

Hamadab is an urban town on the east bank of the Nile just south of Meroe City. It flourished in the Meroitic period (3rd century BC to 4th century AD) when its population lived in a densely crowded settlement. As first urban town revealed with its full plan, it is a good example to study living conditions in the Nile valley during Meroitic times, featuring a temple, administrative buildings, fortifications, storage facilities, common housing and industrial areas.



funded by Qatar Sudan Archaeological Project (QSAP)



# HAMADAB

Urban living at the Nile in Meroitic times



*Meroitic Hamadab with excavated houses of the walled Upper Town in the north and structures of the adjacent Lower Town made visible by geophysical soundings*

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## The site of Domat al Hamadab

The landscape on the eastern bank of the Nile in the heartland of the Meroitic kingdom appears as a rather unimposing flat stretch of fertile land. Three kilometres south of the ancient capital of Meroe, near the village of Hamadab, the attentive visitor will find two gentle sandy mounds with bricks and pottery sherds scattered on their surface. Both mounds rise about four metres above the surrounding fields. During the annual Nile flood in the summer months, they are entirely enclosed by water and thus become temporary islands. No ruins are visible above ground, but the mounds have guarded the history of an ancient town which existed here some 2000 years ago. The northern of the two mounds, called Domat al Hamadab, bears the remains of the urban settlement, whereas the southern one was mainly used as contemporaneous burial ground.

The site HAMADAB takes its name from a *Hamad of the Jaaliyin*, whose family – according to oral accounts – settled at this place about 300 years ago, while DOMAT refers to the Dom palms growing on the site.

Compared to our ample knowledge of Kushite temple building and royal burials, virtually nothing is known about what life was like for the ordinary people in the kingdom. Hamadab is one of the few archaeological sites in Northern Sudan, where good preservation adds to a comprehensive picture of living conditions of a non-elite population in the Middle Nile Valley. Archaeological research at Hamadab focuses on the town's various architectural features with a special emphasis on the less spectacular but more significant domestic quarters to gain information on the daily life of its residents, their family organisation, household activities, diet and material culture.

*Aerial view on the Hamadab North Mound situated in the fertile strip close to the river Nile*



## The Meroitic town

Recent research has contributed to the first complete map of a Meroitic urban settlement. The densely built town spreads over an area of 200 x 250 m, its remains lying just beneath a thin layer of surface debris. It consists of two distinct parts: a walled Upper Town in the north and an unfortified suburban settlement to the south, the so called Lower Town.

Throughout all its occupation periods (ca. 300 BC to 400 AD) the town was almost entirely built of sun dried mud brick – the most effective and easily available building material that offers comfortable indoor conditions in hot climates. This traditional African adobe architecture was common in the Middle Nile Valley since the 3<sup>rd</sup> millennium BC and is still used in Northern Sudan. Most houses had rather thin walls and were presumably single storey. Only public buildings like the temple, in the south-eastern corner of the town wall and the representative building had more substantial walls. They were additionally faced with fired bricks, lined with white plaster, while thresholds and lintels were made of sandstone.

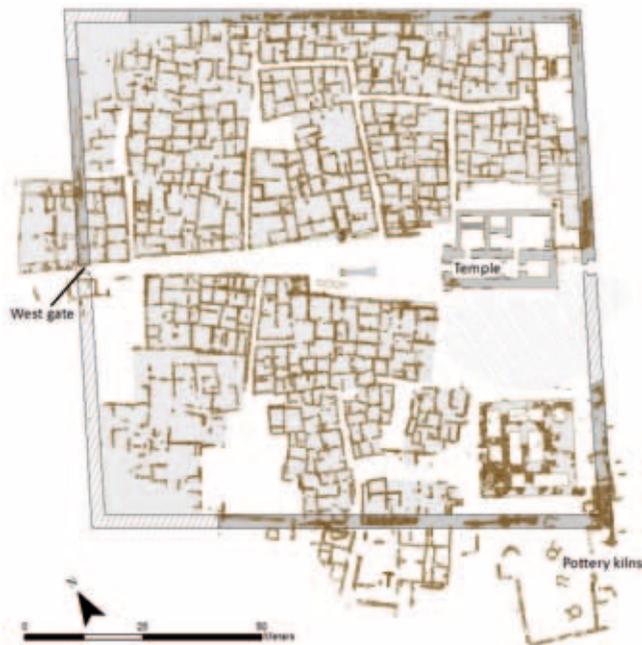
The Upper Town housed the temple, the administrative building and living quarters. The Lower Town was largely covered by more or less rectangular house blocks similarly built of thin mud brick masonry. Its structures seem to be more widely spaced and interspersed by larger open areas than in the Upper Town and at their fringes workshops and specialised production areas were located.



*Large scale surface clearings revealed the map of the Upper Town*

### The Upper Town

The Upper Town had an approximately square shape of ca. 105 x 105 m enclosed by its massive town wall. The wall, the temple and the main street are major elements that hint to a superior conception of town planning. The avenue forms a straight axis through the Upper Town, connecting the main gate in the west with the temple in the east and divided the entire area into two equal halves. Narrow alleys branched off the main street and being hardly



more than a metre wide. They were apparently impassable for larger carts or laden pack animals.

The main street gradually widened to a forecourt in front of the temple, which was the only large public space in town. A well of 1.5 m diameter in this court is the first evidence of public water management inside the enclosed Upper Town and thus constitutes a fundamental infrastructural feature. Additionally, dense concentrations of storage bins in the rooms along the northern town wall also appear to be communal installations.

An arrangement into districts of certain function can be observed in the temple area and the administrative building in the east. However, the largest part of the town was densely crowded with domestic mud brick buildings that left no space along the town walls. The plots were organised by the street network into approximately rectangular blocks in a more or less orthogonal manner and were divided into individual houses.

