Napata (Gebel Barkal), located on the right bank of the Nile about 40km downstream from the Fourth Cataract. This was previously the main religious centre of the Egyptian New Kingdom administration in Nubia. The Kushites ruled over Egypt for almost a century (8th–7th centuries BCE), a period known to Egyptologists as the XXVth Dynasty. The first kings were buried at el-Kurru, a few kilometres downstream from Gebel Barkal, then at Nuri on the left bank of the Nile. Two groups of royal tombs marked by pyramids have been excavated at Gebel Barkal itself; the exact place of the rulers buried within them in the Kushite royal chronology has not yet been clearly defined. A contemporary important settlement in this region is Sanam Abu Dom, located on the left bank of the Nile about 15km downstream from the pyramids of Nuri. The four sites, together with the post-Meroitic tumuli field of ez-Zuma, constitute the first Sudanese property

inscribed on the World Heritage List in 2003 as a serial nomination, 'Gebel Barkal and the sites of the Napatan Region.'

The period during which Gebel Barkal remained the principal political and religious centre of the empire is known to students of Sudanese history as the Napatan period (kingdom). During the 3rd century BCE, for reasons which are far from clear but may well be the result of dynastic change, the site of the royal burials was shifted southwards to Meroe, which may have been the principal royal residence for centuries. The shift of focus from Napata to Meroe has been associated by some archaeologists with an invasion against Napata, led by the XXVIth Dynasty Egyptian pharaoh Psammetik II at the beginning of the 6th century BCE. However, the main royal cemeteries of Napata remained in use for more than two centuries after the Egyptian invasion, and so Napata is generally considered to be the first centre of the Kushite Empire down to the reign of Nastasen, the last king to be buried at Nuri about 310 BCE. The Napatan Period can be characterized by the clear Egyptian influences manifested in the religion, art, language, etc.

Some sites of the southern region have shown evidence of Napatan occupation, with official activities at Meroe beginning in the 7th century BCE. From the 3rd century BCE onwards most, though by no means all, royal constructions (temples, palaces, pyramids, etc) were concentrated in the Island of Meroe. The Meroites erected their main centres on the banks of the Nile as well as in its hinterland. Tens of important centres are known from the region, the most important of them being the 'capital,' Meroe, and the sites of Naqa and Musawwarat es-Sufra. The Kushites at this time developed a civilization that was mostly sub-Saharan in character, but they retained their Mediterranean links.

Meroe survived into the middle of the 4th century CE and came to an end under the pressure of tribal migrations from outside the Nile Valley and an Aksumite invasion. The millennium and more of Kushite dominance of the region had witnessed the development of a new language (Meroitic) culminating in the invention of an alphabetic script written in a hieroglyphic and cursive form, a new cult (the Lion God), a distinctive art, and the spread of iron working.

### 3 JUSTIFICATION FOR INSCRIPTION

#### 3. a Proposed statement of outstanding universal value

##### 3. a. 1 *Brief synthesis*

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BCE into the 4th century CE. *Meroe* became the principal residence of the ruler, and from the 3rd century BCE onwards it was the site of most subsequent royal burials. It also has evidence for industrial activities, particularly iron-working.

The nominated sites (the Meroe town site with the North and South cemeteries, Musawwarat es-Sufra, and Naqa) comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its wide-ranging contacts with the Mediterranean and Middle Eastern worlds: this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

##### 3. a. 2 *Criteria under which inscription is proposed (and justification for inscription under these criteria)*

Criterion ii: *exhibit an important interchange of human values over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design*

The archaeological sites of the Island of Meroe provide a detailed insight into the interchange of ideas between central Africa and the Mediterranean world along what was the major corridor to and from Africa over a very long period during the ancient world. The interaction of local and foreign influences are demonstrated by the architecture, art, iconography, religion, and language.

Criterion iii: *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

All aspects of Kushite civilization were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century CE. The nominated properties with their wide range of monument types, well preserved buildings, and potential for future excavation and other avenues of research are unique testimony to this, perhaps the greatest civilization of sub-Saharan Africa.

Criterion iv: *be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history*

The pyramids at *Meroe* are outstanding examples of this highly distinctive Kushite funerary monument, and their intimate association with the well preserved remains of the urban centre is noteworthy. The evidence for iron-working is of considerable



importance for studying the role of Meroe in the diffusion of metal-working technology in sub-Saharan Africa.

At *Naga* the 'Roman kiosk,' with its juxtaposition of architectural and decorative elements from Pharaonic Egypt, Greece, and Rome as well as from Kush itself, and the Lion Temple, which preserves superb reliefs of the Kushite gods and royalty, are of especial importance.

*Musawwarat* is a unique architectural ensemble with temples, courtyards, and domestic buildings, as well as major installations connected with water management, quarries, and industrial areas.

*Criterion v: be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change*

The major centres of human activity far from the Nile at *Musawwarat* and *Naga* raise questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility, through a detailed study of the palaeoclimate, flora, and fauna, of understanding the interaction of the Kushites with their desert hinterland.

### ***3. a. 3 Integrity***

The integrity of the sites (the Meroe town site, the North and South cemeteries, *Musawwarat es-Sufra*, and *Naga*) conform with the requirements of the World Heritage Committee, as set out in the *Operational Guidelines*.. They have been subject to no inappropriate interventions of any significance since their abandonment and their places in the natural landscape have not been compromised or degraded.

### **3. a .4 Authenticity**

The authenticity of the sites is also in conformity with the requirements of the Committee. The treasure hunting of Ferlini in the 1830s (see 2.1.c above) was undeniably very deleterious to a small number of the pyramids in the Meroe cemeteries, but the overall appearance of the ensembles has survived.

A certain amount of restoration has been carried out since the mid 20th century, most notably on a small number of pyramids and a few buildings (eg the 'Royal Baths' and the Kiosk at Naqa). Whilst the materials and techniques employed do not in certain instances conform with current conservation principles and practice, which have made considerable advances since these works were carried out, the precepts of the Venice Charter (1954), the Nara Document (1995), and the concept of *anastylosis* have not been violated. Two or three small pyramids have been completely rebuilt, with a didactic purpose, in order to demonstrate how they would have appeared in antiquity.

### **3. a. 5 Management and protection**

The overall framework for the management and protection of the nominated sites is set out in Chapter 5 below. The sites are owned and managed by the National Corporation of Antiquities and Museums (NCAM) on behalf of the Central Government of the Republic of the Sudan. They are protected by the provisions of the *Antiquities Protection Ordinance* of 1999 (see Appendix 1). All the components of the property are well guarded by civil guards and a police force.

The *Transitional Constitution of the Sudan* (2005) contains some contradictory articles related to tourism that have given rise to tension between the local administration (State/Province level) and the Central Government. The matter has been discussed at many meetings and workshops and agreement has been reached on a number of points. A Management Council is being set up and the revenue of tourism from the sites will be shared between NCAM and the Department of Tourism in the River Nile State, the technical tasks (research, protection, restoration, etc.) being the responsibility of NCAM.

### **3. b Comparative analysis (including state of conservation of similar properties)**

The Meroe sites can be classified and evaluated in several ways:

- In *structural/architectural* terms (i.e. as pyramids);
- In *functional* terms (i.e. as cemeteries);
- In *geographical* terms (i.e. as sites in the Nile valley);
- In *temporal* terms (i.e. as representatives of the later Kushite civilization, from the 3rd century BCE to the 4th century CE, when the source of power moved southwards from Gebel Barkal).

### ***3. b. 1 The pyramids of Meroe***

The pyramid is a feature of the architecture of early civilizations in many parts of the world: the ziggurats of Mesopotamia, the prehispanic temples of central America, and the tombs of the early Egyptian pharaohs are among the most famous. The pyramids of the Napatan and Meroitic cultures are much smaller than these great monuments (the largest are no more than 17.5m square at the base), and they are more steep-sided, at angles between 60° and 73° to the horizontal (compared with the 51° 52' of the Great Pyramid at Gizeh).

In structural and architectural terms they may therefore be deemed to be a distinct sub-set of the overall pyramidal form.

### ***3. b. 2 The Meroitic royal cemeteries***

Nowhere in the world are there royal cemeteries in which all the many tombs are in pyramidal form. The renowned groups of funerary monuments in pyramidal form in Egypt (at Saqqara and at Gizeh, for example) are not made up of the large numbers of pyramidal tombs that distinguish the Kushite cemeteries.

### ***3. b. 3 Meroe and Egypt***

Distribution maps of archaeological sites and settlements clearly indicate that the Pharaonic civilization dominated the Nile valley as far as the Fourth Cataract at its greatest extent, until the reign of Thutmoses I in the early 11th century BCE. Thereafter this region, known under the general title of Nubia, developed independently, by the mid 8th century BCE becoming powerful enough to control Egypt for nearly a century. It was from this period onwards that the Kushite rulers developed the practice of burying themselves and their family members under monuments that reflected the power of the Pharaohs.

### **3. b. 4 Meroe and Gebel Barkal**

The group of sites that make up the World Heritage site of *Gebel Barkal and the Sites of the Napatan Region* were inscribed on the World Heritage List in 2003. The official UNESCO brief description of this property is as follows:

*These five archaeological sites, stretching over more than 60km in the Nile valley, are testimony to the Napatan (900 to 270 BC [BCE]) and Meroitic (270 BC to 350 [CE]) cultures, of the second kingdom of Kush. Tombs, with and without pyramids, temples, living complexes and palaces, are to be found on the site. Since Antiquity, the hill of Gebel Barkal has been strongly associated with religious traditions and folklore. The largest temples are still considered by the local people as sacred places.*

In its evaluation as the Advisory Body for cultural heritage to the World Heritage Committee, ICOMOS stated that ‘This culture does not exist elsewhere and its remains are unique.’ Chapter 2.2.b (‘The Kushite Civilization and the Island of Meroe’) demonstrates that this statement is not fully justified. It makes clear that the history of Kush falls into two distinct periods. The first saw Napata (i.e. the country of which Gebel Barkal was the main city) as the first centre of the Kushite Empire down to the reign of Nastasen, the last king to be buried at Nuri about 310 BCE.

The shift of focus southwards down the Nile from Napata to Meroe has been associated with an Egyptian invasion of Napata at the beginning of the 6th century BCE. Some sites of the southern region have shown evidence of Napatan occupation, with official activities at Meroe dating from the 7th century BCE onwards. However, from the 3rd century BCE onwards most royal constructions (temples, palaces, pyramids, etc) were concentrated in the Island of Meroe. The Kushite civilization that developed from this time onwards, until the middle of the 4th century CE, was mostly sub-Saharan in character but retaining its Mediterranean links.

It may be claimed with justification that the two areas, Napata and the southern area around Meroe, are complementary and represent the two distinct periods of the powerful Kushite kingdom.

It was recognized in 2003 by ICOMOS that at the Gebel Barkal sites ‘deterioration is evident, mainly as a result of exposure to difficult environmental conditions’ and that ‘the foreign expeditions are implementing conservation measures.’ In inscribing the Gebel Barkal properties on the List, the World Heritage Committee requested “...the State Party to work with the World Heritage Centre to finalize the management plan, including an active conservation programme with priorities, budget, appropriate staff and timelines.” The Draft Management Plan for Gebel Barkal was received by UNESCO in November 2007 and is in the process of approval and implementation.

The states of conservation of the listed sites and of those that are the subject of this nomination are directly comparable. The draft Management Plan submitted with the present nomination (Appendix 3) is closely aligned on that for the Gebel Barkal sites.

### **3. a. 5 Summary**

The section of the Nile Valley centred on the Island of Meroe evolved from the gradual southward movement of the centre of power of the Kushite lands in the 6th century BCE as a result of renewed Egyptian (and later Roman) pressure from further

down the valley. The resulting culture developed a character that distinguished it significantly from the northern culture, already given World Heritage recognition with the inscription of the Gebela Barkal Napatan sites in 2003. The exceptional qualities of uniqueness in terms of form and function that they possess and their location and relationships with neighbouring sites therefore make them worthy of inscription on the World Heritage List as an independent group.

## **4 STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY**

### **4. a Present state of conservation**

#### **4. a. 1 Meroe**

No complete *pyramid* has been discovered since the site was visited by the 19th century travellers (see 2.a.3 above). Most of the pyramids stand to half their original height. Their summits of most of them have been demolished, mainly in 1834 by the Italian adventurer Ferlini in search of treasure. The rectangular funerary chapels added on the eastern sides of the pyramids are in a ruinous condition, apart from those that have been reconstructed during the last two decades.

The buildings of the *Royal City*, built in stone and mud and fired bricks, are also in ruins. Many sections of the enclosure wall are preserved almost to their original height, together with some small temples that could be restored. However, vast areas of the town have not yet been excavated.

#### **4. a. 2 Musawwarat es-Sufra**

The *Lion Temple* has been restored up to roof level. A considerable part of its relief decoration is preserved on the inside and the outside of the walls.

Some walls and temples of the vast *Great Enclosure* complex survive to their upper levels. Within the building many thousands of graffiti dating from different periods of the occupation of the site have been preserved.

The *Small Enclosure* is in a ruinous condition.

The enormous water reservoir known as the *Great Hafir* has been seriously affected by modern excavation work.

Numerous other small structures, quarries, and *hafirs* are today in a satisfactory state of conservation. Many parts of the site have not yet been excavated.

#### **4. a. 3 Naqa**

The pylon of the *Lion Temple* is intact and the walls are preserved to their upper level. The reliefs on the outer walls are well preserved, but those on the inner walls have been more severely eroded.

The unique building known as the *Kiosk* is preserved nearly up to roof level. Most of its exceptional architectural and artistic motifs survive in good condition.



The main pylon of the *Temple of Amun* stands to its original height and its reliefs and inscriptions survive. Many walls and columns, along with the *dromos* (with its twelve ram statues), are in a satisfactory state of conservation. However, the decorated kiosk located in the centre of the *dromos* is in a poor state of preservation.

*Temple F* stands up to almost half of its original height, but it has lost the greater part of its decorations.

The *quarries* and the *hafirs* are intact, but vast areas of the town site and the cemeteries have not yet been investigated.

#### **4. a. 4 General comments on conservation**

##### – GENERAL PRINCIPLES

Although some of the problems of conservation originated in human activity, specifically through the uncovering of the remains, the main threats at present arise through natural processes, mainly wind erosion and water damage. Some of these recommendations for the conservation of the sites are simple, would cost very little, and could be implemented more or less immediately. Others are far more ambitious and could only be undertaken in the longer term with substantial funding.

##### – THE NEED FOR A CONSERVATION PLAN

Because of the great importance of conservation and the complexity of the issues surrounding it, a separate Conservation Plan is required, in addition to or as part of the Management Plan. Its production should be the principal management objective following the achievement of World Heritage Site status.

##### – RESTORATION AND RECONSTRUCTION POLICIES – RESTORATION, RECONSTRUCTION, RE-CREATION, AND REPLICATION

There has to date been some restoration or reconstruction of the remains employing a variety of methods at all three sites. International agreements make it reasonably clear in what circumstances work of this type can be undertaken without being judged to detract from the authenticity of the remains, which it is essential to safeguard on World Heritage sites. What has been done so far in no way affects the authenticity of the three sites, but future works need to be planned to take account of the provisions of international agreements.

Five international documents are relevant:

- The International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter), 1964, Articles 9–13
- The ICOMOS International Charter for the Protection and Management of the Archaeological Heritage (the Lausanne Charter), 1990, Article 7
- The Australia ICOMOS Charter for Places of Cultural Significance (the Burra Charter), 1999, Article 1
- The Riga Charter on Authenticity and Historical Reconstruction in Relationship to Cultural Heritage (2000).

- The *Nara Document on Authenticity* (1994).

In the light of these agreements, four treatments of archaeological remains can be defined:

- *Restoration*: returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material (the reassembly of existing components is also known as *anastylosis*).
- *Reconstruction*: returning a place to a known earlier state by the introduction of new material into the fabric.
- *Re-creation*: the speculative creation of a presumed earlier state on the basis of surviving evidence from that place and other sites and on deductions drawn from that evidence, using new materials.
- *Replication*: the construction of a copy of a structure or building, usually on another site or nearby.

It seems doubtful that re-creation or replication, effectively ruled out by these agreements except in very special circumstances, will ever be put forward as means of interpreting the Island of Meroe sites.<sup>3</sup> However, restoration and, to a lesser extent, reconstruction have been carried out at these sites. Restoration is certainly permitted, as long as the process is planned and executed according to the best conservation practices. Reconstruction is more problematic, and any proposals would have to be tested against the detailed provisions of the relevant agreements.

Material considerations at the Island of Meroe sites which would affect the interpretation of these international agreements are concerned with conservation. One example is the rebuilding of enclosure walls which shelter buildings from winds and the resulting sand erosion. The form of the rebuilding and whether the walls should be set on the foundations of ancient walls in the same position or elsewhere (perhaps obscuring or damaging other important archaeological features) are matters which would need careful consideration.

Another example is the reconstruction of parts of buildings where some of the elements are missing. This will involve the use of some modern materials, although there are strong advantages in removing fallen decorated stonework from the ground surface where it is damaged by wind erosion and the passage of humans and animals. Another material advantage is that sensitive restoration and limited reconstruction can greatly enhance the interest of the sites for visitors and can help them to understand the significance of the remains.

In conclusion, the methods of restoration and reconstruction previously employed at the Island of Meroe sites are broadly in line with current international agreements. However, future work would have to be carried out in the context of overall conservation plans where the justification for restoration and reconstruction was made explicit and the methods adopted were set out in detail.

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<sup>3</sup> Re-creation has already been undertaken in Meroe, particularly in the Northern Cemetery where at least one pyramid has been built from the ground upwards using new materials. Such work has now ceased

Most of the monuments on these sites are built of friable sandstone which is poorly resistant to natural and man-made degradation. There is an urgent need for a major conservation project to be undertaken on the pyramids of Meroe. A few pyramids and funerary chapels have been reconstructed by NCAM under the supervision of the late Dr F. Hinkel. Similar work should be carried on the main monuments of Naqa and Musawwarat es-Sufra. Repairs and conservation/restoration are being executed by the archaeological missions working on these sites. These are:

- *Meroe town site*: Ontario Royal Museum and the University of Khartoum:
- *Meroe Royal Baths*: The German Archaeological Institute.
- *Musawwarat es-Sufra*: Humboldt University, Germany.
- *Naga* : The Egyptian Museum of Berlin.

