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# CERAMIC FINDS FROM STRATIFIED ARCHAEOLOGICAL CONTEXTS REFLECTING COMPLEX BUILDING ACTIVITY AT *KOM* H AT WAD BEN NAGA. PART I: THE PRE-NATAKAMANI HORIZON

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**ABSTRACT:** The present paper focuses on the pottery corpus recovered from strata attributed to pre-Natakamani horizon in the area of *kom* H and *kom* A (Typhonium, WBN 200) at Wad Ben Naga. The first part of the paper describes the stratigraphic contexts from which the pottery came and establishes distinction between features related to the construction of structure WBN 700, others linked to its subsequent adjustments and/or later disturbed and finally, contexts related to its destruction and razing of the ground in preparation for the building of the Typhonium. The pottery corpus itself is analysed with special attention given to the issues of its dating and identifying the attributes distinguishing it from other, mostly later, pottery corpora from Wad Ben Naga. Amongst others, it was mainly the significant appearance of several pottery form types which were in general characteristic for Meroitic contexts datable mostly between the 1st century BCE and early 1st century CE. In effect, the analysis of the pottery corpus attributed to the pre-Natakamani horizon helped to confirm and precise dating of individual events in the area and allowed to establish a clearly defined, temporally specific profile of Meroitic ceramic culture which may serve for comparison with other pottery assemblages at Wad Ben Naga and beyond.

**KEYWORDS:** Meroitic archaeology – Meroitic material culture – Meroitic pottery – Wad Ben Naga – Classical Meroitic period



## Introduction

Between 2012 and 2017, the Archaeological Expedition to Wad Ben Naga, headed by Pavel Onderka, carried out excavations in the western part of central Wad Ben Naga [Fig. 1] which led to the uncovering of a complex structure of stratigraphic contexts associated with several periods of construction activity and subsequent destruction. As the site in general does not abound in deeply stratified archaeological contexts, the archaeological situation in the area allowed for the development of a better understanding of chronological sequence of various pottery form types represented at Wad Ben Naga, based on their occurrence in the individual phases of the stratigraphic development.

The earliest constructional remains encountered particularly in various areas of Cailliaud's *kom* H and partly also under the neighbouring *kom* A[2] could be tentatively attributed to a single monumental building (WBN 700) based on the orientation of the walls and particularly simi-

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[2] See Cailliaud 1823, I, Pl. IX.1; Vercoutter 1962, Fig. 2; Hinkel and Sievertsen 2002, Abb. IX.72.

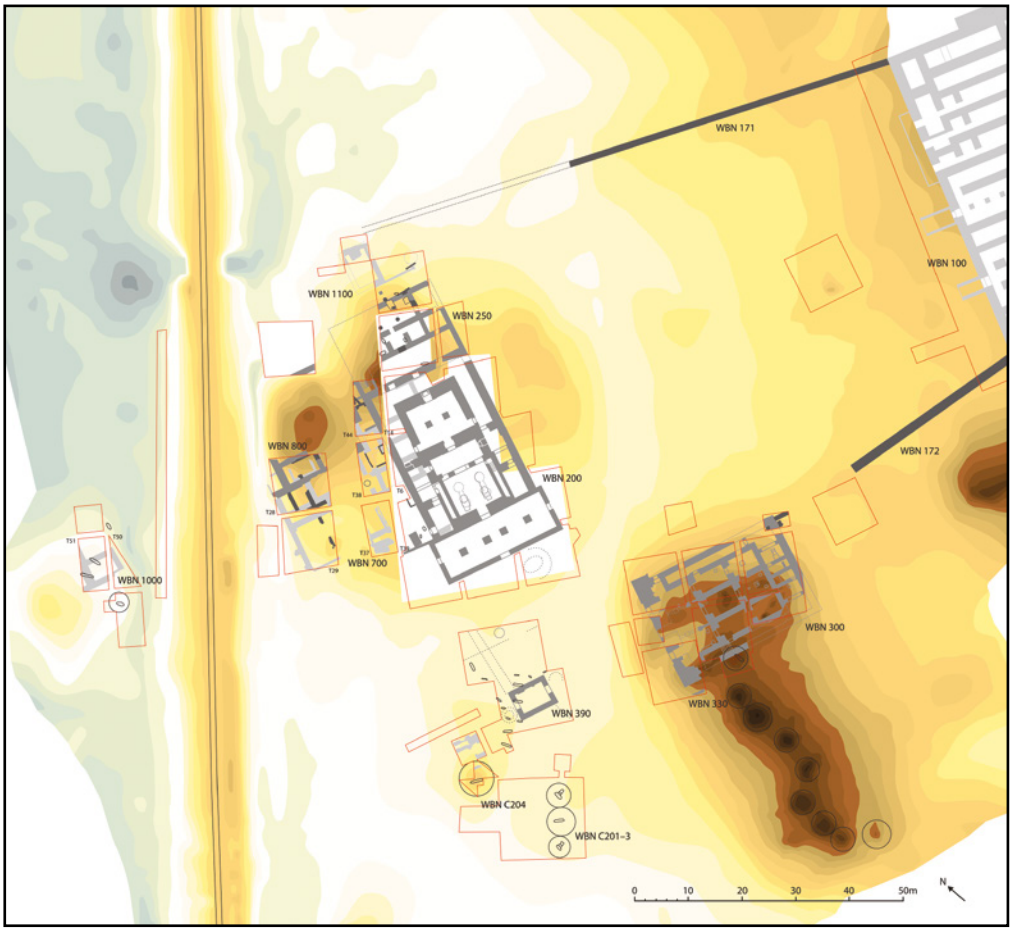


**Fig. 1.** Plan of the western part of central Wad Ben Naga. (Illustration: Vlastimil Vrtal).

larities in the construction technology. The latter most likely comprised also employment of elevated floors, constructed with the help of filling the spaces between the walls with waste-rich soil. The fill was partly preserved in several places and numerous pieces of pottery were retrieved from it during the archaeological works. As the monumental building was demonstrably razed nearly to the ground in preparation of a suitable building space for the construction of a Mut Temple (the so-called Typhonium, WBN 200) by King Natakamani, analysis of the pottery retrieved from the strata associated with the building and its destruction offered a valuable opportunity to construct a profile of Meroitic ceramic culture preceding the reign of this king, and, in extension, to contribute to the refinement of ceramic chronologies also elsewhere in the Meroitic heartland.

## Archaeological context of the finds

The present corpus of ceramic finds associated with the pre-Natakamani horizon in the western part of Wad Ben Naga comes from 27 stratigraphic units. While the strata shared many characteristics, such as their material composition and relation to the surrounding constructional features, there were also mutual differences in two crucial aspects: (1) Most of the strata can be associated with the construction horizon of monumental building WBN 700, while others rather with its grading preceding the building activity of Natakamani or with other, intermediary constructions. (2) Some of the strata were directly sealed by material from later construction activities, including those of King Natakamani, others merely underlay debris associated with the latter, and still others were thoroughly disturbed in connection with later activities in the area, down to the modern age, resulting in potential admixture of intrusive finds. The archaeological context of the finds is thus consequential for the informative value that their composition offers, and therefore it is briefly outlined below for reference.

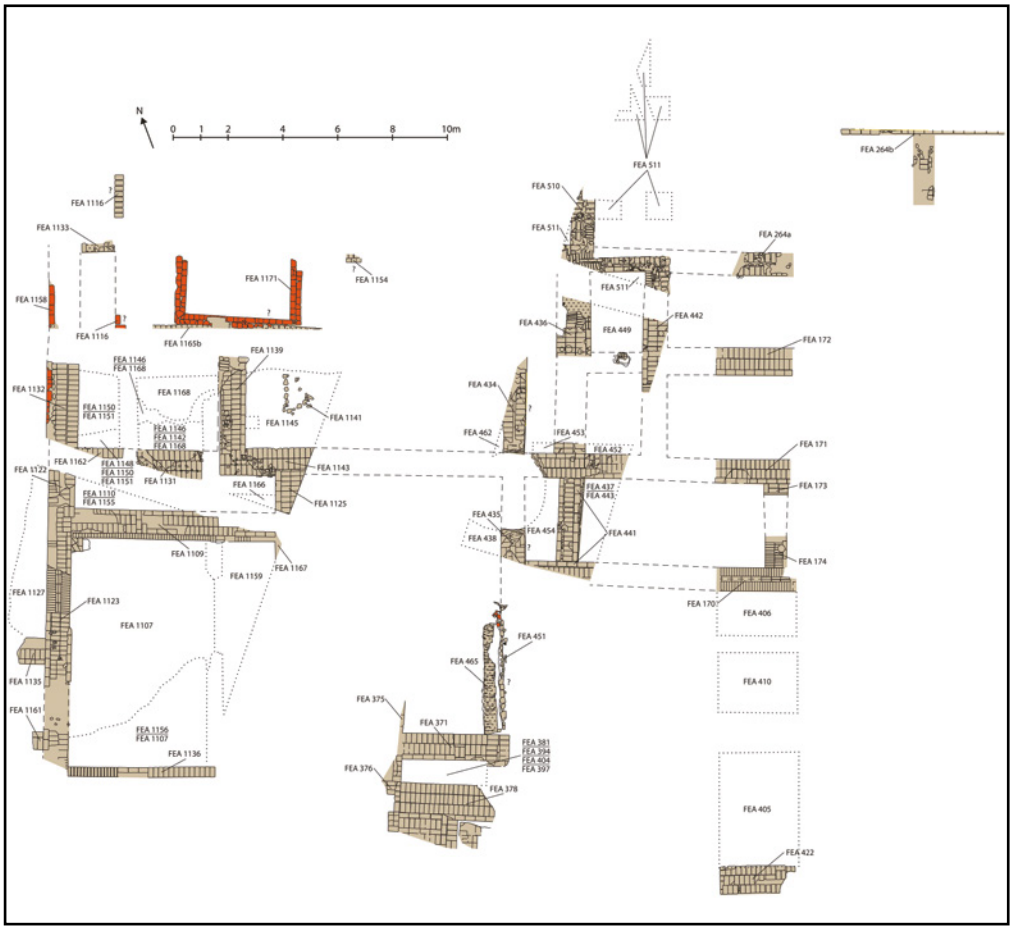


**Fig. 2.** Top plan of the remains uncovered in the area of *kom* H and the Typhonium (*kom* A) belonging to the pre-Natakamani horizon. (Illustration: Vlastimil Vrtal).

*Trench T28*

The most complex stratigraphic situation in the area of *kom* H that has been examined through excavations was uncovered in trench T28, on its southern side. Four phases of construction activity and subsequent destruction were identified in the area.[3]

The earliest horizon of construction activity was represented by a system of walls FEAs 1125, 1131–1132, 1139, 1143, 1158, and 1162, situated in the southern and western part of the trench [Fig. 2] and forming structure WBN 700.[4] The walls were built predominantly of mudbricks (mainly sandy mudbricks, but in some cases possibly in combination with silty mudbricks)[5] [Fig. 3a–b]. The western face of walls 1132 and 1158 had fired brick casing, and the walls thus may have represented the western limit of the structure.[6] The walls were built directly over the roughly levelled granitic bedrock. In the lowermost course, bricks were commonly laid as vertical or inclined rowlocks (FEAs 1139,[7] 1143), although shiners (FEAs 1131, 1162, connection of FEAs 1139 and 1143), headers, and stretchers (FEAs 1132, 1158) were used as well. At some point, the walls were graded roughly to the same level and some of them were cut by an exterior wall (FEA 1165) of a new monumental structure (WBN 800), representing the second and third phases of building activity in the area.[8] Later still, light walls of silty mudbricks were built over the graded walls and over remains of structure WBN 800.[9]

Uncertainty prevails about the attribution of some of the walls situated north of the exterior wall of structure WBN 800 either to the latter's early phase or to the earlier structure WBN 700. This applies particularly to predominantly mudbrick walls FEAs 1116, 1133, and 1154, but perhaps even to a fired brick casing FEA 1171[10] and sections of the exterior wall itself (FEA 1165b?). The lower parts of these constructions were later covered by hardstone walls, apparently integrated into structure WBN 800 (third phase). Notably, these alterations were divided from the earlier constructions by a thin layer of light grey ash [Fig. 3c]. The same layer of ash was recorded overlying the debris from the walls of structure WBN 700. There, it was cut by the foundation ditch (FEA 1169) of WBN 800's exterior wall FEA 1165 [Fig. 3a, d]. As the construction of structure WBN 800 may be linked to significant reshaping of the area in the reign of King Natakamani[11] and the walls attributed to structure WBN 700 find analogies under a nearby temple constructed by the same king,[12] the construction of the walls of structure WBN 700 as well as their grading may be attributed to the pre-Natakamani horizon in the area.

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3 *Preliminary Report* 10, pp. 104–107, Fig. 1, Pls. 3–4; *Preliminary Report* 11, pp. 110–112, Figs. 1–2, Pls. 1–2. Clear attribution of individual features to one of the phases was not always possible due to common incorporation of older constructions to newly built structures and difficulties in associating some of the fills with particular structural features. Many of these hindrances may be mitigated in the future by further exploration of the areas to the north and east of the trench.

4 *Preliminary Report* 10, Fig. 1a.

5 The upper part of wall FEA 1131 may have been rebuilt during the fourth phase of building activity on the foundations of an earlier wall. However, presence of silty mudbricks in construction fills elevating the floors indicates that silty mudbricks were also used already during the first phase of building activity in the area.

6 See discussion on walls FEAs 1122–1123 in trench T29 below, however.

7 Interestingly, wall FEA 1139 had also the third row made of rowlocks.

8 *Preliminary Report* 10, Fig. 1b.

9 *Preliminary Report* 10, Fig. 1c.

10 Forming a rectangular basin (?), originally; see *Preliminary Report* 11, pp. 100–112, Pl. 2. Different orientation of the walls was notable, as was the absence of any brickwork beneath the casing. Presence of light grey ash in the fill (FEA 163) between the casing and the stone wall may point to the attribution of the former to the early phase of structure WBN 800.

11 See wall FEA 402 in trench T38, below.

12 See the area of the Typhonium (*kom* A), below.

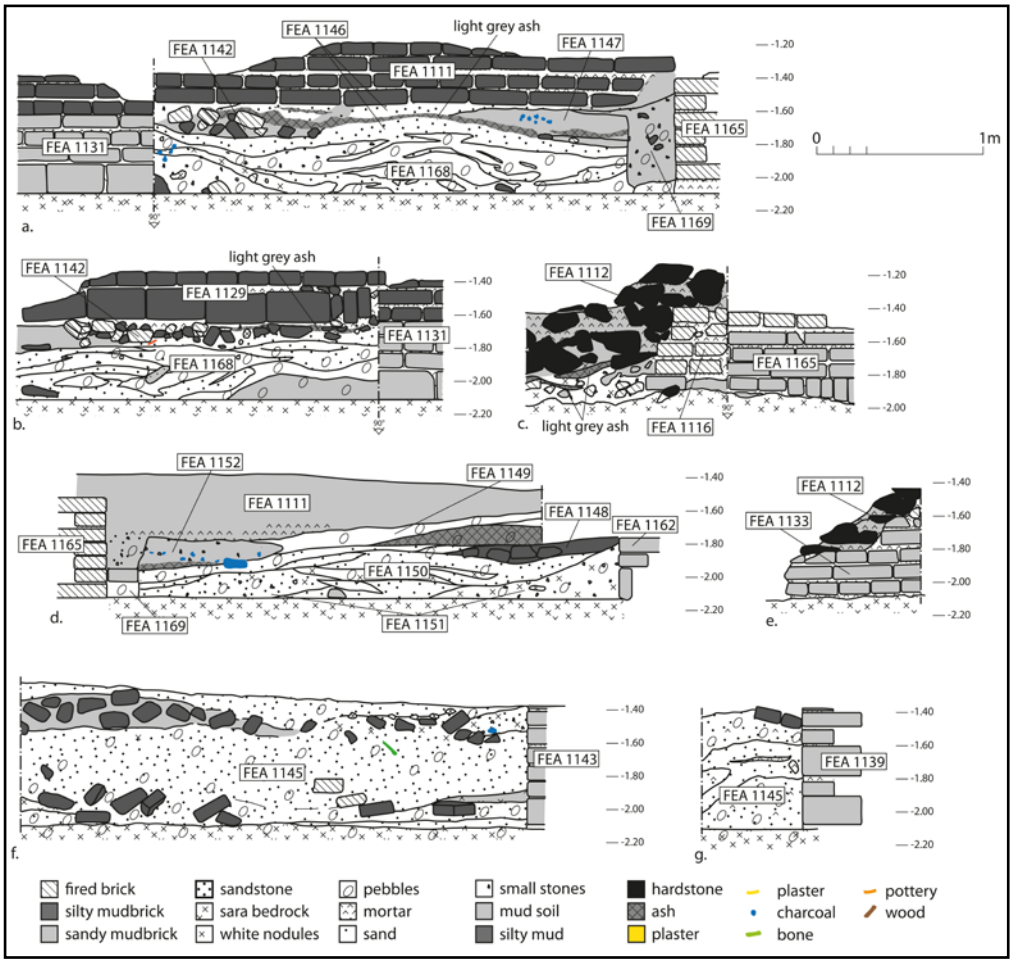


**Fig. 3.** Sections showing stratigraphic relations in trench T28. (Illustration: Vlastimil Vrtal).

Many of the walls attributed to the early monumental structure WBN 700 could be associated with fills preserved between them and reaching roughly up to their level of preservation. These fills were characterised by haphazard layering of gravel, coarse reddish sand, white stone nodules (loose bedrock), and occasional brick fragments, which contained numerous artefacts and ecofacts such as potsherds, animal bones, and pieces of charcoal. Based on an analogy from the Palace of Amanishakhete (WBN 100),[13] these strata were instantly recognised as fills supporting unpreserved elevated floor surfaces in the rooms formed by the walls. The fill to the east of wall FEA 1139 (FEA 1145) was even fortified by light walls of loosely-laid silty mudbricks (FEA 1141), originally forming a cross, which find direct constructional analogies in the palace.[14]

[13] *Wad Ben Naga Report* V, pp. 313–314, 322.

