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Meroitic North and South: a structural comparison between the ancient Kushite urban centres of Kedurma and Hamadab (Sudan)

aus / from

Journal of Global Archaeology 2022: pp. 202–230

DOI: <https://doi.org/10.34780/df6-1c0b>

Herausgebende Institution / Publisher:
Deutsches Archäologisches Institut

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ABSTRACT

Meroitic North and South

A structural comparison between the ancient Kushite urban centres of Kedoruma and Hamadab (Sudan)

Mohamed Bashir

This paper addresses one aspect of ancient urbanisation in Africa, using the kingdom of Kush (ca. 1000 BC – 350 AD) in what is now Sudan as an example of early Iron Age state societies in Africa. Recent excavations provided new data that can contribute to a better understanding of daily life in the Middle Nile Valley, but also contribute to the archaeology of African settlements and urbanity. The paper looks at two urban centres, namely Kedoruma and Hamadab, in terms of everyday life in urban sites and how these factors influenced them. The discussion of the archaeological evidence from the two urban centres provides a new basis for the study of the urban fabric in the ancient Kushite Empire. The empirical basis of the physical remains allows for the development of a working model for what constitutes urbanism in the Middle Nile Valley.

KEYWORDS

Sub-Saharan African, Settlement, Urbanization, Social organization, Kedoruma and Hamadab

Meroitic North and South

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1. Introduction

1 The analysis of settlement patterns in archaeology is a key method for understanding past human activities, the adaptation of societies to the environment, and cultural, economic and political relationships within societies and between cultures. Settlement archaeology reflects many aspects of life in ancient communities, their geographical spread and their relationship to natural features. It also helps to identify people's preferences for settling in particular places.

2 In African archaeology, the phenomenon of urbanisation can only be understood in the context of a broad range of closely interrelated social and cultural processes in a particular region or period. The emergence of cities is generally associated with increasing specialisation of labour, cultural or technological innovations, or the accumulation and display of wealth or power (e.g. Adams 1972: 735). In Africa, a number of early urban centres emerged from the 1st millennium BC onwards, such as Jenne-Jenno (McIntosh 1995), Garama (Mattingly 2015), Zilum (Magnavita – Breunig – Ameje et al. 2006) or Zankor (Gratieni – Dissauxà – Evrard et al. 2013). These were permanent settlements with high population densities, infrastructures, political institutions and specialised economic activities. However, these urban agglomerations may have arisen for a variety of reasons: through strong population growth, as the seat of a political power or administration, for ceremonial reasons, as centres of specialised craft production, or as places of trade and commerce.

3 The study of the continent is central to the palaeoanthropological understanding of human origins and related areas, as well as to ethnoarchaeology and material culture studies. At the same time, the study of agricultural development, socio-political complexity and state formation in sub-Saharan Africa still plays a relatively marginal role in global debates (MacEachern 2015: 20). Moreover, attention has often been focused on elite or monumental buildings rather than the dwellings of the population in general, as the former are usually constructed of more durable materials (Connah 2008: 243). The recent excavations provided new data that can contribute to a better understanding of daily life in the Middle Nile Valley, but also contribute to the archaeology of African settlements and urbanity.

4 This article deals with one aspect of ancient urbanisation, using the example of the kingdom of Kush (c. 1000 BC – 350 AD) in present-day Sudan as an example of

state societies of the early Iron Age in Africa. Kush, a powerful and long-lived state on the Middle Nile, was a major African civilisation and an important trading partner of Egypt and Rome, supplying luxury goods such as valuable raw materials, slaves and exotic items (cf. Shinnie 1967; Adams 1977; Hakem 1988; Edwards 2004; Ahmed 2015).

5 After the Egyptian conquest of the Middle Nile (c. 1550–1070 BC), which introduced Egyptian-style administration and architecture, numerous urban settlements developed along the riverbanks. The history of Kush is usually divided into the Napatan (9th–4th century BC) and the subsequent Meroitic periods (3rd century BC–4th century AD), named after their main centres, Napata and Meroe (cf. Török 1997a). These and many other Kushite towns are comprised of rectangular mud-brick architecture, occasionally using mud, burnt brick or stone, as well as perishable materials. They provide rich architectural and material evidence for settlement studies in Africa. Settlements and domestic activities, however, remain an under-researched topic in Sudanese archaeology. The previous focus on burial and temple sites has left us largely in the dark about everyday life along the Middle Nile. Studies have mainly focused on historical events, art and inscriptions, shaping our understanding of Meroitic culture from the perspective of elites. Individual studies have attempted to synthesise Meroitic settlement data to examine settlement patterns (cf. Wolf 2019a; Ahmed 2015; Edwards 1998a; Edwards 1996; Ahmed 1984). Accordingly, the study of the development of Meroitic social and political organisations has been an enduring theme and focus of many studies. In the last 20 years, research has shifted to everyday and settlement archaeology, producing new data from recent excavations (Grzymiski – Osman 2003; Baud 2008; Fantusati – Kormysheva – Malykh 2014; Maillot 2015).

6 Within Africa, the Middle Nile provides rich evidence of urban life; in the Meroe region, excavations have now taken place in more than 13 urban sites, changing our idea of the degree of urbanisation during the Kushite period. Most of the excavated towns have comparable size and layout (3–5 ha). It seems that each settlement has temples, palaces, administrative buildings, residential buildings and industrial areas (Baud 2008: 60; Edwards 2004: 148). Some are open settlements, others have demarcated parts surrounded by perimeter walls and are housed in rectangular mud-brick buildings.

7 The geographical location of the towns depends on the accessibility of the Nile, the wadis or the meeting point between the wadis and the Nile. These late sites, located in areas of rich farmland, were characterised by their massive storage facilities within their monumental buildings and the close connection between residential buildings and workshops. Sites such as Meroe, Naga, Abu Ertiela and Wad Ben Naga indicate direct control of agricultural and other production by civic infrastructure such as temples and hafirs (cf. Edwards 2004: 166; Ahmed 1999: 306).

8 In this paper, two urban centres on the Middle Nile, namely Kedurma and Hamadab, are examined in terms of everyday urban life and the influence of these factors (Fig. 1). This study is the result of a short-term research fellowship (August – December 2021) awarded by the German Archaeological Institute (DAI) to conduct independent research related to a DAI project.

2. Research context

9 The DAI's research at the settlement site of Hamadab near the ancient capital of Meroe (see Fig. 1) is an example of how systematic archaeological research can shed light on the economic and everyday activities of the wider population (Nowotnick 2022; Wolf – Briewig 2015; Wolf – Nowotnick – Catharine 2008). These new data may be typical for the Meroe region, but are they representative for the entire Meroitic Empire?

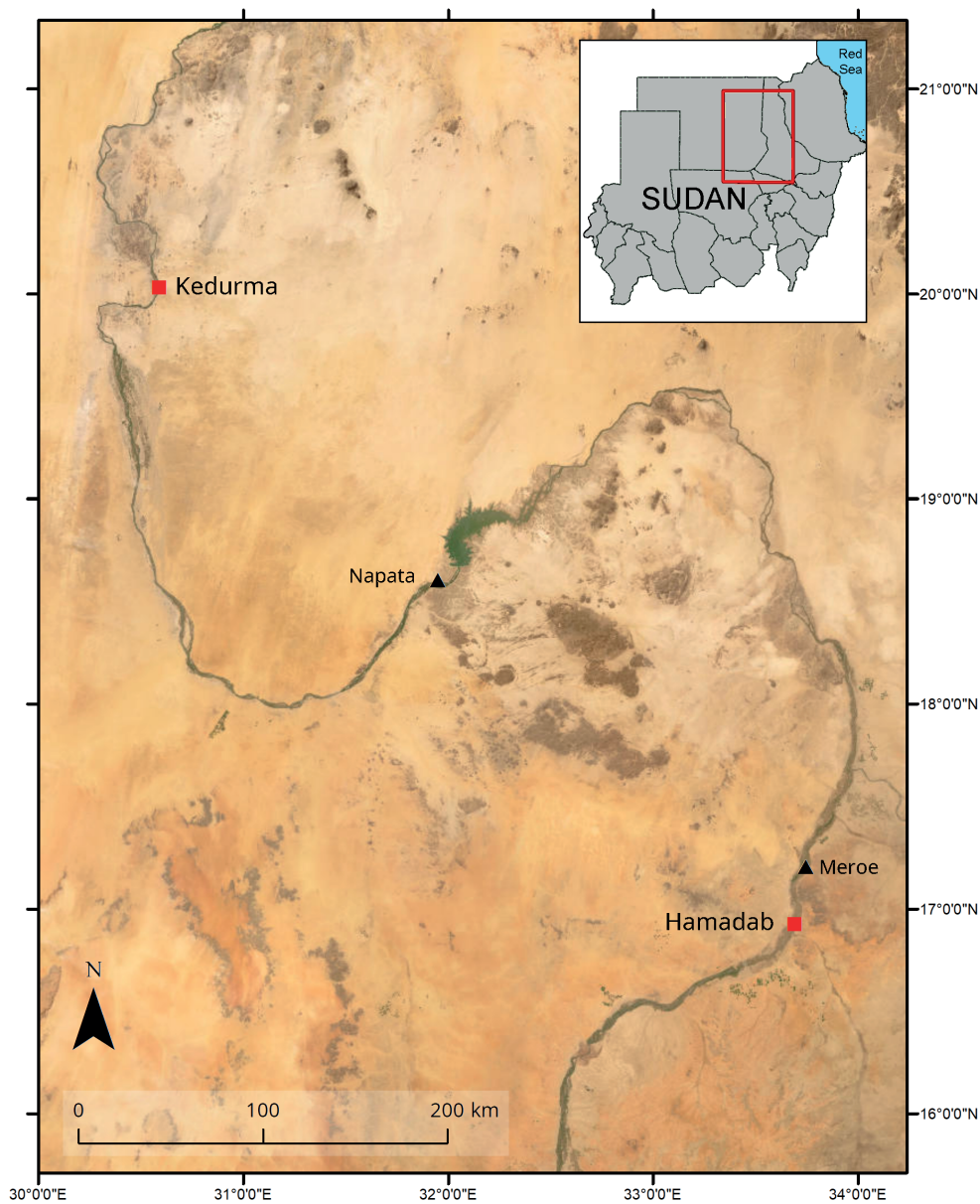


Fig. 1: The geographical locations of Kedurma and Hamadab.