Detailed proposals made by these institutions are set out in Appendix 2.

#### **4. b        Factors affecting the property**

##### **4. b. 1      Development pressures**

###### *Threats*

- a. Urban expansion is a potential threat to the authentic appearance of the site of Meroe. This problem is not encountered at the sites of Musawwarat es-Sufra and Naqa.
- b. The plateau located to the east of the pyramids of Meroe, which is rich in minerals, especially iron ore, could potentially become a mining site in the future.

###### *Comments by State Party*

Reinforcing the Antiquities Protection Ordinance (APO) and other legislative measures at the State (local) level is essential for the preservation of the site of Meroe and its landscape. The creation of the management council for the property made up of a number of stakeholders will reduce the risk of conflict of interest towards the property.

##### **4. b. 2      Environmental pressures**

###### *Threats*

- a. Desertification and wind erosion are the major threats, especially at the pyramids of Meroe.
- b. Some parts of the sites of Musawwarat es-Sufra, Naqa, and the Meroe town site occasionally suffer from summer rains.

###### *Comments by State Party*

Threat a. should be tackled with the assistance of the Department of Forestry ‘stakeholder’ and international assistance. The impact of threat b. can be reduced by the installation of good drainage systems on the most vulnerable monuments.

#### ***4. b. 3 Natural disasters and risk preparedness***

##### *Threat*

Only a small section of the Meroe town site faces the risk of Nile floods: it has been flooded four times (1946, 1977, 1988, 1994) over the past 60 years.

##### *Comment by State Party*

Physical protection should be engineered around the western boundary of the site.

#### ***4. b. 4 Visitor/tourism pressures***

##### *Threats*

The numbers of tourists and other visitors are still very limited but they are gradually increasing. The numbers of national visitors have not been monitored during the last years. Tourist numbers since 2004 have been as follows:

2004:	over 4000
2005 :	about 4000
2006:	4388
2007:	4580
2008:	over 5000

It is estimated that the annual number of local visitors over the past two years has been around 6000.

Although the average daily number of visitors is not more than 30, adverse impacts can be seen at some of these sites, such as:

- a. Wear of building stone;
- b. Inscription of modern graffiti on the walls;
- c. Dropping of waste (plastic bags) on or alongside the sites.

##### *Comments by State Party*

These problems should be addressed by means of improved guarding of the sites, clear information and defined circuits for visitors in English and Arabic, together with an adequate educational programme targeting local visitors in particular.

#### **4. b. 5      *Number of inhabitants within the property and the buffer zone***

The core and buffer zones of Musawwarat es-Sufra and Naqa, where only a few families live in the neighbourhood, are only sparsely inhabited, but the situation at Meroe is different, as the following figures<sup>4</sup> show:

	<i>Meroe</i>	<i>Musawwarat es-Sufra</i>	<i>Naqa</i>
Core zone	80	30	0
Buffer zone	1500	75	500
Totals	1580	105	500

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<sup>4</sup>It should be noted that these are approximate figures, although they are not far from reality. The results of the recent population census (2008) will be published in the first quarter of 2009. Although the core zone of Naqa has no permanent inhabitants, it contains an historic well that is frequently used by nomads during the dry season.

## **5 PROTECTION AND MANAGEMENT OF THE PROPERTY**

### **5. a Ownership**

The three sites that make up the nominated property are owned by the National Corporation of Antiquities and Museums (NCAM) on behalf of the Central Government of the Republic of the Sudan.

### **5. b Protective designation**

The property is protected by the provisions of the *Antiquities Protection Ordinance* of 1999 (*see* Appendix 1). This is an amended update of previous laws issued in 1905 and 1952.

### **5. c Means of implementing protective measures**

The Protection Laws of 1905, 1952, and 1999 worked very efficiently. However, the *Transitional Constitution of the Sudan* (2005) contains some contradictory articles, especially in relation to the revenue and management of cultural tourism at the monumental sites. This has resulted in some tension between the local administration (State/Province level) and the Central Government. The matter has been discussed at many meetings and workshops and the following results were outlined or obtained:

- It is difficult to change the provisions of the *Transitional Constitution* since everything is based on the *Comprehensive Peace Agreement* (CPA) between the South and the North.
- The legislators are aware of the problem and the suggestions of NCAM will be considered after the elections of 2009 and the establishment of the new multi-party parliament. This will give NCAM more power for the administration of the archaeological resources of the country, including the nominated property.
- Until then it was agreed that the revenue of tourism from these sites should be shared between NCAM and the Department of Tourism in the River Nile State, the technical tasks (research, protection, restoration, etc.) being the responsibility of NCAM.
- It is believed that in the case of the Island of Meroe the creation of the proposed Management Council will greatly increase the power of the laws, and in particular the physical protection of the property.
- All the components of the property are well guarded by civil guards and a police force.

### **5. d Existing plans related to the region in which the proposed property is located**

The River Nile State has no comprehensive tourist plans. According to the local authorities the following plans are being formulated. The *conservation plans* are the responsibility of NCAM. However, at the present time NCAM has no overall conservation plan for the whole property.



The archaeological missions have short- and long-term plans for the conservation of specific monuments (*see* Appendix 2). It is considered that the involvement of the directors of the archaeological missions will help in the production of a harmonized conservation plan for the different sites that make up the nominated property to be prepared, executed, and monitored in the future.

Details of these proposals are to be found in Appendix 2.

## **5. e            Property management plan or other management system**

### *Context of the Management Plan*

*(reference to plates is made to the photographs annexed to the Management Plan: Appendix 3)*

The property proposed for World Heritage nomination “The Archaeological Sites of the Island of Meroe” is subject to the provisions of a management plan, which was drafted, in its final version, in January 2009. The purpose of the management plan is to ensure the effective protection and management of the property for present and future generations, thus preserving and enhancing all attributes of the significance of the site.

The management plan considers the characteristics and intricacies of the component sites constituting this property, i.e., the sites of *Meroe*, *Naga* and *Musawwarat es-Sufra*, and was drafted with consideration to the local and national situation taking on board all aspirations for the future of the site, proposing approaches, structures and systems that are contextually realistic and effective as well as responding to the universal ethics of the World Heritage Convention and the standards governing World Heritage protection and management.

### *Aims of the Management Plan*

The main aim of this management plan (provided in full under Appendix 3 of the Nomination File) is to fulfill the vision of the stakeholders of the site by attaining worldwide recognition of the property’s assumed outstanding universal value, protecting it, conserving it, managing and promoting it with sustainability into the future. The management plan aims as well at formulating and guiding activities to achieve the appropriate levels of management relative to a World Heritage Site. In order to do that, the plan responds to the following main objectives of:

- Establishing the cultural significance of the site;
- Providing an assessment of the current situation of the site and the key management issues standing in the way of appropriate management;
- Informing the local and national stakeholders of the site of arising key management issues;
- Presenting the results of the stakeholder consultation process and discussing the aspirations and expectations of the stakeholders with relation to the site;
- Getting the stakeholders to agree on a common vision/approach to managing and developing the site;

- Proposing solutions to the identified key managements issues of the site and integrating stakeholders perspectives on how to address them;
- Formulating policies to guide the future management of the site taking into consideration the perspectives of the stakeholders, the realities of the site and what needs to be achieved in order to address management issues in accordance with World Heritage Standards;
- Formulating action plans that aim at fulfilling the policies of the site and proposing a framework for implementing the management plan overall.

### *Structure of the Management Plan*

The logic and structure of the management plan produced for the property proposed for nomination covers the points highlighted above as well as many more. Following is the main structure of the management plan produced in full under Appendix 3 of this nomination:

1. *Context of the Management Plan*
2. *Objectives of the Management Plan*
3. *The Site and its Attributes*
  - 3.1 *Nomenclature*
  - 3.2 *Geology and topography*
  - 3.3 *Modern communications*
  - 3.4 *Archaeological information*
  - 3.5 *The landscape today*
4. *Statement of Significance of the Site and Justification of Outstanding Universal Value*
  - 4.1 *Statement of significance*
  - 4.2 *Justification of Outstanding Universal Value*
  - 4.3 *Statements of Integrity and Authenticity*
5. *State of Conservation and Factors Affecting the Property*
  - 5.1 *General condition of the sites*
  - 5.2 *History of preservation and conservation at the serial site*
  - 5.3 *Inventory of conservation problems*
  - 5.4 *Conservation measures in place*
6. *Site Protection*
7. *Definition of site boundaries and site buffer zones*
  - 7.1 *Textual description of the boundaries of the proposed property*
8. *Management Plan*
9. *The Consultation Process*
10. *Key management issues pertaining to the serial-site*

- 10.1 Ownership structure and responsible bodies*
- 10.2 Formalization of site boundaries and buffer zones*
- 10.3 Restricted conservation infrastructure*
- 10.4 Risk assessment and management*
- 10.5 Coordination and shared protection and management responsibilities*
- 10.6 Protection of the site from unsympathetic development*
- 10.7 Institutional strengthening*
- 10.8 Capacity building*
- 10.9 Management capacities on site*
- 10.10 Allocation of financial resources*
- 10.11 Visitor infrastructure*
- 10.12 Site promotion*
- 10.13 Sustainable use of the property*
- 10.14 Tourism Development and tourism infrastructure*
- 11. Proposed Management Structure*
- 12. Management Plan Policies and Action Plans*
  - 12.1 On the level of site protection*
  - 12.2 On the level of site conservation*
  - 12.3 On the level of site management*
  - 12.4 On the level of archaeological work and enhancing archaeological research*
  - 12.5 On the level of managing cultural tourism development*

#### *Annex: Photographic Record of Rapid Condition Assessment*

##### *Site Protection*

Regarding the subject of protection, aspects of management pertaining to legal and regulatory protection of the proposed World Heritage are provided at three different levels:

- The international level: through the ratification of the 1972 World Heritage Convention;
- The national (federal) level: through the competences and powers granted by the constitution of Sudan to the National Government in the field of cultural heritage protection as well as to the protection granted by the provisions of the 1999 Ordinance for the Protection of Antiquities; and,  
Through the Presidential Decision/Decree (no. 162 for the year 2003) for the *Confiscation of the Region of Naqa, Musawwarat and Begraweya and for the Creation and Register of a National Reserve within this Region and Managing it.*
- The state level: through the competences and powers granted by the constitution to the individual states in the field of legislating and executing powers over cultural matters of the state, as well as over state cultural and heritage sites;

A lengthy discussion around the relevance of each of these legislations as tools applied to the protection and management of the proposed World Heritage property is provided under section 6 of the management plan.

#### *Stakeholder Participation in the Definition of the Principles of the Management Plan*

With regards to the participation of stakeholders, attaining a shared understanding of the property by all its stakeholders and securing the involvement of partners and stakeholders in the protection and management of the property was achieved through the execution of a stakeholder consultation process.

It became evident from this process (involving the local and national authorities of the Sudan) that all stakeholders involved in the protection and management of the property or with interest in it (present and future) shared a common understanding of its significance, values and its potential for the good of present and future generations. This has prompted excitement and buy-in into the process of widely recognizing the significance of the property as a world heritage property, and the resulting responsibilities with regards to long-term protection and management, among others.

The Consultation Process involved the stakeholders of the property and resulted in the following:

- a. Understanding the concerns, needs and aspirations of the various stakeholders with respect to the future of the proposed World Heritage property;
- b. Informing the stakeholders about the cultural significance of the property, the outstanding universal value, the critical issues affecting the long term protection, management and sustainability of the property and the responsibilities resulting from the possible nomination of the property on the UNESCO World Heritage List;
- c. Getting all stakeholders to agree on a common vision for the property, one that takes into consideration their needs and aspirations as well as responds to the implications and responsibilities of World Heritage nomination;
- d. Getting all stakeholders to commit to the protection, management, development and sustainability of the property;
- e. Getting all stakeholders to endorse the management plan elaborated for the property and adopted as a working document, reviewed and amended every 3 years;
- f. Elaborating jointly an effective management structure that will be responsible for, take charge of and overseeing the full implementation of this management plan and the attainment of the standards that govern the protection, management and sustainability of the World Heritage property.

The stakeholders that were party to the Consultation Process are local and national and are listed on page 40 of the full management plan document provided under Annex 3 of this nomination document, as well as in Annex B of the management plan proper.

#### *Conservation Management*

Apart from the purely administrative aspects of the management plan, the document contains a detailed section on the state of conservation and factors affecting the

property (section 5 of the management plan). This section sets-out with a general description of the state/condition of each of the site constituting the serial property proposed for nomination. In general, the sites constituting the serial property suffer from slow-rate degradation and deterioration, with varying degrees, caused in the first place by exposure to the harsh effects of the natural environment. The on-going slow deterioration of the archaeological remains is accentuated by erratic and in some instances ineffective regimes of maintenance, undertaken over a number of years, which address only specific elements of the sites. Following is a general description of the condition of the various sites of the property.

## Naqa

The so-called Roman Kiosk (Plate 5) is well-preserved and there are substantial remains of the Lion Temple, Temple of Amun and Temple F (Plate 6). The other remains are very ruinous. Some conservation work has been carried out to good effect: for example, the rams flanking the processional route to the Lion Temple have been reerected on their pedestals, preventing their erosion and reducing the risk of damage. Alternatively, a painted stone altar found in room 106 in the Temple of Amun was found decorated with paintings carried out in *secco* technique on lime plaster. Following its excavation, the paintings were cleaned and consolidated. Because the paintings are vulnerable to damage by visitors and from rain, the altar was documented and then protected by a covering of sand. The blocks from Temple 200 almost all of them decorated in fine, delicate relief, are at present kept next to the temple where they are covered in sand to protect them. These blocks are from the wall decoration of the temple and could be easily restored to their original positions following conservation.

## Musawwarat es-Sufra

Great Enclosure: There has been damage to all architectural parts of the Great Enclosure through natural and anthropogenic processes: - intrusion of rain water into the walls and foundations, which are clay-bonded; mainly occurring in already damaged walls and walls without cover blocks - pre-existing factors such as inadequate foundations - physical processes, namely penetration of water-soluble salts (hydration and dehydration, solution and crystallisation), supported by accumulated sand dunes - wind and sand erosion, supported by accumulated sand dunes - domestic animals (sheep, goats) walking around in the courtyards - tourists climbing up or over the architectural remains or scratching graffiti into the walls.

Small Enclosure: Although the structures of the Small Enclosure were in quite good condition when excavated, they have suffered considerably because of their exposure to environmental forces and human interference.

Lion Temple: Damage to the Lion Temple has been caused by natural and anthropogenic processes: - wind and sand erosion, especially on the northern and eastern sides of the temple - physical processes of water-soluble salts (hydration and dehydration, solution and crystallisation), especially in the pedestal areas and on the northern side of the temple - damage to the reliefs from bird faeces and wasps' nests - decay of the plaster used for the restoration of the temple in the early 1970s - large cracks in the southern temple wall caused by the sinking of the pylon foundations -

damage to the reliefs by tourists. Moreover, the monument is endangered because of deteriorations of the modern roof resulting from constructional defects in the 1970s.

The defective parts of the roof allow rain water to damage further the walls and interior reliefs of the temple.

Other standing monuments: The smaller monuments on the site of Musawwarat also suffer from wind and sand erosion, the run-off from annual rainfall and uncontrolled access by tourists.

Other archaeological structures: Many archaeological features not represented by standing walls, such as the workshop areas, cemeteries, habitation sites and the smaller *hafirs*, are constantly endangered by tourist cars and other vehicles moving around the valley at will and driving right over the sites. They cause damage not only to the remains above ground but also to features below ground level.

Aside from the general description of the conditions of the individual sites constituting the property, a section summarizing conservation history occurring on these sites is provided as a means to document the historical record of past interventions. In addition to this section, a significant section entitled “Inventory of Conservation Problems” is provided (section 5.3 of the management plan), whereby a register of all conservation issues observed during the rapid assessment of conservation condition and problems undertaken on site in the context of the management plan compilation effort) is provided as a management plan for determining the following:

- Type of conservation problem;
- Description of problem;
- Cause of the problem;
- Sites where problem occurs;
- Magnitude of problem;
- Degree of complexity involved in attempting to address the problem.

The inventory segregates between man-made and naturally occurring conservation problems and is also divided under structural or material-related problems.

The inventory was very useful in quantifying the level of intervention and the resources required for undertaking conservation on site in the future. It is at the basis of the formulation of the various conservation policies and associated action plans and key indicators listed below.

### *Planning Cycle of the Management Plan*

A realistic and effective cycle of planning and revising the management plan was set to 3-years and accepted by all stakeholders. The definition of this cycle was based on the timeframe required to address the key-management issues identified in the management plan as well as on the time required to complete all the associated action plans.



### *Reporting on the Implementation of the Management Plan*

Reporting on the state of implementation of the World Heritage Convention and on the state of conservation of the proposed World Heritage property are activities intrinsic to this management plan as well as to its various action plans. The pertinent policies and associated action plans which respond to all issues covered by the management plan are monitored and reported upon in terms of successful implementation to the management structure designated to take on oversight and direct responsibilities over the site. This structure is detailed under section 11 “Proposed Management Structure” of the management plan document (see Annex 3 of the nomination file). It is described further below for reference.

Each of the action plans covered under the management plan of the property is monitored against a set of Key Performance Indicators. A list of the policies governing the implementation of the property’s management plan and resulting key performance indicators (pertaining to each action plan under the policy heading, included in full detail within the body text of the management plan *p.56*) are provided in the table below, they cover activities relating to protection (PP), conservation (CP), site management (MP) and the management of tourism development (MT). Otherwise, the full management plan document structures the information in the following manner:

Policy code – Policy heading and associated action plans – results expected from the implementation of each action plan - main responsible parties for implementation, monitoring and reporting - partners in implementation – timeframe for implementation – Key Performance Indicators.