[14] See *Wad Ben Naga Report* V, p. 33, photographs SAS.046–047, p. 120, Figs. 3.17, 3.51.

Fill FEA 1145 was perhaps the one least disturbed by later debris and construction activity, as even parts of the original floor surface made of hard-packed mud may have been preserved,[15] partly sealing the underlying stratum from later intrusions. The fill, composed predominantly of gravel and sand with a number of fired brick and silty mudbrick fragments and even some pieces of lime plaster, contained numerous potsherds [Fig. 29]. They often represented significant parts of the original vessels, such as deep ledge-rimmed cylindrical vats (sub-form B4b; SM15/271–272) [Fig. 15] and open conical vessels (sub-form M8a; SM15/274–276, SM15/280–281) [Fig. 25]. Painted thick-walled white wash/slip ware was common and included some remarkable pieces such as one with a figural decoration (SM15/258) [Figs. 22, 24].[16] Four of the sherds retrieved from the fill (F15/009–12) were inscribed with a text in Meroitic cursive. The publication of these ostraca is currently in preparation. A piece of a yellow-stained open ledge--rimmed bowl (variant B2b1; SM15/285) [Fig. 14] was accompanied by several yellow pigment balls in the fill. Finally, a broken sealing (SM15/265) [Fig. 4] – unfortunately lacking a seal imprint – which once covered the rim of a jar (judging from its imprint with the diameter of ca. 90 mm) was also retrieved from it. Ecofacts were equally numerous. Many ovicaprid bones could be identified, which may be linked to cooking activity, manifested in the fill also by pieces of charcoal. A sample of the latter could be dated to 44 BCE – 62 CE (P=95.4), or 36–31, 21–11 BCE, 2–30, 38–51 CE (P=68.2)[17] [Fig. 7].

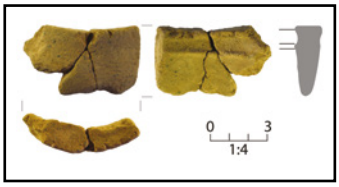


**Fig. 4.** Mud sealing SM15/265 evidencing control over the contents of some ceramic vessels in the pre-Natakamani horizon. (Illustration: Vlastimil Vrtal; Photo: Alexander Gatzsche).

A fill of nearly identical composition was situated to the west, in the area enclosed by walls FEAs 1131–1132, 1139, and 1162. Several superimposed layers of gravel, coarse sand, and white nodules, with occasional construction debris in the form of mudbrick and fired brick fragments (FEAs 1150–1151, 1168) directly overlay bedrock. Presumably during the grading of structure WBN 700, the upper parts of the fills had been removed and the upper limits of the remaining strata covered by loose sand (FEA 1146) and brick debris (FEAs 1142, 1148) that underlay a thin layer of light grey ash with fluffy plant remains [Fig. 3a–b, d]. Subsequently, a thick deposit of mud with pieces of charcoal (FEAs 1147, 1152) was brought from the north, only to be cut by the foundation ditch (FEA 1169) for the exterior wall (FEA 1165) of structure WBN 800. Chronological position of the grading may be narrowed by the inclusion of unusual examples of kaolinitic fineware (SM15/217, SM15/218) [Fig. 14] in the stratum of mud; other diagnostic fragments of pottery did not differ significantly from the composition of the other strata of the pre-Natakamani horizon, however [Figs. 29–30]. Still later, light walls FEAs 1111 and 1129

[15] *Preliminary Report* 10, Pl. 3, above and to the right of the scale. Alternatively, the 0.03 m deep mud layer may have represented trampled floor deposits that developed in the area only following the grading of the wall. It would then be identical to hard-packed mud debris (FEA 1140) that was deposited over the fill in the south-west and that overlay also parts of graded walls FEAs 1139 and 1143 (Fig. 3g). Debris of mudbricks overlying the fill can also be noted in section in Fig. 3f.

[16] *Preliminary Report* 11, Pl. 1.

[17] Sample B15-421, CRL16_390. The charcoal piece was located ca. 0.3 m under the mud floor level.

were constructed on the bed formed by the graded walls and the debris originating in them. Between these light walls, the debris from structure WBN 700 was covered by mud soil with fired brick fragments (FEA 1118) and several ash concentrations that represented both debris from structure WBN 800 and trampled floor deposits from the fourth phase of occupation. These ash concentrations were the likely source of some intrusive finds retrieved from the strata identified as debris from structure WBN 700, such as a neckless cooking jar SM15/090 [Fig. 18] from FEA 1142. The limits of fills FEAs 1150–1151 and 1168 were distinct, on the other hand, and provided a substantial amount of pottery finds that can be linked to the construction horizon of structure WBN 700. In their composition [Figs. 29–30], they fully corresponded to the assemblage from fill FEA 1145, with many examples of painted thick-walled white/wash slip ware, deep cylindrical vats (sub-form B4b), and open conical vessels (sub-form M8a) being present. Even another Meroitic cursive dipinti was preserved, inscribed under rim of a deep cylindrical vat (F15/008). Radiocarbon dating of a piece of charcoal from fill FEA 1151 puts its formation after 160–133, 116–18 BCE, 13 BCE – 1 CE (P=95.4), or 36–31, 21–11 BCE, 2–30, 38–51 CE (P=68.2)[18] [Fig. 7].

Finally, the fill of gravel and coarse sand (FEA 1166) was removed from the restricted space between walls FEA 1125 and 1130 (fourth phase) and the southern limit of the trench. It was similarly sealed by fired brick and mudbrick debris.

The fills FEAs 1145, 1150–1151, 1166, and 1168 can be with little doubt directly associated with the construction of structure WBN 700. The strata were both rich in artefactual evidence and relatively well protected from intrusive finds (with the possible exception of FEA 1166; there were no apparent intrusions, however). This makes them perfect for dating the construction of the monumental structure, and vice versa, for narrowing the dating of some of the ceramic form types. The overlying debris FEAs 1140, 1142, 1146–1148, 1152, originating in the destruction of structure WBN 700 can be assigned to the pre-Natakamani horizon provided that structure WBN 800 was built during the king's reign, similar to several other monumental buildings nearby (the Typhonium and structure WBN 250, see below). The fact that the grading of the walls of structure WBN 700 took place before his building activity at the site is evident from the area of the Typhonium.

*Trench T29*

Trench T29[19] covered the south-western extremity of *kom* H [Fig. 2] in its current state of preservation, which has been heavily affected by erosion by both seasonal lakes and railway construction works in the past and most recent times. Two periods of ancient construction activity were recorded in the area. The earlier one was represented by sandy mudbrick walls FEAs 1109, 1122–1123, and 1167. The walls were built either directly on bedrock or on a 0.1–0.15 m deep layer of gravel (central part of FEA 1123). In the lowermost course, bricks were laid as inclined rowlocks (FEAs 1109, 1122, the northern part of FEA 1123), vertical rowlocks (FEAs 1109, 1136, and 1167), and a combination of headers and stretchers (the southern part of FEA 1123). The foundation course on the southern face of FEA 1109 projected by ca. 0.1 m. In addition, two poorly-preserved sections of mudbrick walls (FEAs 1135 and 1161) started from wall FEA 1123 to the west. They were not bound to it and may have been added later or represent exterior constructions such as buttresses or a ramp; they lacked fired brick casing, however.

[18] Sample B15-326, CRL18_209.

[19] *Preliminary Report* 10, pp. 105–107, Fig. 1.

Except for FEA 1109, the walls were preserved only up to the height of a few courses. Wall FEA 1122 was a continuation of wall FEA 1132 in trench T28. Unlike the latter, it lacked fired brick casing on the west face. The possibility that the casing was present only higher in the wall does not seem very likely, and it thus cannot be confirmed that the wall represented the western limit of the building. The presence of walls FEAs 1135 and 1161 to the west of it seems to speak against the option unless they indeed represented exterior constructions. On the other hand, the direct connection to wall FEA 1132, as well as the composition of bricks and the technology used clearly link the mudbrick walls to the first phase of construction activity recorded in trench T28,[20] and thus to structure WBN 700 of the pre-Natakamani horizon.

The fills between the walls can be associated with them in terms of both function and chronology only with some reserve, as the corresponding strata were relatively shallow and affected by the heavy erosion which may have brought many intrusive finds. To the north of wall FEA 1109, the bedrock underlay a 0.1 m deep stratum of gravel (FEA 1155), from which a single handmade blackware potsherd was retrieved. A more substantial, up to 0.5 m deep stratum of mud soil with small stones and fired brick and mudbrick fragments (FEA 1110) overlay it in the whole area. Its upper limit corresponded to the preservation of walls FEAs 1109 and 1122, and it thus may have represented the constructional fill elevating the original, unpreserved floor. The pottery finds which are consistent with the composition of the fills elsewhere (e.g. ledge--rimmed cylindrical vat SM15/061) [Fig. 15] would support this assumption. The stratum was covered only by a shallow layer of sand (FEA 101), however, which hardly protected it from later intrusions.

To the south of wall FEA 1109, the situation was complicated by later disturbances. In the northern part, a roughly 0.4 m deep layer of mud soil with construction debris of fired brick, mudbrick, and sandstone fragments (some plastered) mixed with potsherds and cattle bones was deposited (FEAs 1107 and 1159). It directly overlay the bedrock and gradually disappeared towards the south. Amongst the vessels present in the two pottery assemblages, there were typical form types recurring in the fills elevating the floors of structure WBN 700. However, the debris in the form of plastered fired brick and sandstone pieces, some even preserving parts of torus mouldings that once perhaps framed a monumental entrance, and possible remains of roofing in the form of burnt wood and palm ribs indicated that any such fills had been likely considerably disturbed by debris introduced only following the structure's destruction, unless debris from still earlier buildings was reused for the fill.[21] Indeed, some of the pottery finds from the strata point to a significant admixture of later intrusions (e.g. kaolinitic shallow bowl with round base SM15/227, jar with conical neck SM15/240, small carinated bowl from Aswan SM15/129, offering moulds) [Figs. 13, 19, 28].

In the northern part of the trench, strata FEAs 1107-1159 formed the base on which later wall FEA 1137 was built. It corresponded to the fourth phase of construction activity in trench T28 (i.e. most likely post-Natakamani horizon). The remains of the latter wall and strata FEAs 1107-1159 were only then sealed by a 0.2 m deep solid layer of mud (FEA 1115) originating in erosion of the surrounding walls. In the south, stratum FEA 1107 was partly covered by heavily disturbed stratum of gravel (FEA 1156). Over the latter, the southern section of wall FEA 1137 was built. FEA 1156 thus may have represented either disturbed constructional fill linked to the early structure or debris originating in it and preceding only the post-Natakamani phase of constructional activity in the area.

[20] *Preliminary Report* 10, Fig. 1.

[21] See FEA 1145 in trench T28.

A similar situation was encountered to the west of walls FEAs 1122–1123 where only a shallow stratum of sandstone split (FEA 1127) was interspersed between the bedrock and the surface layer of wind-blown sand, often disappearing altogether. The composition of diagnostic pottery finds retrieved from it (comprising solely fragments SM15/313–315) [Figs. 15, 20, 22] again speaks for at least indirect association of the stratum with the construction fills between the surrounding walls or debris originating in the structure.

Direct attribution of fills FEAs 1107, 1127, 1156, and 1159 to the pre-Natakamani horizon is thus uncertain, as is – to an even greater degree – their attribution to the construction horizon of structure WBN 700. Both attributions are strongly supported by pottery finds, however, with the caveat of likely presence of intrusive finds.

*Trench T38*

Trench T38[22] covered part of the area between *kom* H and *kom* A [Fig. 2]. Similar to trench T28, a rather complex stratigraphic situation was preserved in the area, attesting to several horizons of construction activity and the alteration of the space for economic purposes and related activities. The earliest phase of constructions was represented by a system of walls made of sandy mudbricks (FEAs 436, 441, and 442). The walls were built directly on granitic bedrock (FEA 448); the lowermost course was laid as vertical rowlocks (FEA 441, north-south section, southern east-west section), inclined rowlocks (FEA 442), stretchers (FEA 441, northern east-west section, south face), shiners (FEA 436, east face), and combination of vertical and inclined rowlocks and stretchers (FEA 441, northern east-west section, north face). East-west section of wall FEA 441 was likely directly connected to wall WBN 171, the connection was later overbuilt by the western exterior wall of the Typhonium, and thus it could not be examined. Similarly, a section of a wall of rowlocks uncovered at the bottom of a pit (FEA 433) in trampled floor FEA 420, situated between walls FEA 436 and 442, likely continued to join wall section FEA 172 uncovered in the western court (room WBN 209) of the Typhonium.

At some point, the mudbricks walls were graded nearly to the ground and other constructions were built over their remains. Over wall FEA 442, a rectangular 'bin' with light, plastered walls (FEA 429) was constructed possibly to catch rainwater from a gargoyle originally situated on the edge of the roof of the Typhonium above and later deposited nearby.[23] Wall FEA 436 was overbuilt by a corner of a building with fired brick casing (FEA 402), possibly identical with structure WBN 800 whose remains were recorded to the west.[24] Between the former installation and the latter building, additional light walls arose that were built on a thin, but solid trampled floor (FEA 420) that covered most of the area, including the remains of walls FEA 436, 441, and 442. Given the association of the 'bin' with the Typhonium and the similar evidence of grading in trenches T6, T14, T39, and T44, both the grading and at least some of the latter constructions can be associated with the construction of the Typhonium in the reign of King Natakamani. The system of walls FEAs 436, 441, and 442 thus demonstrably belonged to the pre-Natakamani horizon and given their character, the walls can be ascribed to structure WBN 700. Another mudbrick wall (FEAs 434 and 435), running in the north-south direction, was constructed parallel to wall FEA 436 either at the same time or slightly later but demonstrably before the construction of wall FEA 402, which covered its remains. Although it also employed the foundation course of vertical rowlocks and was connected (but not demonstrably bound) to the southern

[22] *Preliminary Report* 13, pp. 94–97, Fig. 1, Pl. 2.
[23] *Preliminary Report* 13, Pl. 3.
[24] *Preliminary Report* 13, p. 94.

east-west section of wall FEA 441, it was built of darker mudbricks (in combination with the sandy ones) and was preserved to a slightly higher niveau, so its attribution to structure WBN 700 is not entirely clear. On its eastern face, whitewashed mud plaster was preserved. Together with a section of wall FEA 441, the wall was later cut by a deep pit, possibly a well, which eventually served as a refuse area.[25]

The walls of the pre-Natakamani horizon could be associated with fills preserved between their remains. In the north of the trench, the space between walls FEAs 436 and 442 was filled with ash soil and mud with occasional fired brick and mudbrick fragments and small stones (FEA 449), from which a considerable amount of pottery [Fig. 30] and animal bones (ovicaprids and bovines) was retrieved, as well as a violet pigment ball. Evidence for cooking attested by the animal bones was corroborated among the pottery finds by several spherical neckless jars with traces of burning, evidently used as cooking pots. Interestingly, a piece of a stemmed chalice-like censer (SM18/172) [Fig. 27] and a bottomless biconical stand (?, preserved only in the form of characteristic finger-pierced foot fragment) were retrieved from the stratum as well. A sample of charcoal from the fill was dated to 157–136 BCE, 114 BCE – 24 CE (P=95.4), or 88–76 BCE, 57 BCE – 2 CE (P=68.2)[26] [Fig. 7]. The stratum was sealed by a thin trampled floor of mud FEA 420 and debris from wall FEA 402 (FEA 409) [Fig. 5c]. The fill between the north-south section of wall FEA 441 and the section east in the trench consisted of loose sand mixed with a considerable number of silty mudbrick fragments (FEA 443) that underlay a rather shallow layer of loose sand and gravel (FEA 437). The latter was situated above the remains of walls FEA 441 – it may represent partly disturbed remains of the original fill between the walls as indicated by the few pottery finds or a layer that formed only following their destruction. Both the walls and the layer of sand were sealed by a stratum of hard-packed mud (FEA 419) covering a wider area. The presence of whitewashed plaster on a later nearby light wall (FEA 418) only above this stratum indicates that the mud layer likely represented trampled floor of the same horizon as trampled floor FEA 420. Later, it was partly covered with a material that was likely removed during the construction of the well (FEA 412) [Fig. 5d]. A similar fill of gravel, ash, and mudbrick fragments (FEA 452) was removed from the area to the north of the northern east-west section of wall FEA 441.

To the west of the north-south section of wall FEA 441, strata with similar composition were present as well, but they were later cut by the excavation of the well. Limits of the individual strata were distinct in section, but introduction of a few intrusive finds cannot be excluded. Only a small part of fill of mud soil, bedrock particles and fired brick fragments (FEA 453) was removed from between walls FEAs 441 and 434. It contained a single diagnostic potsherd, coming from a deep hemispherical bowl (sub-form B1b) with an incision on the inside below rim. The stratum was later sealed by trampled floor FEA 420. It may have been cut in connection with the construction of wall FEA 434 [Fig. 5b], which would point to the latter's later dating. The fill between the north-south section of wall FEA 441 and wall FEA 435 (FEA 454) contained several dozen potsherds and animal bones, as well as a couple of other artefacts, namely an iron nail and a quernstone. Amongst the few diagnostic pottery fragments, there was a torso of a white-washed/slipped ledge-rimmed bowl SM18/163 with a completely preserved profile [Fig. 14]. On the upper limit, it was partly sealed by the mud crust (FEA 418), partly by the refuse that covered the well (FEAs 450 and 407) that cut both strata, and may have been the source of intrusive finds. To the east of wall FEA 435, remains of a fill of gravel and mudbrick fragments (FEA 438) overlay a thin layer of mud (FEA 444) covering the levelled bedrock. On the mud layer,

[25] *Preliminary Report* 13, p. 97, Fig. 1, Pl. 2.
[26] Sample B16-418, CRL-17_390.