In this paper, the characteristics of urban settlements are examined on a larger regional scale in order to discuss typical features of Meroitic towns.

10 The ancient town of Kedurma in Nubia, located some 700 km north of Meroe (Fig. 1), offers excellent opportunities for cross-site comparison. Kedurma has long been known as an important town with elite residences, industrial areas and residential quarters (Osman – Edwards 2012), but has remained little researched. The first archaeological work at Kedurma took place in the early 1990s as part of the Mahas Survey Project of the University of Khartoum, Department of Archaeology (Edwards – Osman 1992: 86–88). The site was not archaeologically explored thereafter. The state of conservation is poor and the site is threatened by many hazards with devastating effects, such as human activities related to agriculture and gold mining, and wind erosion. Recent archaeological investigations conducted by the University of Khartoum since 2018 (Bashir 2019; Bashir 2020a) include regional surveys and test excavations that are providing new data for a more systematic approach to the nature of the site and its surroundings.

11 Both towns, Kedurma and Hamadab, are riverine towns that play a multifunctional role as important population centres, producers of consumer goods and

hubs of Nile trade. Their location in the north and south of the kingdom represents two regional provinces in the vast geographical expanse of this sprawling state. As Kedurma is closer to Egypt and thus to the Roman Empire, it could show how Mediterranean cultural influence is articulated in Meroitic life, e.g. in architecture, material culture or culinary habits, etc. During the fieldwork, numerous imported materials were discovered, including lamps, amphora sherds and decorative ceramic styles. A comparison between the two contemporary towns, more than 700 km apart, thus contributes to the study of heterogeneity and interactions within this African kingdom.

¹² The study highlights the main features of Meroitic towns based on recent excavations, attempting a comparison between two major settlements in order to examine structural similarities between them. Data from each geographical zone will be examined to identify common features related to historical and environmental conditions, including the geographical setting and the temporal framework of the town. The archaeological evidence will be evaluated to compare the urban layout, size, building types and material culture in order to draw conclusions about the functionality of the towns. The comparison will include the following features:

1. Town's fortification
2. Temples
3. High-status buildings
4. Domestic architecture
5. Art and industries
6. Cemeteries

2.1 Geographical setting

¹³ The Nile Valley as a river oasis represents its own ecological niche, but its hinterland has a different character. The northern part, i.e. Lower Nubia, is a desert-like environment with little or no annual rainfall of less than 50 mm per year, a narrow valley with many rocks and rapids (cf. Edwards 1989: 19). Available agricultural land is limited to a narrow strip along the banks of the Nile. Beyond the alluvial terraces, the land on both sides of the Nile rises gently to a sandy or gravel plain of desert erosion. Part of the local redistribution of soil is due to summer storms. There is some erosion and deposition to be observed. Especially in the desert where several watercourses flow into the Nile (Barbour 1961: 138). In the south, i.e. Upper Nubia, the narrow strip of land along the Nile is an equally rich as the basins. The basins are covered with silt and clay and are flooded either naturally or by artificial channels during high Nile floods. When the Nile flood is particularly high, large areas can be inundated (cf. Barbour 1961: 133). The savannah landscape is dominated by shrubs and acacia trees that thrive on the annual summer rains, grazing for livestock and rain-fed agriculture with African plants. This affected the location of settlements, the availability of raw materials and building materials, the diet and subsistence of the population, and the movement of people and goods.

¹⁴ Kedurma is located at the northern end of the Third Nile Cataract, a region that represents its own ecological unit (Fig. 2). It is characterised by granite outcrops of the bedrock complex through which the river carves its way, forming steep channels, islands and rapids (Adams 1977: 22–23). The surface form of the granite zones is narrow and consists of deep gorges. Two smaller cataracts are part of the Third Cataract system proper. The Tombos cataract in the south and the Sabu-Kajbar cataract in the north are very rocky and rugged (Osman 2004: 34).

¹⁵ Especially in the cataract areas of the Nile, the available agricultural land is limited to a narrow strip along the bank. However, this area benefits from a number of wider alluvial basins, such as the Kerma and Letti basins, an area between Nauri and

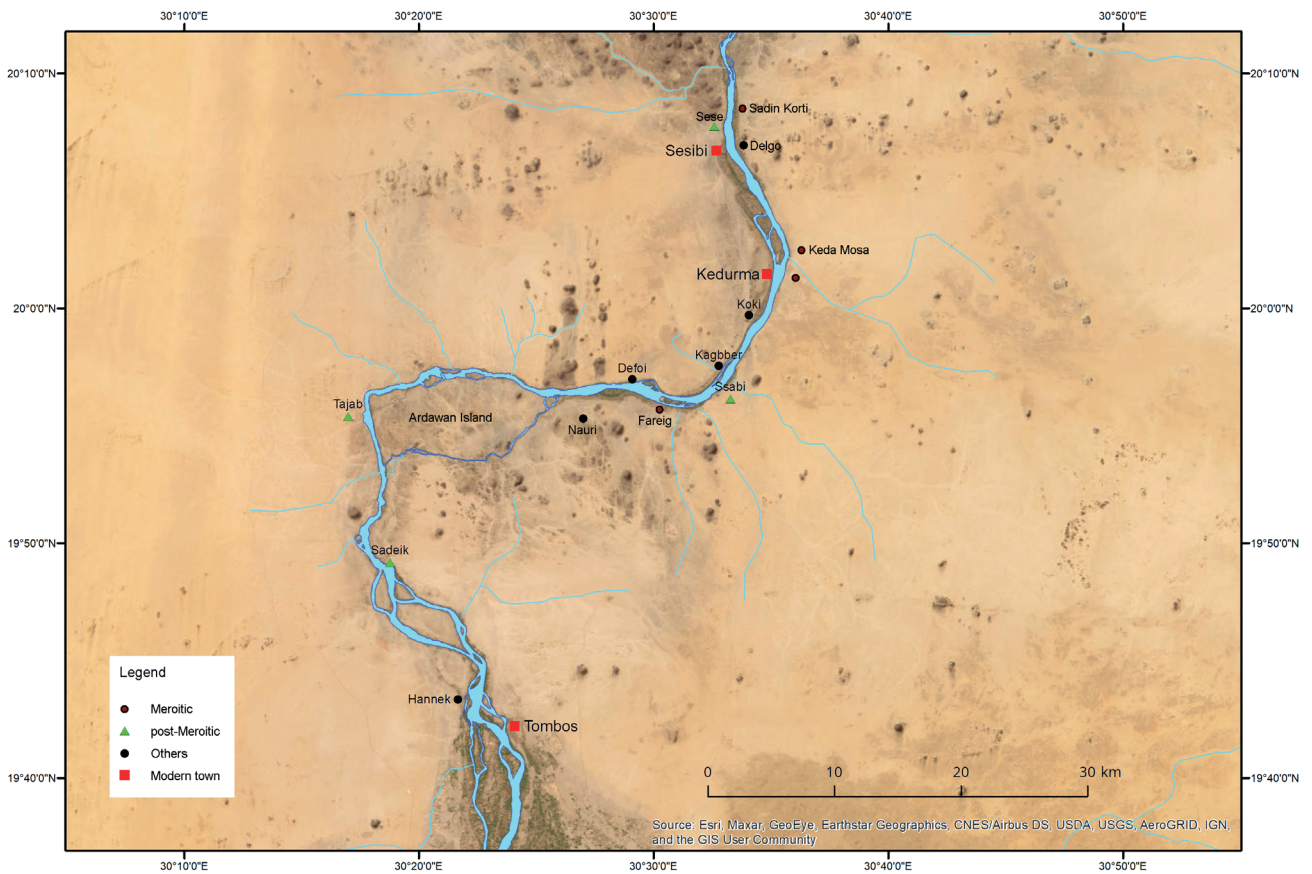


Fig. 2: Kedurma and the landscape of the Third Cataract region.

Sabu-Kajbar that is about 3 km wide and more than 13 km long (Osman 2004: 34–35) and provides the agricultural base for feeding a larger population.

16 The archaeology of the Third Cataract indicates settlement in many prehistoric and historic periods. Remains from the Kerma, New Kingdom and Napatan periods (c. 2500–400 BC) are found, but Christian and Islamic sites (c. 500–1700 AD) have also been discovered in this region (Osman 1984: 228–229). However, a general lack of Meroitic finds has led to a presumed gap in the settlement of Nubia during the last centuries BC (Wolf 2019a: 720; Osman – Edwards 2012: 93, 97–98; Török 2009: 397; Adams 1976: 21–24). This is confirmed by recent archaeological work, which found few Meroitic remains compared to the earlier settlements of the Napatan period (Osman – Edwards 2012: 126). The archaeological material suggests some Meroitic presence in the Third Cataract area, as evidenced, for example, by the sherd scatters recorded as part of the Mahas Survey project (Osman – Edwards 2012: 463–64), but there is little evidence of substantial Meroitic occupation within the cataract zone.