Remarkably, the Upper Town shows certain similarities with fortified settlements of the 1<sup>st</sup> to 4<sup>th</sup> centuries AD in Egypt and the Near East reminiscent of Roman military forts. Like the principia in Roman forts, the temple at Hamadab was situated opposite the town gate at the end of a main street. However, no clear evidence for military use of the Upper Town has been found so far. The archaeological evidence rather suggests that Meroitic Hamadab was an ordinary urban town and that most of its houses were primarily residential buildings for common people following an urban lifestyle.



*Excavating a domestic house in the Upper Town*

## The enclosure wall

The most extensive building at Hamadab and the one that gave the town its unique character is the massive enclosure wall. It effected its orientation and its inner structure by forming the town's outer demarcation and consequently predetermining its inner capacity.

The solid enclosure had a width of nearly 3 m. It was constructed of a mud brick core and faced with inter-locking layers of fired bricks providing a very strong 'multicomponent building'. While its height is preserved up to 2.5 m, the original dimensions might have been four to five metres as suggested by areas of collapse.

Town gates were identified at opposite ends of the main street situated in the western and eastern wall. The main gate in the west was a massive 1.6 m wide opening formed by fired bricks in its later stages which possibly replaced an earlier sandstone gate. It was once closed by a wooden door construction of which well-preserved iron nails survived. The gate had a monolithic threshold of hard stone and was paved with irregular sandstone slabs. The eastern entrance behind the temple was probably used as a rear gate.

Neither the walls nor its corners show substantial external fortifications like towers or bastions in its primal building plan. However, inner reinforcements – accessible by a staircase – could be identified in the south-eastern corner. The immediate extramural area was kept free and the foundations might have been partially protected by a *glacis*.



*Facade of the southern enclosure wall, later overbuilt by the expanding town and iron nail from the town's main gate*

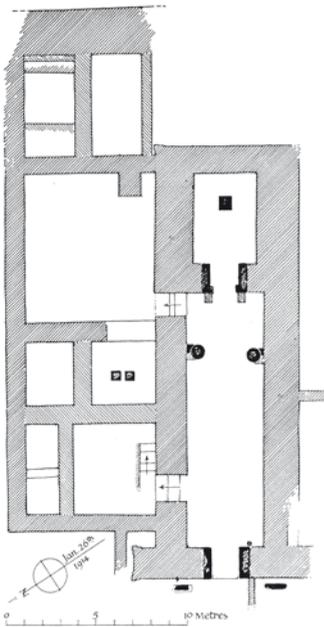


Wall and gateways were repaired several times and thus maintained in a more or less good condition. This maintenance and the reinforcement of sensitive strategic parts imply that the town wall might have fulfilled a defensive function besides enclosing the urban area and controlling access to the town. However, at some point around the 1<sup>st</sup> century AD it had lost its original purpose. It was given up and overbuilt by the developing town which spread into the formerly extramural area.

*West gate, view from west towards the town*

## The temple and its 'forecourt'

Excavating at Meroe in the beginning of the 20<sup>th</sup> century, John Garstang, director of the University of Liverpool excavations, had heard of ancient remains just a few kilometres south of the Royal City. Visiting Hamadab in 1914, he unearthed two monumental stelae covered with Meroitic cursive script that were attached to a small temple.



This shrine was situated at the end of the main street, just a few metres in front of the gateway within the eastern wall. Although it was clearly a central feature of the town's original layout, the building is rather small compared to other Kushite temples. Three principal rooms – two antechambers divided by a pair of columns and the sanctuary – are organised along its main axis. The sanctuary housed a stone pedestal supporting either a divine bark or a portable shrine. The temple's overall structure is quite unusual, as it was extended on its northern side by five rooms. These annexes must have had a substantial function for the entire building.

The temple walls were up to 1.8 m thick and made of mud bricks with a facing of fired bricks, typical for Meroitic official architecture. The exterior walls as well as the sandstone





*Small bronze statuette of the Meroitic god Sebiumeke, now stored in the Sudan National Museum, Khartoum*

door jambs were finished with lime plaster; the interior walls were covered with a mud plaster and whitewashed. While the anterooms had earthen stamped floors, the sanctuary was paved with fired bricks.



*Stone sphinx found by Garstang in the temple of Hamadab*

Without any preserved wall paintings or reliefs and due to the temple's unusual layout, it is difficult to be sure of the name of the deity which had been worshipped in the shrine. It can tentatively be regarded as a temple of Amun, the highest divinity in the Kushite pantheon. However, with regard to the Upper Town's distinct topography and the temple's unusual annex rooms, it probably served more multifaceted functions than just divine worship.

Amongst the preserved cult furniture and votive objects were lion figures, sphinxes, a large sandstone statue, a bronze offering table, petrified wood and a wonderful bronze statuette. This figure revealed features of the indigenous Meroitic god Sebiumeke which apparently was a member of the 'divine crew' of a procession bark. It can stylistically be attributed to the late 3<sup>rd</sup> or early 2<sup>nd</sup> century BC.

A wide open space in front of the temple probably served as scene for religious and official ceremonies, during which the two monumental stelae of queen Amanirenas and prince Akinidad in front of the temple would surely impressed every visitor. A small open altar in the forecourt, about 20 m in front of the temple, played an important role in rituals and fire offerings and is comparable to other Meroitic temple precincts like at El Hassa, Naqa or the "Sun Temple" near Meroe. The altar was originally made of fired

*Stages of conservation measures of the bronze statuette undertaken at the Egyptian Museum of Berlin*



brick masonry with sandstone pilasters and was white plastered. It was repeatedly rebuilt until it was abandoned about the 2<sup>nd</sup> or 3<sup>rd</sup> century AD. A well was situated close by. In later times, a row of large plants – possibly trees – adorned the court, as is shown by a number of plantation pits along its southern edge.