Policy Code	Policy Statement	Listing of Key Performance Indicators pertaining to each action plan (action plans are provided in full with the management plan document in Annex 3) under the policy heading against which reporting will be undertaken
PP1	<i>Secure site boundaries and enforce planning restrictions in buffer zones, control access avoiding the segregation of local communities and the isolation of the site from its wider social context</i>	<ul style="list-style-type: none"> <li>-Maps issued to relevant public bodies;</li> <li>-Statute of Maps officially recognized by all relevant public bodies;</li> <li>-Awareness activities and campaigns conducted at all levels;</li> <li>-WHS signs erected at all sites of the serial-site.</li> </ul>
PP2	<i>Safeguard the integrity of the site by establishing buffer zones where special planning regulations are enforced in order to protect the significance and setting of the WHS</i>	<ul style="list-style-type: none"> <li>-Inventory of damaging activities put together, explained and shared with relevant stakeholders;</li> <li>-Planning regulations in buffer zones developed and agreed upon with planning authorities;</li> <li>-Wider regional master plan that takes into account site attributes and sensitivities;</li> </ul>
CP1	<i>Develop the necessary conservation tools to enable the prioritization and quantification of conservation work on site and the establishment of a site-wide conservation master plan with prioritized interventions</i>	<ul style="list-style-type: none"> <li>-Priority areas identified;</li> <li>-Methodologies developed;</li> <li>-Specifications developed;</li> <li>-Monitoring and regular maintenance program established;</li> <li>-MOU with Foreign Missions signed;</li> <li>-Conservation Master Plan completed;</li> </ul>
CP2	<i>Develop the conservation infrastructure on site by building new capacities and attracting funds for conservation initiatives</i>	<ul style="list-style-type: none"> <li>-Packaged conservation projects with detailed budget presented for external funding;</li> <li>-Benchmarking of conservation methodologies and standards set;</li> <li>-New jobs in conservation created;</li> <li>-Curriculum designed.</li> </ul>
CP3	<i>Implement priority conservation activities in order to halt the degradation of the sites</i>	<ul style="list-style-type: none"> <li>-Drainage ditch around Temple of Amun rehabilitated;</li> <li>-Drainage system designed site-wide;</li> <li>-Drainage system built;</li> <li>-Localized conservation problems</li> </ul>

		resolved (see activities for breakdown);
MP1	<i>Create and train the adequate management structure for looking after and managing the site.</i>	<ul style="list-style-type: none"> <li>-New proposed structure analyzed;</li> <li>-Business plan completed;</li> <li>-New recruits identified;</li> <li>-Training programs designed and launched;</li> <li>-New workforce trained and mobilized.</li> </ul>
MP2	<i>Manage interventions on the WH Site preventing negative impact from affecting its integrity and significance, while establishing the legal framework for managing the site and coordinating management with other stakeholders.</i>	<ul style="list-style-type: none"> <li>-Management structure established;</li> <li>-Management structure takes charge of the management plan;</li> <li>-Awareness activities designed and delivered;</li> <li>-NCAM's role, responsibilities and jurisdiction accepted by all relevant stakeholders.</li> </ul>
MP3	<i>Implement short and long-term site improvements with the aims of reducing the impact of negative activities on site</i>	<ul style="list-style-type: none"> <li>-Village expansions within the boundaries of the site are checked;</li> <li>-Telegraph poles removed;</li> <li>-High tension pylons redirected;</li> <li>-Highway redirected;</li> <li>-Fence at Royal City repaired;</li> <li>-Sudan Civilization Institute compound reformed;</li> <li>-Resthouse west of Northern and Southern Cemeteries demolished and removed;</li> <li>-Visitor control measures implemented;</li> <li>-Vehicular control measures implemented;</li> <li>-Infrastructure at sites improved;</li> <li>-Risk preparedness activities (listed in management plan) accomplished.</li> </ul>
AP1	<i>Increase awareness about the importance of the World Heritage Site and the results of past and on-going excavations among decision makers and the community at large.</i>	<ul style="list-style-type: none"> <li>-PR campaign designed;</li> <li>-PR campaign implemented;</li> <li>-WHS site significance addressed in school curricula;</li> <li>-Public archaeology programs developed.</li> </ul>
AP2	<i>Adopt a pre-emptive archaeological policy particularly in areas that could be designated for development in the future.</i>	<ul style="list-style-type: none"> <li>-Pre-emptive archaeology program established.</li> </ul>
AP3	<i>Regulate archaeological work in</i>	<ul style="list-style-type: none"> <li>-Archaeological Map with risk</li> </ul>

	<i>such a way that it serves the management strategy of the WHS.</i>	areas produced; -MOU with Foreign Missions; -University of Shendi presents its program for the WHS; -Publications issued.
MT1	<i>Establish a clear framework for organizing tourism investment and activity in relation with the WHS while protecting the resource</i>	-Document clarifying mandates presented and agreed upon; -Tourism plan produced and discussed; -Revenue sharing arrangements made.
MT2	<i>Promote the WH Site using different media channels.</i>	-Promotional campaign designed; -Promotional campaign delivered; -Media programs designed and produced.
MT3	<i>Upgrade the level of accessibility and the quality of visitor amenities within the WH Site and its surroundings for better appreciation by visitors</i>	-Ticket office at Naqaa operational; -Basic infrastructure on site established an operational; -Basic infrastructure design improved and approved by Advisory Committee and WHC; -Interpretive materials developed and produced.

#### *Framework for the Implementation of the Management Plan*

In order for NCAM, the custodians of the property, to accomplish the provisions of the management plan leading to the accomplishment of the appropriate levels of preservation, conservation, enhancement and promotion of the proposed World Heritage Site property with the support of stakeholders, it is important to streamline integrated management of the cultural heritage while identifying and segregating the different levels of responsibility and defining associated tasks in the framework of a comprehensive program for the management of the World Heritage Site.

In this respect, a site management framework was designed incorporating all concerned stakeholders in a structure, which achieves the following:

- Integrates stakeholder concerns and expectations into WHS management;
- Makes stakeholders aware of the challenges of the site and the constraints to WHS management, as outlined in this management plan;
- Provides the framework for discussing and resolving critical issues affecting the site;
- Adopts site management policies that are meant to regularize the management and exploitation of the site for the benefit of the community;
- Oversees the implementation of the management plan with its different project proposals;

- Supports NCAM in fulfilling its mandate, resolving obstacles and in implementing the management plan for the site.

The designed framework for guaranteeing effective site management is active at two levels:

- At the level of an Advisory Committee;
- At the level of an Executive WHS Management Team.

The Advisory Committee, consisting of representatives of the main stakeholders with influence over the site will be responsible for ratifying and adopting the management plan as the basis for its transactions and performance monitoring. It should agree to the principles intrinsic to the vision of the management plan, its objectives, policies and action plan. The Advisory Committee shall be guided by the principles of the World Heritage Convention and other international charters with respect to protecting and promoting the values of the site, its authenticity and integrity. The Committee shall oversee the implementation of the management plan and provide the support needed for the fulfillment of its provisions and the accomplishment of the tasks of the Technical Management Team. The Committee shall oversee proper spending of funds coming from donors. Funds should be used for implementing the projects within the management plan and others that the Committee might propose for the benefit of the site. The Committee shall consider and understand the critical issues and challenges affecting the site, discuss and find solutions for them. It is important to stress the top hierarchy of NCAM within this committee since it is the owner of the site and the body with direct responsibility for its management.

The Executive WHS Management Team, consisting of capable professional staff, is responsible for implementing the activities of the Management Plan. The principles of the plan, its policies and the principles and notions of the World Heritage Convention and other International Conventions of significance to the management of cultural heritage should guide the Executive Team in its day-to-day duties and responsibilities. The task of the Team is in the first stage to understand the management plan, develop it into a full operational document, upgrade it regularly, evaluate the site and its needs, identify constraints and propose solutions, policies and action plans, monitor and report progress. Periodic reporting to the Advisory Committee acting as the scientific advisor of the site falls also within the remit of the WHS Management Team.

The Team can draw on the resources of NCAM to fill in expertise and/or management gaps whenever required.

The Advisory Committee and the Technical WHS Management Team shall meet periodically, at least once every three months (quarterly) as well as when summoned by either one of the two bodies.

#### *Staffing Structure of the WHS Management Team*

The staffing structure of the WHS Management Team is as follows:

- One Site Director for the entire property;

- One Conservation Coordinator for the entire property;
- Three Site Managers, one for each of the sites of the property, i.e, for Meroe-Begraweya site, Naqa and Musawwarat;
- Six Assistant Managers, two per site;
- Six Technical Assistants, two per site
- Ticket Office Operator;
- Ten Guards per each site.

The duties and responsibilities of the proposed serial-site management team are provided in full in the body of the management plan.

### *Capacity Building*

Adequate staffing of the WHS Management Team is a challenge in light of the current structure of the government's administrative system, which makes it somewhat difficult for NCAM to recruit and retain qualified and specialized personnel, essential for the long-term management of the property. While this issue is currently being debated at the level of the government of Sudan as a whole and NCAM in particular, solutions to this significant issue might take time to come and it is important to contemplate short-term solutions that respond to the immediate requirements of the property in terms of specialized management staff. The management plan addresses this issue in length under different headings pertaining to institutional strengthening (long-term solutions to resource acquisition and retention) as well as capacity building. In this respect, joint cooperation with universities, foreign missions and volunteers from the community should be heavily thought after as a short-term solution. Projects funded by donors should always integrate students and include training components to help build technical expertise. In most cases, external support is largely available and willing to contribute to resolving shortcomings; however, the challenge lies in the capacity to manage this support while making sure that it remains strategic, responding to the critical issues of cultural resource management and fulfilling the objectives of NCAM.

### *Alternative Financial Resources*

In this respect, the role of the Advisory Committee, mentioned above, relates also to sponsoring and overseeing the implementation of this management plan to address the issues of capacity building by finding new sources of financial support for positions badly needed for the protection, management and promotion of the serial-site. The State as well as the Universities of Shendi and the River Nile have formally announced their readiness to sponsor the education, training and employment under contract of technical staff that will work under the direction of NCAM and take charge of implementing some of the provisions of the management plan whether this is in the areas of site documentation, rescue and preventive excavations, enabling works for conservation, guiding, site interpretation and site monitoring, or other relevant areas.



### *Status of the Management Plan*

These were the main sections of the management plan for the property proposed for World Heritage nomination; other sections not covered in this part of the Nomination File are amply developed in full management plan document under Annex 3.

An advisory committee has been suggested for the management of the property. It gathers all the stakeholders on the local and national levels. It is headed by Mr Mohamed Sheikh Madani, the head of the local development committee. This advisory body will be active by the beginning of next year, after the publication of a formation decree to be issued by the governor of the River Nile State.

#### **5. f Sources and level of finance**

Funding is provided by the following sources:

- The Central Government; and
- The archaeological missions.

It is estimated that a total of *c* 220,000 USD is spent annually on the different components of the property. This sum covers:

- Salaries of the employees engaged in guarding and administrative work on the property;
- Archaeological research;
- Protection and restoration works.

It does not cover either the publication of interim or final reports or the wages of foreign experts and technicians.

International financial and technical assistance is needed for major projects on all the three sites that make up the nominated property.

#### **5. j Sources of expertise and training in conservation and management techniques**

The annual training programme of the Central Government consists mainly of training in management/administration and the promotion of technical skills.

Expertise and training of the national staff in conservation techniques are also offered by the archaeological missions, holders of the research concessions on the different sites of the property.

Many of the employees of the NCAM Conservation Section have benefited from training offered abroad by foreign archaeological missions, by ICCROM, and by other concerned international agencies.

#### **5. h Visitor facilities and statistics**

In general the tourism infrastructure on the three sites of the property is still inadequate. The following details relate to each site:

### ***Meroe***

- There is only one lavatory near the pyramids. Near the town site there is an adequate number of toilets, together with a supply of water.
- The site museum at the pyramids remains unfinished.
- There are only two small hotels beside the pyramids, with a total capacity of about 40 beds.
- The local government is considering building good access routes to the different parts of the sites, together with a rest house.
- There are no explanatory panels or directions on the site.

### ***Musawwarat es-Sufra***

- There are no lavatories for visitors.
- There are no accommodation facilities: camping is the only way of spending nights near the site. A governmental rest-house has been built within the core zone, but this is in practice of no use to tourists: it is currently accommodating government authorities and foreign official visitors. The building is provided by water from a well with a water tank and with permanent electricity from the national electric grid.
- A 30km tarmac road is to be built by the local government to facilitate access to the site.
- Explanatory panels have been erected near the main monuments of the site.
- A small site museum has been established within the enclosure wall of the Great Enclosure.

### ***Naqa***

- An adequate number of lavatories are located near the entrance to the site.
- There are no accommodation facilities: camping is the only way of spending nights near the site.
- A project for a site museum is being studied by a sponsor through the good offices of the holder of the Egyptian Museum of Berlin research concession.
- A 30km tarmac road which branches off the road leading to Musawwarat es-Sufra is to be built by the local government to facilitate access to the site.
- There are no explanatory panels or directions on the site.

Statistical data relating to visits to the sites are given in 4.b.4 above

## **5. i Policies and programmes related to the presentation and promotion of the property**

There are no clear programmes related to the presentation and promotion of the entire property. Appendix 2 gives details of the specific programmes of the international missions for individual components of the property. It is essential that a harmonized programme for the presentation and promotion of the property that conforms with the approved management plan should be worked out by NCAM in consultation with the

authorities of the River Nile State, the archaeological missions, and the other stakeholders.

## 5. j            **Staffing levels**

At the national level, the following management structure and staffing applies:

NCAM is attached to the Ministry of Culture, Youth and Sport. Although its Director is responsible to the Minister, NCAM has its own independent budget and administration. The general policy of NCAM is set by a board of nine members on the basis of the proposals of its Director and is approved by the Council of Ministers. The members of the board are the Director himself, a representative of the employees, and seven individuals representing other disciplines and functions related to the mandate of NCAM.

Overall, NCAM has 409 employees headed by a director general and is subdivided into three main departments:

- The ***Fieldwork Section*** section is responsible for surveys, excavations, salvage work in connection with development projects, physical protection of the sites, coordination of the work of foreign and national archaeological missions, and supervision of the tourist activity on the monumental sites. The personnel of this section consist mainly of graduates of national and foreign faculties of archaeology, some of them holders of Master and PhD degrees, together with technical assistants and the site guards. Most members of this section have acquired an adequate training in field activities.
- The ***Museums Section*** is responsible for the administration of museums all over the Sudan and the organization of temporary exhibitions both inside the country and abroad. Its personnel is also recruited from archaeology and history graduates. Some of its curators have higher degrees in museum science and have benefited from intensive training courses in famous international institutions such as the British Museum and the Louvre. It has also a considerable number of trained technical assistants and supervisors of exhibition galleries.
- The ***Restoration Section*** is responsible for the restoration and preservation of movable objects in the different museums/stores and of immovable antiquities. Its members are graduates in conservation, restoration, fine arts, chemistry, and architecture. Some of them have higher degrees and have participated in specialized courses both inside the country and abroad (most of these training courses were organized by ICCROM). The section has a well trained technical staff, some of whom have been working for NCAM since the UNESCO Nubian Campaign of the 1960s and have acquired considerable experience in the restoration (specially of pyramids), dismantling, transportation, and re-erection of monuments.
- NCAM also includes an ***Administrative and Financial Section***, which also includes the departments of personnel management and public relations, a ***Photography and Library*** section, and a ***technical workshop*** staffed by trained masons, carpenters, etc.).

The three sites that make up the nominated property have a very small staff consisting of:

- An antiquities inspector resident at the town of Shendi, 40 km from Meroe and *c* 60 km from Musawwarat es-Sufra and Naqa;
- Four technical assistants;
- Over twenty permanent and temporary recruited guards; and
- A significant police force on each of the sites.

Major works on the property are carried out by staff resident in Khartoum. It is essential to expand the permanent staff at the property significantly, especially after the completion of the museums and the accommodation facilities at Meroe and Naqa.

## **6 MONITORING**

### **6. a Key indicators for measuring state of conservation**

*(reference to the plates is made to the photographic record annexed to the Management Plan, Appendix 3)*

The key indicators are provided in the table below. They are reviewed on a quarterly basis by the Advisory Committee and their respective time frames for completion are included within the table. The reports pertaining to the assessment of the degree of implementation of the indicators shall be kept with NCAM. Note that due to the fact that conservation problems are diverse and spread-out across the site, a detailed conservation plan forms part of the main activities listed in fulfillment of the implementation of the management plan for the proposed World Heritage Site property. The required conservation plan is expected to produce an accurate mapping of conservation issues on site alongside a comprehensive quantifiable record of the state of conservation and of the level of efforts and resources required to undertake conservation.