17 The site of Kedurma is a clear exception to this pattern. Kedurma was the most important Meroitic site at the northern end of the Third Cataract. It may have been a counterpart to Dokki Gel, the Kushite city of Kerma, located about 65 km south of Kedurma at the beginning of the cataract zone (Bonnet 2021). Both towns were located on the east bank of the Nile. However, it appears that settlements in this area shifted twice to the opposite (west) bank of the Nile, marking a significant break in the settlement of the region. First during the late Napatan period around 300 BC, when Napatan Sesibi on the west bank was abandoned and settlement shifted to the east bank of the river, to the area of Kedurma (cf. Osman – Edwards 2012: 97). The second *caesura* occurred in the last Meroitic period (c. 4th century AD), when Kedurma was abandoned and post-Meroitic settlement traces were concentrated on the west bank around the mountain of Sesibi and a Christian town was founded on this mountain. In the region of the Third Cataract, the traces of Meroitic settlement were to the east of the Nile, while

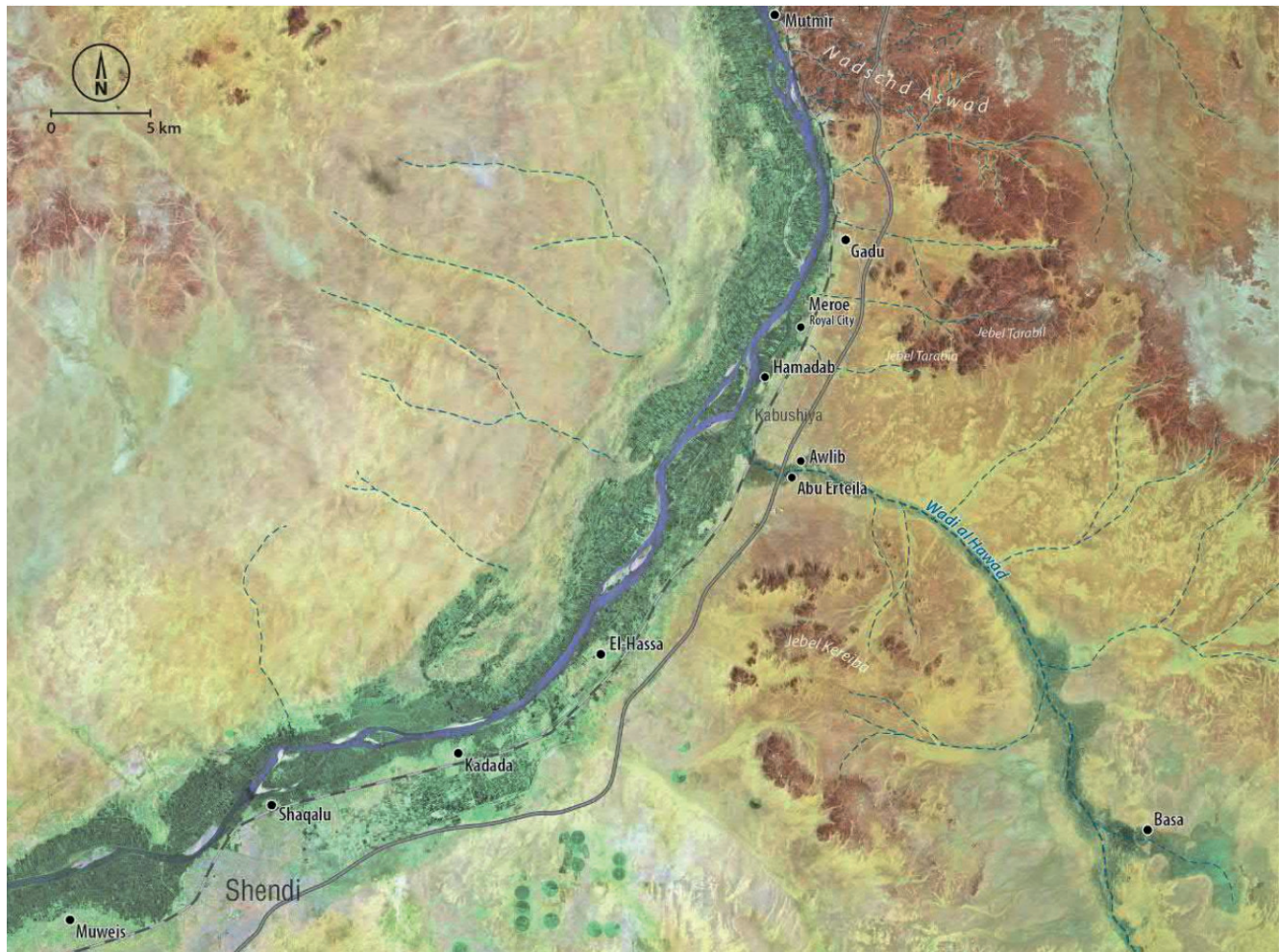


Fig. 3: Hamadab and the landscape of Meroe region.

most of the medieval towns were built on the west bank. A similar focus of settlement activity on the west bank of the Nile is attested elsewhere after the Meroitic era (from the 3rd/4th century AD), e.g. by the post-Meroitic sites of El-Hobagi in the Meroe region or Tangasi opposite Napata.

18 Kedurma is located directly on the flat terrain near the river bank, surrounded by farmland and desert. South of the site is a low hill of black granite that occupies the area between the modern village and the site.

19 East of the site is a flat desert dominated by isolated mountain ranges and crossed by wadis (seasonal watercourses). Most of the wadis in this area have various tributaries. The vegetation cover along these extensive terraces consists of acacia trees and some grasses concentrated along the wadis and in scattered areas between the gravel terraces (cf. Bashir 2021a: 39)¹.

20 Hamadab lies (see Fig. 3) in a region known as the core of the kingdom of Meroe, on the edge of the western Butana, about halfway between the fifth and sixth Nile cataracts. The area represents a self-contained landscape bordered by the Nile and the Wadi el-Hawad² and surrounded by a massive sandstone plateau (Wolf 2019b: 117).

21 This region was sparsely populated in the 3rd to 2nd millennia BC, when the kingdom of Kerma in Upper Nubia flourished. However, from around 800 BC, the

1 These wadis may have been preferred routes for trade, movement and transport, as they provide a short-cut through the hinterland, avoiding the rugged terrain of the cataract areas.

2 The Wadi el-Hawad is the largest seasonal tributary to the Nile, providing an important route way between Butana and Nile valley.

region around Meroe had attracted the interest of the Kushite state and experienced new settlement activity as well as an emerging iron “industry” that was hardly known elsewhere in the African Iron Age (Humphris – Carey 2016: 132; Humphris – Scheibner 2017: 387–397). One of the most important sub-Saharan towns of its time developed here (Wolf 2019b: 117).

22 Hamadab is located only 3 km south of ancient Meroe in a flat, fertile strip on the east bank of the Nile, about 300 m from the steep riverbank (Nowotnick – Wolf – Woess et al. 2017: 1). The site was built on an elevated levee (Wolf – Nowotnick 2006: 257) and is surrounded by a narrow fertile flood plain that is regularly inundated by the waters of the Nile and Wadi el-Hawad (Fig. 3). Both Meroe and Hamadab lie in a wide, dry gravel plain about 2 km wide, surrounded by flat sandstone mountains, providing a number of important raw materials. This region was the “heartland” of the Meroitic kingdom and thus represents one of the most important cultural and historical landscapes of ancient Sudan (Wolf – Nowotnick – Hof 2014: 110). The importance of this region is reflected in a dense settlement in the first centuries AD, which includes towns and monumental sites such as Meroe, Hamadab, Abu Erteila and Awalib, as well as smaller settlement remains such as pottery scatters in the farmland between Hamadab and Meroe, but also extensive cemeteries with pyramids and tumuli (Wolf – Nowotnick – Hof 2014: 110).

23 Each of these sites seems to have its own character, layout and size, but selective exploration still obscures the view of a detailed assessment of the spatial organisation within the towns or the relationships between them.

24 Meroitic towns were built in a variety of locations, but usually near the banks of the Nile or a wadi that provided suitable resources for the town to thrive. The function for which a town was built depended on the nature of the area. For example, a fortified town in Lower Nubia was influenced by the economic and political relations between Kush and Egypt. Defence strategies played a possible role in the distribution of Meroitic sites and their layout, of which the island villages in the Second Cataract such as Meinarti, Gaminarti, Meli Island, Gemai etc. are a good example (Edwards 2004: 162), or near strategic points such as Qasr Ibrim (Woolley 1911: 12) and Gebel Adda (Millet 1967: 54). Other settlements were centred around a local magnate, as at Karanog (Woolley 1911: 3) or Faras (Griffith 1926: 25). These in turn represent regional centres that have maintained their importance across different cultural periods.

25 Hamadab and Kedurma are both towns directly on the east bank of the Nile, near the mouth of a wadi, and both appear to be important for trade in the kingdom, along the river and between the river basin and the eastern hinterland.