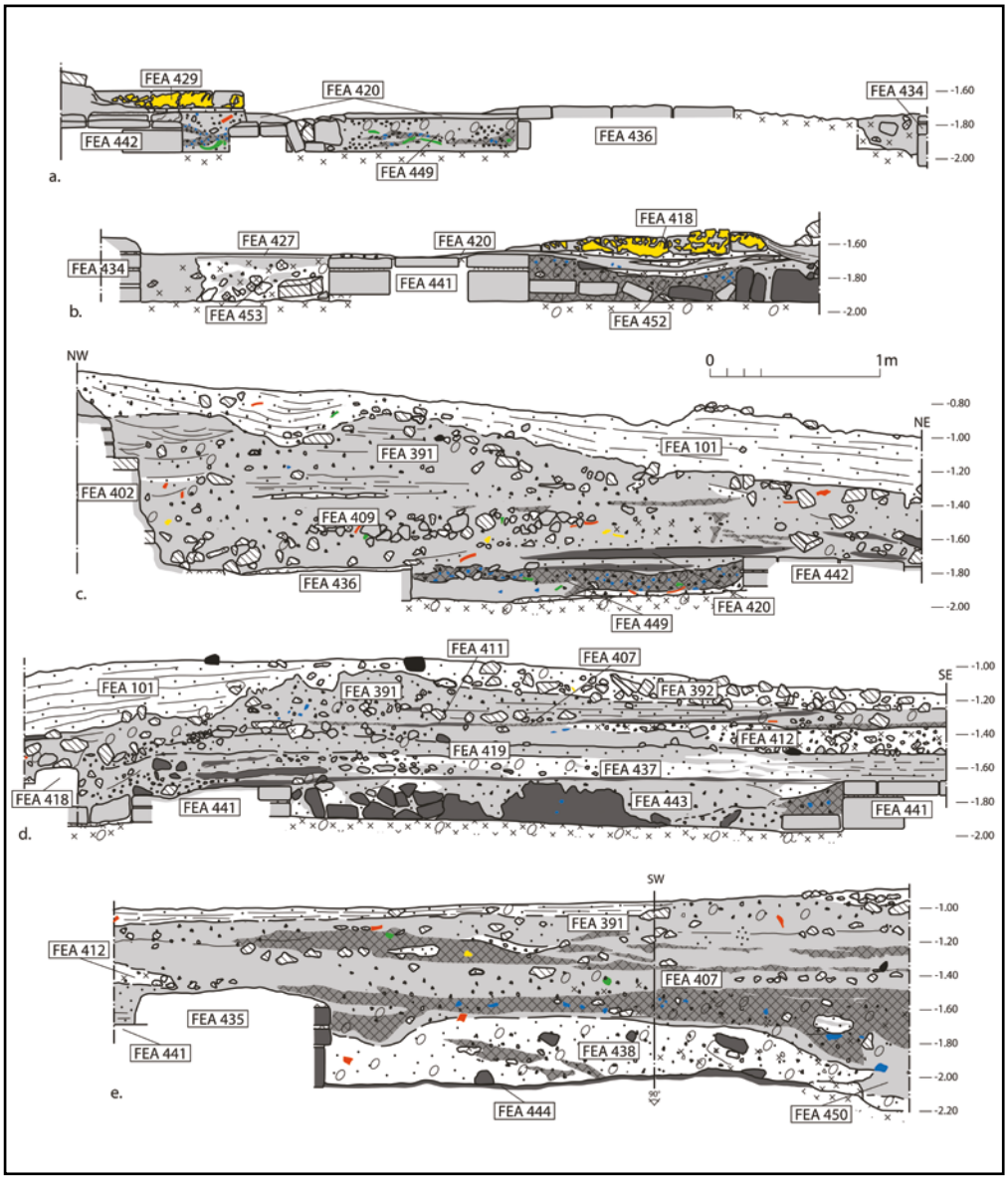


**Fig. 5.** Sections showing stratigraphic relations in trench T38. (Illustration: Vlastimil Vrtal).

wall FEA 435 also stood. In this area, FEA 438 underlay FEAs 450 and 407,[27] similar to FEA 454. The untypical pottery finds from this stratum (pieces of painted kaolinitic shallow bowl with round base, sub-form B1a, and deep hemispherical and conical bowls with round base, variants B1b1–2) may either represent intrusions from the latter strata or indeed point to later dating of the fill, and therefore also the neighbouring wall FEA 435. Only the lowermost part of the fill of gravel and mudbrick fragments (FEA 462) was preserved to the west of wall FEA 434;[28] in this case, the find of a piece of an open conical vessel (sub-form M8a) fairly corresponded to the other assemblages.

To sum up, the fills associated with walls FEAs 436, 441, and 442 had a similar composition; gravel, ash, and mudbrick fragments being common. The bricks likely do not represent debris from destruction of the walls, but rather refuse deposited in the fills elevating floors between them already in the course of their construction, as the fragments were largely deposited directly on the levelled bedrock. Most of the fills were well-sealed by trampled floors (FEAs 419 and 420) that likely developed in the area during or after the construction of the Typhonium. The chronological position of FEAs 434 and 435 is unclear, the fills abutting them do not seem to have been much affected by their construction in stratigraphy, however, with the exception of FEA 453. In terms of composition of pottery finds, the picture is ambiguous in the case of the two strata.

*Trench T44*

Walls FEAs 436 and 442 uncovered in trench T38 had a continuation in trench T44 further to the north in the form of a system of three interconnected walls (FEA 510).[29] The wall running in the east-west direction likely continued under the western exterior wall of the Typhonium (FEA 475) and was identical to wall section FEA 264a uncovered in the ambulatory of the temple (room WBN 205). The walls were made of sandy mudbricks bound by mortar and were constructed directly on granitic bedrock. In the lowermost course, the bricks were laid as rowlocks, the only other preserved course employed headers, stretchers, and shiners (for the core).

Before the construction of the Typhonium in the reign of King Natakamani (see below), the walls were graded, and a foundation bed of mortar (FEA 509) was laid over them. The foundations of the exterior wall of the Typhonium were then laid directly on the bed, as well as on the relevant section of wall FEA 510.[30] Two post holes used to fix scaffolding employed during the construction works cut through the latter wall section. Likely also in connection with the construction of the Typhonium, a light wall of silty mudbricks (FEA 508) was built perpendicular to the exterior wall of the temple directly over the remains of wall FEA 510. In a similar fashion, the hardstone and fired brick foundations of a fired brick platform with casing of sandstone blocks (FEA 495) in the temple's exterior[31] were laid on the mortar bed directly covering wall FEA 510 [Fig. 6a].[32] Since the platform was situated in a symmetrical disposition to another platform in the southern part of an open court to the west of the temple and since both were aligned with the rear and front limits of the core temple, respectively, it was highly likely functionally linked to the temple,[33] and its construction thus also falls to the reign of King

[27] *Preliminary Report* 13, Fig. 1a.
[28] *Preliminary Report* 13, Fig. 1a.
[29] *Preliminary Report* 14, pp. 100–102, Fig. 3a–b, Pl. 2a–b.
[30] See *Preliminary Report* 14, Fig. 3b, *section south II*.
[31] See *Preliminary Report* 14, p. 100, Fig. 3a, Pl. 2a–b.
[32] See *Preliminary Report* 14, Fig. 3b, *section west*.
[33] *Preliminary Report* 14, p. 100.

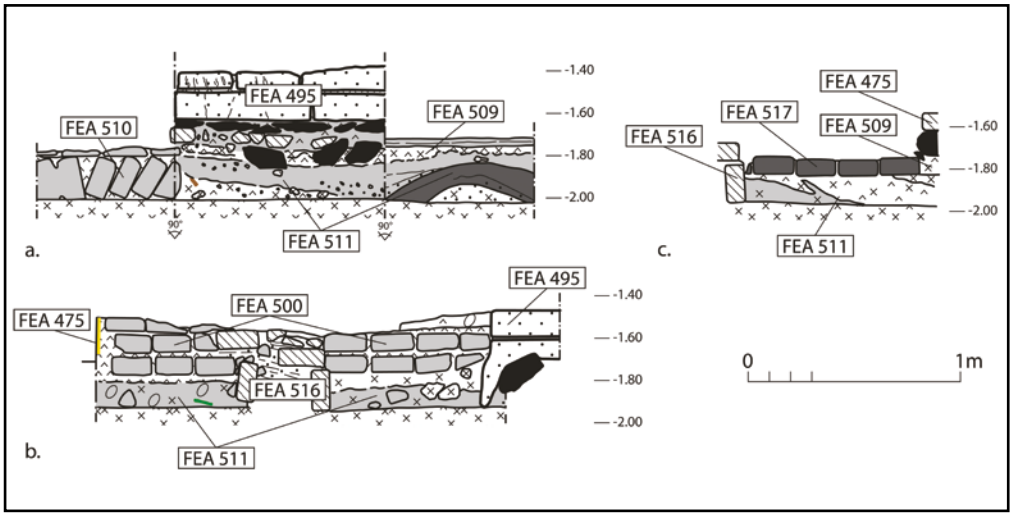


**Fig. 6.** Sections showing stratigraphic relations in trench T44. (Illustration: Vlastimil Vrtal).

Natakamani. The system of mudbrick walls FEA 510, on the other hand, clearly belonged to the pre-Natakamani horizon, and based on their characteristics they can be attributed to structure WBN 700 with little doubt.

In three areas along the system of walls FEA 510, mortar foundation bed FEA 509 was cut by test pits that reached up to 0.25 m down to the bedrock (FEA 518). To the south of the east-west wall, the underlying fill consisted mostly of a split of silty mudbricks and gravel. To the south of FEA 495, the underlying fill consisted of multiple layers of mud soil, bedrock particles, and occasional fired brick fragments. Finally, the fill removed from the area between the system of walls and the section west consisted of ash soil with some mudbrick and fired brick fragments, bedrock particles, animal bones, and pottery. A piece of charcoal retrieved from the fill ca. 0.1 m from the top limit of the stratum provided radiocarbon date of 49 BCE – 28 CE, 40–49 CE (P=95.4), or 42 BCE – 5 CE (P=68.2)[34] [Fig. 7]. In addition, the fill underlying FEA 509 was also removed in the area along exterior wall FEA 475 and also further to the north, on both sides of fired brick drainage FEA 516 and to the north of it. The fills in these areas consisted of soil with bedrock particles, mudbrick fragments, and occasional animal bones. From the former test pit comes piece of a spherical jar with an offset neck SM17/181 [Fig. 16], in the fill by the north-west corner of the Typhonium a piece of a jar with a wide neck and vertical handles (?) SM17/182 [Fig. 23] was found.



[34] Sample B17-176, CRL18-212.

All these fills associated with wall system FEA 510 or underlying foundation bed FEA 509 were grouped under FEA 511. Strikingly, the pottery assemblage retrieved from these strata [Fig. 29] contained nearly exclusively the form types discussed below individually in detail, with the exception of open ledge-rimmed bowls of variant B2b1 and jars of forms J3 and J9.

It is likely that the fills along the system of mudbrick walls FEA 510 represent lower sections of deliberate elevation of unpreserved floors between the walls of structure WBN 700, although it cannot be entirely excluded that they were formed only later, in connection with laying the foundation of the Typhonium. The latter instance is relevant particularly in the case of the fills from areas farther from the walls. In any case, the strata were well-sealed by foundation bed FEA 509 (with a possible disturbance by the construction of brick drainage FEA 516), and therefore demonstrably belong to the pre-Natakamani horizon.

*Other areas at* kom *H*

Additional remains that could be attributed to the pre-Natakamani horizon in the area of *kom* H were uncovered in trench T37,[35] to the south-west of trench T38. A system of connecting walls (but not always bound with each other) was situated in the southern part of the trench. It consisted of two sections of a north-south wall (FEAs 375 and 376), two parallel east-west walls (FEAs 371=415 and 378=408), and a brick platform directly abutting the latter wall from the south. The walls were made of sandy mudbricks and had the lowermost course laid as rowlocks. Another wall, possibly part of the same construction, was preserved only in the form of a negative imprint of rowlock bricks in mortar (FEA 465), directly overlying the bedrock. Debris from the predominantly mudbrick wall was likely deposited to the east (FEA 451). Based on the material of the bricks and construction technology employed, the walls may be attributed to structure WBN 700.[36]

Some of the fills surrounding the walls may be directly associated with the latter. The fill between walls FEA 371=415, 376, and 378=408 consisted of a layer of soil with bedrock particles (FEA 397), which was divided by a thin layer of reddish sand (FEA 404) from overlying layers of gravel with sandy and silty mudbrick fragments, fired brick fragments, and an occasional hardstone (FEAs 394 and 381=393). Some of the bricks situated on the upper limit were considered to possibly represent paving, and thus the level of the floor. To the north of wall FEA 371=415 and west of wall negative FEA 465, original fills of gravel were heavily disturbed by digging and subsequent introduction of mudbrick, fired brick, and lime plaster debris (FEAs 430 and 440). Pottery finds retrieved from the fills associated with the pre-Natakamani horizon walls in trench T37 have not been processed before the conclusion of the present study, and their composition thus cannot be analysed.

Finally, it was proposed that wall remains uncovered in trenches T50–51[37] during rescue excavations at the western extremity of *kom* H, which was cut off from its main body in the modern times by the construction of a railway, shared many characteristics with walls attributed to structure WBN 700.[38] Given their distance, it seems reasonable that they should be ascribed to a separate structure, labelled WBN 1000 [Fig. 1]. Although only a small part of it was uncovered, it may have been equally monumental. Like the walls of WBN 700, the walls of WBN 1000 (FEAs 2110, 2114–2118) were made of sandy mudbricks and had rowlock foundations, directly

[35] *Preliminary Report* 12, p. 116; *Preliminary Report* 13, p. 93.
[36] *Preliminary Report* 12, p. 116.
[37] *Preliminary Report* 15, pp. 138–140.
[38] *Preliminary Report* 15, p. 138.

overlying the bedrock. Walls made of hardstone (FEAs 2120, 2126, 2141) may have also been employed, although most likely they belonged to an older structure.

The fills surrounding the walls were affected by numerous later disturbances, including digging for burials.[39] Some of the fills, such as FEAs 2140 and 2146 to the north of wall FEA 2116 and FEAs 2124, 2128, and 2143 deposited one over the other between walls FEAs 2116 and 2118 closely resembled fills associated with the walls of structure WBN 700 to the east in terms of composition (gravel and mud soil with small stones) and a high pottery content. Pottery finds retrieved from the fills have not been processed before the conclusion of the present study, and their composition thus cannot be analysed. Potsherds with painted weak red stripes on white background were included amongst the finds, however, and thus the composition of wares and form types may have indeed been quite similar to those retrieved from the fills of structure WBN 700. A surprisingly early radiocarbon date[40] of a charcoal piece from fill FEA 2143 [Fig. 7] may then relate rather to an earlier occupation manifested by burnt remains of wooden poles preserved in the form of ash-filled post holes (FEA 2157) cutting the bedrock and by a fireplace (FEA 2144) at the same level (both concealed by stratum FEA 2143), which may have been linked also to the hardstone walls. Both construction horizons would nevertheless seem to fall into the period preceding the building activity of King Natakamani.

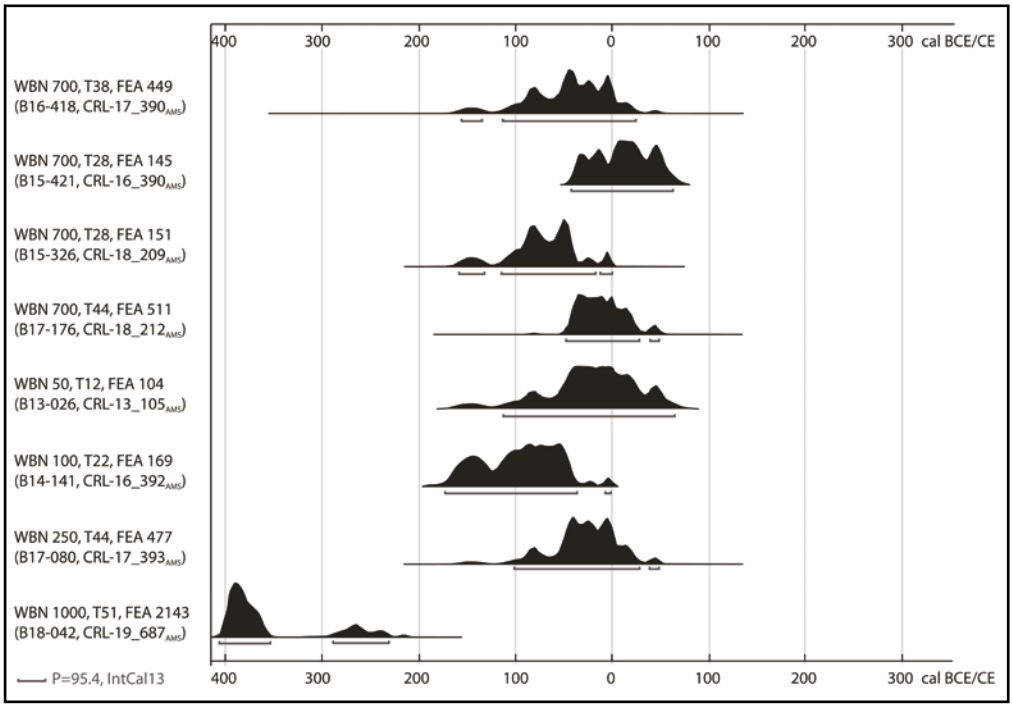


**Fig. 7.** Calibrated radiocarbon dating of samples from strata belonging to the pre-Natakamani horizon; reference data from selected other structures included (Illustration: Vlastimil Vrtal).