<b>Code</b>	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
<b>CP1</b>	<i>Develop the necessary conservation tools to enable the prioritization and quantification of conservation work on site and the establishment of a site-wide conservation master plan with prioritized interventions</i>					
	Main issues: rapid assessment of site conditions and conservation interventions, adhere to international standards in conservation work, development of conservation infrastructure.					
	Associated activities:					
	- Undertake the rapid assessment of the condition of the sites and identify areas of priority and rapid	- Areas of priority intervention identified; -Methodologies for addressing	NCAM, University of Shendi, Foreign Missions active on site.	WHC and other international organizations.	Year 2	-Priority areas identified; -Methodologies developed; -Specifications developed; -Monitoring and regular maintenance program



	<ul style="list-style-type: none"> <li>- intervention; Review and design methodologies for the consolidation of structural problems at pyramid sites;</li> <li>- Identify major conservation risk areas and develop detailed design schemes for repairing damage;</li> <li>- Develop design specifications for conservation work across the three sites and use as a basis for training conservation staff and for quantifying conservation work;</li> <li>- Invite conservation specialists to design solutions for the various conservation problems of the site and conduct on-site training for the emerging conservation capacity;</li> <li>- Monitor and re-evaluate ulterior</li> </ul>	<ul style="list-style-type: none"> <li>- structural problems at pyramid sites developed;</li> <li>- Risk preparedness achieved;</li> <li>- Specifications for conservation developed and used for quantification of resources required;</li> <li>- Special methodologies developed in accordance with international standards;</li> <li>- Ulterior conservation/restoration work re-evaluated and repaired;</li> <li>- Regular monitoring and maintenance system established, site</li> </ul>				<ul style="list-style-type: none"> <li>- established;</li> <li>- MOU with Foreign Missions signed;</li> <li>- Conservation Master Plan completed;</li> </ul>
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	<p>conservation/restoration works with regards to their suitability and effectiveness and agree on a methodology to maintain/repair old restoration works;</p> <p>- Establish a system for regular monitoring and maintenance of site remains in order to limit the deterioration of the fabric;</p> <p>- Enforce provisions for implementing preventive conservation and the protection of exposed remains in accordance with the terms of the contract with archaeological missions;</p> <p>- Elaborate all of these issues in the framework of a conservation master plan with identified specialist and financial resources.</p>	<p>problems identified before they become accentuated;</p> <p>-Archaeological missions form part of the conservation plan delivery;</p> <p>-Comprehensive master conservation program guides interventions on site</p>				
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<b>Code</b>	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
<b>CP2</b>	<i>Develop the conservation infrastructure on site by building new capacities and attracting funds for conservation initiatives</i>		NCAM	University of Shendi Foreign Missions	Year 3	
	Main issues: conservation aid and subsidy, training conservators and developing new expertise, establishing a suitable conservation infrastructure to respond to needs.					
	Associated activities:					
	<ul style="list-style-type: none"> <li>- Seek government as well as private sector subsidy;</li> <li>- Adhere to international standards in conservation;</li> <li>- Train and develop qualified conservators and craftsmen;</li> <li>- Work closely with the University of Shendi and other universities to form conservation capacities and integrate those in NCAM activities on site;</li> <li>- Create jobs in the field of conservation, with adequate</li> </ul>	<ul style="list-style-type: none"> <li>-Alternative funds allocated to support conservation activities on site;</li> <li>-All training and implementation of conservation works benchmark with international standards;</li> <li>-Conservation workforce boosted;</li> </ul>	-	-	-	<ul style="list-style-type: none"> <li>-Packaged conservation projects with detailed budget presented for external funding;</li> <li>-Benchmarking of conservation methodologies and standards set;</li> <li>-New jobs in conservation created;</li> <li>-Curriculum</li> </ul>

	incentives, to cover the needs; - Exploit available international training opportunities adequately; - Work towards the establishment of a formal curriculum in conservation studies in the country;	-Established partnerships that help address capacity shortages; -Long-term conservation capabilities being formed;				designed.
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<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
<i>Implement priority conservation activities in order to halt the degradation of the sites</i>		NCAM	University of Shendi, Foreign Missions	<i>Year 3</i>	
Main issues: address flooding and site drainage issues					
Associated activities:					
<ul style="list-style-type: none"> <li>- Re-assess the effectiveness of the drainage ditch around the Temple of Amun at Naqa and repair where necessary;</li> <li>- Design and build drainage systems for the ruins in the Royal City as well as the monuments at Naqaa (Lion Temple and Kiosk) and the Great Enclosure at Musawwarat;</li> <li>- Clean-up bird faeces and wasp nests causing the decay of the plaster used on the Lion Temple (Musawwarat);</li> <li>- Take immediate actions to document and consolidate/conservate ancient</li> </ul>	<ul style="list-style-type: none"> <li>-Temple of Amun protected from torrential flows;</li> <li>-Long-term resolution of drainage issues;</li> <li>-Short-term conservation issues dealt with;</li> <li>-Most fragile and important elements on site protected and conserved;</li> <li>-Localized</li> </ul>				<ul style="list-style-type: none"> <li>-Drainage ditch around Temple of Amun rehabilitated;</li> <li>-Drainage system designed site-wide;</li> <li>-Drainage system built;</li> <li>-Localized conservation problems resolved (see activities for breakdown);</li> </ul>

<p>plaster traces surviving on various monuments across the serial-site;</p> <ul style="list-style-type: none"> <li>- Re-erect and shelter specific chapels at the pyramid sites at Meroe with the aim of protection ancient reliefs from further degradation;</li> <li>- Consolidate and provide a sacrificial coat to the fragile mud structures within the Temple of Amun at Naqa;</li> <li>- Consolidate pylon foundations of the Lion Temple (Musawwara) and halt water ingress from the roof;</li> <li>- Remove and relocate to safe location the spoil heaps resulting from informal excavations of the Great Hafir at Musawwarat;</li> <li>- Check the expansion of the vegetation cover at the Royal City in Meroe by securing the fence and preventing goats from spreading tree-seed across the site;</li> <li>- Identify and extract vegetation growing within ancient structures and on archaeological walls in accordance with a well</li> </ul>	<p>conservation problems on main monuments addressed;</p> <ul style="list-style-type: none"> <li>-Visual and physical impact of spoil heaps resolved;</li> <li>-Vegetation damage checked;</li> <li>-Localized water damage prevented from becoming a major structural and conservation problem;</li> </ul>				
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<p>established methodology (Meroe-Royal City and Naqa – Lion Temple);</p> <ul style="list-style-type: none"> <li>- Respond locally to water damage created by gathering water and formation of pools and address the problem holistically via the implementation of well-designed water drainage systems/solutions.</li> </ul>					
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## **6. b            Administrative arrangements for monitoring the property**

The overall monitoring will be coordinated by NCAM and executed by the Restoration Section in close cooperation with the archaeological missions working on different sites of the property:

- *General supervision and coordination:*  
National Corporation for Antiquities and Museums NCAM  
P.O. Box 178, Khartoum, Sudan  
Tel.- Fax: +249 183 786784  
Email: [teharga2008@yahoo.com](mailto:teharga2008@yahoo.com)
- *Meroe (Town Site):*  
Dr K. Grzyzmski, Royal Ontario Museum Canada  
Email : [krzysg@rom.on.ca](mailto:krzysg@rom.on.ca)
- *Meroe (Royal Baths):*  
Dr Simone Wolf  
German Archaeological Institute, Berlin  
Email : [sw@dainst.de](mailto:sw@dainst.de)
- *Musawwarat es-Sufra:*  
Dr Claudia Naser  
Humboldt University, Berlin  
Email : [claudia.naerer@online.de](mailto:claudia.naerer@online.de)
- *Naqa:*  
Professor Dr Dietrich Wildung  
Egyptian Museum, Berlin  
Email : [d.wildung@smb.spk-berlin.de](mailto:d.wildung@smb.spk-berlin.de)  
*or*  
Dr Karla Kroeper  
Egyptian Museum, Berlin  
Email: [k.kroeper@smb.spk-berlin.de](mailto:k.kroeper@smb.spk-berlin.de)

## **6. c            Results of previous reporting exercises**

The following publications contain reports on work carried out by the relevant missions (*see also* Appendix 2):

Hinkel, F.W. 2000. 'The royal pyramids of Meroe. Architecture, construction and reconstruction of a sacred landscape', *Sudan & Nubia* **4**, 11–26.

Hinkel, F.W. 1997, 'L'architecture méroïtique', *Soudan: Royaume sur le Nil*, 391–416, Flammarion, Paris.<sup>5</sup>

Wenig, S. 2004 'Die Grabungs- und Restaurierungskampagne 2004 in Musawwarat es Sufra,' *Der Antike Sudan* (Mitteilungen der Sudanarchäologischen Gesellschaft in Berlin eV), **15**, 7–16.

Wolf, S. 2001, 'Jahresbericht 2000 des Deutschen Archäologischen Instituts,' *Archäologischer Anzeiger*, 620f.

Wolf, S. Forthcoming (2009), 'Second preliminary report on work in the Royal Baths at Meroë,' *Kush* **19**.

Wolf, S. and Onasch, H.H. 1998–2002, 'Investigations at the so-called Royal Baths at Meroë in 1999. A preliminary report,' *Kush* **18**, 191–203.

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<sup>5</sup> The main activities of the late Professor Hinkel, during the last 25 years of his life, had been devoted to the documentation, restoration, and reconstruction of the pyramids of Meroe. In these articles and many other publications he describes the building techniques and materials of the pyramids, their state of conservation, and what he considered to be the most adequate ways of intervention on this unique funeral landscape. A mass of documentation has remained, after his death, at his home in Berlin. A committee of experts has been established to look after this documentation and to find a successor institute to continue the conservation work at the pyramids of Meroe. Professor D. Wildung, the director of the Egyptian Museum of Berlin, is the coordinator of this committee ([d.wildung@smb.spk-berlin.de](mailto:d.wildung@smb.spk-berlin.de)).

## **7 DOCUMENTATION**

### **7. a Photographs, slides, image inventory and authorization table, and other audiovisual materials**

Plates

(Plates 2-22 by Dr. Derek Welsby)

#### List of plates

- (1) The pyramid of Queen Amanishakheto at Meroe (Cailliaud 1821).
- (2) The lion God Apedemak from his temple at Musawwarat es-Sufra.
- (3) The dissected Nubian sandstone plateau in the Keraba between Naqa and Musawwarat es-Sufra.
- (4) Acacia within the fenced archaeological zone at Meroe town site.
- (5) Meroe: iron slag heaps.
- (6) Meroe: The enclosure wall on the east side of the Royal City.
- (7) The so-called Sun Temple.
- (8) Meroe: General view of the Southern and Northern Cemeteries.
- (9) Meroe: Arial view of the Northern Cemetery.
- (10) Meroe: pyramids in the Northern Cemetery.
- (11) Meroe: The quarry to the east of the pyramids
- (12) Meroe: interior of the quarry.
- (13) Musawwarat es-Sufra General view over the Great Enclosure looking towards 'temple 100'.
- (14) Musawwarat es-Sufra: Arial view of 'temple 100'.
- (15) Musawwarat es-Sufra: decorated columns and bases of the colonnade around 'temple 100'.
- (16) Musawwarat es-Sufra: one of the columns from the colonnade around 'temple 100'.
- (17) Musawwarat es-Sufra, Temple during excavations.
- (18) Musawwarat es-Sufra, Lion Temple
- (19) Naqa: The Kiosk and lion Temple.
- (20) Naqa: The rams flanking the avenue leading up to the Temple of Amun.



Plate 1 The Pyramid of Queen Amanishaketo at Meroe (Cailiaud 1821)



Plate 2 The Lion God Apedemak from his temple at Musmeharat es-Sufra



*Plate 3     The dissected Nubian sandstone plateau in the Karaba between Naqa and Musawwarat es-Sufra*



*Plate 4     Acacia within the fenced archaeological zone at Meroe town site*



*Plate 5 Meroe: Iron slag heaps*



*Plate 6 Meroe: the enclosure wall on the east side of the Royal City*





*Plate 7 Meroe: The so-called 'Sun Temple'*



*Plate 8 Meroe: General view of the Southern and Northern Cemeteries*





*Plate 9 Meroe: Aerial view of the Northern Cemetery*



*Plate 10 Meroe: Pyramids in the Northern Cemetery*



*Plate 11 Meroe: The quarry to the east of the pyramids*



*Plate 12 Meroe: Interior of the quarry*



Plate 13 *Musawwarat es-Sufra: General view over the Great Enclosure looking towards 'Temple' 100*



Plate 14 *Musawwarat es-Sufra: Aerial view of 'Temple' 100*



Plate 15 *Musawwarat es-Sufra: Decorated columns and bases of the colonnade around 'Temple 100'*



Plate 16 *Musawwarat es-Sufra: one of the columns from the colonnade around 'Temple 100'*





Plate 17/ Musawwarat es-Sufra, Temple during excavations.



Plate 18/ Musawwarat es-Sufra, Lion Temple.



Plate 19/ Naqa: Lion Temple and Kiosk.



Plate 20/ Naqa: Amun Temple, avenue of rams.

**7. b        Texts relating to protection designation, copies of management plans or documented management systems, and extracts of other plans relevant to the property**

The Management Plan (Appendix3) treats the following issues:

1. Context of the Management Plan
2. Objectives of the Management Plan
3. The Site and its Attributes
4. Statement of Significance of the Site and Justification of Outstanding Universal Value
5. State of Conservation and Factors Affecting the Property
6. Site Protection
7. Definition of site boundaries and site buffer zones
8. Management Plan
9. The Consultation Process
10. Key management issues pertaining to the serial-site
11. Proposed Management Structure
12. Management Plan Policies and Action Plans

**7. c        Form and date of most recent records**

Annual reports of archaeological missions, 2000–2008. (NCAM)

**7. d        Address where inventory, records, and archives are held**

- *National*  
National Corporation for Antiquities and Museums NCAM  
P.O. Box 178, Khartoum, Sudan  
Tel.- Fax: +249 183 786784  
Email: [teharga2008@yahoo.com](mailto:teharga2008@yahoo.com)
- *Meroe (Town Site)*  
Dr K. Grzyzmski, Royal Ontario Museum Canada  
Email : [krzysg@rom.on.ca](mailto:krzysg@rom.on.ca)
- *Meroe (Royal Baths)*  
Dr Simone Wolf  
German Archaeological Institute, Berlin  
Email : [sw@dainst.de](mailto:sw@dainst.de)
- *Musawwarat es-Sufra*  
Dr Claudia Naser



Humboldt University, Berlin

Email : [claudia.naeser@online.de](mailto:claudia.naeser@online.de)

– *Naqa*

Professor Dr Dietrich Wildung *or* Dr Karla Kroeper

Egyptian Museum, Berlin

Email : [d.wildung@smb.spk-berlin.de](mailto:d.wildung@smb.spk-berlin.de)/[k.kroeper@smb.spk-berlin.de](mailto:k.kroeper@smb.spk-berlin.de)

## 7. e Bibliography

### 7.e.1 General

Adams, W.Y. 1977. *Nubia: Corridor to Africa*. London – Princeton.

A. M. A. Al Hakem 1972. 'Meroitic settlement of the Butana (central Sudan)', in P. J. Ucko and R. Tringham (eds), *Man, Settlement and Urbanism, Proceedings of a meeting of the Research Seminar in Archaeology and Related Subjects, Institute of Archaeology, London University*. London, 640–46.

Ali Tigani el Mahi 1991. 'The Meroitic Civilization, Fauna and Ecology. An ancient interaction along the Nile', *The Nile Geographer*, Khartoum, 19–25.

Bosanquet, R.C. 1912. 'Second Interim Report on the Excavations at Meroe in Ethiopia: Part III – on the Bronze Portrait-Head', *Liverpool Annals of Archaeology and Anthropology* **4**, 66–71.

Bradley, R.J. 1982. 'Varia from the City of Meroe', *Meroitica* **6**, 163–70.

Bruce, J. 1790. *Travels between the Years 1765 and 1773 through Part of Africa, Syria, Egypt and Arabia into Abyssinia to Discover the Sources of the Nile*. Edinburgh.

Carter, P.L. and R. Foley 1980. 'A Report on the Fauna from Excavations at Meroe 1967–72', in P.L. Shinnie and R.J. Bradley, *The Capital of Kush I*. Berlin, 298–311.

Crowfoot, J. W. 1911. *The Island of Meroe*. London.

Dunham, D. 1924. 'Two Royal Ladies of Meroe. Report on Some Results of Excavations by the Harvard University-Museum of Fine Arts Egyptian Expedition During the Season 1, Communication to the Trustees of the Museum of Fine Arts', *Bulletin of the Museum of Fine Art* **7**, 1–16.

Dunham, D. 1963. *Royal Cemeteries of Kush, V; the West and South Cemeteries at Meroe*. Boston.

Firth, C.M. 1912. *The Archaeological Survey of Nubia. Report for 1908–1909* [2 vols]. Cairo.

Garstang, J. 1912. 'Second Interim Report on the Excavations at Meroe in Ethiopia. Part I: Excavations', *Liverpool Annals of Archaeology and Anthropology* **4**, 45–52.

Garstang, J., A.H. Sayce, and F. L. Griffith 1911. *Meroe: City of the Ethiopians*. Oxford.

George, W.S. 1914. 'Fourth Interim Report on the Excavations at Meroe in Ethiopia. Part II: Architectural and General Results', *Liverpool Annals of Archaeology and Anthropology* **6**, 9–21.

Griffith, F.L. 1917. 'Meroitic Studies III', *Journal of Egyptian Archaeology* **4.1**, 21–7.

Griffith, F.L. 1924. 'Oxford Excavations in Nubia', *Liverpool Annals of Archaeology and Anthropology* **11**, 115–25.

- Griffith, F.L. 1926. 'Oxford Excavations in Nubia.' *ibid.*, **13**, 17–37.
- Grzymalski, K.A. 1984. 'Population Estimates from Meroitic Architecture', in F. Hintze (ed.), *Meroitistische Forschungen 1980 (= Meroitica 7)*, Berlin, 287–9.
- Khidir A. Ahmed 1984. *Meroitic Settlement in the Central Sudan. An Analysis of sites in the Nile Valley and the Western Butana*. Cambridge Monographs in African Archaeology **8**. BAR International Series 197, Oxford.
- Kroeper, K. 2006. 'Metamorphoses of the Amun temple in Naqa', in I. Caneva and A. Roccati (eds), *Acta Nubica, Proceedings of the X International Conference of Nubian Studies Rome 9–14 September 2002*. Roma, 287–95.
- Lenoble, P. 1992. 'Cônes de Déjections Archéologiques dans des Djebels et Cimitières tumulaires de Méroë', *Beiträge zur Sudanforschung* **5**, 73–92.
- Reisner, G.A. 1922. 'The Pyramids of Meroe and the Candaces of Ethiopia', *Sudan Notes and Records* **5**, 173–96.
- Reisner, G.A. 1923. 'The Meroitic Kingdom of Ethiopia: A Chronological Outline', *Journal Of Egyptian Archaeology* **9**, 34–77.
- Robertson, J.H. 1992. Sayce, A. H. 1912. 'Second Interim Report on Excavations at Meroe in Ethiopia, Part II – the Historical Results', *Liverpool Annals of Archaeology and Anthropology* **4**, 53–65.
- Shinnie, P.L. 1967. *Meroe: A civilization of the Sudan*. London
- Shinnie, P.L. 1976. 'Comments zu Adams 1976', *Meroitica* **2**, 89–93.
- Shinnie, P.L. 1984. 'Excavations at Meroe 1974–1976', *ibid.* **7**, 499–504.
- Shinnie, P.L. and R.L. Bradley 1980. *The Capital of Kush I. Meroe Excavations 1965–1972. Meroitica 4*, Berlin.
- Török, L. 1992. 'Ambulatory Kingship and Settlement History. A Study on the Contribution of Archaeology to Meroitic History', in C. Bonnet (ed.) *Ambulatory Kingship and Settlement History. A Study on the Contribution of Archaeology to Meroitic History*, **I**, Geneva, 111–26.
- Trigger, B.G. 1969. 'The Myth of Meroe and the African Iron Age', *African Historical Studies* **2**, 23–50.
- Whiteman, A.J. 1971. *The Geology of the Sudan Republic*. Oxford.