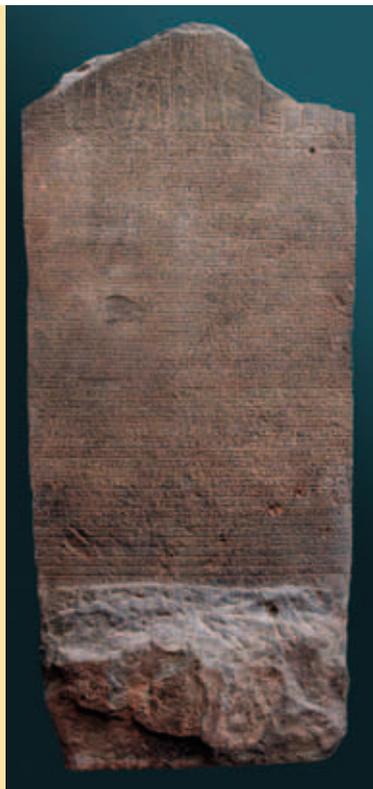
## The stelae of Amanirenas and Akinidad

The two monumental stelae which John Garstang had excavated in 1914 originally framed the entrance to the town's temple. Now they are on display in the British Museum in London (BM 650) and in the Khartoum National Museum (SNM 32200). They bear commemorative inscriptions of queen Amanirenas and prince Akinidad. It is quite unusual that such stelae have been erected in front of a small shrine. Similar inscriptions are known from the large state sanctuaries of Amun in Napata at the Jebel Barkal or in Meroe only.

Queen Amanirenas reigned in the last quarter of the 1<sup>st</sup> century BC. She was probably the queen who was involved in the war with Rome 25 – 21 BC, which finally was settled by a peace treaty signed by Augustus. Because of specific passages in the still hardly understood text of the stelae, it is believed that the stelae contain the story of this war and refer to military conflicts in the north of the kingdom. Amongst other, they mention Napata and Primis (Qasr Ibrim), two towns which have been captured by the Romans, and a phrase which can be translated:

“The Tameya have raided every man, woman and the youngsters” with Tameya meaning something like “the white ones / the Europeans”.

In the present state of research, we believe that the stelae were set up to commemorate events during the reign of Amanirenas and Akinidad and that the war with Rome was mentioned as one episode, as was common in comparable royal texts of the earlier Napatan period.



*The so-called large stela of Hamadab, now in the British Museum*



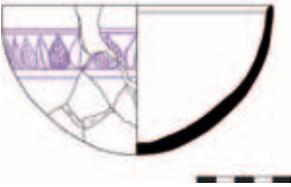
*Removal of the stelae from Hamadab by Garstang's labour force*

## The administrative building

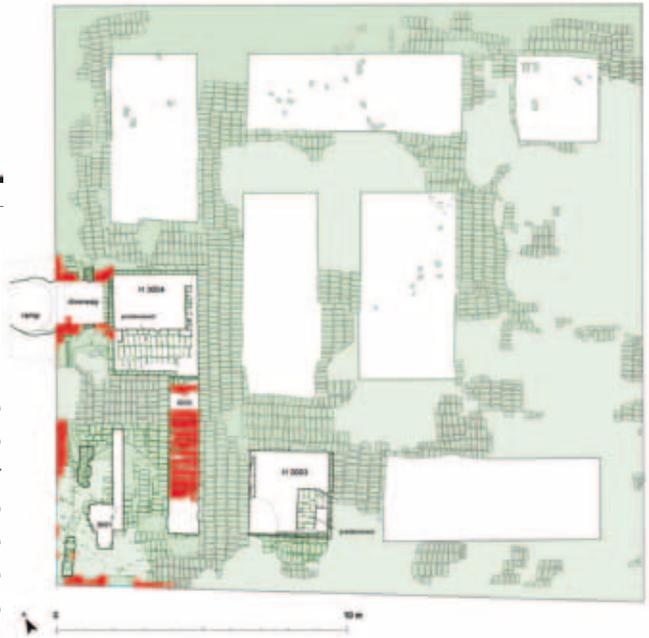
A massive square freestanding structure of 20 x 20 m in the south eastern corner stands out within the Upper Town due to its unique layout. While the inner mud brick walls are up to 1.8 m thick, its outer façade was additionally faced with fired bricks and a smooth white lime plaster – like the temple. An almost 1.5 m wide doorway in the centre of its western side opened to a white plastered entrance hall from which an interior staircase of fired bricks led upwards to a second floor.



*View into the excavated rooms with a stair leading upwards*



*Decorated fineware bowl found on the floor of the entrance hall*



Downstairs, the massive mud brick walls of the structure formed a number of blind rooms or ‘casemate foundations’ to support the elevated podium. This type of monumental architecture is known from Late Period Egyptian and Kushite palaces, for example those at Wad ban Naqa, Muweis and Jebel Barkal, which are up to 60 m large. On a smaller scale, the Hamadab building reproduces the main architectural features of such residences. Finds like painted wall plaster, faience fragments and fineware vessels indicate that the upper rooms were once elaborately decorated and may have been the domicile of a higher authority or an administrative institution to control the town’s communal or commercial matters.

## The domestic quarters

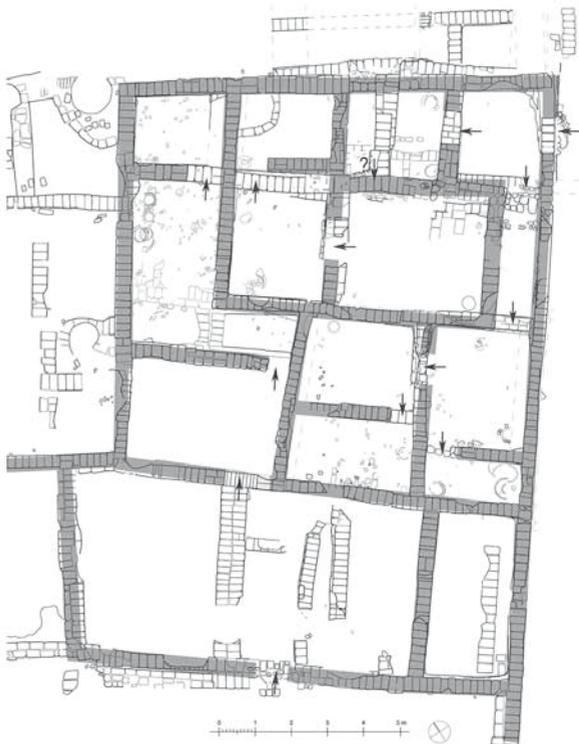
Archaeological evidence, in particular artefacts of two excavated house units, suggest a civil use for most of the Upper Town's buildings as living quarters. Spindle whorls, iron tools, grinders, toys, lamps, seals and jewellery can all be assigned to the domestic sphere. They testify to the presence of all members of a family and provide clear indications for food preparation as well as minor craft activities, like spinning and weaving, within the residential quarters.