[39] *Preliminary Report* 15, pp. 138–140, Fig. 1.

[40] 407–354, 290–232 BCE (P=95.4), or 401–364 BCE (P=68.2); sample B18-042, CRL-19_687.

*The area of the Typhonium (*kom *A)*

The construction of the Typhonium Complex – consisting of the Mut Temple proper (WBN 200),[41] a two-storey outbuilding to its north (WBN 250),[42] and possibly some of the functionally related constructions to the west of the temple proper (such as the symmetrically positioned platforms in the open courtyard) – marked a transitional point in the development of constructional activity in the area of *kom* A, situated immediately to the east of *kom* H.[43] The space reserved for the temple was graded and a solid foundation bed made of mortar was laid on the ground. A few remains of earlier construction activities were preserved sealed in these temple's foundations. However fragmentary was their state of preservation, they can be firmly set in relative chronology of the site, since the construction of the temple can be safely dated to the reign of King Natakamani, based above all on epigraphic grounds.[44] The strata that underlay the temple thus represented the pre-Natakamani horizon in the area. In extension, the same dating can then be applied to all strata that can be associated with them directly or indirectly.

The remains of construction activities predating the temple were recorded in several areas in its interior. In trench T6, a system of perpendicular walls made of sandy mudbricks, with the foundation course either of rowlock bricks or combination of headers and stretchers (FEAs 170–174), was uncovered in the ambulatory (room WBN 205) and in the western open court (WBN 209)[45] [Figs. 2, 8]. Some of the walls were interconnected. Clearly, at some point they were graded to the level of the temple's floor and overbuilt by the latter's walls.[46] Another system of perpendicular walls constructed from the same type of mudbricks was uncovered in the ambulatory in trench T14.[47] Evidently, remains of the northernmost wall in the room (FEA 264b) did not share the orientation with the rear wall of the Typhonium, thus pointing to its different dating. The upper limits of the wall remains were aligned with the upper level of mortar foundation bed (or indeed a floor) in the room, and one wall (FEA 264a) was also disturbed by post holes from scaffolding used for the temple's construction. Neither the early walls in the ambulatory nor in the western open court were associated with any fills elevating the former floor, although they may have been simply situated under the mortar foundation bed, which was not removed during the excavations. The wall remains and the mortar floor later became sealed by trampled floor deposits, whose formation demonstrably continued until late Meroitic period. In trench T6, the deposits were heavily disturbed by even later digging.

Two parallel sections of mudbrick walls attributed to the pre-Natakamani horizon were also uncovered in trench T39.[48] The northern one, consisting of sandy mudbricks laid as rowlocks, was situated in the western open court (WBN 209) and it was identical to the southernmost wall in trench T6 (FEA 170). The other wall (FEA 422) was situated at the floor level in the southernmost part of the western corridor (WBN 211). Unlike in trenches T6 and T14, the mortar bed/floor of the temple was disturbed in rooms WBN 209, 210, and 211, thus revealing the underlying strata (FEAs 406, 410, and 405, respectively) that could be associated with the walls of the pre-Natakamani horizon. The strata were formed of mud, soil, and gravel, with additional construction debris

[41] *Wad Ben Naga Report* I, pp. 53–57; Onderka – Vrtal 2018.

[42] *Preliminary Report* 3, pp. 127–132; *Preliminary Report* 12, pp. 115–116; *Preliminary Report* 14, pp. 99–103; *Preliminary Report* 18, pp. 72–76.

[43] Cailliaud 1823, I, Pl. IX.1.

[44] *Preliminary Report* 8, Pl. 3.

[45] *Preliminary Report* 4, p. 6, Fig. 3, Pl. 1.

[46] The walls of the Typhonium also employed mudbricks of markedly different composition.

[47] *Preliminary Report* 7, p. 16.

[48] *Preliminary Report* 13, pp. 97–98, Fig. 2. See also *Preliminary Report* 5, p. 7.

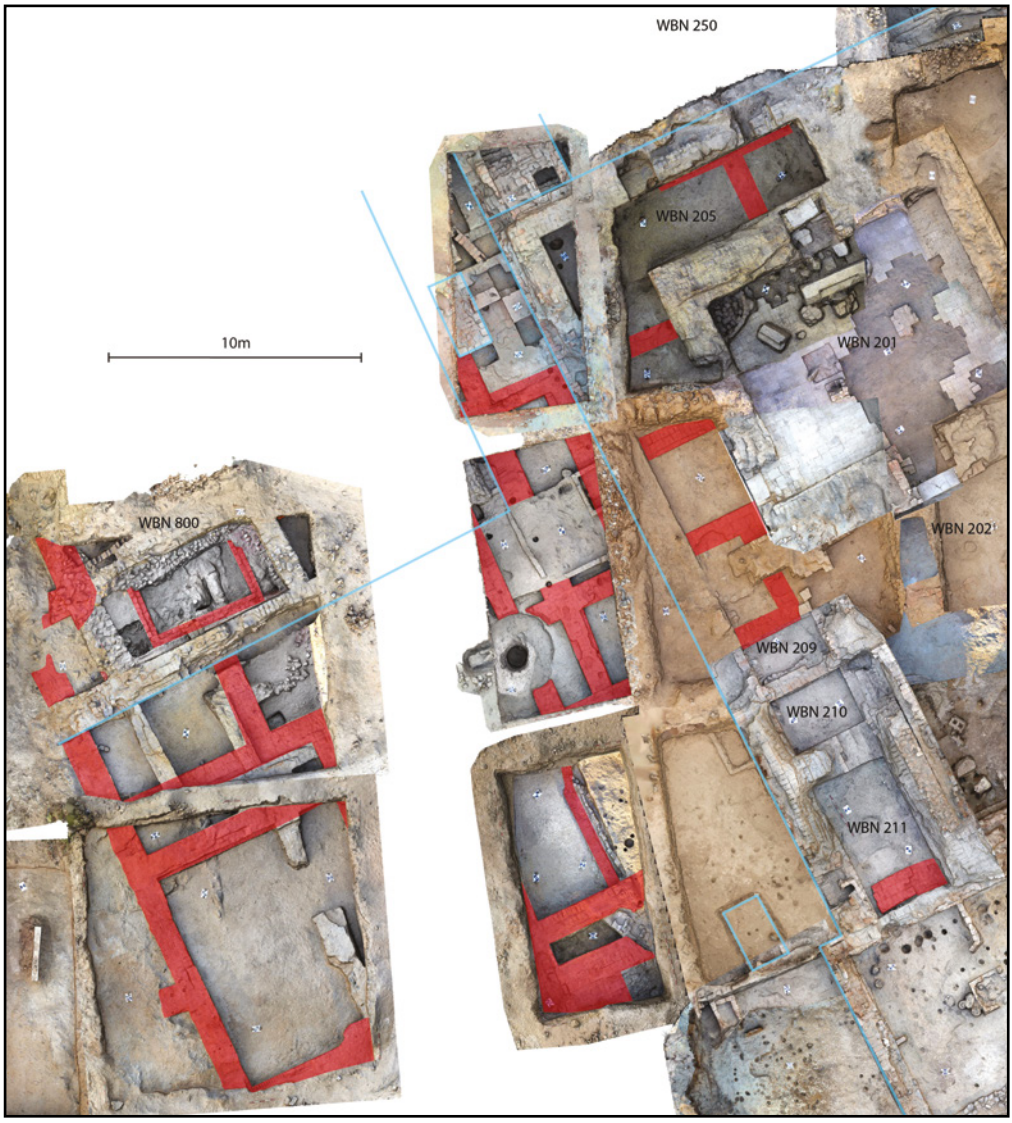


**Fig. 8.** Orthophoto showing the area of *kom* H and the Typhonium (*kom* A) with structural remains belonging to the pre-Natakamani horizon highlighted in red and outlines of overlying structures of the Natakamani horizon marked in blue. (Illustration: Alexander Gatzsche, Vlastimil Vrtal).

of fired bricks and mudbricks. Although many form types, such as jars with vertical handles, ring base, and flaring rim (form J15) and jars with wide neck and vertical handles (form J16), typical for the other fills were included in the strata, other finds seem to reflect the abovementioned disturbances and be intrusive (e.g. offering mould SM16/346, possibly jar base SM16/353) [Figs. 19, 28]. Besides pottery, a grindstone (in FEA 410) and pieces of painted mud plaster (in FEA 405) were retrieved from the strata.

Similar to the situation at *kom* H, the strata most likely represent lower sections of fills elevating no longer present floors between the walls of the pre-Natakamani horizon. The upper limits of the strata were indistinct, and there is a possibility of intrusive material being introduced from the overlying strata of fired brick, mudbrick, and sandstone debris originating predominantly in the walls of the Typhonium (FEAs 395 and 401).[49] Vice versa, some artefacts found at the lower limit of the latter debris may come in fact from the pre-Natakamani horizon constructional fill, as a large piece of a jar with a wide neck and vertical handles (form J16, SM16/357)[50] found in it indicates.

Based on the identical character of walls and floor fills (material, technology, orientation, finds), the remains belonging to the pre-Natakamani horizon of building activity that the Typhonium eventually overlay could be attributed to structure WBN 700.

Direct stratigraphic relation between the Typhonium and the underlying walls of structure WBN 700 could also be established in the area of the temple's western exterior wall in trench T44 (FEAs 475 and 510, see above) and virtually in trench T38 (FEA 442 and unexcavated section of the exterior wall).

## Ceramic finds [Tab. 1][51]

From the abovementioned strata associated with the pre-Natakamani horizon at *kom* H and in the neighbouring areas, 6,638 potsherds (177,806 g) were retrieved and processed, out of which 863 (43,263 g) were diagnostic pieces.

Despite the high number of stratigraphic features from which the pottery corpus was assembled, it turned out to be noticeably homogeneous in terms of ceramic forms, sub--forms, and their variants represented. Most of them, appearing regularly through various strata of the present assemblage – although not necessarily in large absolute quantities – were notably (near) absent (forms A7, J15, J16, J18) or at least significantly less frequent (forms J3, wheelmade J9, sub-forms B4b and M8a, variant B2b1) in later horizons at Wad Ben Naga. Such groups of pottery finds are dealt with in detail in the following sections dedicated to the individual form types. The homogeneous composition and distribution of form types not only showed that the strata can indeed be temporarily and functionally associated with each other. It also indicated that the assemblage represented an imprint of a stage in Meroitic pottery culture that was well restricted in terms of time range. As such, it can be considered perfect for dating the formation of the strata, but also in general very suitable for refinement of our understanding of the chronological setting of the relevant ceramic form types and chronological relations between them.

*Secondary lids/dishes (form A7)*

Some of the pottery sherds from structure WBN 700 were noticed to have been reworked to a (roughly) circular shape [Figs. 9–11]. Such discs had most often 90–100 mm in diameter and were usually made of body sherds of both wheelmade and handmade jars. They formed a distinct group of ceramic artefacts, termed secondary lids/dishes for their formal, metric, and

[49] Importantly, a piece of a stone for fixing door bolts from FEA 395 indicates that even the lowermost parts of the walls were represented in the debris over FEAs 405 and 410.

[50] See *Wad Ben Naga Report* VI.

[51] The present pottery assemblage was previously described in preliminary manner as part of a lecture given during the *12th International Conference for Meroitic Studies* in Prague, see Honzl, *forth*.

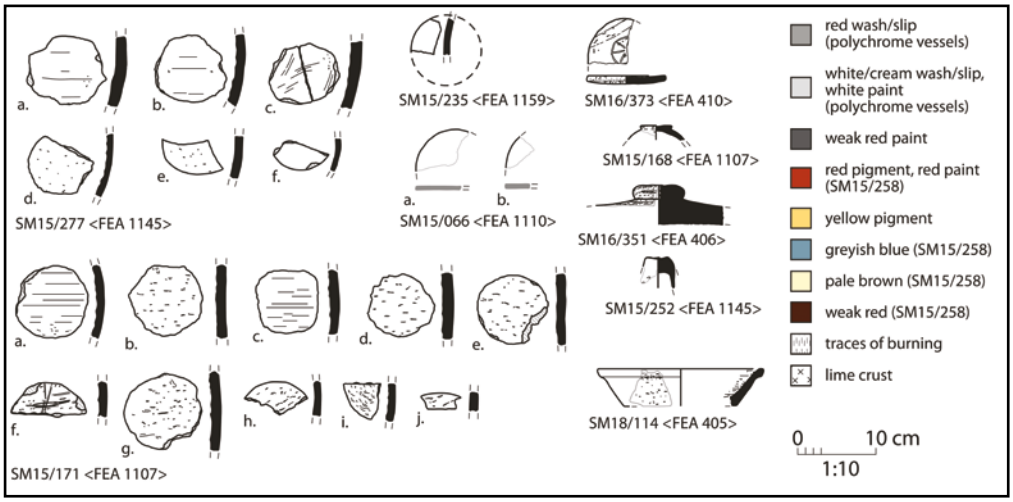


**Fig. 9.** Secondary lids/dishes (form A7). (Illustration: Jiří Honzl, Vlastimil Vrtal).

**Fig. 10.** Rough secondary lid/dish SM15/171a (sub-form A7a). (Photo: Alexander Gatzsche).

**Fig. 11.** Fine secondary lid/dish SM15/171h (sub-form A7b). (Photo: Alexander Gatzsche).

presumably functional similarity to small wheelmade lids/dishes (Wad Ben Naga forms A1–3).[52] At Wad Ben Naga, such pieces were also noted in other pottery assemblages. The secondary lids/dishes from Wad Ben Naga in general are discussed in greater detail elsewhere.[53]

Most secondary lids/dishes were only roughly formed by breaking and chipping (sub-form A7a; SM15/171a–g, SM15/180a–b, SM15/277a–d) [Fig. 10], while more rarely they could be retouched by abrasion into the shape of (nearly) perfect circle (sub-form A7b; SM15/066a–b, SM15/171h–j, SM15/235, SM15/277e–f, SM16/373) [Fig. 11]. Two specimens coming from

[52] E.g. *Wad Ben Naga Report* III, pp. 106–107; *Wad Ben Naga Report* VI.
[53] Honzl 2024, pp. 31–37; see also *Wad Ben Naga Report* VI.

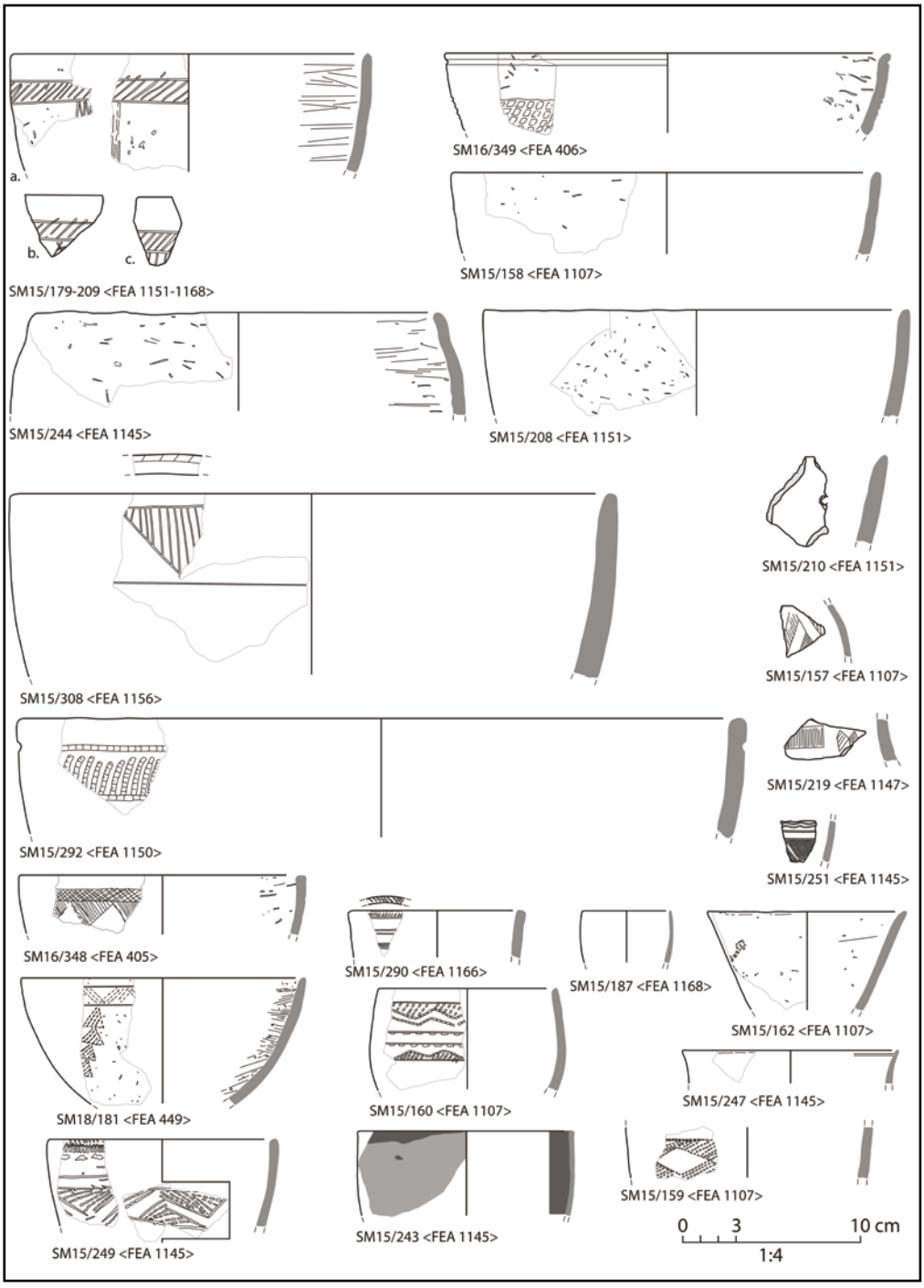


**Fig. 12.** Various handmade bowls and cups (form groups B–C). (Illustration: Jiří Honzl, Vlastimil Vrtal).

structure WBN 700 bore incised pot-marks on their surface (SM15/171f, SM16/373). By their average size they could fit well on mouths of spherical or ovoid jars with long neck (form J3),[54] supporting their possible utilisation as jar stoppers.[55]

Similar ceramic artefacts were so far only seldom recorded at other Meroitic sites.[56] While the dating of their respective contexts varies, it could be most firmly established for fragments described to have been found in pyramids Bar 6[57] and Bar 1[58] dated to the beginning of the 1st century CE,[59] if they indeed represented this type of ceramic artefacts.