## 7. e. 2 Site bibliographies

### – NAQA

- Addison, F. 1926. 'Ancient Sites near Naga', *Sudan Notes and Records* **9,2**, 56–8.
- Ahmed, K.A. 2004. 'An Asbestos Shroud from Naga', in T. Kendall (ed.) *Nubian Studies 1998. Proceedings of the Ninth Conference of the International Society of Nubian Studies August 21–26, 1998 Boston, Massachusetts*, Boston, 201–4.
- Bellefonds, L.D. 1958. *Journal d'un Voyage à Meroe dans les Années 1821 et 1822*. Khartoum.

- Carrier, C. 1999. 'Poursuite de la Constitution d'un Répertoire d'épigraphie méroïtique (REM)', *Meroitic Newsletter* 26, 1–46.
- Gabriel, B. 1997. 'Zur Quartären Landschaftsentwicklung der Nördlichen Butana (Sudan)', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin E.V.* 7, 23–30.
- Geus, F. 2004. *Jean Vercoutter. Pionnier de l'archéologie française au Soudan*. Khartoum.
- Hallof, G. and J. Hallof 2000. 'Eine königliche Inschrift aus Naga', *Beiträge zur Sudanforschung* 7, 161–71.
- Hinkel, F.W. 1987. 'Ägyptische Elle oder Griechischer Modul? Metrologische Studien an historischen Bauwerken im Mittleren Niltal', *Das Altertum Bd.* 33.3, 150–62.
- Hinkel, F.W. 1997. 'Meroitic Architecture', in D. Wildung (ed.) *Sudan, Ancient Kingdoms of the Nile*. Paris, New York, 393–416.
- Hinkel, M. 1994. 'The Water Reservoirs in Ancient Sudan', in C. Bonnet (ed.) *Études Nubiennes*, II, Geneva, 171–75.
- Hintze, F. 1959. 'Preliminary Report of the Butana Expedition 1958', *Kush* 7, 171–96.
- Hofmann, I. and H. Tomandl 1985. *Der Antike Sudan Heute*. Lehr- und Lesebücher zur Afrikanistik und Ägyptologie 5, Wien.
- Hofmann, I., H. Tomandl, and M. Zach 1985. 'Der Tempel F von Naqa', *Varia Egyptica* 1, 27–35.
- Kleinschroth, A. 1986. 'Die Verwendung des Hafirs im meroitischen Reich', *Beiträge zur Sudanforschung* 1, 79–96.
- Kormysheva, E. 1992. 'The Royal Crowns of Kush: An Extended Review', *ibid* 5, 55–72.
- Kroeper, K. and D. Wildung 1998–2002. 'The Naga Project, Egyptian Museum Berlin', *Kush* 18, 97–102.
- Krzyzaniak, L. 2003. 'Excavations at Naga'a (Central Sudan)', *Gdansk Archaeological Museum African Reports* 2, 135.
- Lohwasser, A. 2004. 'The Study of Pictorial Representations – Problems and Opportunities', in *Preprints*, Meroitic Conference, Paris
- Manzo, A. 1998. 'Ancora su Aksum e Meroe: Riconsiderazione de alcune evidence dalla Necropoli di Mai Heggia e del loro Significato', *Archeologia Africana* 4, 44–54.
- Pomerantseva, N.A. 1994. 'Composition and Iconographical Structure of Reliefs in Lion Temple a in Naga', in C. Bonnet (ed) *Études Nubiennes*, II, Geneva, 159–69.
- Rilly, C. 2001. 'Approche comparative de la paléographie et de la chronologie royale de Méroé', *Meroitic Newsletter* 28, 71–89.
- Scott-Moncrieff, P.D. 1908. 'The ruined sites at Musawwarat Es-Sufra and Naqa', *Proceedings of the Society for Biblical Archaeology* 30, 192–203.
- Selkirk, A. 2004. 'Sudan', *Current World Archaeology* 6, 46–55.

- Sieversen, U. 2002. 'Civil Architecture in the Empire of Kush and the Royal City of Meroe', *Archéologie du Nil Moyen* **9**, 163–81.
- Soteri, N. 2003. 'Africa's Other Pyramids', *BBC History* **4**, 1, 30–3.
- Tomandl, H. 1986. 'Der Thronuntersatz von Naqa', *Beiträge zur Sudanforschung* **1**, 149–56.
- Török, L. 1984. 'Zur Datierung des sogenannten römischen Kiosks in Naga/Sudan', *Archäologischer Anzeiger* 145–59.
- Török, L. 2002. *The Image of the Ordered World in Ancient Nubian Art. The Construction of the Kushite Mind (800 BC–300 AD)*. Leiden–Boston–Köln.
- Welsby, D.A. 1996. *The Kingdom of Kush, the Napatan and Meroitic Empires*. London.
- Welsby, D.A. 2003. 'The Kingdom of Kush: Rome's Neighbour on the Nile', in M. Liverani (ed.) *Arid Lands in Roman Times*, Arid Zone Archaeology Monograph **4**, Roma, 65–78.
- Wenig, S. 1981. 'Das Verhältnis von Wandrelief und Raumfunktion am meroitischen Amuntempel von Naga', in *Studies in Ancient Egypt, The Aegean and the Sudan. Essays in Honor of Dows Dunham*. Boston, 200–10.
- Wildung, D. 1997/98. 'Die Stadt in der Steppe', *Nuremberger Blätter zur Archäologie* **14**, 105–18.
- Wildung, D. 1999a. *Die Stadt in der Steppe: Grabungen des Ägyptischen Museums Berlin in Naga (Sudan)*. Berlin.
- Wildung, D. 1999b. 'Naga, die Stadt in der Steppe: Grabungen des Ägyptischen Museums im Sudan', *Jahrbuch der Berliner Museen* 251–66.
- Wildung, D. 2000. 'Wiedergeburt eines Tempels: Naga 2000', *Amun. Magazin für die Freunde der Ägyptischen Museen* 6,
- Wildung, D. 2001. 'Trois civilisations se rencontrent à Naga', *Historia Thématique* **69**, 70-1.
- Wildung, D. .... 'Vielfalt der Stile. Antike Skulpturen aus den Grabungen des Ägyptischen Museums in Naga, Sudan', 35–7.
- Wildung, D. and K. Kroeper (eds) 2003. *Common Aims. Sudanese German Co-operation in Archaeology, National Museum Khartoum 2003*. Berlin.
- Wolf, P. 2002. 'Temples in the Meroitic South – Aspects of Typology, Cult and Function', in *Preprints*, International Society for Nubian Studies, Tenth International Conference, Rome.
- Zabkar, L.V. 1975. 'A Hieracocephalous Deity from Naqa, Qustul, and Philae', *Zeitschrift für Ägyptische Sprache und Altertumskunde* **102**, 143–53.
- Zabkar, L.V. 1977. 'Some particular features in the representations of Apedemak', *Ägypten und Kusch* **13**, 487–506.
- Zach, M.H. 1986. 'Ein Beitrag zur Erforschungsgeschichte von Musawwarat Es Sufra und Naqa', *Beiträge Zur Sudanforschung* **1**, 157–60.
- Zach, M. H. 1992a. 'Das Hathor-Relief aus Soba-Ost. Ein Beitrag zu Fragen der meroitischen Religion', *Aegyptus Antiqua* **8**, 27–32.

Zach, M.H. 1992b. 'Meroe: Mythos und Realität einer Frauenherrschaft im antiken Afrika', in E. Specht (ed) *Nachrichten aus der Zeit. Ein Streifzug durch die Frauengeschichte des Altertums*. **18**, Wien, 73–114.

Zach, M.H. 1995. 'Beobachtungen zu einem meroitischen Löwenthrontyp [also a Spanish version]', *Aegyptus Antiqua* **9**, 22–6.

Zibelius, K. 1983. *Der Lowentempel von Naga in der Butana (Sudan) IV: Inschriften [Tübinger Atlas des Vorderen Orients, Beihefte, Reihe B, 48/4]*. Wiesbaden.

– MUSAWWARAT ES-SUFRA

Adams, W.Y. 1971. 'Summary notes on pottery collections from Musawwarat Es-Sufra', *Berlin Dv* 48, 49, 50 Nicht Pub.

Addison, F. 1925. 'Archaeological Notes. A Meroitic temple and ancient remains near Gebel Tageru', *Sudan Notes and Records* **8**, 197–200.

Bakr, M. 1980. 'A contribution to the function of the Great Enclosure of Musawwarat', *Meroitic Newsletter* **20**, 7–8.

Bellefonds, L.D. 1958. *Journal d'un Voyage à Meroe dans les Années 1821 et 1822*. Khartoum.

Bersina, S. 1999. 'L'inscription latine de Moussawarat Es-Sofra', *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* **20**, 97–104.

Daszkiewicz, M. and G. Scheider 2001. 'Chemical and mineralogical-petrographic composition of fabrics from Musawwarat Es Sufra, Sudan', *Der Antike Sudan* **12**, 80–93.

Edwards, D.N. 1998. 'Report on the Musawwarat Pottery, 1997', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin E.V.* **8**, 61–7.

Edwards, D.N. 1999. A Meroitic pottery workshop at Musawwarat Es Sufra. *Meroitica* **17.2.**, Wiesbaden.

Eigner, D. 1999. 'Bemerkungen zu den "Nicht-Sakralen" Teilen der Großen Anlage', *Nürnberger Blätter zur Archäologie* 45–46.

Eigner, D. 2002. 'Baufaufnahme der Räume 507–509 ("Heilige Hochzeit") in der Großen Anlage von Musawwarat Es Sufra', *Der Antike Sudan* **13**, 14–21.

Eigner, D. 2004. 'Tore und Säulen. Architektursondagen der Kampagne 2004 in der Grossen Anlage von Musawwarat Es Sufra', *ibid.* **15**, 27–38.

Fitzenreiter, M., A. Seiler and I. Gerullat 1999. Musawwarat Es Sufra II. Die Kleine Anlage. *Meroitica* **17,1**, Wiesbaden.

Fitzenreiter, M. and S. Wenig 1994. *Los Templos de Musawwarat Es-Sufra/Sudan, Catalogo Museo Nacional de Cuba*. La Habana

Gabriel, B. 1997. 'Zur Quartären Landschaftsentwicklung der nördlichen Butana (Sudan)', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin E.V.* **7**, 23–30.

Gabriel, B. 2002. 'Antiker Abbau Mineralischer Rohstoffe im Raume Musawwarat Es Sufra (Butana, N-Sudan)', *Der Antike Sudan* **13**, 36–46.

- Gerullat, I. 2001. 'Zusammenfassender Bericht zur vorläufigen Dokumentation der Keramikfunde der Ausgrabungskampagnen in den Jahren 1960 bis 1968 in Musawwarat Es Sufra', *ibid.* **12**, 64–79.
- Harting, D. 1989. 'Zur Klassifizierung der meroitischen Keramik von Musawwarat Es-Sufra mit Verfahren der Clusteranalyse. Teil II', *Meroitica* **10**, 489–502.
- Haycock, B.G. 1965. 'Towards a date of King Ergamenes', *Kush* **13**, 264–6.
- Hinkel, F.W. 1997. 'Meroitic Architecture', in D. Wildung (ed) *Sudan, Ancient Kingdoms of the Nile*. Paris, New York, 393–416.
- Hinkel, M. 1994. 'The Water Reservoirs in Ancient Sudan', in C. Bonnet (ed.) *Études Nubiennes*, II, Geneva, 171–5.
- Hintze, F. 1959. 'Preliminary Report of the Butana Expedition 1958', *Kush* **7**, 171–96.
- Hintze, F. 1962a. 'Die Inschriften des Lowentempels von Musawwarat Es Sufra',
- Hintze, F. 1962b. 'Preliminary Report on the Excavations at Musawwarat', *Kush* **10**, 170–202.
- Hintze, F. 1962c. 'Vorbericht über die Ausgrabungen des Instituts für Ägyptologie der Humboldt-Universität Zu Berlin in Musawwarat Es Sufra, 1960-1961', *Wissenschaftliche Zeitschrift* 441–88.
- Hintze, F. 1963a. 'Musawwarat Es Sufra. Vorbericht über die Ausgrabungen des Instituts für Ägyptologie der Humboldt-Universität zu Berlin, 1961-1962 (Dritte Kampagne)', *Wissenschaftliche Zeitschrift* 63–77.
- Hintze, F. 1963b. 'Musawwarat Es Sufra: Preliminary Report on the Excavations of the Institute of Egyptology, Humboldt University, Berlin, 1961-62 (Third Season)', *Kush* **11**, 217–26.
- Hintze, F. 1964. 'The Latin Inscription from Musawwarat Es Sufra', *ibid.* **12**, 296–98.
- Hintze, F. 1967-68. 'Preliminary Report on the Excavations of the Institute of Egyptology, Humboldt University, Berlin. 1963–66 (Fourth–Sixth Seasons)', *ibid.* **15**, 283–98.
- Hintze, F. 1971a. 'Musawwarat Es Sufra, Vorbericht über die Ausgrabungen es Instituts für Ägyptologie der Humboldt-Universität zu Berlin, 1968 (Siebente Kampagne)', *Wissenschaftliche Zeitschrift der Humboldt-Universität* **20**, 227–45.
- Hintze, F. 1971b. *Musawwarat Es Sufra: Band I, 2, Der Lowentempel*. Berlin.
- Hintze, F. and U. Hintze 1970. 'Einige neue Ergebnisse der Ausgrabungen des Instituts für Ägyptologie der Humboldt-Universität zu Berlin in Musawwarat Es Sufra', in E. Dinkler (ed) *Kunst und Geschichte Nubiens in Christlicher Zeit*. Recklinghausen, 49–65.
- Hintze, U. 1970. 'Einige neue Ergebnisse der Ausgrabungen des Instituts für Ägyptologie der Humboldt-Universität zu Berlin in Musawwarat Es Sufra', in E. Dinkler (ed.) *Kunst und Geschichte Nubiens in Christlicher Zeit*. Recklinghausen.
- Hintze, U. 1979. 'The Graffiti from the Great Enclosure at Musawwarat Es Sufra', *Meroitica* **5**, 135-150.



- Hofmann, I. 1972. 'Eine neue Elefantengott-Darstellung aus dem Sudan', *Journal of Egyptian Archaeology* **58**, 245–6.
- Hofmann, I. 1977a. 'Chronologische Probleme. zur Bauperiode 6 der Großen Anlage von Musawwarat Es Sufra', *Meroitic Newsletter* **18**, 19–27.
- Hofmann, I. 1977b. 'Rez.: L.V. Zabkar, Apedemak, Lion God of Meroe', *Bibliotheca Orientalis* **34**, 52–7.
- Hofmann, I. and H. Tomandl 1985. *Der Antike Sudan Heute*. Lehr- und Lesebücher zur Afrikanistik Und Ägyptologie **5**, Wien.
- Hofmann, I. and H. Tomandl 1986. 'Die Widderplastiken in der meroitischen Kunst', *Beiträge zur Sudanforschung* **1**, 58–78.
- Karberg, T. 2004. 'Bericht über die archäologischen Untersuchungen im Hof 120 der Großen Anlage von Musawwarat Es Sufra', *Der Antike Sudan* **15**, 65–8.
- Kleinschroth, A. 1986. 'Die Verwendung des Hafirs im meroitischen Reich', *Beiträge zur Sudanforschung* **1**, 79–96.
- Kormysheva, E. 1992. 'The Royal Crowns of Kush: An Extended Review', *ibid.* **5**, 55–72.
- Kormysheva, E. 1998. 'Amun of Pnubs on the Plaques from Kush', *Mer.Con.Proc*
- Leclant, J. 1966. 'Review of Hintze, F., *Die Inschriften des Löwentempels von Musawwarat Es Sufra*, Berlin 1962', *Orientalische Literaturzeitung* **61**, 546–54.
- Lohwasser, A. 2005. 'Die Macht des Krokodils', in *Tierkulte im pharaonischen Ägypten und im Kulturvergleich*. Internet-Beiträge zur Ägyptologie und Sudanarchäologie **IV**, 131–5.
- Manzo, A. 1998. 'Ancora su Aksum e Meroe: Riconsiderazione de alcune evidence dalla Necropoli di Mai Heggia e del loro Significato', *Archeologia Africana* **4**, 44–54.
- Nowotnick, U. 2001. 'Drei Architekturblöcke aus der Großen Anlage von Musawwarat Es Sufra mit figürlichen Darstellungen', *Der Antike Sudan* **12**, 94–102.
- Onasch, H.-U. 2004. 'Die Keramikwerkstatt im Hof 224 der Großen Anlage von Musawwarat Es Sufra', in S. Wenig (ed) *Neueste Feldforschungen im Sudan und in Eritrea, Akten des Symposiums vom 13. bis 14. Oktober 1999 in Berlin*, Wiesbaden, 63–70.
- Otto, K.-H. 1960. 'Ausgrabungen in Musawwarat Es Sufra, Republik Sudan', *EAZ* **1**, 156ff.
- Otto, K.-H. 1961. 'Ausgrabungen in Musawwarat Es Sufra, Republik Sudan, 1960', *ibid.* **2**, 156–60.
- Otto, K.-H. 1962. 'Zweite Grabungskampagne in Musawwarat Es Sufra, Republik Sudan, 1961', *ibid.* **3**, 85–8.
- Otto, K.-H. 1963. 'Dritte Grabungskampagne in Musawwarat Es Sufra und epigraphische Dokumentation in der Halfa Region. Republik Sudan, 1962', *ibid.* **4**, 77–9.
- Otto, K.-H. 1967. 'Zur Classification der meroitischen Keramik von Musawwarat Es Sufre (Republik Sudan)', *Zeitschrift für Archaeologie* **1**, 1–32.