*Examples of domestic finds from the excavated houses: iron axe from kitchen, pottery lamp, animal figurine, iron arrow head*

Standardised units of Meroitic residential architecture have not yet been recognised. It seems, however, that the large blocks were internally divided into separate units of roughly 200 m<sup>2</sup> representing individual households. These consist of up to 20 rather small rooms of 3 to 17 m<sup>2</sup>. Based on room size, internal features and associated artefacts therein, we can identify living rooms, kitchens and working areas. Some of the larger rooms may also have been open courtyards providing light and air for the interior of the house.

The houses were entered from the main street or a side alley through narrow door-ways some 80 cm wide, strengthened by thresholds of fired bricks and stones. The mud brick walls were lined with occasionally white, yellow or red mud plaster. Because they survive to less than 1 m above their foundations, little is known of windows or roof constructions – also stairs are missing. The floors consist of compacted earth or sand and have gradually filled up the rooms so that thresholds had to be continuously raised.



*Schematic plan of a domestic house in the Upper Town*

Successive floor layers, building remains and floors suggest a steady accumulation in the houses, which were subject to continuous processes of construction, repair and expansion. While the external plot boundaries remained largely unchanged over time, internal rebuilding is evidenced by minor changes like shifting walls or blocking doors, which were undertaken to such an extent that it is difficult to correlate these changes and to identify contemporaneous house units. Over time, the residents tended to split the house into more and more rooms.

Organic materials – like woven mats, furniture or wooden fittings, textiles and baskets, which must have constituted a considerable aspect of African households – did not survive in this area due to insects and annual rainfall. Consequently, there are just a few installations to clarify functional arrangements: for example, posthole settings and masonry bins built into the corners of some rooms, tall storage vessels, potsherds or lost artefacts relating to daily activities.

Ash-filled oven spots in kitchens appear to have been used for long periods and were constantly renewed by setting a new oven pot into the old one. Cooking vessels, grinding stones and other tools tell us about methods of food preparation. Charred plant remains and animal bones indicate that sorghum, millet and cattle dominated the diet of Hamadab's citizens, which was complemented by wheat and barley as well as sheep/goat, gazelle, catfish and Nile oyster.

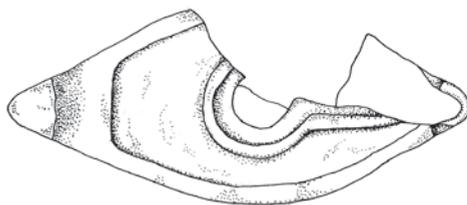
*Profile through a kitchen with the sequence of renewed oven pots showing the long use of a hearth*



*Contemporary furnishings of a Nuba house with wall hangings, wooden furniture and every day utensils*



*View into an excavated room with a circular mud brick bin in the corner*



*Pottery lamp*



## Crafts and industries



Numerous finds of spindle whorls demonstrate that spinning with a hand spindle was a daily craft in every household and clay loom weights lined up in a small room once stretched the warp threads of a vertical loom. Such evidence attests that some of Hamadab's residents were occupied with spinning threads and weaving fabrics. Whilst cotton, linen and wool textiles have been recovered from various Meroitic tombs and settlements, botanical analyses of seeds from Hamadab have now confirmed that cotton was grown and cultivated locally. Other crafts, like wood carving, basketry and jewellery making, may also have been carried out within the residential quarters.

*Selection of spindle whorls, used to spin cotton into yarn. They are made of fired clay and decorated with incised motifs, sometimes filled with coloured paste.*

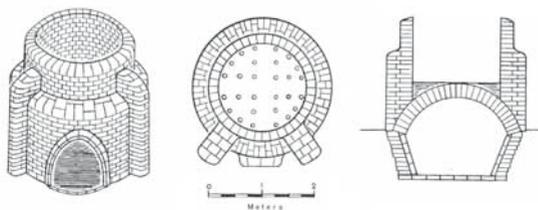
*Loom weights of unfired clay found in a room of a domestic house*



Space-demanding and energy-intensive industries involving high temperatures and kilns, such as in iron smelting and forging, pottery making and probably also faience and glass processing were located in workshop areas beyond the town and around the fringes of the settlement.

*Remains of the excavated pottery kiln surrounded by ashes and waster sherds*

*continue on side 14*



*Reconstruction of an ancient pottery kiln (after Adams 1986, Ceramic industries of Medieval Nubia)*



# The Kingdom of Kush



**Egyptian dominion**

1000 BC

**Napatan period**

**KINGDOM OF KUSH**

300 BC

**Meroitic period**

400 AD

**POST-MEROITIC**

600 AD

**MEDIEVAL PERIOD**

1000 AD

**ISLAMIC PERIOD**

1300 AD

The **KINGDOM OF KUSH** – named after the ancient Egyptian term for its southern neighbours *K3š (Kash)* – designates a cultural entity in the Middle Nile Valley (modern-day Sudan) from ca. 900 BC to 400 AD. The realm lasted over several successive dynasties and the dominion spread along the Middle Nile from Aswan to the confluence of the two Niles.

Deeply rooted in the area of Napata, the kingdom of Kush rose to independence after 1070 BC with the decline of Egypt's power at the end of the New Kingdom. Few centuries later, the kings of Kush ruled over Egypt vice versa as the so-called "Black Pharaohs" of the 25<sup>th</sup> dynasty (716 – 664 BC). After their withdrawal from Egypt, the area of Napata remained the political and religious centre of the region and therefore was name-giving for the following dynasties of the **NAPATAN PERIOD** until ca. 300 BC. Albeit Meroe, in the southern realm of the kingdom, increasingly gained political importance already during this time and expanded as royal residence.