*Open ledge-rimmed bowls with ring base (variant B2b1)*

Together with other form types of bowls [Figs. 12–13], the small ledge-rimmed ones count amongst the most common forms of pottery encountered in Meroitic contexts. As such, the group can be recognised to have included different sub-forms and variants largely reflecting the development of the form in time.[60] Almost all specimens of ledge-rimmed bowls recovered from the present corpus belonged to the open bowls with a flat or ring base and ledge rim (sub-form B2b) [Fig. 14].[61] However, their preserved fragments, especially their bases, suggest that they mostly, if not exclusively, represented a distinctive variant with ring base and (near-)

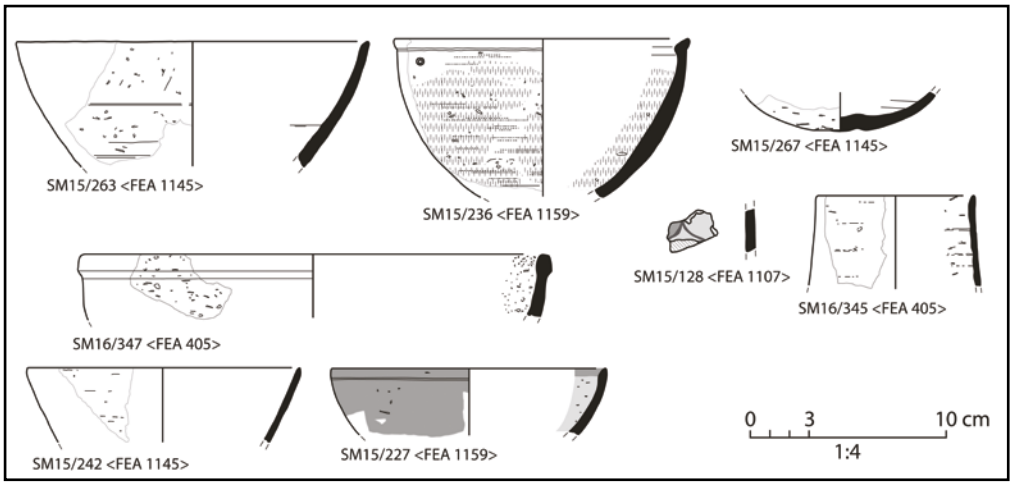


**Fig. 13.** Various wheelmade bowls and cups (form groups B–C). (Illustration: Jiří Honzl, Vlastimil Vrtal).

[54] See below.

[55] Honzl 2024, p. 32; cf. also *inter alia* Denecker and Vandorpe 2007, p. 116; Peña 2007, pp. 153–158; Tomber 2006, p. 300. Notably, the diameters of small wheelmade lids/dishes (forms A1–3) and mouths of short-necked cylindrical and ovoid jars (forms J1–2) found regularly together in later contexts at Wad Ben Naga were on average by 15 mm larger than those of secondary lids/dishes and spherical or ovoid jars with long neck (form J3) from the present assemblage, see Honzl 2024, pp. 31–32.

[56] Bagińska 2018, p. 495, Fig. 10, a; Dunham 1970, p. 57, Fig. 41, no. 19-1-390; Grzymski 2003, p. 70, Fig. 30, P.21–24; Török 1997a, p. 220, Fig. 111, no. 790-1; perhaps also Robertson and Hill 2004, Pl. VIIIc, no. 1.

[57] *RCK* IV, p. 100, no. 16-2-358.

[58] *RCK* IV, p. 101, no. 16-2-292.

[59] For Bar 6 see Cabon et al. 2017, p. 121; Török 1997b, p. 205; *contra* e.g. Zibelius-Chen 2006. Bar 1 was identified by Dunham (*RCK* IV, pp. 5, 7, 100) as contemporary with Bar 6.

[60] *Wad Ben Naga Report* VI; for their chronology in particular see esp. Edwards 1999a.

[61] *Wad Ben Naga Report* VI.

perfect hemispherical shape (variant B2b1). Remarkably, several of them were produced with white-slipped surface (SM15/167, SM15/191, SM15/298, SM18/163) only very rarely used for ledge-rimmed bowls in general. Some of the red-slipped specimens (e.g. SM15/145, SM15/146, SM15/173, SM15/234, SM15/311) showed distinct burnishing marks similar to the prevailing surface treatment of spherical or ovoid jars with long neck (form J3).[62]

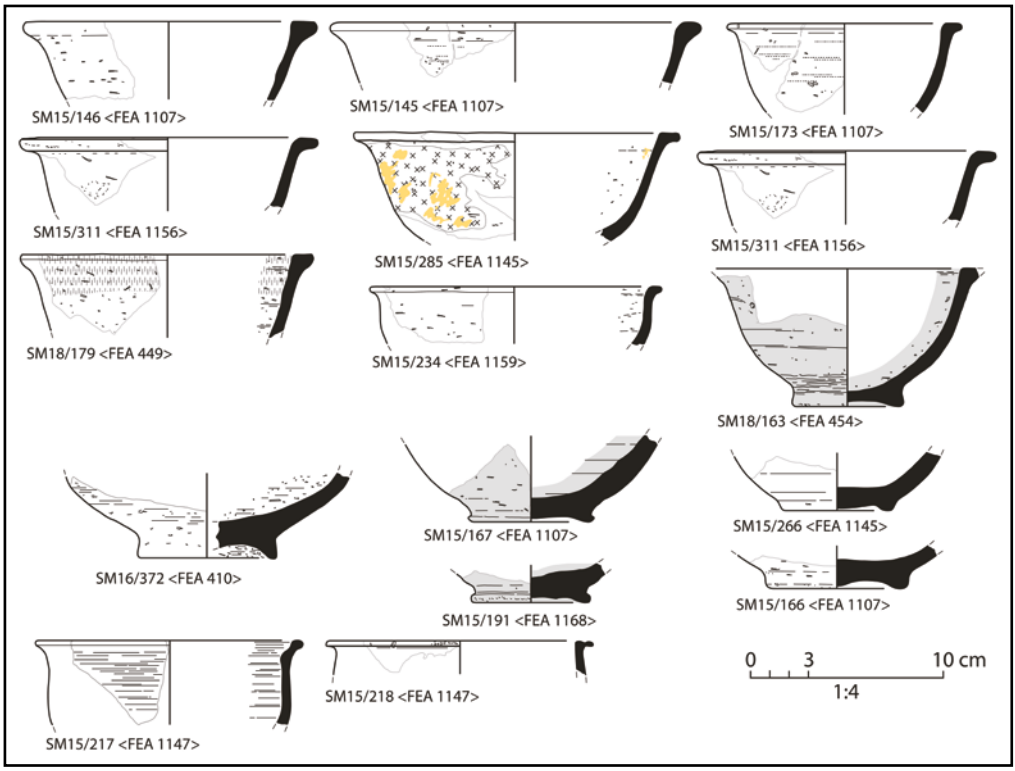


**Fig. 14.** Bowls with flat or ring base (sub-form B2b). (Illustration: Jiří Honzl, Vlastimil Vrtal).

Through his seriation of ceramic inventories of tombs from Begrawiya West, Edwards[63] captured well the development of ledge-rimmed bowls after the Turn of the Eras. His analysis showed that their early hemispherical ring-based variant[64] kept being produced throughout the 1st century CE, before being superseded by taller[65] specimens with the base simplified to a solid

[62] See below; cf. the B1a ware at Qasr Ibrim, Rose 1996, pp. 122–123.

[63] Edwards 1999a.

[64] Edwards 1999a, *type F.13*; other late occurrences of the variant are exemplified e.g. by specimens coming from pyramid Bar 16 (*RCK* IV, Fig. 131, no. 16-1-501) and from tomb GRF 3 at Gereif East (Geus and Lenoble 1983, Fig. 5, GRF 3/1; for dating see David et al. 2020, pp. 225, 228–229).

[65] The tendency to increase height of ledge-rimmed bowls in particular seems to have progressed gradually; appearing as possible distinguishing feature between hemispherical ring-based ledge-rimmed bowls from earlier (e.g. Rose 1996, Fig. 4.16, P68a, Fig. 4.17, P50b, P212b, P241a, Fig. 4.18, P228a, Fig. 4.19, P51b; probably also David and Evina 2016, Fig. 24, Mws12-JeE-F117.2; *RCK* IV, Fig. 50, no. 21-12-119) and later (e.g. Geus and Lenoble 1983, Fig. 5, GRF 3/1; *RCK* IV, Fig. 131, nos. 16-1-501, 16-2-395; *RCK* V, Fig. F.14, no. 22-2-300 Fig. K.19, no. 22-1-527b) contexts.

flat foot (variant B2b2 or sub-form B2c),[66] sometimes giving just a hint of the original form,[67] towards 100 CE. The presence of this variant of ledge-rimmed bowls seems well established also in contexts predating the Turn of the Eras, most notably at Qasr Ibrim,[68] and probably also at Muweis[69] and in pyramid Beg N20.[70] More specimens could be dated only more vaguely and roughly to the timespan of the centuries immediately around the Turn of the Eras.[71] While lacking in apparent Meroitic precursors, the early ledge-rimmed bowls could be identified as based on patterns imported from/through Egypt.[72]

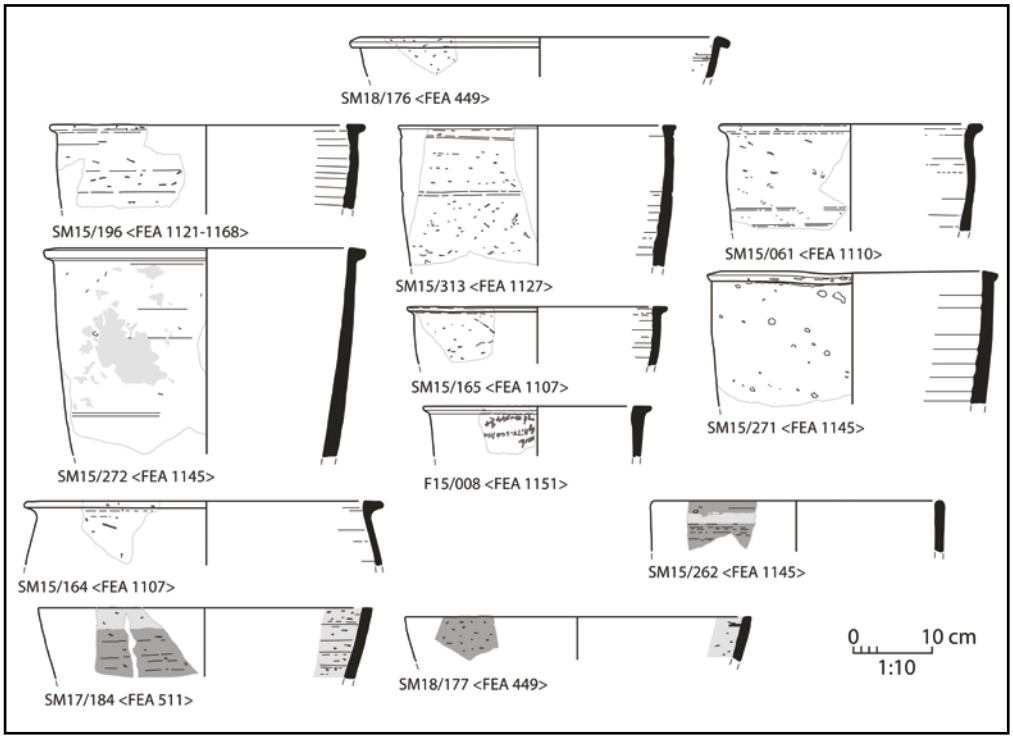


**Fig. 15.** Vats (form B4). (Illustration: Jiří Honzl, Vlastimil Vrtal).

[66] Edwards 1999a, *type K.16*. Both variants were found together in Beg W102, *RCK* V, Fig. K.16, no. 22-1-525, Fig. K.19, no. 22-1-527b.

[67] See Edwards 1998, p. 144; for more examples of the variant besides Begrawiya West cemetery see e.g. Edwards 1998, Fig. 4.13, nos. 9411, 9409–9410, 12301; Edwards 1999b, Pl. VIII, nos. 732–734; Mahmoud Bashir 2015, Fig. 10, B-1-5, B-4-20, B-4-35, B-6.41, B-8-131, B-10-126, B-10-127, B-12-107, Fig. 12, nos. B-1-3, B-1-4 (≈ Mahmoud Bashir and David 2011, Fig. 1, nos. 3–4, Fig. 3, nos. 1, 3, Fig. Fig. 6, no. 4).

[68] Rose 1996, Fig. 4.16, P68a, Fig. 4.17, P50b, P212b, P241a, Fig. 4.18, P228a, Fig. 4.19, P51b; for dating see pp. 146–153.

[69] David and Evina 2016, p. 104, Fig. 24, Mws12-JeE-F117.2.

[70] Coming from the 'thieves' debris', *RCK* IV, p. 78, Fig. 50, no. 21-12-119; for the dating see Cabon et al. 2017, p. 121; Török 1997b, p. 205; Zibelius-Chen 2006.

[71] *Inter alia* Bąkowska 2010, Fig. 3, nos. 25–30; Edwards 1998, Fig. 6.14, no. 7102; Näser and Wetendorf 2015, Fig. 6, d; Nowotnick 2022, Pl. 17, HVU-09-0096, Pl. 26, HVU-09-0152, HVU-09-0187.

[72] E.g. David and Evina 2016, p. 104; cf. *Wad Ben Naga Report* V, p. 236, Fig. 5.6, SNM 62/10/18, Appendix, cat. no. 113; Williams 1991, p. 72, Fig. 41.

*Cylindrical vats (sub-form B4b)*

Large cylindrical vats (sub-form B4b)[73] apparently served for storage.[74] Vats were regularly adapted for vessel emplacements,[75] sometimes only secondarily.[76] None of the vats recovered from the present corpus was found *in situ* used as such. They were characterised by wide mouths of variable size, with diameters spanning ca. 300–450 mm. Their mouths were bordered by robust ledge-rims. As only upper parts of individual vat specimens were recovered from the present corpus [Fig. 15], it is not possible to be certain about their exact shape which could also significantly vary.[77] In general, their workmanship quality was mediocre with various irregularities in shape (e.g. SM15/271) and with wiped surface left without any additional wash/slip. The production of cylindrical vats and similar vessels in Meroitic Nubia apparently spanned for a relatively long period of time mainly before,[78] but also after the Turn of the Eras.[79]

*Amphorae with collar rim with inner concavity (form F5)*

Despite each featuring slightly different morphological details, a dozen small rim-fragments [Fig. 16] formed an otherwise coherent group. They all apparently came from closed vessels and by their manufacturing characteristics, i.e. especially the fabric and surface treatment consisting of thick, matte red slip, they fit well the common Meroitic wheelmade redware. However, they were characterised especially by distinct collar-rims with inner concavity. Such morphology is exceptional amongst the ceramic finds from Wad Ben Naga, appearing virtually only in the present corpus, and apparently very rare in Meroitic pottery in general. Based on the general similarity and the tentative identification discussed below, one other fragment-preserving part of vessel's neck with the handle attachment (SM15/269) can be added to the group as well.

Due to the incompleteness of the fragments and lack of suitable parallels both at Wad Ben Naga and Meroitic Nubia in general, the proposed identification of the fragments as belonging to amphorae remains tentative at best. Most similar pieces seem to be two fragments from pyramid Bar 3,[80] dated to late 1st century BCE,[81] and one from pyramid Beg N6 of Amanishakhete,[82] dated to around the Turn of the Eras.[83] In the *Royal Cemeteries of Kush* IV publication, their manufacturing characteristics were described only by rather generic terms,[84] for which it is not possible to ascertain whether they corresponded to the Wad Ben Naga pieces also in this regard. The abovementioned pieces from the royal tombs as well as other similar torsa and fragments

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[73] See also *Wad Ben Naga Report* VI.

[74] See also Edwards 1999b, p. 20.

[75] E.g. Fitzenreiter et al. 1999, *passim*, esp. pp. 13, 21, 74; *Wad Ben Naga Report* V, p. 38, photographs SAS.149–150, SAS.152.

[76] E.g. Näser and Wetendorf 2015, p. 61, Figs. 33–34; *Wad Ben Naga Report* II, pp. 94–95, Fig. 5.3, *left*.