- Otto, K.-H. 1973. 'Die Drehscheibenkeramik von Musawwarat Es Sufra und die Klassifikation der meroitischen Keramik', *Meroitica* **1**, 221–5.
- Pomerantseva, N. 1998. 'The Canonical Structure of Some Meroitic Relief Compositions', in *The Canonical Structure of Some Meroitic Relief Compositions*,
- Pomerantseva, N.A. 1981. 'Some Principles of the Architectural-Plastic Compositions of the Musawwarat-Es-Sufra Temple', *Meroe* **2**, 147–67.
- Pomerantseva, N.A. 1989. 'Some Principles of Architectural-Sculptural Composition Observed at Two Temples in Musawwarat Es Sufra', *Meroitica* **10**, 503–14.
- Scheibner, T. 2002. 'Neue Untersuchungen zur Wasserversorgung von Musawwarat Es Sufra – Ergebnisse der Kampagne 2002', *Der Antike Sudan* **13**, 22–35.
- Scheibner, T. 2004. 'Neue Erkenntnisse zur Wasserversorgung von Musawwarat Es Sufra (I) Das übergeordnete Wasserversorgungssystem - Teil: Wassergewinnung und -Speicherung', *ibid.* **15**, 39–64.
- Scott-Moncrieff, P.D. 1908. 'The Ruined Sites at Musawwarat Es Sufra and Naqa', *Proceedings of the Society for Biblical Archaeology* **30**, 192–203.
- Shinnie, P.L. 1961. 'A Late Latin Inscription', *Kush* **9**, 284–86.
- Tomandl, H. 1986. 'Zur Demographie und sozialen Schichtung der Feinde Meroes', *Beiträge Zur Sudanforschung* **1**, 97–114.
- Tomandl, H. 1990. 'Gedanken zum Würfelhocker Anhand eines bisher unpublizierten Graffitos von Musawwarat Es Sufra', *Göttinger Miszellen* **116**, 103–11.
- Török, L. 1974. 'Ein christianisiertes Tempelgebäude in Musawwarat Es Sufra (Sudan)', *Acta Archaeologica Academiae Scientiarum Hungaricae* **26**, 71–103.
- Török, L. 1992. 'Ambulatory kingship and settlement history. A study on the contribution of archaeology to Meroitic history', in C. Bonnet (ed.) *Ambulatory Kingship and Settlement History. A Study on the Contribution of Archaeology to Meroitic History*, I, Geneva, 111–126.
- Török, L. 2002. *The Image of the Ordered World in Ancient Nubian Art. The Construction of the Kushite Mind (800 BC – 300 AD)*. Leiden–Boston–Köln.
- Welsby, D.A. 1996. *The Kingdom of Kush, the Napatan and Meroitic Empires*. London.
- Welsby, D.A. 2003. 'The Kingdom of Kush: Rome's Neighbour on the Nile', in M. Liverani (ed.) *Arid Lands in Roman Times*, Arid Zone Archaeology Monograph **4**, Roma, 65–78.
- Wenig, S. 1984. 'Das Gebäude II a von Musawwarat Es Sufra', *Meroitica* **7**, 183–7.
- Wenig, S. 1989. 'Die Darstellungen der Gottheiten am Lowentempel von Musawwarat Es Sufra. Eine taxonomische Studie', *Meroitica* **10**, 549–80.
- Wenig, S. 1993a. 'Die Entdeckungsgeschichte des Apedemaktempels von Musawwarat Es Sufra' [in press]
- Wenig, S. 1993b. 'Recent Archaeological Work at Meroe and Musawwarat Es Sufra', *Sudan Archaeological Research Society Newsletter* **4**, 10–12.

- Wenig, S. 1994a. 'Die Tempel von Musawwarat Es Sufra. Berliner Ausgrabungen im Sudan. Eine Ausstellung im Naturhistorischen Museum der Stadt Nürnberg', *MSAGB* 2, 26–7.
- Wenig, S. 1994b. 'Die Tempel von Musawwarat Es Sufra. Berliner Ausgrabungen im Sudan. Zwei Ausstellungen in Berlin und Templin/Mecklenburg', *ibid.* 1, 24–25.
- Wenig, S. 1999a. 'Neues aus dem Reich von Kusch', *Antike Welt* 3, 237–44.
- Wenig, S. 1999b. 'Zur Deutung der Großen Anlage von Musawwarat Es-Sufra', *Nürnberger Blätter zur Archäologie* 23–45.
- Wenig, S. 2001a. 'Bericht über die Arbeiten der Sag im Jahre 2000', *Der Antike Sudan* 12, 12–19.
- Wenig, S. 2001b. 'Musawwarat Es-Sufra. Interpreting the Great Enclosure', *Sudan & Nubia* 5, 71–86.
- Wenig, S. 2002. 'Bericht über die Wissenschaftlichen und restauratorischen Arbeiten in Musawwarat Es Sufra im Jahre 2001', *Der Antike Sudan* 13, 6–13.
- Wenig, S. 2004a. 'Bibliographie zu Musawwarat Es Sufra', in S. Wenig (ed.) *Neueste Feldforschungen im Sudan und in Eritrea Akten des Symposiums vom 13. bis 14. Oktober 1999 in Berlin (= Meroitica 21)*, Wiesbaden, 217–33.
- Wenig, S. 2004b. 'Die Grabungs- und Restaurierungskampagne 2004 in Musawwarat Es Sufra', *Der Antike Sudan* 15, 7–16.
- Wenig, S. and Fitzenre 1994. 'Musawwarat Es Sufra, Berliner Ausgrabungen im Sudan', *Ausstellungskatalog, Naturhist*
- Whitehead, G. 1926. 'Nagaa and Musawwarat', *Sudan Notes and Records* 9, 59–67.
- Wildung, D. and K. Kroeper (eds) 2003. *Common Aims. Sudanese German Co-Operation in Archaeology, National Museum Khartoum 2003*. Berlin.
- Wolf, P. 1994. "'Felsbildkunst" an den Tempeln von Musawwarat Es Sufra', in *Actes de l'Assemblée Annuelle de l'Association des Amis de l'Art Rupestre Saharien*, 37–41.
- Wolf, P. 1995. 'Bemerkungen zum Schutz der Denkmäler von Musawwarat Es Sufra vor Wind- und Sanderosion, II. M', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin E.V.* 4, 6–10.
- Wolf, P. 1997. 'Recent Fieldwork at Musawwarat Es Sufra', *Sudan & Nubia* 1, 14–20.
- Wolf, P. 2002. 'Temples in the Meroitic South - Aspects of Typology, Cult and Function', in *Preprints*, International Society for Nubian Studies, Tenth International Conference, Rome.
- Wolf, P. 2004a. 'Ausgrabungen im Hof des Tempels 300 der Großen Anlage von Musawwarat Es Sufra, Kampagne 2004', *Der Antike Sudan* 15, 21–26.
- Wolf, P. 2004b. 'Ein See in der Großen Anlage von Musawwarat Es Sufra?, Testgrabungen im Hof 122, Kampagne 2004', *ibid.* 17–20.
- Wolf, P. 2004c. 'Fieldwork of the Humboldt University of Berlin at Musawwarat Es Sufra 1993–2000 – a Summary', in S. Wenig (ed) *Neueste Feldforschungen im Sudan*

und in Eritrea: Akten Des Symposiums vom 13. bis 14. Oktober 1999 in Berlin, Wiesbaden, 47–61.

Wolf, P. forthcoming. 'Der Garten der Großen Anlage von Musawwarat', in Berlin,

Wolf, P. and H.-P. Duwe 1994. 'Optische 3d-Messungen an Felsbildern und Graffiti', in *Optische 3d-Messungen an Felsbildern und Graffiti*, Berlin.

Zach, M.H. 1986. 'Ein Beitrag zur Erforschungsgeschichte von Musawwarat Es Sufra und Naqa', *Beiträge zur Sudanforschung* **1**, 157–60.

Zach, M.H. 1987. 'Das Cnh-Zeichen auf der "Mondsichel"', *Varia Aegyptiaca* **3**, 149–56.

#### – MEROE

Addison, F. 1924. 'Review of 'Two Royal Ladies of Meroe' by Dows Dunham', *Sudan Notes and Records* **7.2**, 107–8.

Ahmed, K.A. 1989. 'The Enclosure Wall at Meroe', in Sixth International Conference of Meroitic Studies, Khartoum (unpublished).

Ahmed, K.A. 1999. 'The Island of Meroe?' in S. Wenig (ed.) *Studien zum Antiken Sudan*, [= *Meroitica* **15**], Wiesbaden, 457–9.

Alexander, J.A. 1993. 'Beyond the Nile. The Influence of Egypt and Nubia in Sub-Saharan Africa', *Expedition* **35.2**, 51–61.

Al-Sheik Babiker, F. 1989. 'Analytic Study of the Meroitic Mortuary Practices of Non-Royal Meroitic Cemeteries at Bauda, Sanam Abu Doum and Meroe', in *Abstracts*, Sixth International Conference of Meroitic Studies, Khartoum.

Arkell, A.J. 1955. 'An Egyptian Invasion of the Sudan in 591 B.C.' *Kush* **3**, 93–4.

Arkell, A.J. 1966. 'The Iron Age in Sub-Saharan Africa 1. The Iron Age in the Sudan', *Current Anthropology* **7**, October, 451–2.

Bard, K.A. (ed.) 1999. *Encyclopedia of the Archaeology of Ancient Egypt*. London, New York.

Bellefonds, L.D. 1958. *Journal d'un Voyage à Meroe dans les Années 1821 et 1822*. Khartoum.

Bersina, S. 1998. 'Portrayals of the Meroitic Queens on Antique Gems of the 1st Century BC', *Meroitic Conference Proceedings*

Bianchi, R.S. and E. Al. 1982. 'Discussion: Meroitic Iron Working', *Meroitica* **6**, 43–9.

Bienkowski, P. 1986. *Egyptian Antiquities in the Liverpool Museum I. A List of the Provenanced Objects*. Warminster.

Blumenthal, E. 1978. 'Die Leipziger Reliefs aus Meroe', *Zeitschrift für Ägyptische Sprache und Altertumskunde* **105**, 85–93.

Bodley, N.B. 1946. 'The Auloi of Meroe, a Study of the Greek-Egyptian Auloi Found at Meroe, Egypt', *American Journal of Archaeology* **50**, 217–40.

Bonnet, C. 1998. 'The Funerary Traditions of Middle Nubia', in D. A. Welsby (ed) *Recent Research in Kushite History and Archaeology. Proceedings of the 8th*

*International Conference for Meroitic Studies*, 8th International Conference for Meroitic Studies, London, 1–17.

Bosanquet, R.C. 1912. 'Second Interim Report on the Excavations at Meroe in Ethiopia: Part III – on the Bronze Portrait-Head', *Liverpool Annals of Archaeology and Anthropology* **4**, 66–71.

Bradley, R.J. 1975. *The Temples of Kush*. Dissertation.

Bradley, R.J. 1976. 'Meroe 1975/1976', *Nyama Akuma* **9**, 44.

Bradley, R.J. 1981. 'Report on Reconstruction of Meroitic Wall Paintings: 1981', *Nyama Akuma* **19**, 33–4.

Bradley, R.J. 1982. 'Varia from the City of Meroe', *Meroitica* **6**, 163–70.

Bradley, R.J. 1984a. 'Comments on Meroitic Architecture', *ibid.* **7**, 280–6.

Bradley, R.J. 1984b. 'Meroitic Chronology', *ibid.* 195–211.

Burstein, S.M. 1984. 'The Axumite Inscription from Meroe and Late Meroitic Chronology', *ibid.* 220–1.

Burstein, S.M. 1994. 'Sayce's Axumite Inscription from Meroe: Observations on a New Edition', *Meroitic Newsletter* **25**, 39–43.

Burstein, S. M. 2001. 'The Kingdom of Meroe', in E. M. Yamauchi (ed) *Africa and Africans in Antiquity*. East Lansing, 132–58.

Carrier, C. 1999. 'Poursuite de la constitution d'un répertoire d'épigraphie méroïtique (Rem)', *Meroitic Newsletter* **26**, 1–46.

Carrier, C. 2001a. 'Poursuite de la constitution du répertoire d'épigraphie méroïtique (Rem)', *Meroitic Newsletter* **28**, 1–8.

Carrier, C. 2001b. 'Un fragment d'amphore inscrite provenant de Méroé et conservé à Bruxelles (E3652)', *ibid.* 9–20.

Chamoux, F. 1960. 'Une tête de Dionysos en bronze trouvée à Meroe [English Summary]', *Kush* **8**, 77–87.

Chamoux, F. 1962. 'The Dionysus from Meroe', *ibid.* **10**, 335.

Chapman, S.E. and D. Dunham 1952. *Decorated Chapels of the Meroitic Pyramids at Meroe and Barkal (Royal Cemeteries of Kush III)*. Boston.

Churcher, C.S. 2003. 'Appendix 7.1: Animal Remains', in K. A. Grzymski, *Meroe Reports I*. Mississauga, 49–50.

Crowfoot, J.W. 1911. *The Island of Meroe*. London.

Danneskiold-Samsøe, I. 1982. 'The Royal Baths of Meroe. New Discoveries', *Meroitica* **6**, 273–75.

Davoli, P. 1998. 'Una tavola per offerte meroitica del Museo Civico Archeologico di Bologna', *SEAP* **18**, 23–32.

Depuydt, L. 1998. 'Gnomons at Meroë and Early Trigonometry', *Journal of Egyptian Archaeology* **84**, 171–80.

Desanges, J. 1972. 'L'amphore de Tubusuctu (Mauretanie) et la datation de Teqerideamani', *Meroitic Newsletter* **11**, 17–21.

- Desanges, J. 2004. 'Quelques textes latins en supplément aux Fontes Historiae Nubiorum', in *Meroitic Conference Handout*, Paris.
- Dissaux, R.-P., J. Reinold, and P. Lenoble 1997. 'A funerary dance of political meaning at Meroe', in E. A. Dagan (ed) *The Spirit Dance in Africa. Evolution, Transformation and Continuity in Sub-Sahara*. Montreal,
- Dixon, D.M. and K.P. Wachman 1964. 'A sandstone statue of an Auletes from Meroe', *Kush* **12**, 119–25.
- Dunham, D. 1924. 'Two Royal Ladies of Meroe. Report on some results of excavations by the Harvard University-Museum of Fine Arts Egyptian Expedition during the Season 1, Communication to the Trustees of the Museum of Fine Arts', *Bulletin of the Museum of Fine Art* **7**, 1–16.
- Dunham, D. 1955. 'The Harvard-Boston Archaeological Expedition in the Sudan', *Kush* **3**, 70–4.
- Dunham, D. 1957. *Royal Tombs at Meroe and Barkal (Royal Cemeteries of Kush IV)*. Boston.
- Dunham, D. 1963. *Royal Cemeteries of Kush, V; the West and South Cemeteries at Meroe*. Boston.
- Dunham, D. 1965. 'A collection of "pot marks" from Kush and Nubia', *Kush* **13**, 131–47.
- Dunham, D. and S. E. Chapman 1952. *Royal Cemeteries of Kush III. Decorated Chapels of the Meroitic Pyramids at Meroe and Barkal*. Boston.
- Edwards, D.N. 1999a. 'Meroitic Ceramic Studies I: A Preliminary study of the Meroe West Cemetery', *Meroitic Newsletter* **26**, 53–77.
- Edwards, D.N. 1999b. 'Review of Török, L., 1997. *Meroe City, an Ancient African Capital*, EES, London.' *Cahiers d'Égypte* **74**, fasc. 147, 95–100.
- Eisa, K.A. 1999. 'Le mobilier et les coutumes funéraires koushites à l'époque méroïtique.' *Meroitica* **16**, Wiesbaden.
- el-Mahi, A.T. 1996. 'The absence of the domestic pig from Meroe: accidental or deliberate?' *Beiträge zur Sudanforschung* **6**, 141–50.
- Endesfelder, E. (ed.) 2003. *Von Berlin nach Meroe: Erinnerungen an den Ägyptologen Fritz Hintze*.
- Estigarribia, J.V. 1982. 'Some notes on elephants and Meroe', *Meroitica* **6**, 282–4.
- Fantusati, E. 2001. 'Meroe e la cultura Ellenistico-Romana' in L. Bongrani and S. Giuliani (eds). *Meroe e la Cultura Ellenistico-Romana: Recherche Svolte, in Corso di Svolgimento ed in Fieri*, Roma, 115–20..
- Flores, D.V. 1996. 'The funerary sacrifice of animals in Nubia during the Meroitic and Post-Meroitic Periods', *Beiträge zur Sudanforschung* **6**, 31–50.
- Garstang, J. 1910. 'Preliminary note on an expedition to Meroe in Ethiopia', *Liverpool Annals of Archaeology and Anthropology* **3**, 57–70.
- Garstang, J. 1912. 'Second Interim Report on the Excavations at Meroe in Ethiopia. Part I: Excavations,' *ibid.* **4**, 45–52.