With the shift of the royal cemeteries to Meroe around 300 BC, a political as well as cultural transition in Kush becomes obvious. African elements within its culture began to dominate, indigenous gods were worshipped, an own script developed and a densely populated rural and urban landscape developed around the royal residence of Meroe. The **MEROITIC KINGDOM** flourished along the Middle Nile and also controlled large parts of the savannah and desert areas of the Bayuda and the Butana further away from the river.

The decline of the Kushite kingdom – presumably forced by increasing political and perhaps by economic problems – is associated with the collapse of its central authority around the 4<sup>th</sup> century AD. Culturally it is marked by the end of pyramid and temple building, the loss of the Meroitic script and the change of burial practices.



# Timeline of Hamadab



*Schematic section through the Upper Town and its four occupation phases*

## **Meroitic period (ca. 300 BC – 400 AD)**

At the present state of research, four main occupation periods (D–A) of the Meroitic Upper Town can be distinguished, spanning from the Early Meroitic to the Late Meroitic period.

# HAMADAB

### **Earliest occupation (ca. 300 BC to 50 BC)**

The earliest settlement remains, lying on a sterile shallow sand mound, consist of hearth vessels and mud brick walls that belong to substantial building structures.

# D

### **Foundation of the planned town (ca. 100 BC to 100 AD)**

The town with its main features (enclosure wall, temple and administrative building) is erected in one large building program requiring planning and a considerable degree of administrative and material resources.

# C

### **Extension of the townscape (ca. 50 AD to 300 AD)**

Subsequent repairs and rebuilding let the settlement grow. The town wall loses its original purpose and the town spreads over it into the surroundings. The southern suburb with its industrial facilities develops successively.

# B

### **Final development (ca. 300 AD to 400 AD)**

Shallow remains in the centre of the mound show that individual modifications have gradually changed the town's original strict layout into a more irregular conglomerate.

# A

## **Post-Meroitic occupation (ca. 400 – 600 AD)**

People still live in a squatter occupation among the ruins of the once thriving town and are engaged in large scale iron production.

## **Medieval occupation**

While the North Mound is now abandoned, Medieval artefacts found on the Southern Mound of Hamadab show that occupation continued nearby.

## **Islamic occupation (ca. 1500 – 1850 AD)**

Archaeological remains and the oral histories record an Islamic re-settling of the North Mound.

## **Present times**

In 1914, decades after the last Muslim settlers have moved further east to the present-day village, John Garstang excavates the temple and the stelae of Amanirenas and Akinidad. No substantial excavations have been conducted thereafter.

In 2001 the Hamadab archaeological mission revives fieldwork at the site.



*Fragment of a tuyère, a tube for air supply during the smelting process, with slag still stuck inside*



*Trench dug into a slag heap showing that iron slags overlie ancient mud brick walls*

*Geophysical soundings of an iron slag heap*

A courtyard of nearly 20 x 20 m near the south-eastern corner of the Upper Town enclosed the remains of at least four circular pottery kilns. These were double-chambered structures with a diameter of ca. 2 m made of mud bricks, corresponding to a standard Meroitic kiln type found at neighbouring Meroe City, at Muweis and in Lower Nubia. Their large number suggests that Hamadab maintained its own local 'industrial' centre specialising in large scale ceramic production, while thousands of discarded sherds and kiln wasters around these structures testify to a wide repertoire of ceramics and clay figurines being produced and fired there.

Several waste heaps covered with blackened iron slag had accumulated around the perimeter of the settlement and are presently being studied by specialists in archaeometallurgy and smelting industries. They contain remains of furnaces, iron slag and tuyères. Most of the heaps overlay suburban house remains and date to the 5<sup>th</sup>/6<sup>th</sup> centuries AD, suggesting that large scale iron production developed at Hamadab just after the decline of the Meroitic kingdom in the 4<sup>th</sup> century AD.

Wood for firing these resource-intensive industries was mainly taken from Acacia trees of the region, which – considering the immense volume of productions – must have resulted in extensive exploitation of the local ecology.



## The residents of Hamadab

Hamadab was apparently no farming community, as neither stalls nor larger storage facilities for agricultural products were found. Instead it was an ordinary urban town largely made up by residential quarters. However, one may wonder why people lived in such a restricted and crowded place. Analogous towns with a similar planned and densely built layout like Deir al Medina in ancient Egypt have proved to be settlements for artisans, organised by and working for the state.



*Various grave goods from burials of the cemetery on the South Mound*

With regard to the settlement's urban layout, the artefacts and the remains of the crafts carried out around the town, it might be assumed that the residents of Meroitic Hamadab consisted of a mixed community of non-subsistence specialists, commoners and their families, like artisans and workmen, administrators, servants, guards and merchants. Yet conditioned by limited space and controlled access, Hamadab's citizens surely needed a basic supply of foodstuffs and raw materials from the surrounding countryside, possibly supported by smaller rural settlements. The social level, health conditions and personal circumstances of the individuals can only be estimated by examining the inhabitants themselves, which were buried on the nearby South Mound. Situated just half a kilometre to the south of the Meroitic settlement, it was probably the town's main burial place.



*Large tubular storage jars are common grave goods at Hamadab*

The dead were buried either in a crouched position or extended on their backs. This co-existence of different funerary rites is typical for the time and illustrates the cultural heterogeneity of the multi-ethnic kingdom of Kush. The deceased were not only equipped with food and drink in large storage jars, bowls and bronze cups, but also with jewellery, signet rings and weapons as well as with imported goods such as cowrie shells from the Red Sea or glass vases from Roman Egypt which testify to interregional trade contacts.