[77] Cf. e.g. *RCK* IV, Fig. 132, no. 16-2-354; Shinnie and Bradley 1980, Fig. 38, nos. 108–109; *Wad Ben Naga Report* V, p. 38, photographs SAS.150, SAS.152, pp. 239–240, Fig. 5.9, SNM 62/10/164, Appendix, cat. no. 260.

[78] *Inter alia* David and Evina 2016, p. 102, Fig. 23, Mws09-A32-F15.1, Mws10-Md30.Cer3; Näser 2014, Abb. 13, nos. 1, 4, 6, Fig. 16, no. 6; Näser and Wetendorf 2015, pp. 61, 71, Figs. 33–34; *RCK* IV, p. 6, Fig. 132, no. 16-2-354 (for the dating see also Török 1997b, p. 203); *RCK* V, Fig. B.22, no. 23-2-270, Fig. C.8, no. 23-2-65 (for the dating see also Edwards 1999a, 63); Welsby Sjöström 2023, p. 388, Pl. 3.2.9, no. 3948x.

[79] *Inter alia* Bąkowska 2010, p. 202 Fig. 5, nos. 50–51; Bąkowska-Czerner 2018, Fig. 1, no. 767; Fitzenreiter et al. 1999, Abb. 45, *4.1.4. Bottiche*, a.1–a.3; Nowotnick 2022, pp. 91–92, Pl. 34, HVU-10-0459.

[80] *RCK* IV, Fig. 64, no. 16-2-305; Fig. 135, no. 16-2-306; compare the latter esp. to SM15/147, SM15/253.

[81] Identified by Dunham (*RCK* IV, pp. 5, 7) as contemporary with Bar 2 placed to the late 1st century BCE, Cabon et al. 2017, p. 121; Török 1997b, p. 205; cf. Zibelius-Chen 2006.

[82] *RCK* IV, Fig. 73, no. 21-12-14e; compare esp. to SM15/233.

[83] Cabon et al. 2017, p. 121; Török 1997b, p. 205; Zibelius-Chen 2006.

[84] *RCK* IV, pp. 95, 111.

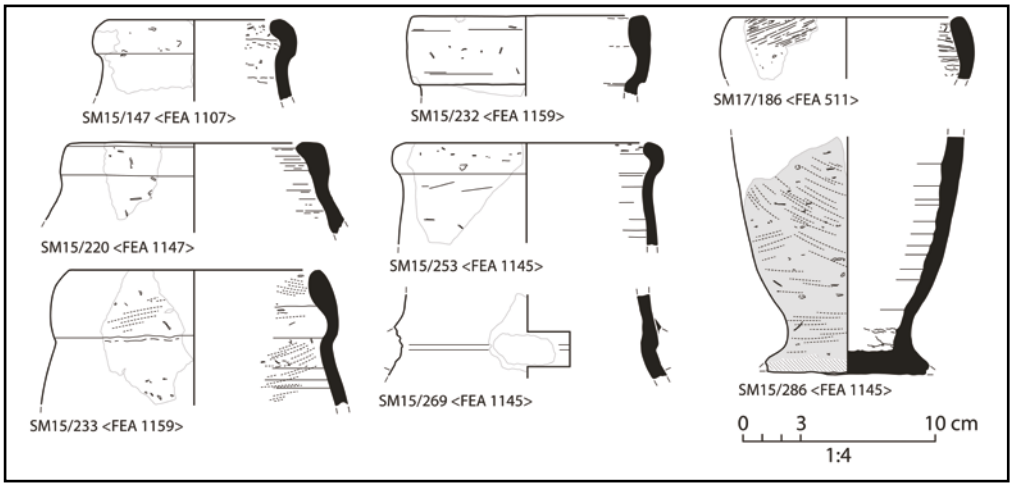


**Fig. 16.** Various amphorae (form group F). (Illustration: Jiří Honzl, Vlastimil Vrtal).

from the cemeteries at Begrawiya, Jebel Barkal, and elsewhere[85] were identified as imported amphorae of type commonly referred to as *Amphore Égyptienne* 3 (AE 3).[86] The type had been produced in large amounts and with considerable formal variability for the whole early Roman period in Egypt (30 BCE – 284 CE).[87] Collar rims with inner concavity occur as common rim-variant of AE 3 amphorae. Specimens closest to Wad Ben Naga fragments seem to occur especially in the earlier phases of their production.[88] Similar rims appeared also amongst their precursors reaching well into the Ptolemaic period in Egypt.[89]

In addition to the specimens mentioned above, the finds of AE 3 amphorae or their earlier precursors in Meroitic Nubia date mainly from the 1st century BCE to the turn of the 1st and 2nd centuries CE.[90] Similar vessels reportedly came also from some of the earliest burials at Jebel

[85] Emery and Kirwan 1935, Fig. 52, no. 1, Pls. 37, 58, W.I; Griffith 1924, Pl. XXIII, nos. XLVIIIa–b; *RCK* IV, p. 93, nos. 16-2-293e–g, 16-2-295; p. 95, nos. 16-2-330e, h, Fig. 58, no. 16-2-342, Fig. 64, no. 16-2-305, Fig. 135, nos. 16-2-294, 16-2-304, 16-2-306, 16-2-344; *RCK* V, Fig. E.1, no. 22-1-590, E.2, no 23-1-380b, E.3, no. 22-2-386.

[86] *Inter alia* Adams 1986, p. 568; Hofmann 1994, p. 223; Rose 1996, p. 130; but cf. Bagińska 2013, *passim*, esp. 53.

[87] Esp. Dixneuf 2011, esp. 97–128; Şenol 2018, 61–130, esp. 61–63; Tomber 2007.

[88] *Inter alia* Dixneuf 2011, Fig. 31, GAB99.30561.2, GAB99.30561.5, Fig. 32, GAB99.30832.1.2, Fig. 83, Fig. 93, nos. 134, 137–140, Figs. 94–96, 107–111, Fig. 112, a; Lecuyot 2007, Fig. 1, nos. 4–5, Fig. 2, nos. 1, 7–9; Tomber 2007, Fig. 1, nos. 2–3, Fig. 2, nos. 1–7; Whitcomb and Johnson 1978, Pl. 21, z, Pl. 22, B4a-2, d–e, Pl. 28, k, Pl. 29, m, Pl. 30, G8d-1, m, G12a-4, b, Pl. 31, f, Pl. 32, m.

[89] E.g. Lecuyot 2007, Fig. 4, nos. 1–2; Martin-Kilcher and Wininger 2017, esp. pp. 11, 13, 68, 74, Abb. 2.8, nos. 25–28; Abb. 4.6, nos. 23–25; Pierrat-Bonnefois 2002, Fig. 15, A; Şenol 2010, pp. 150–152, Fig. 5, no. 1, Fig. 6, no. 2, Fig. 7, no. 3.

[90] *Inter alia* Griffith 1924, Pl. XXIII, nos. XLVIIIa–b (for the dating see also Bishop-Wright 2021, p. 282); *RCK* IV, p. 100, no. 16-2-372e, p. 101, nos. 16-2-293e, f, g, p. 113, no. 16-2-394, p. 115, no. 16-2-404f, p. 154, no. 16-2-447e, p. 156, no. 16-2-448c, Fig. 58, no. 16-2-338, Fig. 64, no. 16-2-305, Fig. 135, nos. 16-2-294, 16-2-304, 16-2-344; *RCK* V, p. 102, no. 22-1-595a, p. 219, no. 22-1-629a, Fig. E.1, no. 22-1-590, E.2, no 23-1-380b, E.3, no. 22-2-386 (for the dating see Edwards 1999a); Rose 1996, pp. 122–123, 126, Fig. 4.31, P29b, P60d, P100, P121b, P164b, P184f, Fig. 4.32, P96d, P306b. Note also that in strata belonging to the Typhonium (WBN 200) overlaying the structure WBN 700 a small rim-fragment was found (SM17/151) which was made of imported fabric and which could possibly represent AE 3 amphora or other similar type, *Wad Ben Naga Report* VI.

Barkal, the pyramids Bar 11 and Bar 12.[91] Given their manufacturing characteristics, the fragments of collar rims with inner concavity from Wad Ben Naga almost certainly did not represent imports. However, it could be very tentatively suggested that they could in fact represent a local Meroitic form modelled on / inspired by the common Egyptian amphorae of late Ptolemaic / early Roman period. In the corresponding time frame of the Classical Meroitic period, various other forms entered Meroitic pottery repertoire through similar cases of adaptation,[92] including ones noted in the present corpus (forms J15, J16, variant B2b1, specimens SM15/176, SM15/286). As it is very well demonstrated by two small Meroitic amphorae from the Palace of Amanishakhete at Wad Ben Naga,[93] the results of such adaptation could be relatively distant from their original patterns. Thus, until more complete finds of this tentatively identified form are acquired, it may not be assumed what the exact shape of the vessels was, which the rim-fragments from the present corpus belonged to.

*Spherical or ovoid jars with long neck (form J3)*

Being the predominant transport/storage containers of the present corpus, the spherical or ovoid jars with long neck (form J3) [Fig. 17] were distinguished, besides the shape of the body, by the straight contour of their necks tapering towards the mouth with simple rim and fluent transition of neck and shoulder. The height of the neck varied. While it was generally larger than the diameter of the mouth, it could equal to only slightly (e.g. SM15/154), but also twice or even thrice more (e.g. SM15/259). Most of the specimens, not only at Wad Ben Naga,[94] were characterised by thick orange slip with distinct horizontal burnishing marks. There was also one specimen (SM16/370) covered with light white wash. Notably, this jar was reworked through removing the upper part of its neck after which a new rim was carefully modelled by grinding. In addition, a small hole was bored just under the new rim.[95] Some of their specimens might have been painted,[96] but no such could be identified in the present corpus or at Wad Ben Naga in general.

Globular or ovoid jars with long neck were apparently modelled on similar handmade specimens,[97] namely the spherical jars with narrowing neck and plain rim (sub-form J10a).[98] Their presence has been well-established in Meroitic contexts dated before the Turn of the Eras[99] and to the 1st century BCE in particular.[100] They continued to be used at least throughout the 1st century CE.[101] Concurrently, they could have started to develop specific features, such as

[91] *RCK* IV, pp. 6, 23, nos. 16-2-416, 16-2-420a, c, d, k (for the dating see Cabon et al. 2017, p. 121; Török 1997b, p. 203; Zibelius-Chen 2006); cf. also Bagińska 2013, 48. Notably, these are all unillustrated finds.

[92] Esp. Nowotnick 2016; see *inter alia* also Evina 2018; Manzo 2012; *Wad Ben Naga Report* V, pp. 236, 244–246, 265–266, 267–269.

[93] *Wad Ben Naga Report* V, pp. 244–245, Fig. 5.13.

[94] E.g. Edwards 1998, p. 142; Fernández Martínez 1983, p. 445; Geus and Lenoble 1983, p. 12; Nowotnick 2022, p. 300, MRB-VU-1609; Rose 1996, pp. 122–123; Welsby Sjöström 2023, Pl. 3.2.3, nos. 2881x, 4330x.

[95] See also Honzl 2024, pp. 13, 18, Tabs. 1–2.

[96] E.g. Edwards 1998, Fig. 6.1, no. 1801, Fig. 6.3, nos. 2901–2902; Fernández 1984, Fig. 6, no. 118-1; Rose 1996, Fig. 4.13, P202b, P292c, Wolf et al. 2011, Abb. 24, MRB VU 09-0480.

[97] David 2019, pp. 878–879; Edwards 2014, p. 58; Fernández Martínez 1983, p. 439.

[98] See below.

[99] E.g. Fernández Martínez 1983, pp. 446–447; Welsby Sjöström 2023, p. 365, no. 2881x; p. 268, no. *2881x.

[100] *Inter alia* Edwards 1998, p. 198, Fig. 6.1, no. 3702; Edwards 1999b, p. 36, Pl. XV, no. 827; Fernández Martínez 1983, pp. 446–447; *RCK* IV, p. 93, nos. 16-2-293b, 16-2-298, Fig. 50, no. 21-12-197, Fig. 55, no. 2-1-123, Fig. 134, no. 16-2-348 (for the dating see Cabon et al. 2017, p. 121; *RCK* IV, p. 7; Török 1997b, p. 205; Zibelius-Chen 2006); *RCK* V, Fig. C.1, no. 23-1-137 (for the dating see Edwards 1999a, p. 63); Rose 1996, pp. 122–123, Fig. 4.13.

[101] *Inter alia* Edwards 1998, p. 198, Fig. 6.1, no. 5201, Fig. 6.3, nos. 718/2, 2901–2902, Fig. 6.9, no. 5502; Mahmoud Bashir 2015, pp. 96, 113, Fig. 30, B 27 – 165.

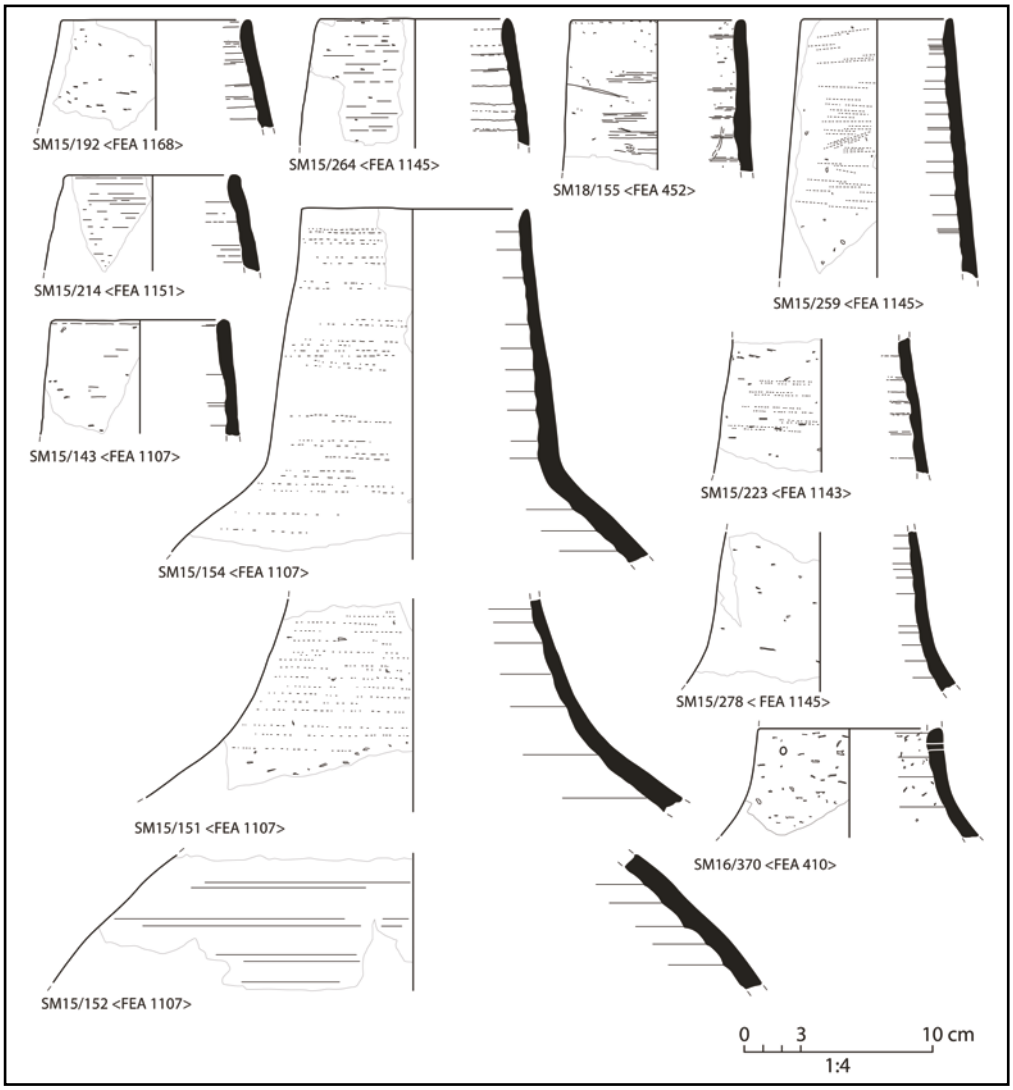


**Fig. 17.** Spherical or ovoid jars with long neck (form J3). (Illustration: Jiří Honzl, Vlastimil Vrtal).

clearer distinction between the necks and shoulders (cf. SM15/154), heading towards the later dominant forms of Meroitic storage jars,[102] namely cylindrical and ovoid jars with short conical neck (forms J1–2).[103]

[102] E.g. Edwards 1999a, *type I.13*; Geus and Lenoble 1983, Fig. 4, GRF 4/21 (for the dating see David et al. 2020, pp. 225, 228–229); Grzymski 2003, Fig. 29, P.114; Mahmoud Bashir 2015, Fig. 13, B-7-52; Otto 1967, Abb. 18, *type XIb1*; *RCK* IV, Fig. 94, no. 21-3-381, Fig. 134, no. 16-2-279; Edwards 1998, Fig. 6.4, no. 3803, Fig. 6.8, no. 3701; Fig. 6.10, nos. 1002/2, 9401, Fig. 6.18, no. 9404; Shinnie and Bradley 1980, Fig. 39, no. 114.

[103] See *Wad Ben Naga Report* VI.