- Garstang, J. 1913. 'Third Interim Report on the Excavations at Meroe in Ethiopia', *ibid.* **5**, 73–83.
- Garstang, J. 1914. 'Fourth Interim Report on the Excavations at Meroe in Ethiopia. Part I: Historical Results', *ibid.* **6**, 1–21.
- Garstang, J. 1914–16. 'Fifth Interim Report on the Excavations at Meroe in Ethiopia: General Results', *ibid.* **7**, 1–24.
- Garstang, J., A.H. Sayce and F.L. Griffith 1911. *Meroe: City of the Ethiopians*. Oxford.
- Gasm el Seed, M.A.A. 1996. 'Mummification in the Napato-Meroitic Royal Tombs', *Beiträge zur Sudanforschung* **6**, 51–8.
- George, W.S. 1914. 'Fourth Interim Report on the Excavations at Meroe in Ethiopia. Part II: Architectural and General Results', *Liverpool Annals of Archaeology and Anthropology* **6**, 9–21.
- Geus, F. 1974. 'L'Île de Meroe à l'époque napatéenne et méroïtique. Inventaire archeologique et problèmes historiques' (unpublished thesis),
- Goorieckx, D. 1959. 'Note on the treatment of a Hellenistic head in bronze from Khartoum Museum', *Kush* **7**, 215–6.
- Griffith, F.L. 1911a. 'The inscriptions of Meroe', in J. Garstang, A. H. Sayce, and F. L. Griffith (eds), *Meroe. City of the Ethiopians*.
- Griffith, F.L. 1911b. 'Meroitic Inscriptions, Part I – Soba to Dangel', in *Archaeological Survey of Egypt*. 45–94.
- Griffith, F.L. 1917. 'Meroitic Studies III', *Journal of Egyptian Archaeology* **4.1**, 21–7.
- Griffith, F.L. 1926. 'Oxford Excavations in Nubia.' *Liverpool Annals of Archaeology and Anthropology* **13**, 17–37.
- Grzymski, K.A. 1982. 'Medewi/Bedewi and Md3/Bedja', *Göttinger Miszellen* **58**, 27–30.
- Grzymski, K.A. 2003. *Meroe Reports I*. Mississauga.
- Hägg, T. 1984. 'A new Axumite inscription in Greek from Meroe', *Meroitica* **7**, 436–41.
- Hägg, T. 1994. 'Sayce's Axumite inscription from Meroe: Again', *Meroitic Newsletter* **25**, 45–8.
- Hakem, A.M.A. 1975. 'The City of Meroe and the Myth of Napata: A new perspective in Meroitic archaeology', *Journal of the Faculty of Arts, University of Khartoum* **2-3**, 119–33.
- Hallof, J. 2002. 'Drei unbekannte Fotos der Ausgrabung Garstangs in Meroe', in T. A. Bács (ed.) *A Tribute to Excellence. Studies Offered in Honor of Ernő Gaál*, Ulrich Luft, László Török. *Studia Aegyptiaca* **17**, Budapest, 301–8.
- Harting, D. 1989. 'Bericht über die Arbeiten am Gebäude M292 in Meroe', *Meroitica* **10**, 821–6.
- Haycock, B.G. 1972. 'Landmarks in Cushite history', *Journal of Egyptian Archaeology* **58**, 225–44.

- Henry, C. 2004. 'Votive Tablet of the Meroitic King Tanydamani', in *Abstracts*, IXth International Conference of Egyptologists, Grenoble, 59.
- Hermann, A. 1966. 'Magische Glöcken aus Meroe', *Zeitschrift für Ägyptische Sprache und Altertumskunde* **93**, 79–89.
- Hinkel, F. W. 1981. 'Pyramide oder Pyramidenstumpf? Ein Beitrag zu Fragen der Planung, Konstruktiven Baudurchführung und Architektur der Pyramiden von Meroe', *Zeitschrift für Ägyptische Sprache und Altertumskunde* **108**, 105–24.
- Hinkel, F.W. 1982. 'Pyramide oder Pyramidenstumpf? Ein Beitrag zu Fragen der Planung, Konstruktiven Baudurchführung und Architektur der Pyramiden von Meroe (Teil C und D)', *ibid.* **109**, 127–47.
- Hinkel, F.W. 1984. 'Die meroitischen Pyramiden: Formen, Kriterien und Bauweisen', *Meroitica* **7**, 310–1.
- Hinkel, F.W. 1985. 'Meroe, Temple Complex 245-253', *Nubian Letters* **5**, 4–6.
- Hinkel, F.W. 1986. 'Reconstruction Work at the Royal Cemetery at Meroe', in M. Krause (ed) *Reconstruction Work at the Royal Cemetery at Meroe*, Mainz am Rhein, 99–108.
- Hinkel, F.W. 1987. 'Ägyptische Elle oder griechischer Modul? Metrologische Studien an historischen Bauwerken im Mittleren Niltal', *Das Altertum* **33.3**, 150–62.
- Hinkel, F.W. 1994a. 'Zur Architektur und Baugeschichte des sogenannten Sonnentempels von Meroe', in *Hommages à Jean Leclant*. **2**, Cairo, 203–19.
- Hinkel, F.W. 1997. 'Meroitic Architecture', in D. Wildung (ed) *Sudan, Ancient Kingdoms of the Nile*. Paris, New York, 393–416.
- Hinkel, F.W. 2001. *Der Tempelkomplex Meroe 250. The Archaeological Map of the Sudan Supplement I*, Berlin.
- Hinkel, F.W. and U. Sievertsen *Die Royal City von Meroe und die repräsentative Profanarchitektur in Kusch*. A.M.S. Suppl. IV., Berlin.
- Hinkel, M. 1994b. 'The Water Reservoirs in Ancient Sudan', in C. Bonnet (ed) *Études Nubiennes*, **II**, Geneva, 171–5.
- Hintze, F. 1959. 'Preliminary Report of the Butana Expedition 1958', *Kush* **7**, 171–96.
- Hofmann, I. 1971. 'Zu einigen Gefangenendarstellungen mit Kopfbedeckung im meroitischen Reich', *Meroitic Newsletter* **7**, 6–10.
- Hofmann, I. 1975. 'Notizen zu den Kampfszenen am sogenannten Sonnentempel von Meroe', *Anthropos* **70**, 513–36.
- Hofmann, I. 1977. 'Der Feldzug des C. Petronius nach Nubien und seine Bedeutung für die meroitische Chronologie', *Ägypten und Kusch* **13**, 189–206.
- Hofmann, I. 1988. 'Überlegungen zur "Venus von Meroe"', *Beiträge zur Sudanforschung* **3**, 25–38.
- Hofmann, I. 1989. 'Die glasierten Säulenfragmente von M 200 (Meroe-Stadt)', *idem.* **4**, 107–32.
- Hofmann, I. 1992. 'Das Paar auf der Kline', *ibid.* **5**, 47–54.



- Hofmann, I. and H. Tomandl 1985. *Der Antike Sudan Heute*. Lehr- und Lesebücher zur Afrikanistik und Ägyptologie **5**, Wien.
- Hofmann, I. and H. Tomandl 1986. 'Die Widderplastiken in der meroitischen Kunst', *Beiträge zur Sudanforschung* **1**, 58–78.
- Hofmann, I. and H. Tomandl 1987a. 'Beg N 12 – Pyramide des Tanyidamani', *Varia Aegyptica* **3**, 25–8.
- Hofmann, I. and H. Tomandl 1987b. 'Das Apedemak-Relief aus Meroe-Stadt', *Beiträge zur Sudanforschung* **2**, 138–42.
- Jaramago, M. and J. A. Gutierrez 1987. 'The Antelope Shaped Alabaster Vase of Madrid', *ibid.* **2**, 146–54.
- Keating, R. 1962. *Nubian Twilight*. London.
- Kendall, T. 1996. 'Fragments lost and found: Two Kushite objects augmented', in P.D. Manuelian (ed) *Studies in Honour of William Kelly Simpson*. Boston, 461–76.
- Kendall, T. 1999. 'The Origins of the Napatan State: El Kurru and the Evidence for the Royal Ancestors', in S. Wenig (ed) *Studien zum Antiken Sudan, Meroitica* **15**, 3–117.
- Kirwan, L.P. 1957. 'Tanqasi and the Noba', *Kush* **5**, 37–41.
- Kirwan, L.P. 1960. 'The Decline and Fall of Meroe', *Kush* **8**, 163–73.
- Kirwan, L.P. 1972. 'An Ethiopian-Sudanese Frontier in Ancient History', *Geographical Journal* **138.4**, 457–65.
- Kirwan, L.P. 1981. 'Aksum, Meroe and the Ballana Civilisation', in Simpson and Davis (eds), 115–19.
- Kirwan, L.P. 1989. 'Meroe, Soba and the Kingdom of Alwa', *Meroitica* **10**, 299–304.
- Kormysheva, E. 1992. 'The Royal Crowns of Kush: An extended review', *Beiträge zur Sudanforschung* **5**, 55–72.
- Kormysheva, E. 1998. 'Amun of Pnubs on the Plaques from Kush', *Mer.Con.Proc.*
- Kronenberg, A. 1962. 'The Thumb-Ring: A modern parallel to a Meroitic object', *Kush* **10**, 336.
- Lacovara, P. and Y. Markowitz 1999. 'The treasure of a Nubian Queen reexamined', *KMT* **10.1**, 60–7.
- Leclant, J. 1963. 'Une monnaie romaine à Zeidab', *Kush* **11**, 312–3.
- Leclant, J. 1980. 'Méroë', in *Encyclopaedia Universalis, Supplément II*. col. 1682–83.
- Lehmann, W. 1994. 'Old Africa's Birmingham. Meroe im Reich Kusch war Metallzentrum am Nil', *Antike Welt* **25**, 80–1.
- Lenoble, P. 1992a. 'Cônes de déjections archéologiques dans des djebels à cimitières tumulaires de Méroë', *Beiträge zur Sudanforschung* **5**, 73–92.
- Lenoble, P. 1992b. 'Documentation tumulaire et céramique entre 5e et 6e Cataractes: Un exemple de "Prospection Orientée" visant à renseigner le "Fin de Meroe" dans la région de Meroe', in C. Bonnet (ed) *Études Nubiennes*, **I**, Geneva, 79–100.
- Lenoble, P. 1994. 'Le sacrifice Funéraire de Bovinés de Méroë à Qustul et Ballana', in *Hommages à Jean Leclant*, Le Caire, 269–83.

- Lenoble, P. 1995. 'La petite bouteille noire, un récipient méroéen de la libation funéraire', *Archéologie du Nil Moyen* **7**, 143–62.
- Lenoble, P. 1996. 'Les "sacrifices humains" de Meroe, Qustul et Ballana. I. Le Massacre de nombreux prisonniers', *Beiträge zur Sudanforschung* **6**, 59–88.
- Lenoble, P. 1997. 'Enterrer les flèches, enterrer l'empire. Carquois et flèches des tombes impériales à El-Hobagi', *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* **17/2**, 137–52.
- Lewczuk, J. 1994. 'Studies on the decoration of the west walls of the chapels of the pyramids in Meroe and Barkal', in C. Bonnet (ed) *Études Nubiennes*, **II**, Geneva, 157–8.
- Lloyd, A. B. 1970. 'The so-called Temple of Apis/Hapi at Meroe', *Journal of Egyptian Archaeology* **56**, 196–7.
- Lohwasser, A. 2001a. Die königlichen Frauen im antiken Reich von Kusch. 25. Dynastie bis zur Zeit des Nastasen. *Meroitica* **19**, Wiesbaden.
- Lohwasser, A. 2001b. 'Die Pyramide der Königin Amanishakheto', *Sokar* **3**, 43–5.
- Macdonald, K.C. and D.N. Edwards 1993. 'Chickens in Africa: The importance of Qasr Ibrim', *Antiquity* **67**, 584–90.
- Markowitz, Y. 1996. 'A Silver Uraeus Ring from Meroe', in P.D. Manuelian (ed) *Studies in Honour of William Kelly Simpson*. Boston, 589–94.
- Massey, R.E. 1923. 'Note on the early history of cotton', *Sudan Notes and Records* **6**, 231–4.
- Millet, N.B. 1982. 'Discussion [Meroitic Iron Working]', *Meroitica* **6**, 47.
- Monneret de Villard, U. 1959. 'Iscrizione della regione di Meroe' [English Summary]', *Kush* **7**, 93–114.
- Morkot, R.G. 1998. "'There are no elephants in Dongola"; Notes on Nubian Ivory', *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* **17/3**, 147–54.
- Näser, C. 1998. 'Decorated Meroitic bells and their significance for royal burials', *ibid.* 155–62.
- Näser, C. 2004a. 'The Meroe Joint Excavations 1992 on the North Mound at Meroe', in S. Wenig (ed) *Neueste Feldforschungen im Sudan und in Eritrea: Akten des Symposiums Vom 13. bis 14. Oktober 1999 in Berlin*, Wiesbaden, 71–102.
- Näser, C. 2004b. 'Sfs', in P.L. Shinnie and J.R. Anderson (eds), *The Capital of Kush 2. Meroitica* **20**, Wiesbaden.
- Orlando, A. 2000. 'The sign of life in Meroe: A new lexeme for "life" in Meroitic?' *Beiträge zur Sudanforschung* **7**, 173–7.
- Phythian Adams, W.J. 1914. 'Short Notes on the Fifth Season at Meroe', *Journal of Egyptian Archaeology* **1**, 216–7.
- Phythian Adams, W.J. 1914–16. 'Fifth Interim Report on the Excavations at Meroe in Ethiopia', *Liverpool Annals of Archaeology and Anthropology* **7**, 11–22.
- Priese, K.-H. 1993a. *Das Gold von Meroe*. Mainz am Rhein.

- Priese, K.-H. 1993b. *The Gold of Meroe*. Mainz am Rhein.
- Rehren, T. 2001. 'Meroe, Iron and Africa', *Der Antike Sudan* **12**, 102–9.
- Reisner, G.A. 1919. 'Outline of the Ancient History of the Sudan. IV. The First Kingdom of Ethiopia, Its Conquest of Egypt and Its Development into a Kingdom of the Sudan', *Sudan Notes and Records* **2**, 35–67.
- Reisner, G.A. 1922. 'The Pyramids of Meroe and the Candaces of Ethiopia', *ibid.* **5**, 173–96.
- Reisner, G.A. 1923a. 'The Meroitic Kingdom of Ethiopia (Additional Note)', *Journal of Egyptian Archaeology* **9**, 157–60.
- Reisner, G.A. 1923b. 'The Meroitic Kingdom of Ethiopia: A Chronological Outline', *ibid.* **9**, 34–77.
- Reisner, G.A. 1923c. 'The Pyramids of Meroe and the Candaces of Ethiopia', *Bulletin of the Museum of Fine Art* **21**, 124,
- Reisner, G.A. 1923d. *ibid.*, 12–27.
- Reisner, G.A. 1925a. 'Excavations in Egypt and Ethiopia, 1922–1925', *ibid.* **23**, 137
- Reisner, G.A. 1925b. 'Silver Goblet from Meroe', *ibid.* **23**, 136,
- Rilly, C. 2001. 'Approche comparative de la paléographie et de la chronologie royale de Méroé', *Meroitic Newsletter* **28**, 71–89.
- Rilly, C. 2002. "L'obélisque de Méroé", *Meroitic Newsletter* **29**, 95–190.
- Robertson, J.H. 1998. 'New interpretation of the hand-made/wheel-made ceramics from Meroe', in *New Interpretation of the Hand-Made/Wheel-Made Ceramics from Meroe*
- Roik, E. 2003. 'Königselle, Modul oder Nbj-Maßsystem. Welches Längenmaß ist das Grundmaß von Meroe?' in H. Altenmüller and N. Kloth (eds), *Studien zur Altägyptischen Kultur Beihefte*. **9**, Hamburg, 351–365.
- Sayce, A.H. 1909. 'A Greek inscription of a King(?) of Axum found at Meroe', *Proceedings of the Society for Biblical Archaeology* **31**, 189–203.
- Sayce, A.H. 1910. 'Meroe', *Liverpool Annals of Archaeology and Anthropology* **3**, 53–6.
- Sayce, A.H. 1911. 'The Iron-Workers of the Sudan', *Proceedings of the British Academy* **33**, 96–7.
- Sayce, A.H. 1912. 'Second Interim Report on Excavations at Meroe in Ethiopia, Part II – the Historical Results', *Liverpool Annals of Archaeology and Anthropology* **4**, 53–65.
- Sayce, A.H. 1914-16a. 'Fifth Interim Report on the Excavations at Meroe in Ethiopia. Part III – the Great Stela', *ibid.* **7**, 23–4.
- Sayce, A.H. 1914-16b. 'The Stela of Amon-Renas', *ibid.*, 67–80.
- Sayce, A.H. 1920. 'The Ethiopian Sovereigns at Meroe', *Ancient Egypt* 70–3.
- Scholz, P.O. 1986. 'Kusch, Meroe, Nubien. Die vergessenen Reiche Afrikas' Teil 1', *Antike Welt* **17**
- Scholz, P.O. 1988. 'Hellenismus und Meroe', in *Hellenismus und Meroe*, 445–8.