*Richly equipped tomb on the North Mound*



# The material culture

## Small finds

The wide range of artefacts recovered within the settlement shed light on the residents' life and social status. These are primarily made up of simple tools and household items, such as huge saddle querns and their associated grinders and pounders. These were used in food preparation and for powdering pigments, and perhaps medicines. Other common tools at Hamadab include hammer and polishing stones for the working and smoothing of various artefacts.



*Selection of different grinding tools used for various tasks*

Spindle whorls and loom weights used in domestic textile production were also found inside many of the excavated rooms within the town. Despite being tools, these artefacts also provided the opportunity for artistic and decorative expression, especially the spindle whorls. Decorations included animal motifs, such as incised birds/ducks with red and yellow colouring still preserved inside the grooves, or geometric patterns, such as zig-zag lines and dots, and symbols. Some decoration was carefully executed whilst on other examples it represented mere rough embellishment.



*Huge saddle quern of yellow sandstone*

Recycling was also an important part of life on the Nile, as evident from the re-use of sherds from broken ceramic vessels which, when provided with perforations, could be used as buttons on clothing or bags, as spindle whorls or as fish net weights.

*Spindle whorls from the domestic quarters*





*Beads of different shapes and materials like eggshell, faience and carnel*



*Nuba children wearing various pieces of jewellery*

The large volume of jewellery and ornamentation attest to the Meroites' affinity for personal adornment – as is still customary today in the region, such as amongst the Nuba of Southern Kordofan. These decorative artefacts include large numbers of beads as well as pendants and amulets, made of different materials, such as ostrich eggshell, white quartzite, faience, glass, semi-precious stones, like carnelian, and obsidian, as well as simple fired clay jewellery. Necklaces would often have combined such differing materials, as simple disk beads of ostrich eggshell with tubular faience beads and teardrop shaped pendants. At Hamadab, this composite jewellery could also include amulets of faience and finely worked animal pendants, such as an exquisite stone pendant in the form of a hippopotamus. The evidence for unfinished jewellery products suggest that many such items of decoration were produced within the town itself.

Other forms of personal property can be inferred from such things as the small *kohl* pot with incised insignia. These would likely have contained mascara, with the small perforation on the top providing access for a small stick with which it would have been applied.



*Drop-shaped pendants*

*A faience amulet found in the domestic quarters was shaped like an amphora (H. 5 cm)*



*Tiny pendant of a hippopotamus made of semi-precious stone (H. 1.8 cm)*



*Tiny pot of fired clay as personal cosmetic article, presumably for kohl - the ancient mascara (H. 4.2 cm)*





Faience object with a typical Meroitic representation of a lion's face (H. 2.9 cm)



Probably the lid of a small rectangular faience box in the shape of a lioness with two cubs (5 x 3.8 cm; H. 3 cm)

Finely carved statuette of alabaster depicting a seated lion-headed deity (H. 5.5 cm)

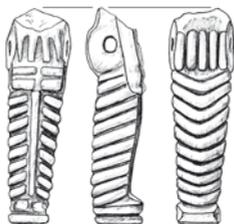


Faience rosettes, maybe used as decoration on furniture (3.5 cm diam.)

Besides beads and amulets, faience was also used in other decorative media, such as appliques which may have acted as ornamental fittings for household furniture, such as rosettes and lion heads. These rosettes have a flattened underside indicating that they were likely fitted to other objects. Unfortunately, the environment at Hamadab has meant that the furniture to which they were fitted has not survived, as these they would have been made of organic materials, such as wood, leather and grasses.

Further evidence for the use of organic items has been found in connection with pottery production, where the so-called *mat impression* forms part of the functional surface treatment of the vessel, revealing a negative imprint of the mats.

The Two lion appliques from the town have on the reverse a form of attachment, implying a *tongue and groove* device. Another remarkable faience artefact is a small representation of a lioness feeding its cubs. Similar artefacts from other archaeological sites have been suggested to have acted as the lids of ornamented boxes or personal storage containers, perhaps used for the safe keeping of precious items.



Mummy-form faience amulet (head missing, H. 4.3 cm)

Artworks like anthropomorphic and zoomorphic figurines likely relate to religious and cult activities, for example the bronze statue of the god Sebiuemker found in the temple, as well as a lion-headed deity discovered near the northern town wall.

However, figurines were also produced from roughly fired clay, which might suggest their use in personal rather than official religious practices. It is possible that some of them may have acted as simple children's toys. Even today one can observe children forming such toys from clay as they accompany adults in the preparation and production of domestic pottery vessels in their houses.

*Different types of anthropomorphic figurines: a flat face with nose, lips and "coffee-bean" eyes (H. 5.5cm) and a sitting woman with pronounced feminine curves (H. 3.1 cm)*



A number of artefacts also relate to social practices and activities beyond the domestic sphere and the settlement. The evidence for weapons and in particular archery equipment, such as arrowheads made of stone or metal, and thumb rings, that would have been used by Meroitic bowmen. The latter artefacts, so-called *archers' looses*, were made from stone, especially granite, quartzite and hard sandstone. A number of unfinished thumb rings found within the town suggest that these too were produced at Hamadab.

*Animal figurine of fired clay (H. 4.3 cm)*

*Collection of stone thumb rings which have been part of a bowmen's equipment to protect the finger while pulling the string*

*Skilfully worked arrow head of symmetric leaf shape (H. 2.4 cm)*



## Ceramics

The analysis of thousands of potsherds found in the streets and residential quarters, the waste dumps and the pottery kilns beyond the town walls, provide a huge corpus of evidence for domestic ceramics. The local potters employed various clay mixtures of different origin and several production methods to produce a large variety of household wares with diverse surface treatments and often very pleasant designs. A relatively high percentage of the pottery from Hamadab consists of Meroitic fineware, though it was often found in the same assemblages together with wheelmade coarse wares and black handmade vessels.



*Black handmade jar, the impressed design is filled with red colour*

Thick walled oven pots, baking plates and cooking vessels were presumably intended for daily kitchen use and food preparation and were coarsely modelled from heavily tempered Nile clay to improve their thermal resistance.