2.2 Time frame

26 The exact chronological scheme for the site of Kedurma remains to be established, both for the settlement and the cemetery. The town was certainly settled in the classical Meroitic period, perhaps founded in the 2nd century BC and possibly surviving into the 3rd century AD. This assumption is based on the chronological attribution of the assemblages, generally made in the course of examining the associated pottery (Edwards 1995: 43–45; Bashir 2020a: 93). Furthermore, an archaeological survey in the vicinity of the site revealed no evidence of earlier, Napatan or Early Meroitic occupation (800–300 BC), nor of post-Meroitic remains (Bashir 2019; Bashir – Mamoon – Khaleel 2021).

27 The town of Hamadab was founded near the capital Meroe and has the character of a non-royal urban settlement (Wolf – Nowotnick – Catharine 2008: 1). Numerous archaeological finds attest to a long continuous occupation from the beginning of the Meroitic period until its abandonment in the 4th century AD, with

some post-Meroitic occupations in the following centuries (Wolf – Nowotnick 2013: 443; Wolf – Nowotnick – Hof 2014: 109). In this respect, the Hamadab site is an ideal example of the long-term development of a settlement through different phases of the Meroitic era, illustrating the character of Meroitic urban centres (Nowotnick – Wolf – Woess et al. 2017: 13).

28 There is thus a strong similarity between the towns of Kedurma and Hamadab. Both were Meroitic foundations that had no Napatan antecedents. They had been founded as Meroitic towns and experienced their heyday in the classical Meroitic period. Both were inhabited for several hundred years and perished at the end of the Meroitic period.

3. Settlement size and layout

29 The Meroitic town of Kedurma occupies an area of about 3 ha (c. 300 × 110 m). At its southern end it is surrounded by a low, elongated hill. Although the complete layout of the town is not yet known, its general structure can be described as an open settlement without traces of an enclosing wall (Fig. 4). It consists of four sectors: (a) an elite sector near the northern end of the site, which includes a local palace/administrative building; (b) a domestic sector consisting of houses densely distributed in the sandy zone, located about 80 m south of the first sector; (c) an industrial sector characterised by pottery workshops and superficial scattering of ashes and fired bricks, located slightly southeast of the domestic sector; and (d) a religious sector represented by the temple and an open space, located about 300 m north of the settlement and now affected by intensive agricultural activity. As the work is still at an early stage, no signs of a road system have yet been discovered.

30 Hamadab is the only Meroitic urban site for which a complete town plan with the most important functional features is known. It was built on a natural sand hill of about 200 × 250 m. The urban area covered about 5 ha and had a well-organised layout (Fig. 5). Similar to neighbouring Meroe, Hamadab was divided into two parts: a fortified Upper Town measuring 105 × 105 m and a large suburban settlement to the south. The orthogonal and almost uniformly oriented building patterns with narrow streets and very dense house structures characterises both parts of the town as parts of an urban settlement (Wolf – Briewig 2015: 123). The investigation revealed a temple, a residential or administrative building, workshops, house architecture and a fortification. A wide avenue is the main artery of the town, directing all movement towards the sacred centre (Wolf – Briewig 2015: 123).

4. Comparing functional elements

4.1 Town's Fortification

31 The town of Hamadab is partially protected by a massive wall that enclosed about one-third of the settlement, including the temple area, the tower house and the residential quarters, resulting in a square arrangement of 105 × 105 m (Wolf – Nowotnick 2006: 259). The enclosing wall was almost 3 m thick and consisted of a core of mud bricks faced with interlocking layers of fired bricks, creating a very stable “multi-component building” protected from the annual rains. The wall is preserved in parts up to a height of 2.5 m. Its original height may have been 4 or 5 m, as suggested by the collapsed rubble (Nowotnick – Wolf – Woess et al. 2017: 4). Besides its protective

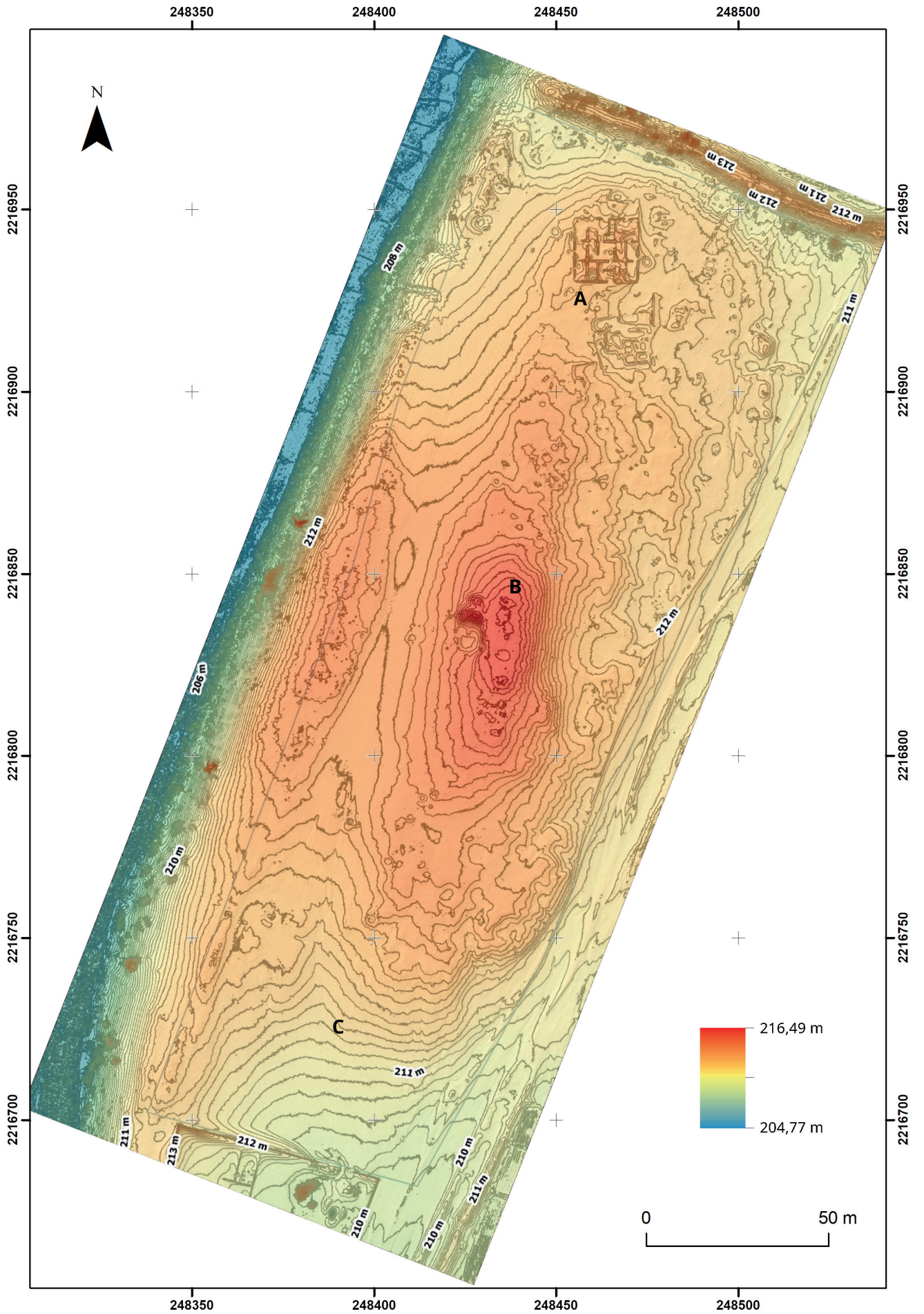


Fig. 4: Map with 20cm contour lines of Kedurma settlement site, with its sectors in letters.