- Scholz, P.O. 1990a. 'Kurzbericht zum Stand der Vorarbeiten an der Publikation der Objekte der John Garstang Ausgrabungen in Meroe (1910-1914) in the National Museums & Galleries on Merseyside, Liverpool', *Nubica* **1/2**, 255–8.
- Scholz, P.O. 1990b. 'Review of L. Török, *Der Meroitische Staat I*', *Nubica* **1/2**, 383–4.
- Schulman, A.R. 1964. 'Review of Dunham, D., the Royal Cemeteries of Kush V. The West and South Cemeteries at Meroe', *Journal of the American Research Centre in Egypt* **3**, 127–31.
- Seguenny, E. 1989. 'Méroé et les oasis du Désert Occidental', *Meroitica* **10**, 863–7.
- Selkirk, A. 2004. 'Sudan', *Current World Archaeology* **6**, 46–55.
- Shinnie, P.L. 1955. 'The Fall of Meroe', *Kush* **3**, 82–85.
- Shinnie, P.L. 1967. 'Meroe and West Africa', *The Western African Archaeologist* **12**–16.
- Shinnie, P.L. 1967–68. 'Excavations at Meroe 1965', *Kush* **15**, 280–82.
- Shinnie, P.L. 1970. 'Excavations at Meroe', *Meroitic Newsletter* **5**, 17–19.
- Shinnie, P.L. (ed) 1971a. *The African Iron Age*. Oxford.
- Shinnie, P.L. 1971b. 'The Sudan', in Shinnie (ed) 89–107.
- Shinnie, P.L. 1973a. 'Calgary in the Sudan', *Calgary Archaeologist* **1**, 17.
- Shinnie, P.L. 1973b. 'Meroe 1973–74', *ibid.* **2**, 17–18.
- Shinnie, P.L. 1973c. 'Recent work at Meroe', *Nyama Akuma* **3**, 33.
- Shinnie, P.L. 1974a. 'Meroe', *ibid.* **4**, 26–7.
- Shinnie, P.L. 1974b. 'Meroe in the Sudan', in Willey (ed.) 237–65.
- Shinnie, P.L. 1984. 'Excavations at Meroe 1974–1976', *Meroitica* **7**, 499–504.
- Shinnie, P.L. 1985. 'Iron working at Meroe', in R. Haaland and P.L. Shinnie (eds), *African Iron Working - Ancient and Traditional*. 28–35.
- Shinnie, P.L. 1987. 'Meroe 1984/85', *Nyama Akuma* **28**, 48–9.
- Shinnie, P.L. and J. R. Anderson (eds) 2004. *The Capital of Kush 2. Meroë Excavations 1973–1984. Meroitica.20*, Wiesbaden.
- Shinnie, P.L. and R.J. Bradley 1981. 'The Murals from the Augustus Temple, Meroe', in Simpson and Davies (eds), 167–72.
- Shinnie, P.L. and R.J. Bradley 1980. *The Capital of Kush 1. Meroe Excavations 1965–1972. Meroitica 4*, Berlin.
- Shinnie, P.L. and F.J. Kense 1982. 'Meroitic Iron Working', *Meroitica* **6**, 17–28.
- Shinnie, P.L. and J.H. Robertson 1993. 'The End of Meroe' – a comment on the paper by Patrice Lenoble & Nigm El Din Mohamed Sharif', *Antiquity* **67**, 895–99.
- Sieversen, U. 1999. 'Neue Forschungen zur Architektur und städtebaulichen Entwicklung der Royal City von Meroe', *Mitt. Deuts. Orient-Gess. Berlin*, 163–90.
- Sieversen, U. 2002. 'Civil Architecture in the Empire of Kush and the Royal City of Meroe', *Archéologie du Nil Moyen* **9**, 163–81.

- Sievertsen, U. 2004. 'Meroitic civic architecture as a chronological reference in Sudan archaeology', in *Abstracts*, Meroitic Conference, Paris.
- Smith, H.F.C. 1955. 'The transfer of the capital of Kush from Napata to Meroe', *Kush* **3**, 20–5.
- Smith, H.F.C. and A.R. Adam 1950. 'Four ancient sites in the Island of Meroe', *Sudan Notes and Records* **31**, 303–6.
- Soteri, N. 2003. 'Africa's other pyramids', *BBC History* **4**, 1, 30–3.
- Soto, F.B. 1998. *The Recent Discovery of a New Royal Pyramid in the Necropolis of Gebel Barkal (Kareima-Sudan)*,
- Stern, E.M. 1977. 'A Glass Bowl of Isings Form 2 from the tomb of an Ethiopian Candace', *Oudheidkundige Mededelingen*, 63–72.
- Taylor, J.H. 1993. 'Two pieces of Nubian metalwork in the British Museum', *Sudan Archaeological Research Society Newsletter* **4**, 9–10.
- Tomandl, H. 1986. 'Zur Demographie und sozialen Schichtung der Feinde Meroes', *Beiträge zur Sudanforschung* **1**, 97–114.
- Tomandl, H. 1987a. 'Lepsius' Angaben zu den Pyramidenkapellen von Bar 5 und 6', *Varia Aegyptiaca* **3**, 277–80.
- Tomandl, H. 1987b. 'Tradierung und Bedeutung eines religiösen Motivs von der meroitischen bis zur christlichen periode', *Beiträge zur Sudanforschung* **2**, 107–26.
- Tomandl, H. 1988. 'Die Ikonographie der Pyramidenkapellenreliefs von Beg N 10 als Datierungskriterium', *ibid.* **3**, 96–117.
- Tomandl, H. 1989. 'Eine Isisstatuette aus dem Tempel M 600 von Meroe im Museum von Liverpool (49.47.711)', *ibid.* **4**, 157–68.
- Tomandl, H. 1992. 'Bemerkungen zum Bronzebecher mit Elefantendarstellungen aus Meroe', *Aegyptus Antiqua* **8**, 22–6.
- Török, L. 1972. 'A special group of Meroitic property marks from the 1st to 2nd Centuries A.D.' *Meroitic Newsletter* **10**, 35–44.
- Török, L. 1976. 'Traces of Alexandrian architecture in Meroe: A Late Hellenistic motif in its history', *Studia Aegyptiaca* **2**, 115–38.
- Török, L. 1989. *Meroitic pottery from John Garstang's excavations at Meroe City: Some unusual wheel-made wares*
- Török, L. 1989–90. 'Augustus and Meroe', *Orientalia Suecana* **38–39**, 171–90.
- Török, L. 1990. 'The costume of the ruler in Meroe: Remarks on its origins and significance', *Archéologie du Nil Moyen* **4**, 151–202.
- Török, L. 1992. 'Ambulatory kingship and settlement history. A study on the contribution of archaeology to Meroitic history', in C. Bonnet (ed) *Ambulatory Kingship and Settlement History. A Study on the Contribution of Archaeology to Meroitic History*, I, Geneva, 111–26.
- Török, L. 1994. 'Garstang's Excavations at Meroe, 1909–1914', *Sudan Archaeological Research Society Newsletter* **6**, 16–17.

- Török, L. 1995. *Meroe. Six Studies on the Cultural Identity of an Ancient African State*. Budapest.
- Török, L. 1997. *Meroe City. An Ancient African Capital*. Egypt Exploration Society Occasional Publications **12**, London.
- Török, L. 2002a. *The Image of the Ordered World in Ancient Nubian Art. The Construction of the Kushite Mind (800 BC – 300 AD)*. Leiden–Boston–Köln.
- Török, L. 2002b. 'Space, temple, and society. On the built worldview of the Twenty-Fifth Dynasty in Nubia', in *Preprints*, International Society for Nubian Studies Tenth International Conference, Rome.
- Török, L. *John Garstang's Excavations at Meroe City. The Records and Finds in the School of Archaeology and Oriental Studies, Liverpool*.
- Trigger, B.G. 1969a. 'The Myth of Meroe and the African Iron Age', *African Historical Studies* **2**, 23–50.
- Trigger, B.G. 1969b. 'The Royal Tombs at Qustul and Ballana and their Meroitic antecedents', *Journal of Egyptian Archaeology* **55**, 117–28.
- Trigger, B.G. 1994. 'The John Garstang Cylinders from Meroe in the Redpath Museum at McGill University', in *Hommages à Jean Leclant*. **2**, Cairo, 389–97.
- Tylecote, R.F. 1970. 'Iron working at Meroe', *Bulletin of the Historical Metallurgy Group* **4**, 67–72.
- Tylecote, R.F. 1975. 'The origin of iron smelting in Africa', *West Africa Journal of Archaeology* 1–9.
- Tylecote, R.F. 1982. 'Metal working at Meroe, Sudan', *Meroitica* **6**, 29–42.
- Vila, A. 1980. 'Les tombes Napatéennes "sans mobilier"', *Meroitic Newsletter* **20**, 29–41.
- Vycichl, W. 1961. 'Rez.: Hintze, F., Studien zur Meroitischen Chronologie und zu den Opfertafeln aus den Pyramiden von Meroe', *Kush* **9**, 291.
- Wainwright, G.A. 1945. 'Iron in the Napatan and Meroitic Ages', *Sudan Notes and Records* **26**, 5–36.
- Wainwright, G.A. 1952. 'The date of the rise of Meroe', *Journal of Egyptian Archaeology* **38**, 75–7.
- Welsby, D.A. 1996. *The Kingdom of Kush, the Napatan and Meroitic Empires*. London.
- Welsby, D.A. 2003. 'The Kingdom of Kush: Rome's neighbour on the Nile', in M. Liverani (ed) *Arid Lands in Roman Times*, Arid Zone Archaeology Monograph **4**, Roma, 65–78.
- Wenig, S. 1971. 'Bericht über archäologische Arbeiten an den Pyramidenkapellen des Nordfriedhofes von Begrawiya (Meroe). Berliner Beiträge zur Sudanarchäologie', *Wissenschaftliche Zeitschrift der Humboldt-Universität* **20**, 267–73.
- Wenig, S. 1993. 'Recent archaeological work at Meroe and Musawwarat Es Sufra', *Sudan Archaeological Research Society Newsletter* **4**, 10–12.
- Wenig, S. 1994. 'Meroe Joint Excavations. Bericht über die Vorkampagne 1992', *MSAGB* **1**, 15–18.

- Wildung, D. and K. Kroeper (eds) 2003. *Common Aims. Sudanese German Co-Operation in Archaeology, National Museum Khartoum 2003*. Berlin.
- Williams, B.B. 1996. 'Industrial metallurgy in Egypt and the Sudan', in F.A. Esmael (ed) *Industrial Metallurgy in Egypt and the Sudan*, Cairo, 201–6.
- Wolf, P. 1995. 'Vorbericht über die Ausgrabungen am Tempel Mje 105 [in Meroe City / Sudan]', *Mitteilungen der Sudanarchäologischen Gesellschaft zu Berlin E.V.* **4**, 28–43.
- Wolf, P. 2002. 'Temples in the Meroitic South – Aspects of Typology, Cult and Function', in *Preprints*, International Society for Nubian Studies, Tenth International Conference, Rome.
- Wolf, S. and H.-U. Onasch 1998–2002. 'Investigations in the so-called Royal Baths at Meroe in 1999', *Kush* **18**, 191–203.
- Yellin, J.W. 1979. 'A suggested interpretation of the relief decoration in Type B chapels at Begarawiyah North', *Meroitica* **5**, 157–64.
- Yellin, J.W. 1982. 'Abaton-Style Milk Libation at Meroe', *ibid.* **6**, 151–5.
- Yellin, J.W. 1984. 'An Astronomical Text from Beg. South 503', *ibid.* **7**, 577–82.
- Yellin, J.W. 1990. 'The decorated pyramid chapels of Meroe and Meroitic funerary religion', *ibid.* **12**, 361–74.
- Yellin, J.W. 1995. 'Meroitic funerary religion', in W. Haase and H. Temporini (eds), *Aufstieg und Niedergang der Römischen Welt (ANRW). Rise and Decline of the Roman World*. II,18.5, Berlin, New York, 2869–92.
- Yellin, J.W. 2004. 'The Garstang Cache of sculptures, inscribed and decorated blocks from Meroë', in P.L. Shinnie and J.R. Anderson (eds), *The Capital of Kush 2. Meroë Excavations 1973–1984. Meroitica* **20**, Wiesbaden, 371–419.
- Zach, M.H. 1987. 'Das Cnh-Zeichen auf der "Mondsichel"', *Varia Aegyptiaca* **3**, 149–56.
- Zach, M.H. 1988a. 'Addendum: Die Besucherinschriften von Beg N 10', *Beiträge zur Sudanforschung* **3**, 118–20.
- Zach, M.H. 1988b. 'Die gestempelte Meroitische Keramik', *ibid.* **3**, 121–50.
- Zach, M.H. 1990. 'Bemerkungen zu einem außergewöhnlichen Gefäß aus Meroe', *Meroitica* **12**, 375–84.
- Zach, M.H. 1992a. 'Ein verschollener Reliefblock von der Grabkapelle einer frühmeroitischen Kandake', *Journal of Egyptian Archaeology* **78**, 295–301.
- Zach, M.H. 1992b. 'Meroe: Mythos und Realität einer Frauenherrschaft im antiken Afrika', in E. Specht (ed) *Nachrichten aus der Zeit. Ein Streifzug durch die Frauengeschichte des Altertums*. 18, Wien, 73–114.
- Zach, M.H. 1992c. 'Nero und Meroe: die alexandrinische Munzprägung als historische Quelle', *Beiträge zur Sudanforschung* **5**, 165–78.
- Zach, M.H. 1993. 'Nero und Meroe II: Sorakarora', *Göttinger Miszellen* **136**, 89–98.
- Zach, M.H. 1995. 'Beobachtungen zu einem meroitischen Löwenthrontyp' [also a Spanish version], *Aegyptus Antiqua* **9**, 22–6.

Zach, M.H. 1996. 'Varia Meroitica I', *Beiträge zur Sudanforschung* **6**, 115–28.

Zach, M.H. 2004. 'Aksum and the End of Meroe', in *Abstracts*, 10th International Conference for Meroitic Studies, Paris.



## **8 CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES**

***Hassan Hussein Idris***

***Director General***

National Corporation for Antiquities and Museums – NCAM

P.O. Box 178, Khartoum, Sudan

Fax: + 249 183 786784

Tel: +249 123900456

E-mail (official): [teharga2008@yahoo.com](mailto:teharga2008@yahoo.com)

### **8. a Preparers**

***Dr Salah Mohamed Ahmed***

Director, Fieldwork Section

National Corporation for Antiquities and Museums – NCAM

P.O. Box 178, Khartoum, Sudan

Fax: + 249 183 786784

Tel: +249 912839524

E-mail (official): [teharga2008@yahoo.com](mailto:teharga2008@yahoo.com)

E-mail (private): [salahdhablan@yahoo.ca](mailto:salahdhablan@yahoo.ca)

***Dr Derek Welsby***

Assistant Keeper, Department of Ancient Egypt and Sudan

The British Museum

London WC1B 3DG, United Kingdom

Tel: + 44 207 3238500 – 8306

Fax: + 44 207 3238303

E-mail: [dwelsby@thebritishmuseum.ac.uk](mailto:dwelsby@thebritishmuseum.ac.uk)

**Preparer (Consultant)**

**Pr. Henry Cleere**

Acres Rise

Ticehurst

WADHURST TN5 7DD

United Kingdom

Telephone +44 (0) 1580 200752

E-Mail: [henry.cleere@btinternet.com](mailto:henry.cleere@btinternet.com)

### **Team of the “Draft” Management Plan**

Mr. Paul Bidwell  
Senior Manager, Archaeology  
Tyne and Wear Museums  
Arbeia Roman Fort and Museum  
Baring Street  
South Shields  
UK NE33 2BB  
E-mail: [paul.bidwell@twmuseums.org.uk](mailto:paul.bidwell@twmuseums.org.uk)  
Tel: 0191 454 4093  
Fax: 0191 427 6862

Dr. Nick Hodgson  
Tyne and Wear Museums  
Address as above  
E-mail: [nick.hodgson@twmuseums.org.uk](mailto:nick.hodgson@twmuseums.org.uk)

Mr. Terry Frain  
Assistant Keeper of Field Archaeology  
Tyne and Wear Museums  
Address as above  
e-mail: [terry.frain@twmuseums.org.uk](mailto:terry.frain@twmuseums.org.uk)

Dr. David Sherlock (consultant)  
71 The Glebe  
Stockton-on-Tees  
UK TS20 1RD  
  
e-mail: [davidsherlock@onetel.com](mailto:davidsherlock@onetel.com)  
Tel: 01642 535168

### **Management Plan**

Dr. Sami el-Masri  
Director, Strategic Planning Office  
Abu Dhabi Authority for Culture and Heritage  
Cultural Foundation Building  
Airport Road  
P.O.Box. 2380  
Abu Dhabi - UAE  
E-mail: [elmasri@gmx.de](mailto:elmasri@gmx.de)  
Tel. +971 50 472 5399

### **Topographical Work**

Dr. Mario Santana-Quintero  
[msantanaquintero@gmail.com](mailto:msantanaquintero@gmail.com)

Miss Sarah Seranno  
[sarah.deseranno@kahosl.be](mailto:sarah.deseranno@kahosl.be)

**8. b            Official local institution/agency**

***Mr Ahmed Elameen Ahmed Elhassan***

Director, Shendi Office (NCAM)  
National Corporation for Antiquities and Museums – NCAM  
P.O. Box 178, Khartoum, Sudan  
Tel. (mobile): +249 912655660  
E-mail: [ahmedsokari@yahoo.com](mailto:ahmedsokari@yahoo.com)

**8. c            Other local institutions**

***Mr Abdel-Bagi Ajeeb***

Director, Tourism Department  
Ministry of Culture and Information, River Nile State  
P.O. Box: 52, Atbara, Sudan  
Fax:                    +249 216 824252  
Tel. (mobile): +249 122016165  
E-mail: [bagiajeeb@yahoo.com](mailto:bagiajeeb@yahoo.com)

***Dr Mohamed Ahmed Abdel Mageed***

Director, Archaeological Studies and Research Centre, Nile Valley  
University  
P.O. Box 52, Addamar, River Nile State, Sudan  
Fax :                    +249 211 822644  
Tel. (mobile): +249 912299445  
Email: mageedmail@gmail.com

**8. d            Official web address**

A website for NCAM is being prepared; a page will be reserved for the property.

Contact name:

***Dr Abdel Rahman Ali Mohamed***

Director, Museums Section, NCAM

Tel. (mobile): +249 912294772

E-mail: [abdelrahman249@hotmail.com](mailto:abdelrahman249@hotmail.com)

**9      SIGNATURE ON BEHALF OF THE STATE PARTY**

**Signature :**

**Name : Hassan Hussein Idris**

**Title : Director General, National Corporation for Antiquities and Museums  
(Sudan)**