*Wheelmade neckless jars (form J9)*

In contrast to their handmade counterparts [Fig. 18] used as cooking pots, wheelmade neckless jars (form J9)[104] [Fig. 19] were presumably utilised mainly for storage and transport, and only seldom for cooking. They could have an ovoid (sub-form J9a)[105] or a cylindrical (sub-form J9b)[106] shape of the body. However, no such fragments from the present corpus could be attributed to either forms on account of their low completeness. Wheelmade neckless jars were well-established, even though not common, part of the Meroitic pottery repertoire in the centuries following the Turn of the Eras.[107] However, some of their finds show that they started being made and used even before that during the 1st century BCE and possibly even earlier.[108]

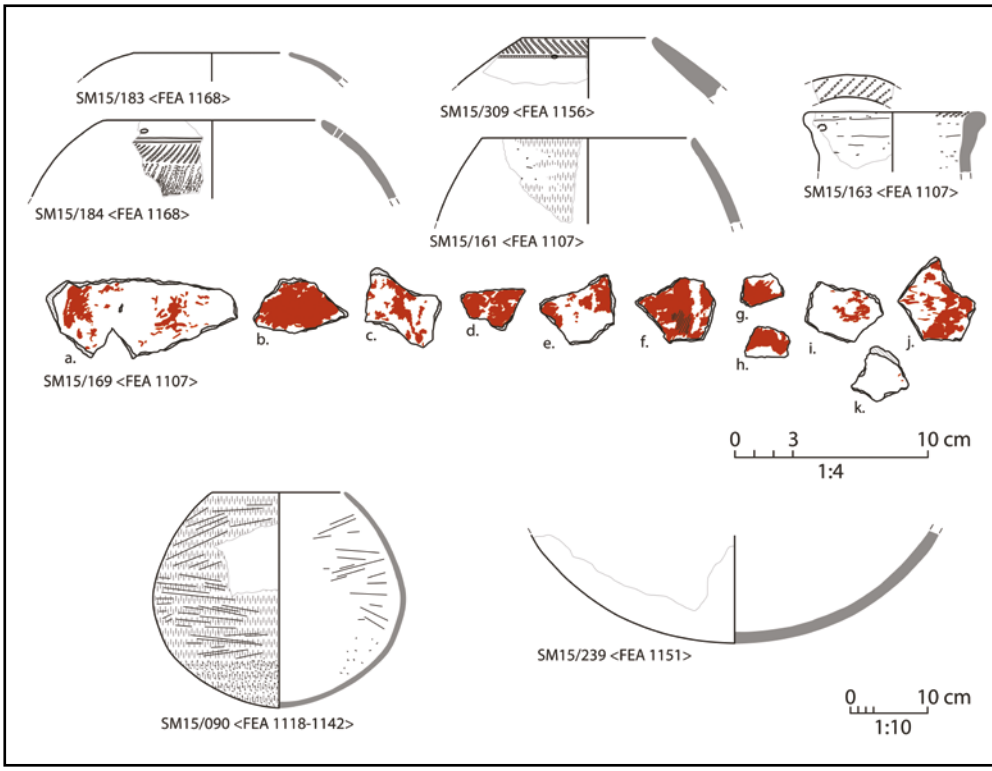


**Fig. 18.** Various handmade jars (form group J). (Illustration: Jiří Honzl, Vlastimil Vrtal).

[104] See also *Wad Ben Naga Report* VI.

[105] E.g. David and Evina 2016, Fig. 26, Mws07-B35.1; Edwards 1999b, Pl. XV, no. 834; Rose 1996, Fig. 4.17, P205i.

[106] E.g. Shinnie 1967, Fig. 9; *Wad Ben Naga Report* V, p. 252, Fig. 5.17, SNM 62/10/165, Appendix, cat. no. 261.

[107] *Inter alia* Bagińska 2015, Fig. 6, g; Bąkowska 2010, Fig. 2, no. 9, Fig. 4, nos. 39–40; Bąkowska 2018, Fig. 1, nos. 506. 1043; Edwards 1999b, Pl. I, no. 803; Fitzenreiter et al. 1999, Abb. 56, b.1–2; Nowotnick 2022, pp. 107, 128, Pl. 2, HVU-07-0191, Pl. 20, MRB-VU-10-1608, Pl. 50, HVU-12-0632.

[108] Büchner 2018, VU-1836-MIS 1-1-17-003; David and Evina 2016, pp. 106–107, Fig. 26, Mws07-B35.1; Edwards 1999b, Pl. XV, no. 834; Rose 1996, Fig. 4.17, P205i.

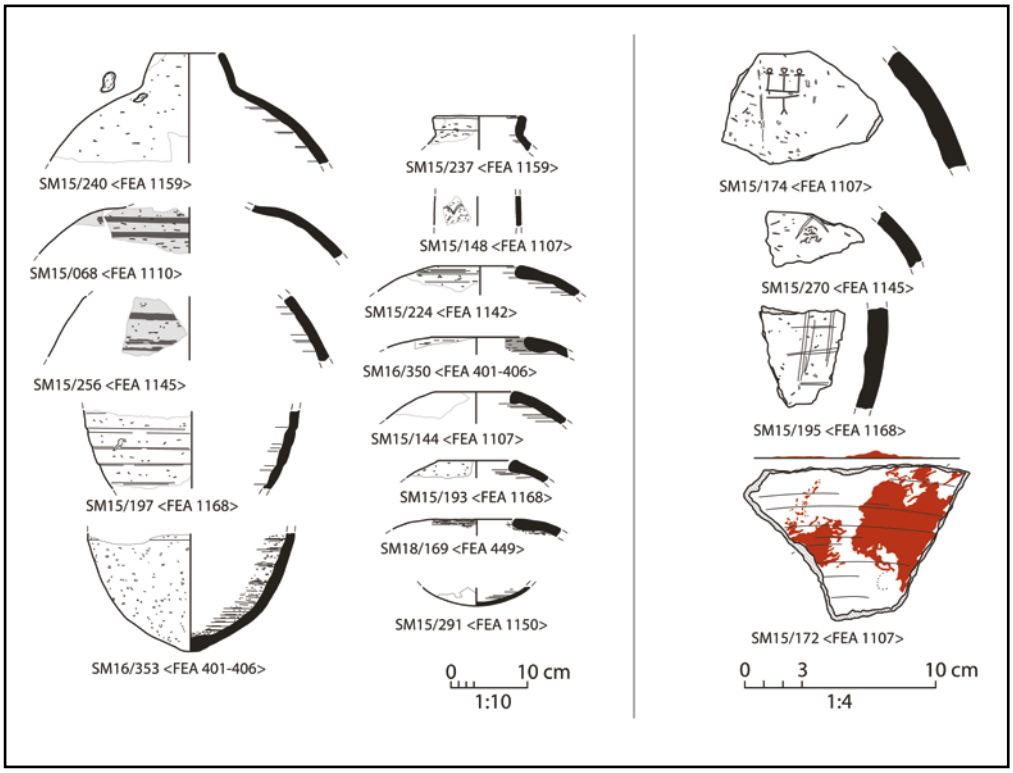


**Fig. 19.** Various wheelmade jars (form group J). (Illustration: Jiří Honzl, Vlastimil Vrtal).

*Jars with vertical handles, ring base, and flaring rim (form J15)*

A collection of various fragments could be identified as representing jars with vertical handles, a ring base, and a flaring rim (form J15) [Fig. 20].[109] Some of its features, especially the handles and ring base, distinguish the form from the majority of jars used in the Meroitic heartland. While some of the recovered fragments could – mostly less likely – belong to other forms as well,[110] they altogether fit very well to all distinct characteristics of the overall formal and decorative design of these handled jars. This is exemplified, with some variation, by their completely preserved specimens coming most notably from the Gabati cemetery,[111] as well as from other Meroitic sites.[112] In particular, these jars typically had a flaring rim with a diameter of ca. 110 mm (SM15/257, SM17/180). Their necks had a carination and sometimes were painted on a red surface with horizontal white and weak red bands (SM15/170a, SM15/257, SM15/279, SM17/180). The handles – usually with an angulate cross-section – were attached to the neck

[109] See also *Wad Ben Naga Report* VI.

[110] Esp. jars with ovoid body and tall modelled neck (form J13); see e.g. Francigny and David 2013, pp. 110, 112–113; *RCK* V, Fig. K.1–4, nos. 22-2-291, 23-1-281, 23-1-282, 23-2-177.

[111] Edwards 1998, Fig. 6.7, no. 6401.

[112] Fernández Martínez 1983, Fig. 56, nos. 129-1, 2-w-3/6-1 (= Fernández 1984, Fig. 8, no. 129-1; Vila 1978, Fig. 37, no. 1; Fig. 75, no. 4); Säve-Söderbergh 1981, p. 113, no. 25/245:18, Pl. 14, Z27-28, Pl. 87, no. 1; Schiff Giorgini 1965, Fig. 75.

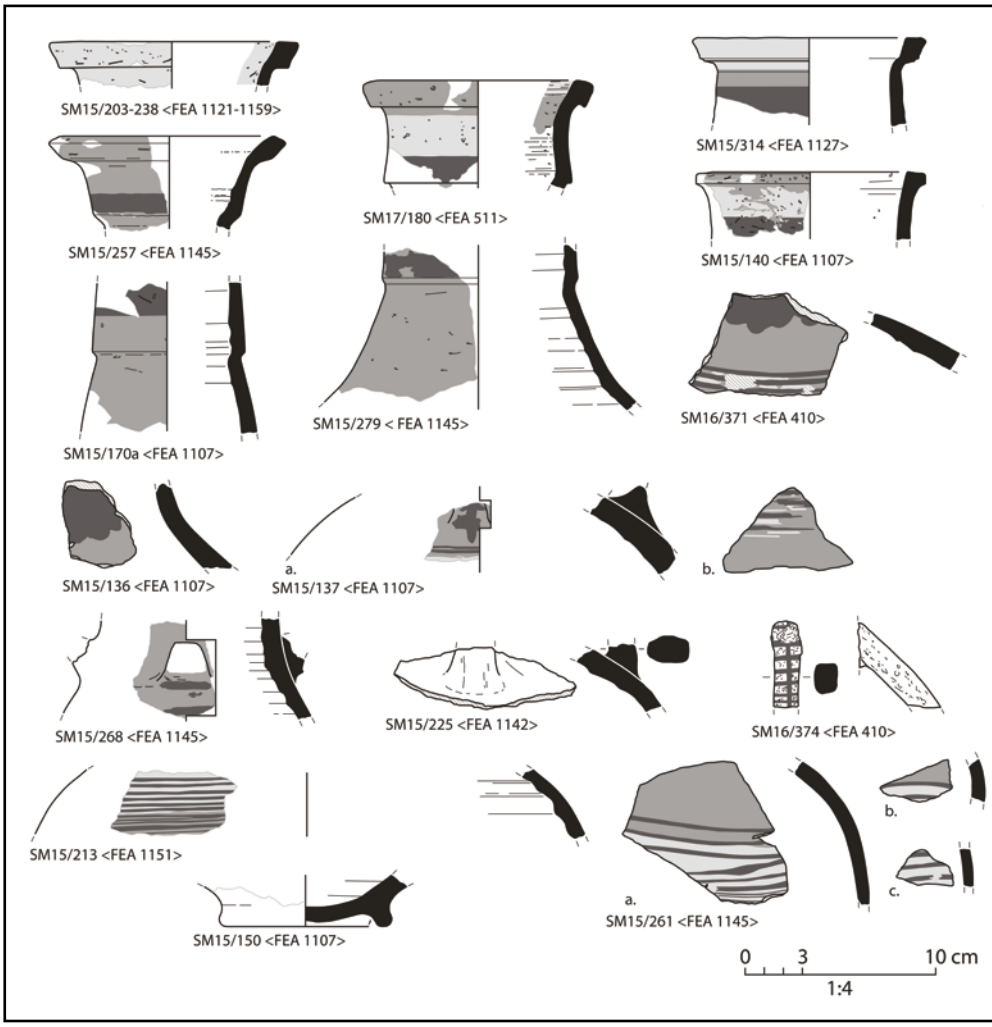


**Fig. 20.** Jars with vertical handles, ring base, and flaring rim (form J15). (Illustration: Jiří Honzl, Vlastimil Vrtal).

and shoulder and painted with horizontal weak red strokes sometimes crossed by a long vertical line (SM15/137, SM15/268, SM16/374). The shoulder/upper body was adorned with painted horizontal band usually comprising of thin white and weak red stripes, sometimes a thicker wavy line (SM15/137, SM15/213, SM15/261, SM16/371), while painted weak red 'stars'/'flowers'/ ovals were rendered on shoulder above the band (SM15/136, SM16/371). Finally, the jars had a ring base with a diameter of ca. 100 mm (SM15/150).

Beyond Wad Ben Naga, most specimens of these painted, handled jars came from funerary contexts,[113] but not exclusively.[114] In one case the jar was noted to have kept a residue of its original contents, interpreted to likely represent beer.[115] Two complete jars coming from Amir Abdalla originated from tombs dated tentatively to the end of the 2nd century BCE and to the 1st century BCE.[116] A rim and neck fragment most likely belonging to the form came from stairway leading to pyramid Beg N20 dated to the mid-1st century BCE.[117] The torso of such a jar was found in pyramid Bar 1 erected likely in the early 1st century CE.[118] Fragments most likely coming from the same form of jar were noted also in pyramid Bar 9 of 1st century CE date.[119] The painted handled jars may be also compared to a group of similar, yet clearly distinct, vessels appearing most notably at Faras,[120] in tombs dated to the 1st century BCE – 1st century CE.[121] Bishop-Wright argues that the Faras jars, as well as some others – while notably disregarding the (largely) complete specimens from Gabati and Jebel Barkal –, were Egyptian imports.[122] If indeed so, and considering that the painted handled jars from the Meroitic heartland were for the most certainly locally made and their distinction from most northern Nubian specimens, especially those from Faras, it seems reasonable to suggest that probably at least the specimens from Wad Ben Naga, Begrawiya, Gabati, and Jebel Barkal represent imitations of the imported vessels found in the north.[123]

*Jars with wide neck and vertical handles (form J16)*

While some specimens of jars with wide neck and vertical handles (form J16), the so-called Meroitic 'kraters', draw dedicated scholarly attention since the 1980s,[124] recent discoveries and publications greatly expanded the sum of knowledge about this remarkable form,[125] now firmly established as representing an adaptation of the typical Hellenistic type banqueting equipment.[126]



[113] Edwards 1998, Fig. 6.7, no. 6401; Fernández Martínez 1983, Fig. 56, nos. 129-1, 2-w-3/6-1 (= Fernández 1984, Fig. 8, no. 129-1; Vila 1978, Fig. 37, no. 1; Fig. 75, no. 4); *RCK* IV, Fig. 50, no. 21-12-110, Fig. 75, no. 16-2-394b, Fig. 135, XVIII, no. 16-2-283; Säve-Söderbergh 1981, p. 113, no. 25/245:18, Pl. 14, Z27-28, Pl. 87, no. 1; Schiff Giorgini 1965, Fig. 75.

[114] Sist 1982, Fig. 3, G 7.4.

[115] Fernández Martínez 1983, p. 479.

[116] Fernández Martínez 1983, p. 479, for the latter, cf. also Fernández Martínez 1983, p. 170.

[117] *RCK* IV, Fig. 50, no. 21-12-110; for the dating see Cabon et al. 2017, p. 121; Török 1997b, p. 205; Zibelius-Chen 2006.

[118] *RCK* IV, Fig. 75, no. 16-2-394b; for the dating see Cabon et al. 2017, p. 121; *RCK* IV, pp. 5, 7, 100; Török 1997b, p. 205; *contra* e.g. Zibelius-Chen 2006.

[119] The ceramic contents of the tomb seem to fit well with the pottery repertoire recovered from other royal tombs dated to 1st century BCE – early 1st century CE (esp. Beg N20, Bar 6), while the appearance of the small '*sigillata*' bowl (Dunam 1957, p. 113, Fig. 131, no. 16-2-385; Török 1989a, p. 129, no. 66), and numerous other imported ceramics (see e.g. in particular Török 1989a, p. 129, nos. 67–68; in general e.g. David 2019, pp. 879, 884), pushes the date of the tomb with certainty to the later limit of the range or even further; cf. Török 1989b, p. 541; Török 1997a, p. 205.

[120] Griffith 1924, Pl. XXV, esp. nos. LIe, LIq (≈ Bishop-Wright 2021, Fig. 5.19, esp. nos. v, vii, Fig. 4.40, *type 69e*).

[121] Bishop-Wright 2021, pp. 173, 175, Tab. 4.5.

[122] Bishop-Wright 2021, pp. 263–266.

[123] Cf. also Edwards 1998, 144; for other comparable cases of imitation cf. esp. Nowotnick 2016, esp. p. 405; see *inter alia* also Evina 2018; Manzo 2012; *Wad Ben Naga Report* V, pp. 244–245.

[124] Esp. Sist 1982.

[125] Esp. Evina 2018; Nowotnick 2016, pp. 400–401; see also *inter alia* Török 2011, esp. pp. 247–258.

[126] For some roughly contemporary examples from Egypt and beyond see e.g. Berlin and Warner Slane 1997, p. 136, Pl. 43, PW 403; Schreiber 2003, p. 75, Pl. 3, no. 41.