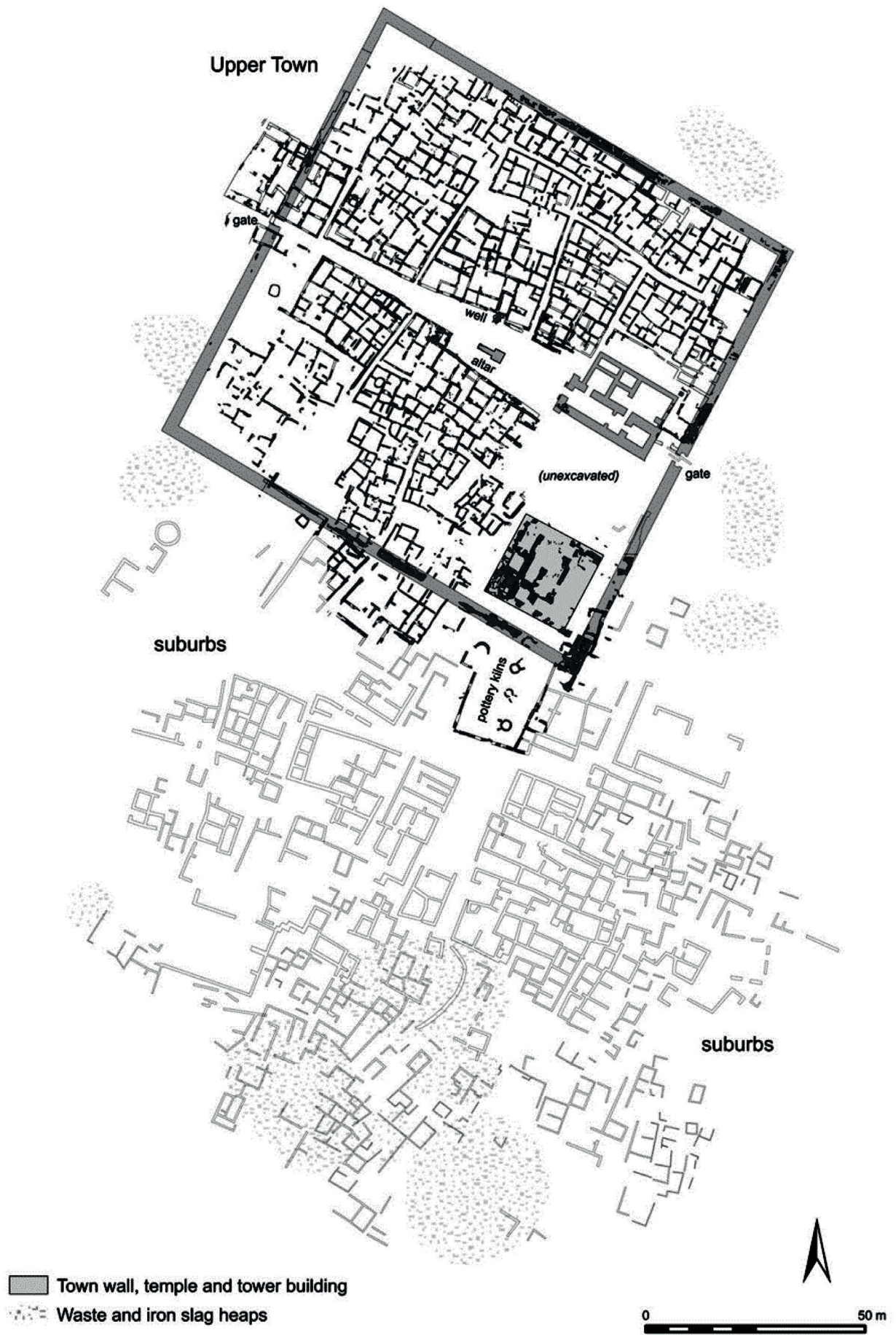


Fig. 5: Plan of the enclosed settlement and open suburbs of Hamadab.

character, the town wall was probably more than a mere fortification and may also have had a representative function, marking the urban character of the town.

32 Access to the enclosed Upper Town was possible through two gates. The main gate facing the Nile was only 1.6 m wide and was located in the middle of the western wall. The smaller rear gate is located opposite in the eastern wall, exactly in the central axis behind the temple (Wolf – Nowotnick – Hof 2014: 108).

33 There are no traces of fortifications or enclosure walls at the site of Kedurma. And there is no natural protection around the site, except for the mountain range on the south-eastern side, which provides a good vantage point.

4.2 Temples

34 The religious area in Kedurma is represented by a small temple on the northern edge of the settlement area, about 300 m north of the settlement. The temple was only briefly described as a “poorly preserved red brick temple with at least one stone-built gate” (Blackman 1937: 146), no measurements or pictures were given. The visible remains show that the temple was built mainly of red brick and sandstone slabs. No information is available about the floor plan and internal details of the temple, as no work was carried out there. The site of the temple is now heavily damaged by agricultural activities and no salvage work has been carried out.

35 The religious area of Hamadab is represented by a small temple called H 1000, built of mud bricks with red brick cladding. It is located at the end of the avenue leading from the main gate to the centre. A wide forecourt with an open altar underlines the importance of the sanctuary within the upper town. The temple was partially excavated by J. Garstang in 1914, revealing its basic structure with three main rooms arranged along the main axis, consisting of two antechambers separated by a pair of columns and the sanctuary with altar. The furnishings included sandstone sculptures and two monumental stelae with Meroitic inscriptions of Queen Amanirenas and Prince Akinidad, dated to c. 20 BC (Garstang – George 1914: 16–17). In view of these politically important inscriptions, the temple is quite small.

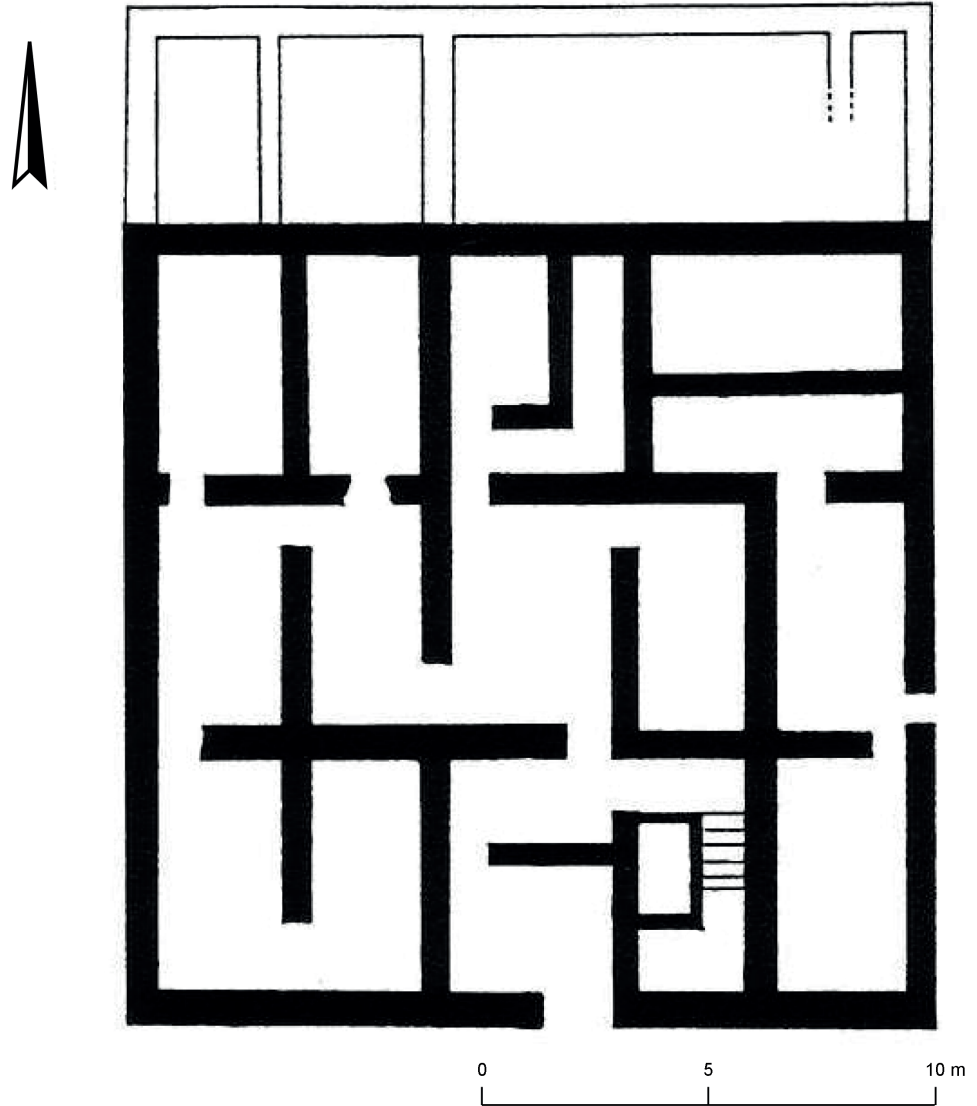
36 The temple was re-documented in 2002 (Wolf – Nowotnick 2006: 257) and re-excavated 2019. In addition to the three main rooms, there were two side doors that provided access to five ancillary rooms. This annex was part of the original complex and must have played a role in the function of the temple. The deity worshipped in Hamadab is probably Amun.

37 In both towns, the temples tended to be small and located outside the centre, near the fringes of the settlement and partially excavated during the 20th century. Nevertheless, they provided a place for worship and cultic activities in the community. These smaller sanctuaries were built of brick, with architectural features such as doorways and columns constructed of stone.

4.3 High-status buildings

38 The most conspicuous structure in Kedurma is Building A, located at the northern end of the settlement (Fig. 6). It is an almost perfectly square building measuring 18 × 18 m. The exterior and interior walls are made of mud bricks, laid as alternating courses of headers and stretchers (Osman – Edwards 2012: 100). The walls were about 0.55 m wide, and are thus thicker than those of ordinary houses. Apart from this, Building A also differs in size, layout and location from the architecture of the residential houses. Building A is oriented exactly according to the cardinal directions. The main doorway in the middle of the south wall leads into a vestibule with a staircase on the right side. The doorway was about 1.5 m wide, but no traces of stone jambs

Fig. 6: Elite structure: Building A at Kedurma.



survive, as one would expect in such a large building. The rest of the building consisted of a series of relatively small interconnected chambers of c. 3×2 m size, which were roughly planned in outline (Edwards 1995; Osman – Edwards 2012: 100).

³⁹ As the main feature of the site, Building A can be considered as elite residence, perhaps as local palace. Its architecture follows the model of other residential buildings throughout the kingdom, such as those built by the famous Meroitic builders King Natakamani and Queen Amanitore at Wad Ben Naga, Mouweis, Barkal, Dokki Gel, or Kerma, etc. (Baud 2008: 60; Maillot 2014: 82). Those buildings were of square plan with small chambers and platforms to support their second storeys. In contrast to these royal palaces, however, the smaller residences of the provincial elite are characterised by smaller dimensions, the absence of architectural elements in stone, and less elaborate decoration.

⁴⁰ A similar square structure was studied at Hamadab (Nowotnick – Wolf – Woess et al. 2017). Building H 3000 is a massive, detached tower house located in the southeast corner of the upper town and surrounded by dense residential development (cf. Fig. 5). It is assumed to have had administrative and representative functions in the town.