Handmade and wheelturned utility vessels, being skilfully but quickly produced, make up the largest part of the ceramic collection. These range from small open bowls, perhaps for preparing and serving meals, to big storage containers. Large globular or tall cylindrical jars, frequently made from *wadi* clays, had excellent properties regarding water permeability and thermal shock resistance. They often served as storage containers for dry and liquid foodstuffs and were occasionally reused as hearth pots in the kitchen.

Semi-finewares like well fashioned and rather small sized cups, pots and bowls, were most likely used as daily table wares for serving and consumption. Usually these were bright red or pitch black, often finished with shiny polished surfaces.

Most famous are the white Meroitic finewares. These extremely thin walled and excellently finished vessels were made of pale firing Kaolin clay and are thought to have been prestige wares restricted to persons of high status. They were characterised by small sized bowls

*Utility vessels: cups (10 cm rim diam.), bowls (15 cm rim diam.) and larger storage jars (H.40.8 cm, 47 cm)*





*Semi-finewares attest to a specialised production centre using a restricted spectrum of forms*

and cups of outstanding quality and were often elaborately decorated with painted or stamped motifs of Egyptian, Meroitic or Hellenistic origin. Their high proportion amongst the finds at Hamadab attests to the fact that they rather had a wide distribution among non-elite groups.

The discovery of a local *ceramic production centre* on the Upper Town's periphery indicates a large scale industrial fabrication of pottery at Hamadab. Its kiln loads provide valuable reference for locally manufactured wares. Laboratory tests have identified the types of raw materials employed and have pinpointed some of its clay sources, confirming that the Meroitic finewares were also locally produced here. The main resource was Nile clay, used in the production of most of the handmade ceramics and about a third of the wheelturned products. The Hamadab potters also regularly exploited clays from the nearby wadi streams, representing about a third of the local production. White finewares were made from Kaolin clays procured from the surrounding sandstone mountains, coming from as far away as Jebel Umm Ali about 14 km to the north. Vessels made of wadi clays and fine Kaolin were mainly turned on the potter's wheel.



*Examples of thin walled and finely finished 'eggshell' vessels made of Kaolin (top: 8.5 cm rim diam.; bottom: 9 cm rim diam.)*



*Layers of Kaolinitic clay in the sandstone mountains behind the Meroe pyramids were carved out for raw material extraction*

## The hinterland of Hamadab

The Meroe region includes some of the most prominent remains of the Kushite period. Its best known ancient sites are the ruins of the capital Meroe, already discovered by the British traveller James Bruce in 1772, as well as the various buildings further to the east like the so called 'Sun temple' and the great *hafir*, an artificial water basin of almost 200 m in diameter. Together with the famous *royal pyramid* fields near the eastern mountain range, which have attracted the attention of scholars and adventurers throughout history, these sites are now classified as UNESCO World Heritage. Beyond these well-known vestiges, the wider region around Meroe has remained largely unexplored. The number of sites from various time periods recorded by our recent reconnaissance survey testifies to intense occupation and demonstrates importance of the region throughout antiquity.



The Nile, the Wadi el Hawad and the mountains to the east provided a wide variety of resources which contributed to a beneficial natural environment that favoured human occupation and a multi-faceted cultural landscape over the past millennia. Elevated sand ridges on the floodplain along the Nile and dry banks further away provided a protected habitat for settlements and cemeteries, including the mounds at Hamadab. The reaches along the wadis were likewise chosen for major occupation sites, like Awlib and Abu Erteila, as

well as for the building of large water reservoirs. The vast desert zone to the east with its sandstone and gravel ridges have yielded cultural remains from as early as the Neolithic period onwards. Numerous quarries in the mountain regions also confirm that



*Rocky landscape of the eastern mountain range behind the pyramid cemeteries*



*Sandstone quarry in the eastern mountain range*

raw materials like clay, sandstone blocks and iron ore were being procured for Meroe's monumental building programs and for its local industries during prosperous periods. Prominent mountain ridges and peaks were also used for particular ritual activities and for individual burial spots.

The earliest activities in the region are represented by little more than artefact scatters comprising stone flakes and tools, indicating temporary activity zones of a Stone Age population that was adjusted to very different climatic conditions than those found today. Larger Neolithic remains are concentrated in the more eastern desert zones and the mountain reaches – unlike to the north and south of the region, where the substantial settlement remains of El Sour and the large cemetery of Kadada testify to a significant occupation in the Nile valley in the 4<sup>th</sup> millennium BC.

Since Napatan times and especially in the Meroitic period, substantial settlements and extensive occupation sites developed on both sides of the Nile valley and along the wadi banks, accompanied by a number of burial places – particularly tumulus-shaped grave mounds – dating to the latter period and to the following Post-Meroitic and Medieval periods. Most of these subsequent cemeteries were located on elevated gravel and sandstone ridges in the desert zone as well as in the mountains. Many of these places have meanwhile suffered from later occupation and modern building activities.



*Ancient tumulus cemetery with circular grave mounds situated on the foot of the mountains*

## Human occupation and natural environment

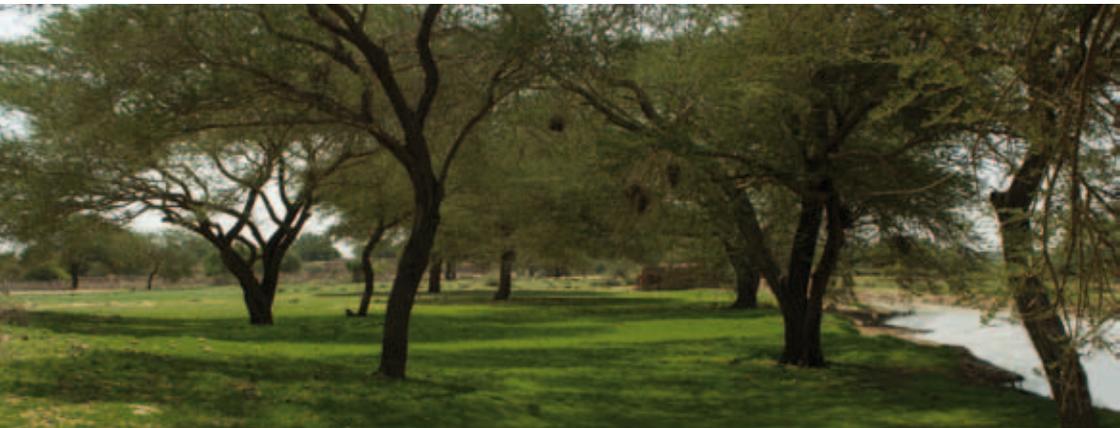


*Durra, the local millet, was one of the main staples at Meroitic Hamadab and is still cultivated in the region*