⁴¹ The excavations show that H 3000 stands out from all other buildings in Hamadab because of its size and floor plan (Fig. 7). With a floor plan of 21×21 m and 2 m thick walls, it has a monumental character typical of Meroitic “palace architecture” made of mud bricks faced with red bricks and white lime plaster (Wolf – Nowotnick



Fig. 7: Residence H 3000 at Hamadab.

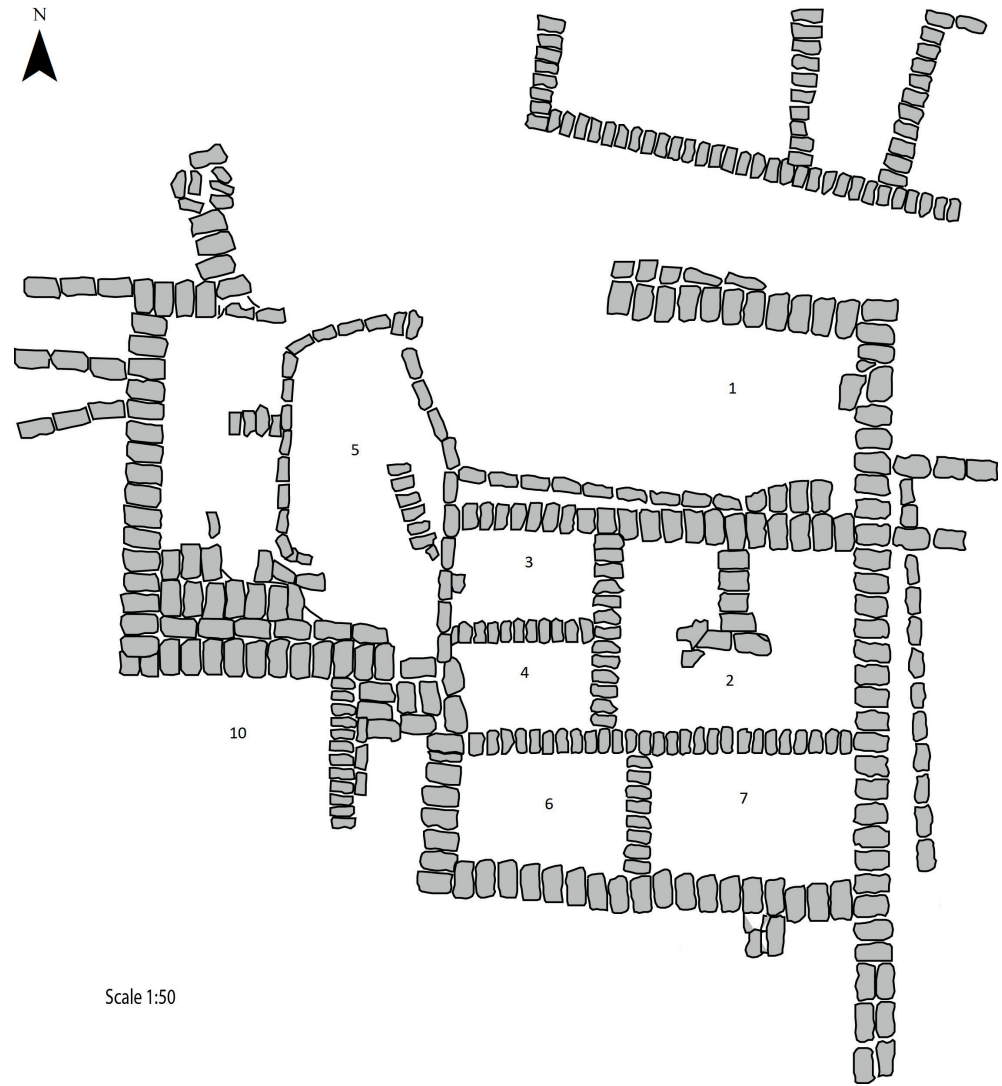
2009: 202). The monumental main portal in the centre of the west wall also led into a vestibule with a staircase on the right side. The architectural remains suggest that door jambs and thresholds were made of wood. The architectural design and thickness of the walls suggest a multi-story building.

42 Both buildings are readily comparable in plan and size, being freestanding structures of 18 m and 21 m sides, respectively. The construction technique used is referred to as casemate foundation or “cellular platform technique” (Maillot 2014: 788). These buildings are usually square in plan and were several storeys high. Some of the basement rooms were blind cells with no access except perhaps from above. This type of monumental building over a foundation platform is a common model of Meroitic elite residences found in many Meroitic sites in the northern, central, and southern part of the kingdom (see Baud 2008: 60). Royal palaces, while similar in design, are much larger in scale, measuring up to 60 × 60 m. Even though Building A at Kedurma had thinner walls, the two massive buildings of Kedurma or Hamadab were clearly separated from the ordinary residential quarters. They were two or more storeys high and thus towered over the residential quarters, probably serving as the seat of a local authority.

4.4 Domestic architecture

43 At Kedurma, most of the settlement area was probably occupied by domestic living quarters. Limited archaeological work has confirmed that there was a complex

Fig. 8: Plan of the excavated domestic building Complex B at Kedurma.



of residential buildings to the east and south-east of Building A, all consisting of mud-brick houses visible on the surface. Other foundations and buildings, particularly on the windward north side of the site, are covered by sand. One of these foundations, referred to as Building B, was partially destroyed during the construction of a canal embankment in the early 1990s. Exposed areas examined by Edwards and Osman (Edwards 1995) showed that only one or two brick courses of walls remain from this building, and that it was built on sand deposits. Neither floors nor significant amounts of settlement remains were preserved in the small area examined (Edwards 1995: 40).

44 A more representative example of domestic architecture is Complex B, excavated in 2018, where a variety of domestic materials were found in different rooms. The general shape of the building is a tight cluster of irregular, small, interconnected rooms in an area of about 15 × 15 m. The walls are built of mud bricks and were only 0.30–0.35 m thick (Fig. 8). No plaster was found on the walls and doorways. The standard size of the bricks used was 0.30 × 0.20/0.35 × 0.18 m. Many small chambers were separated by a dense accumulation of thin walls. Seven small rooms of 2 × 3.5 m were found in the middle of the building. The fill in and around the structures consisted of domestic refuse in a white sandy matrix. It contained cooking vessels, large quantities of sherds, many bone fragments, clay loom weights and charcoal scattered throughout. The main feature in the western part of the building is a curved mud-brick wall 0.30 m wide, which is an important place for cooking or heating food. This area was filled with charcoal and ash and contained four vessels *in situ*.

45 The discovery of two storage vessels over old vessels near the southern outer wall of Room 7 could indicate at least two levels of occupation. The other rooms of the central area were divided by thin partitions. The western area of the rooms was poorly preserved and its internal division remains uncertain.

46 The excavations in the upper town of Hamadab revealed that most of the buildings were ordinary houses that occupied large parts of the walled town and served as domestic quarters (Wolf – Nowotnick – Hof 2014: 729). These are organised in large rectangular blocks or “insulae” that comprised six to eight separate units and probably represented individual households. Excavations in blocks H 1200 and H 1600 revealed their domestic and civic use (Wolf – Nowotnick – Hof 2014: 727).

47 The eastern “core house” of block H 1600 in the centre of the Upper town was the focus of closer investigations into the nature of Hamadab domestic architecture (Fig. 9). It developed dynamically and multifunctionally in nine construction phases between the 2nd and 4th centuries AD (Wolf – Nowotnick – Hof 2014: 723). The house was probably single-storey, as it had thin mud-brick walls and there were no stairs.

48 The block was divided into several separate units, each with its own entrance and a series of interconnected rooms. Most of the rooms were rather small, between 3 and 19m² in size. The size of the rooms, their internal furnishings and the artefacts characterise the units as either courtyards, living rooms, working areas or kitchens (Fig. 11). Typical components of Meroitic dwellings are storage vessels made of mud bricks, ovens and hearths (Wolf – Nowotnick 2013: 437–439). The distribution of vessels and hearths testifies to the preparation of food in several areas of the house.

49 In both sites, large ceramic vessels filled with fine ash were found in the corners of the rooms, which had obviously served as hearths (Wolf – Briewig 2015: 123; Bashir 2020a: 92) (Fig. 10 – Fig. 11). This is comparable to other Meroitic sites throughout the Middle Nile Valley, e.g. in Gaminarti, Meili Island, Selib, Kawa, etc., as far south as Abu Geili (cf. Adams 1981).

50 At Hamadab, at least two of the 19 rooms in building H 1600 have been recognised as kitchens. These contained two types of vessels: handmade, purpose-built oven pots and reused wheel made jars with carefully abraded rims (Wolf – Nowotnick – Hof 2014: 727–729; Nowotnick – Wolf – Woess et al. 2017: 10). Additional cooking was done on open fireplaces at the floor level.

51 At Kedurma, 21 complete and fragmentary vessels were found scattered along the walls and within the curved mud-brick wall in the middle of the excavated Complex B. The vessels were found in the middle of the building. Some of these vessels were found stacked on top of each other, indicating a long period of use and repair of these kitchen facilities (cf. Bashir 2018).

52 In addition to these hearth vessels filled with ashes, Kedurma and Hamadab also yielded wheel-made jars installed in the corners of several rooms, which probably served as storage containers (cf. Wolf – Briewig 2015: 123).

53 Evidence of workrooms for the production of small-scale objects, such as leather or stone working or cloth making, came to light in several rooms of the domestic houses at Kedurma and Hamadab. The discovery of loom weights and spindle whorls at both sites suggests the production of textiles in Meroitic dwellings and provides evidence for the daily occupation of some members of the urban community (Wolf – Briewig 2015: 129; Bashir 2020a: 93). Loom weights are also attested from large Meroitic sites such as Qasr Ibrim and the city of Meroe, as well as from smaller village sites on the islands of Gaminarti, Meili and Tila (Yvanez – Wozniak 2019: 20).

54 The mud-brick dwellings at various Meroitic sites in the north and south show a great variety of house types and town plans, which represent self-developments in connection with local social dynamics (cf. Adams 1980: 272).



Fig. 9: Plan of excavated area with block H 1600 in Hamadab.



Fig. 10: Cooking vessels in the excavated buildings in Kedurma.



Fig. 11: In situ oven installations in the kitchen of Hamadab.

55 Standardised units of Meroitic residential architecture are not yet known. However, the regular design of some excavated houses suggests standardised building practises and some degree of planning. It appears, however, that the large blocks were internally subdivided into separate units consisting of a single room or often a group of rooms arranged in conjunction with a visible or invisible courtyard and divided into functional areas, typically as at Hamadab, Kedurma and Arminnia West (Nowotnick – Wolf – Woess et al. 2017: 9; Bashir 2020a: 93; Fitzenreiter – Seiler – Gerullat 1999: 121–122).

56 The urban communities in the north and south of the Meroitic kingdom seem to have had similar living conditions despite different topographical or ecological conditions. The general organisation of the settlements of Kedurma and Hamadab, building materials, architecture and room sizes are readily comparable. Identical furnishings and everyday objects also suggest similar techniques of food preparation and craft production.

4.5 Art and industries

57 The production of finished goods can give an indication of the scale and complexity of craft and industry, indeed of the economy as a whole. Distribution patterns, especially of homogeneous goods, may indicate the existence of interregional trade or exchange, and the possible survival of long-distance trade and contacts (Edwards 1989: 178).

58 Adams (Adams 1981) has divided Meroitic arts and industries into three categories, which are thought to cover all aspects of this theme:

1. Household crafts: these probably include weaving, basketry and the production of handmade pottery. These were made by Meroitic women, though not in every household. With the exception of a few particularly skilled or productive craftswomen, these productions are unlikely to have been of commercial importance,

2. Local consumer goods: these include utilitarian products for local consumption: implements and containers made of iron, leather, wood and pottery, although there is less direct evidence of widespread trade in these products. It is possible that they were produced in the individual districts,

3. Specialised luxury goods: luxury goods such as gold, bronze and glass, ornamental and inlaid woodwork, certain leather goods and textiles, and fancifully decorated pottery which, because of their nature and rarity in tombs and domestic sites, were produced in only one or a few specialised production centres and were widely distributed through trade (Adams 1981: 6).

59 Although some of these statements are outdated, the general tripartite division is a useful model that can be tested against the newly excavated data from Kedurma and Hamadab.

4.5.1 Textile production

60 A large number of spinning and weaving tools show that textile-related activities formed a significant part of the daily activities of the inhabitants of Meroitic settlements such as Kedurma and Hamadab (Fig. 12, Fig. 13). Textile production is particularly strong at Kedurma. During the excavations in Complex B, about 150 complete and fragmented loom weights were found, concentrated in the central areas of the building and partly scattered in the western part. They are made of unfired clay, have an ovoid shape with rounded to flat profiles and a perforation at the upper narrow end. Their maximum size ranges from (60 × 110 × 80 mm to 80 × 120 × 80 mm), together with a weight of 630.7 to 806.2 g. Fragments of five spindle whorls were also found in this building. They were all made of fired clay. One spindle whorl made of clay is

Fig. 12: A spindle whorl of fired clay from Kedurma.



Fig. 13: Types of spindle whorls found at Hamadab.



decorated with ornamental incisions and impressions. Remains of woven textiles made of cotton and linen are common in the Kedurma cemetery, where they were used as shrouds or wrappings for the dead (Bashir 2021b).

61 Spindle whorls and loom weights, found in many of the excavated rooms of Hamadab, also provide evidence of domestic textile production within the residential quarters (Wolf – Briewig 2015: 129). Loom weights and spindle whorls are of the same kind as found at Kedurma and other sites, testifying to standardised tools and production techniques across the kingdom. The identification of loom weights and spindles in these urban settlements shows that spinning and weaving was a widespread domestic industry, whether for household use or for barter.



Fig. 14: Samples of pottery from Kedurma.

4.5.2 Ceramic production

62 The excavations at Kedurma revealed a typical Meroitic pottery collection (Fig. 14). The ceramic repertoire from Kedurma corresponds to the vessel forms of the later Meroitic period (Edwards 1999: 60–62). A wide variety of clays, vessel shapes and designs of Meroitic domestic wares are attested for the settlement of Kedurma. Forms such as bowls, jugs, mugs and cups of fine pottery are present (Bashir 2022 forthcoming). About three quarters of the total pottery from Kedurma was shaped on the wheel, while one quarter was handmade.

63 A preliminary assessment of the ceramic materials from about 400 sherds from Kedurma reveals some local features in the ceramic collection. The main resources were alluvial Nile mud and wadi clay. The examined ceramic corpus has a proportion of about 5% of fine ware ceramics containing kaolin. Vessels made of wadi clay and kaolinitic clays were mainly produced on the wheel.

64 The pottery found at Hamadab covers a considerable range of vessel forms (Fig. 15), including storage vessels, bowls, cooking pots and massive pot stands, as well as painted and stamped fine pottery with typical Meroitic motifs, and a few imported wares (Wolf – Briewig 2015: 120; Nowotnick 2022).

65 The potters used three local clay types for the production at Hamadab. Wadi clay was the main resource for pottery manufacture, kaolin accounts for a third and local Nile mud for only 16% of the kiln wasters (Nowotnick 2022: fig. 48). The use of nearby clay sources and pottery kilns within the town prove that pottery production at Hamadab was locally organised. A close match between the production waste from the kiln and a domestic collection from the residential quarters shows that the ceramic objects in Hamadab were largely produced for local use by the community to provide vessels for the daily needs of the inhabitants (Nowotnick 2022: 173–176).

66 The pottery from Kedurma is one of the few recently excavated household ceramic assemblages in Meroitic Nubia and represents a valuable collection for northern ceramics as well as for comparative studies with other Meroitic assemblages further



Fig. 15: Pottery from Hamadab.

south. Further ceramic studies will elucidate production and distribution patterns of pottery throughout the Meroitic kingdom.

4.5.3 Specialised workshops

⁶⁷ Manufacturing and storage facilities are important components of Meroitic town complexes. Targeted manufactories and larger production areas, as attested for pottery and ironworking, were mostly located on the periphery of the settlements (Edwards 1998b; Edwards 1996: 27–33).

⁶⁸ The industrial sector of Kedurma is located to the south-east of the settlement, as evidenced by an area of ash and red brick deposits that were probably used for pottery production. The outlines of at least three circular kilns were noted, surrounded by fragments of vitrified brick from the kiln material and over-fired pottery sherds. One of the kilns, partially uncovered by gold diggers, had a circular chamber about 2 m in diameter. It was constructed of bricks measuring $0.34 \times 0.165 \times 0.85$ m and had six pilasters around the inner walls (Osman – Edwards 2012: 103). Similar buttresses have been reported from kilns at various Meroitic sites such as Abdel Qadir and Debeira in Lower Nubia (Adams 2004: 46–47, 112–116) and M620 at Meroe (Török 1997b: 143).

69 The scale of local production in Hamadab is greater than in Kedurma. Different zones in the unfortified lower town seem to have been dedicated to the production of certain products. There is clear evidence of iron smelting as well as pottery, glass and faience production. Objects recovered from some recently looted tombs, such as bronze vessels, Roman glass and archers' rings, attest to the city's success as an urban production and trading centre due to its location at the end of the Wadi el-Hawad (Wolf – Nowotnick – Hof 2014: 729; Ting – Humphris 2017: 42).

70 The same type of pottery kiln was used for pottery production at both sites, namely a so-called “up-draught” or vertical double-chamber kiln, where heat rises from the lower kiln chamber to the firing chamber above (Wolf – Nowotnick – Hof 2014: 729; Bashir 2019: 29; Nowotnick 2022: fig. 43: 55). The workshop at Hamadab operated several such kilns simultaneously in a kiln yard about 25 × 15 m in size (Nowotnick 2022: figs. 42). Similar kilns were noted in a number of settlements, suggesting that urban potters throughout the Meroitic kingdom used the same type of firing equipment.

71 Iron production at Hamadab, which probably benefited from the technological know-how and resources of the Meroe region, was a fairly late feature in the town's history, dating to the 3rd–6th centuries AD (Wolf – Nowotnick – Catharine 2008: 212; Humphris – Scheibner 2017: Tab. 7: Fig. 4).

4.5.4 Additional remarks on production

72 The evidence from Kedurma and Hamadab sheds more light on the 3-fold model of production stages proposed by Adams (Adams 1981: 6). They confirm some points and refute others, especially the assumptions about the production of handmade pottery and the centres wheel-made ceramics. The evidence from Hamadab confirms that both handmade, wheel-made and fine pottery were produced in the same pottery kiln.

73 Domestic craft production included spinning and weaving of textiles. A variety of everyday objects were found in both settlements. These were simple tools and household objects such as saddle querns and associated grinding and hammer stones, iron tools, as well as figurines and jewellery. Numerous objects of Egyptian-Roman origin were also found in Kedurma, while imports were very rare in Hamadab.