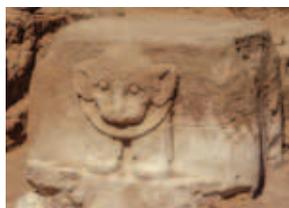
Another scope of the project is the study of ancient and present land management in relation to the region's environmental dynamics. Supported by ethnographic inquiries, it has focused on palaeoclimate, the ecology and the geomorphology of the area.

As a result of the hot and dry climate, the present landscape in the Meroe - Hamadab region is characterised by significant environmental differences, contrasting between the lush greenery of the floodplain with its fertile farmlands and adjacent settlements and the barren semi-desert with the mountains in the east only interrupted by temporary water courses like the Wadi el Hawad. The vegetation is thus determined by river oases species and semi-desert species, and includes on the one hand the remains of alluvial forests and Tamarisk bushes near the Nile and on the other hand thorn trees like Acacia, small shrub communities and sparse grasses in the semi-desert beyond the floodplain.

However, much of the landscape has now been greatly transformed by anthropogenic impact. Besides traditional family farming, intensive large scale cultivation is now supported by mechanical means and pump irrigation that allows for three growing seasons per year. The farmers today focus on market oriented cultivation of onions, beans, millet, wheat, corn, potatoes and alfalfa in combination with sheep and goat herding. The dry desert terraces to the east, that have been predominantly used for burial grounds in antiquity, are now frequently used for communal buildings like schools and medical stations, seminomadic settlements as well as by modern infrastructure like asphalt roads, power lines and pipelines.



Two thousand years ago, ecological conditions would have been more favourable than today with higher rainfall and an annual inundation that might have seized larger areas on both banks of the Nile. Accordingly, the region resembled probably more a wooded savannah than today's sparsely covered semi-desert and the floodplain would have been dominated by denser alluvial forests. Today, the region just supports the keeping of small herds of sheep, goats and camels, whereas depictions of the Meroitic period show that once elephants, giraffes and ostriches populated the area – even attracting lions which had roamed the area until the 19<sup>th</sup> century.



*Meroitic depictions of ancient fauna*

As the area between Meroe and Hamadab lies in the rain belt, the landscape is different from places further north. In particular the interaction of the Nile and the regional *wadi* systems have constituted a geomorphological setting that has produced huge arable land areas, irrigated every summer by steady water sources from the Nile and the wadis. This must also have been beneficial for the development of the region during the Meroitic period. While the Meroitic community of Hamadab mainly used summer crops like sorghum and millets, there is also evidence for wheat and barley, as well as legumes and fruits. Agriculture was not only carried out by traditional cultivation on the floodplain, irrigated by simple lifting devices, but was complemented by a savannah cultivation of rain fed sorghum fields, which is still being practiced in the middle reaches of the Wadi el Hawad. The greater Meroe region might therefore rightly be characterised as the kingdom's grain basket, which provided surpluses of staple food for the surrounding regions and settlements.

As a gradual process, increasing aridity led to a significant decrease in the Nile's water catchment, likely beginning during the earlier Kushite periods and human overexploitation of resources may have further damaged the natural environment in the long term.

To withstand periods of drought and to exploit all of the available resources of the varied landscape, different strategies of subsistence were practiced. As our ethnographical research has shown, there is a fruitful interaction between the sedentary population of the Meroe area and the transhumant pastoralists of the eastern hinterland that is still maintained today. The main routes for such economic and also family contacts as well as for long distance trade relations are the major wadis that extend far into the Butana.

## The background of the Hamadab project

2000/2001: initiative to launch joint excavations promoting archaeological training of Sudanese and German students by Ali Burri, Vice-Chancellor of Shendi University, and Steffen Wenig, Professor at Humboldt University of Berlin (head of project: Pawel Wolf) • National Corporation for Antiquities and Museums joins the project in 2001

2001–2006: mapping the Meroitic settlement by large scale surface clearings • geophysical prospection • excavations at the town's temple • first stratigraphic soundings • rescue excavations of endangered Meroitic graves on the South Mound • protection measures against illegal land seizure

Until 2006 the project was funded by private donations, the cooperation partners and the voluntary initiative and gratuitous help of students and scholars • 2002-2003 co-funding by the project *Antikes Niltal VR* (funded by the German Ministry of Science and Education)



Since 2007: stratigraphic excavations of the town's main features complement the surface clearings • cooperation with the German Archaeological Institute (DAI) and the project *Meroe Royal Baths* • joint project *Hamadab und Meroë – Stadtstrukturen und Kultureinflüsse im Mittleren Niltal während der meroitischen Zeit des afrikanischen Reiches von Kusch* funded since 2008 by the DAI and the German Research Fund (DFG)

2012: a team of University College London/Qatar started research on Meroitic iron metallurgy at the North Mound • large scale ground penetrating radar carried out in the Upper Town

Since 2013: funding by the Nubian Archaeological Development Organisation (Qatar-Sudan Archaeological Project) • project housed at the Orient Department of the DAI • cooperation with the Beuth University of Applied Sciences

2014: detailed map of the Upper Town and schematic plan of the Lower Town finalised • site management and protection measures • start of landscape-archaeological research on the history of natural environment and human occupation in the Meroe-Kabushiya region

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### **Institutional Cooperation**

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Beuth Hochschule für Technik, Berlin/Germany  
University College London – Qatar, Doha/Qatar

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