74 Less visible/diagnostic are crafts such as leather, bone or wood working. Larger industrial enterprises with specialised firing techniques, such as pottery and iron smelting furnaces, were located on the outskirts of the settlements.

75 One role that these towns played in the economy of the kingdom could be the production of everyday commodities as well as barter goods for the state economy. The artefacts provide information about the nature of crafts, the scale and complexity of industries, and the economic activities of the inhabitants in general. Patterns of distribution, especially of uniform wares, may indicate interregional exchange and possibly long-distance trade and contacts (Edwards 1989: 178).

4.6 Cemeteries

76 The Meroitic cemetery of Kedurma is located 200 m to the north-east of the ancient settlement in an open area now partially covered by a group of modern houses. Like many other Meroitic cemeteries, the graves of Kedurma were not marked on the surface. Only small scatters of sherds or stones on an otherwise featureless gravel-covered plain are superficial indications of graves. Therefore, the total extent of the cemetery cannot be precisely determined without extensive surface clearance. Soil investigations and sherd finds indicate that it may have extended over an area of 350 × 150 m.

77 Large parts of the cemetery grounds were severely destroyed by grave robbers, gold diggers and prospectors for building materials. These activities destroyed numerous human bones, mud-brick fragments and damaged ceramic vessels that may have been part of the burial equipment. Limited archaeological investigations at the cemetery included the excavation of 23 graves, four by the Mahas archaeological project team in 1991, and the others by the University of Khartoum mission in 2018 and 2021 (Bashir 2021b).

78 At Hamadab, the cemetery was located on a separate hill, about 1 km south of the ancient town. A magnetometric survey revealed the extent of the cemetery, which extends for ca. 80 × 130–170 m with at least 100 anomalies that can be interpreted as burial structures (Wolf – Nowotnick – Hof 2014: 723). It seems to have included numerous graves without superstructure. Apart from rescue excavations, it remains largely unexplored. The excavated graves displayed characteristic Meroitic burial features: some were richly furnished with bronze and glass vessels, archers thumb rings, signet rings, amulets and large ceramic vessels (Wolf – Nowotnick 2006: 257), indicating that some of Hamadab's citizens enjoyed a relatively high status and wealth.

79 Burial rites in the Meroitic empire varied widely, even within a single cemetery. However, the same variability was found in Kedurma and Hamadab. Both cemeteries comprise largely unmarked graves with a range of substructures and alignments as well as similar furnishings.

5. Conclusion

80 The discussion of the archaeological evidence from two urban centres of the Meroitic kingdom provides a new basis for the study of urban structure in the Meroitic kingdom (Bashir 2020b: 4–19). The empirical basis of the physical remains allows for the development of a working model for what constitutes urbanism in the Middle Nile Valley.

81 Although each settlement has its own natural location and physical setting, and thus a specific form and layout, there are a number of functional elements common to both Kedurma and Hamadab, as well as many other Meroitic centres. Typical urban facilities include a temple, an administrative building, workshops for the production of goods, and living quarters for everyday activities such as cooking and domestic production. The presence of these specific elements can form an identifiable pattern of Meroitic urban life.

1. An important element in an urban settlement is a cult place, which serves the ruler's worship and possibly ritual demonstration of power. In non-elite urban settlement, this may be a small sanctuary located away from the centre that nevertheless played an important role in religious practises and cultic events for the community and perhaps the broader population of the region,

2. A detached multi-story building was the residence of the elite, likely serving as the seat of a local governor and as an institution for managing activities within the community. It was clearly set apart from the domestic areas and may have played a role as a control mechanism for involvement in the state organisation, perhaps communicating with other centres and with the central authorities in Meroe, as representatives of state authority,

3. Dense housing blocks constituted the living quarters of the townspeople, conducting an urban lifestyle. Individual households included small rooms, a kitchen and a courtyard where people slept, cooked and produced,

4. Specialised production facilities for large-scale manufacture of consumer goods (workshops) were established for the production of objects of typical Meroitic character.

82 Despite the considerable distance between the two towns studied, both have more similarities than differences, probably due to the repetitive patterns of organisation and use of space.

83 Since Kedurma is more than 700 km from the capital and has no fortified walls, it may itself have served as a regional administrative centre. Kedurma is the only Meroitic town in the area between the Third and Second Cataracts and may have served as a transit station between Upper and Lower Nubia. It is a significant site with residential and official buildings, workshops, a temple and a nearby cemetery, and has important functional features for the region. Because of its location and special features, Kedurma may also have served as a river port in the Meroitic period, perhaps for the redistribution or transshipment of trade goods. It may have been associated with the management of river traffic to facilitate exchange and communication with Egypt, especially as the agricultural potential in the region is low.

84 The importance of the non-royal town of Hamadab to the rulers in nearby Meroe is not yet clear. Since the upper town was built in a single large settlement with an enclosing wall, temple, tower house and domestic dwellings, it seems to support the notion of a direct royal enterprise, partly because of its proximity to the capital.

85 A long inscription of Queen Amanirenas and Prince Akinidad in front of Temple H 1000 also reflects the importance of the site as an official outpost. The stelae have been dated to the late first century BC and mention events also known from Strabo's account of the Meroitic attack on the Roman garrison at Syene, recalling the success of the Meroites in the war with Rome (Yellin 2012: 256). There is thus clear evidence of the demonstration of royal power at the site of Hamadab, represented by the stelae in front of the sanctuary as well as by the large-scale building programme to construct the Upper Town.

86 It is possible that Hamadab supported the capital locally in terms of administration, protection and production. It may have served as a river and inland port for the capital Meroe. The large scale of iron and pottery production, as well as the evidence for a defensive system represented by the town wall, arrowheads and archer rings, may have been of particular importance to the Meroitic court, as shown by the monumental inscriptions of Akinidad and Amanirenas at this site.

87 There is no such evidence for a direct representation of the rulers or royal activities at the site of Kedurma. The local residence could support the notion of a governor as the official representative of the state. In this case, Kedurma was rather a provincial centre where the temple was a royal investment but power was exercised by an elaborate hierarchy of regional authorities, as inscriptions on Nubian tombstones show (cf. Rilly – Francigny 2018: 73–74).

88 Nevertheless, both towns housed a non-elite Meroitic population that led an urban life of some prosperity. It is likely that Hamadab, due to its proximity to Meroe, was more under the influence of the royal house, while Kedurma was a regional centre where local authorities exercised power on behalf of the king.

89 The inhabitants of Kedurma and Hamadab lived within a network of other regional population centres linked to the central power in Meroe. The nature of the relationships between the distant provinces is not clear, largely due to the lack of detailed information about Meroitic urban settlements far from Meroe. In this case, Kedurma may have played a role in the long-standing trade and political relations that Meroe maintained with the major centres to the north, as well as with Egypt and Rome.

For this reason, numerous objects of Egyptian-Roman origin have been found, such as ceramic lamps and amphorae.

90 Finally, regional centres such as Kedurma and Hamadab played an important role in the economy and social organisation of the non-royal realm, both in the centre and periphery of the Meroitic kingdom. Both were established for a specific purpose during the heyday of the kingdom and fulfilled their function until the collapse of the state. Although there is still much to be discovered, both sites provided fundamental data for examining how factors of economic, social and political organisation played an important role in the stability of the Meroitic economy over a long period of time, at least from the 2nd century BC to the 3rd century AD.

91 The archaeological evidence from ancient Sudan is informative and meaningful for a broader study of African urban life. Domestic structures, living conditions and objects of daily life can be studied on a larger scale from the Early Iron Age onwards.

92 As settlement archaeology in Sudan is largely based on large-scale surveys and excavations of monumental architecture and royal towns, regional settlements on the periphery of known population centres currently offer the greatest research potential. These regional settlements contain archaeological evidence of daily life beyond the known Meroitic socio-political sphere of the elite and have the potential to answer fundamental questions related to the wider population, such as living conditions and daily routines in the settlements, social relations, material culture and craft production.

93 Notwithstanding the special position the Middle Nile Valley occupies in African history, mainly due to its close relations with Egypt and the Mediterranean, it can nevertheless contribute to a better understanding of earlier life in sub-Saharan towns. Its distant history, the extensive study of the region and the good preservation of its remains allow for pioneering studies of social organisation, domestic architecture and house floors, and thus early community life in Africa.

6. Acknowledgments

94 I'm greatly indebted to the German Archaeological Institute (DAI), which supported this study financially and ideally over a period of five months. Special thanks are due to the University of Khartoum, which released me from part of my institutional duties to conduct this study. I thank my colleagues at the DAI for their kind support. My special thanks go to Ulrike Nowotnick for her unstinting help, discussions and suggestions, which proved to be very useful and insightful.

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METADATA

Titel/*Title*: Meroitic North and South: A structural comparison between the ancient Kushite urban centres of Kedurma and Hamadab (Sudan)

Band/*Issue*: JoGA 22/3

Bitte zitieren Sie diesen Beitrag folgenderweise/
Please cite the article as follows: M. Bashir, Meroitic North and South: A structural comparison between the ancient Kushite urban centres of Kedurma and Hamadab (Sudan), JoGA 2022/3, § 1–94, 202–230, <https://doi.org/10.34780/df6-1c0b>

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Online veröffentlicht am/*Online published on*: 09.02.2023

DOI: <https://doi.org/10.34780/df6-1c0b>

Schlagworte/*Keywords*: Sub-Sahara, African Settlement, Urbanization, Social Organization, Kerduma and Hamadab

Bibliographischer Datensatz/*Bibliographic reference*: <https://zenon.dainst.org/Record/003031344>