Presently known Meroitic 'kraters' were recovered exclusively from settlement contexts. Several sites including Qasr Ibrim,[127] Kawa,[128] Soniyat,[129] Jebel Barkal,[130] Meroe,[131] Awlib,[132] Muweis,[133] and Naga[134] yielded relatively well-preserved torsa – preserved partly because of their frequent reuse as vessel emplacements[135] – attesting amongst others considerable formal variability of the form. In contrast, so far only various small fragments of jars with wide neck and vertical handles were recovered from structure WBN 700, and Wad Ben Naga in general. Notably, the sherds retrieved from strata associated with the pre-Natakamani horizon [Figs. 21–22] included a fragment with an indentation separating the neck from the body showing a strongly/completely reduced shoulder (SM15/142), several rim fragments showing slightly convex contour of the neck (SM15/133, SM15/216, SM15/211, SM15/254), and several long flat handles (SM15/212, SM15/282, SM15/283, SM15/284, SM16/369). Only one other rim fragment (SM15/216) and handle (SM15/130) showed different features. The prevailing morphology of jars with wide neck and vertical handles from the present corpus is close to those specimens seemingly most distant

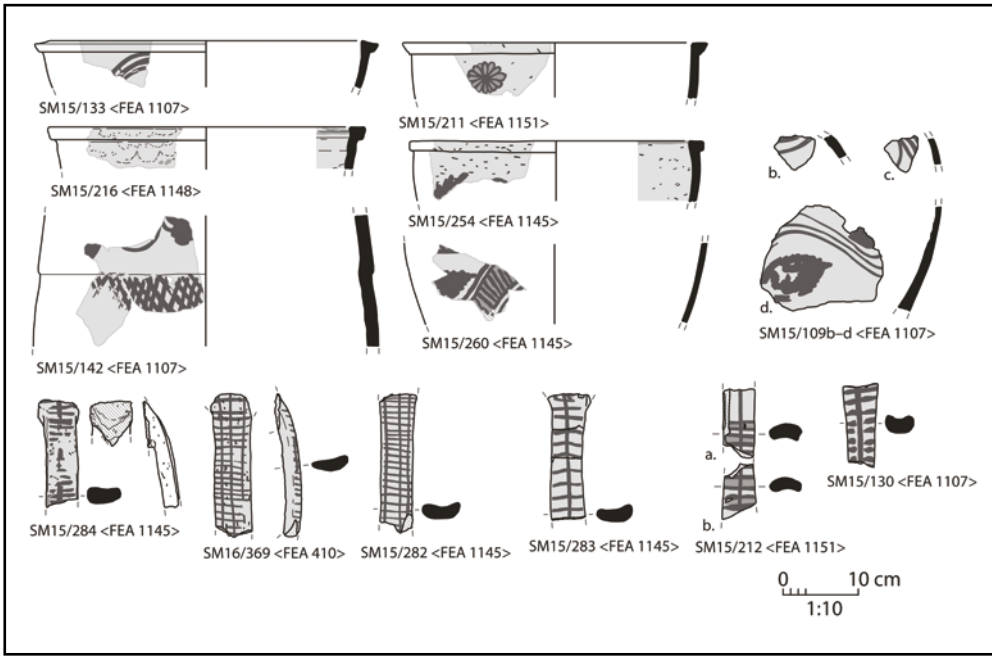


**Fig. 21.** Jars with wide neck and vertical handles (form J16). (Illustration: Jiří Honzl, Vlastimil Vrtal).

[127] Rose 1996, Fig. 4.19, P220r, also Fig. 4.27, P205b, Fig. 4.28, P191b.
[128] Welsby Sjöström 2023, Fig. 3.2.9, no. 4810x, Pl. 3.2.4, no. 4810x.
[129] Orzechowska 2003, Pl. 7, a, also Pl. 7, b.
[130] Sist 1982, pp. 317–319, Figs. 1–2.
[131] Nowotnick 2016, Fig. 1, MRB-VU-09-0643; Shinnie and Bradley 1980, Fig. 37, no. 105; Fig. 44, b–c.
[132] El-Tayeb and Kołosowska 2005, p. 151, Fig. 13, Fig. 18, b (for the dating see also Sander 2010).
[133] Evina 2018, Fig. 1, a–d; Fig. 3, b, Fig. 4, a.
[134] Kroeper and Perzlmeier 2022, Figs. 40–41.
[135] E.g. Evina 2018, p. 234; Kroeper and Perzlmeier 2022, pp. 154–159, Figs. 40; El-Tayeb and Kołosowska 2005, p. 149, Fig. 9.

to their Hellenistic models. Multiple such vessels were recovered from Jebel Barkal,[136] but they also appeared at other Meroitic sites,[137] notably including the nearby Naga.[138]

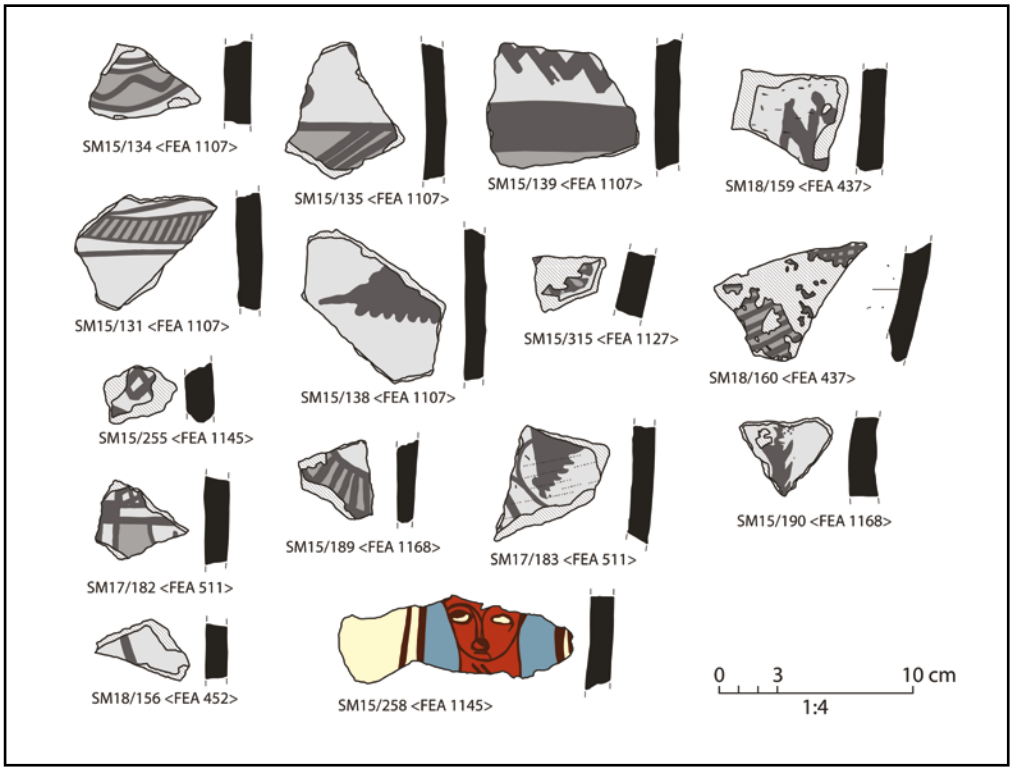


**Fig. 22.** Jars with wide neck and vertical handles (form J16). (Illustration: Jiří Honzl, Vlastimil Vrtal).

As it was characteristic for most Meroitic 'kraters', also the vessels coming from Wad Ben Naga were lavishly decorated. While variants of different colours of surface treatment could be used as ground for the painting,[139] all their pieces in the present corpus had a thick, matte white (occasionally reaching to pale brown/cream) slip, sometimes combined with red slip on the interior (e.g. SM18/159), with non-parallel brush (?) marks often clearly visible on the surface (e.g. SM15/142) [Fig. 23]. The decoration on the white ground was rendered mainly in weak red. Sometimes, the outlined motifs were filled-in with red.[140] The prevailing motifs were: bands of vine scroll with alternating serrated leaves usually appearing on the neck[141] (SM15/109b-d, SM15/131, SM15/133, SM15/134, SM15/138, SM15/142, SM15/189, SM15/254, SM15/260, SM18/156), cross-hatched

[136] Bąkowska 2010, Fig. 3, no. 35; Bąkowska 2015, Fig. 1; Bąkowska-Czerner 2018, Fig. 1, no. 1060, Pl. 1, no. 5/12-3; Sist 1982, Figs. 1–2.
[137] Orzechowska 2003, Pl. 7, a; Rose 1996, Fig. 4.19, P220r; Shinnie and Bradley 1980, Fig. 44, b.
[138] Kroeper and Perzlmeier 2022, Figs. 40–41.
[139] E.g. Evina 2018, 237.
[140] On SM15/131, pink appears to be used instead of red which, however, may be in fact only its accidentally paler hue.
[141] See also Evina 2018, p. 237.

**Fig. 23.** Fragment of a jar with wide neck and vertical handles SM15/142 (form J16). (Photo: Alexander Gatzsche).

bands usually on the shoulder/upper body[142] (SM15/139, SM15/142, SM15/255, SM18/159, SM18/160), and horizontal weak red strokes crossed by a long vertical line, or lines, on handles (SM15/130, SM15/282, SM15/283, SM15/284, SM16/369). Rarely appearing motifs included various linear and geometric patterns (SM15/139, SM17/182, SM18/160),[143] rosettes (SM15/211, possibly SM15/315),[144] and vertical palm branches (SM15/190).[145]

By their decoration, using the bi-chrome scheme and additional colour only for horizontal linear features on the body,[146] most jars with wide neck and vertical handles fit well in the 'silhouette style' of Meroitic vase painting.[147] However, several fragments from the pre-Natakamani horizon notably diverge from this decorative scheme. This is best exemplified by the variant of the vine-scroll band with a thickened stem (SM15/131, SM15/134, SM15/189, SM15/260), the rosettes (SM15/211, possibly SM15/315), and probably also by other uncertain motifs (SM15/135, SM17/182). They were all characterised by the application of an additional colour (red) for filling and rendering of internal details/ornamentation. Thus, they seem to be closer to the later 'line drawing style', hinting at the dating of these fragments to the late

[142] See also Evina 2018, p. 237.
[143] Cf. e.g. Evina 2018, Fig. 3, b, Fig. 4, a; Nowotnick 2016, Fig. 1, MRB-VU-09-0643; Sist 1982, Fig. 2, G 7.8.
[144] Cf. Bąkowska 2010, Fig. 3, no. 35; for SM15/315 cf. also Sist 1982, Fig. 1, G 7.9.
[145] Cf. e.g. Nowotnick 2016, Fig. 1, HVU-01-0133; Török 1997a, Fig. 133, no. x-71.
[146] See esp. Evina 2018, pp. 237–238.
[147] *Inter alia* Török 2011, pp. 254–260; for the discussion of the 'kraters' in particular, see pp. 257–258.

2nd century BCE at the earliest.[148] Outside Wad Ben Naga, such features find parallels in decoration of 'kraters' again from Jebel Barkal[149] as well as Kawa[150] and Missiminia.[151] In particular, florals employing thickened stems comparable to vine scroll bands of some of these vessels appeared also on several jars from the Gabati cemetery[152] coming from tombs (tentatively) datable, based on radiocarbon dates, to the 1st century BCE – 1st century CE.[153]

Overall, the remains of Meroitic jars with wide neck and vertical handles from strata associated with structure WBN 700 show, both morphologically and stylistically, closest similarity to specimens recovered at Jebel Barkal, namely belonging to the pottery assemblage from the Palace of Natakamani (B 1500)[154] dated to the 1st–2nd century CE or later,[155] pottery assemblage from building B 2400[156] dated to the 1st century BCE – 2nd century CE,[157] and pottery dump,[158] including a relatively large amount of Meroitic finewares,[159] located near temples B 1300[160] and B 1400.[161] Amongst the other easily-comparable pieces, the radiocarbon dates suggest a dating of roughly the 1st century BCE – 1st century CE[162] for the vessel from Naga,[163] the Qasr Ibrim specimen[164] came from the pottery assemblage dated to the 2nd–1st centuries BCE.[165] A notably early date[166] has been suggested for the torso from Soniyat.[167] On the other hand, the less similar 'kraters' from Muweis[168] came from contexts yielding radiocarbon dates falling into the late 3rd – early 2nd centuries BCE. Another similar specimen from Meroe Royal Baths[169] came from context dated by radiocarbon dates roughly to 2nd century BCE – 1st century CE.[170] Thus, it shows that the fragments found in the present corpus belonged rather to the later part of the outlined date range, namely from the turn of the 2nd and 1st centuries BCE. In addition, the reviewed data seem to suggest that there was a general tendency for the Meroitic 'kraters' in time to diverge both morphologically and stylistically from their apparent Hellenistic models. However, this cannot be confirmed without further research going beyond the scope of the present paper.

An exceptional find was represented by a small fragment with polychrome painting depicting the head of a human figure (SM15/258) [Fig. 24]. While sharing the general manufacturing characteristics of jars with wide neck and vertical handles, considering the morphologically

148 Török 2011, esp. p. 266.
149 Bąkowska 2015, Fig. 1, Pl. III, no. VII; Gamal El Hassan and Abbas Mohammed Ali 2023, Fig. 8.
150 Welsby Sjöström 2023, Fig. 3.2.9, no. 4810x, Pl. 3.2.4, no. 4810x.
151 Vila 1978, Fig. 9, C.
152 Edwards 1998, Fig. 6.2, nos. 508/1, 1106, Fig. 6.3, nos. 2901–2902, T11/101C, Fig. 6.5, no. 13101, Fig. 6.7, no. 3201.
153 Esp. GBT 11B, GBT 29, also closely located GBT 32, GBT 131, Edwards 1998, esp. pp. 198, 200–201.
154 Bąkowska 2015, p. 459, Fig. 1, Pl. III, no. VII; Bąkowska-Czerner 2018, p. 506, Fig. 1, no. 1060, Pl. 1, no. 5/12-3; note also the similarity of the polychrome handle SM15/212 from the present corpus to Pl. I, no. 5/12-3.
155 Bąkowska 2015, pp. 455, 458–460; Bąkowska-Czerner 2018, p. 511.
156 Bąkowska 2010, Fig. 3, no. 35.
157 Bąkowska 2010, esp. p. 202; Bąkowska 2015, p. 456.
158 Sist 1982, pp. 317–319, Figs. 1–2.
159 Vincentelli 1982, pp. 314–315.
160 Esp. Donadoni and Bosticco 1982, pp. 292–301.
161 Esp. Barocas 1982.
162 Kroeper and Perzlmeier 2022, p. 159.
163 Kroeper and Perzlmeier 2022, p. 154, Figs. 40–41.
164 Rose 1996, Fig. 4.19, P220r.
165 Rose 1996, pp. 146–153.
166 Orzechowska 2003, p. 445.
167 Orzechowska 2003, Pl. 7, a.
168 Evina 2018.
169 Nowotnick 2016, Fig. 1, MRB-VU-09-0643.
170 Nowotnick 2016, p. 400.

**Fig. 24.** Fragment of a jar with wide neck and vertical handles SM15/142 (form J16). (Photo: Alexander Gatzsche).

undiagnostic character of the fragment as well as its unparalleled figural iconography, it is discussed in the present paper beside them rather than amongst them. The piece preserves face and part of the neck of a female (?) figure showed in three-quarter view drawn in uneven weak red lines with a somewhat clumsily rendered nose and mouth. While the skin was painted red, the eyes were filled-in with white. The figure was placed in greyish-blue field bordered on each side by double weak red vertical line separating it from the white background. As the greyish-blue field would apparently be too narrow for her shoulders, it seems likely that not a whole figure but only the head was depicted. By its iconography, the depiction clearly stemmed from Hellenistic patterns. Notably, the composition seems to be fairly close to the iconography of late Ptolemaic painted goblets which often featured line-drawn, often simplified, women's heads, sometimes as part of a segmented frieze on the shoulder.[171] A fragment of one such specimen was found as far as Aswan.[172] Similar motifs could be noted also on some non-ceramic imported objects reaching Merotic Nubia.[173] Stylistically, it may be considered as even more closer to the Meroitic 'line drawing style' than some of the fragments of jars with wide neck and vertical handles discussed above. Notably, a similarly executed, although iconographically different, figural motif appeared on a Meroitic 'krater' (?) fragment from the Palace of Natakamani at Jebel Barkal.[174] The same site yielded also another fragment of such vessel using perhaps the same greyish-blue colour as the Wad Ben Naga figural piece.[175] In both cases, this was an unusual addition to the regular Meroitic palette of colours used for painting pottery. The rarely used greyish-blue was noted also on some of the more elaborately painted figural pieces of Meroitic pottery belonging to the 'line drawing style'.[176] In overall, the evidence suggests that the piece could have originated in the time around the Turn of the Eras.

[171] Rodziewicz 2020, esp. Pp. 98–104 (for the motif of women heads), pp. 145–151 (for the dating).
[172] Rodziewicz 2005, p. 228, Pl. 96. no. 1570, Pl. 130. no. 9.
[173] Most notably *RCK* IV, p. 76, no. 22-1-47, Pl. LXVIII, L. (see also *RCK* IV, p. 127; for the dating see Cabon et al. 2017, pp. 121–122; Török 1997b, pp. 205, 465; Zibelius-Chen 2006); for other media as source for Meroitic vase painting see e.g. Török 2011, 264–269.
[174] Bąkowska-Czerner 2018, p. 506, Pl. 2, no. 6/13 - 3; Ciampini et al. 2023; Salvador 2019, p. 76, Fig. 1.
[175] Bąkowska-Czerner 2018, Pl. 1, no. 5/13 - 3; Salvador 2019, pp. 77–78, Fig. 2.
[176] Török 2011, pp. 251, 269–277, esp. pp. 272, 274–276.

*Open conical vessels (sub-form M8)*

The form type of open conical vessels [Fig. 25] was well-represented in the corpus, both in overall number and the degree of preservation. The form type encompassed a rather wide variety of morphological renderings of bell-shaped, straight- and even concave-walled open conical basins and lids (?) of different height and rim diameter. In general, the vessels were of relatively poor quality of workmanship, coiled, with throwing marks being often visible even on the outer surface, a wash/slip commonly lacking (nearly half of the examples in the present corpus), and coarse wadi fabrics predominating (fabrics W5 and W7;[177] over 70 % in the present corpus). Several sub-forms could be distinguished based on the criteria of size, height, and base type. Even within the individual form types thus defined, the vessels showed various degrees of morphological heterogeneity, which likely betrayed their utilitarian nature.

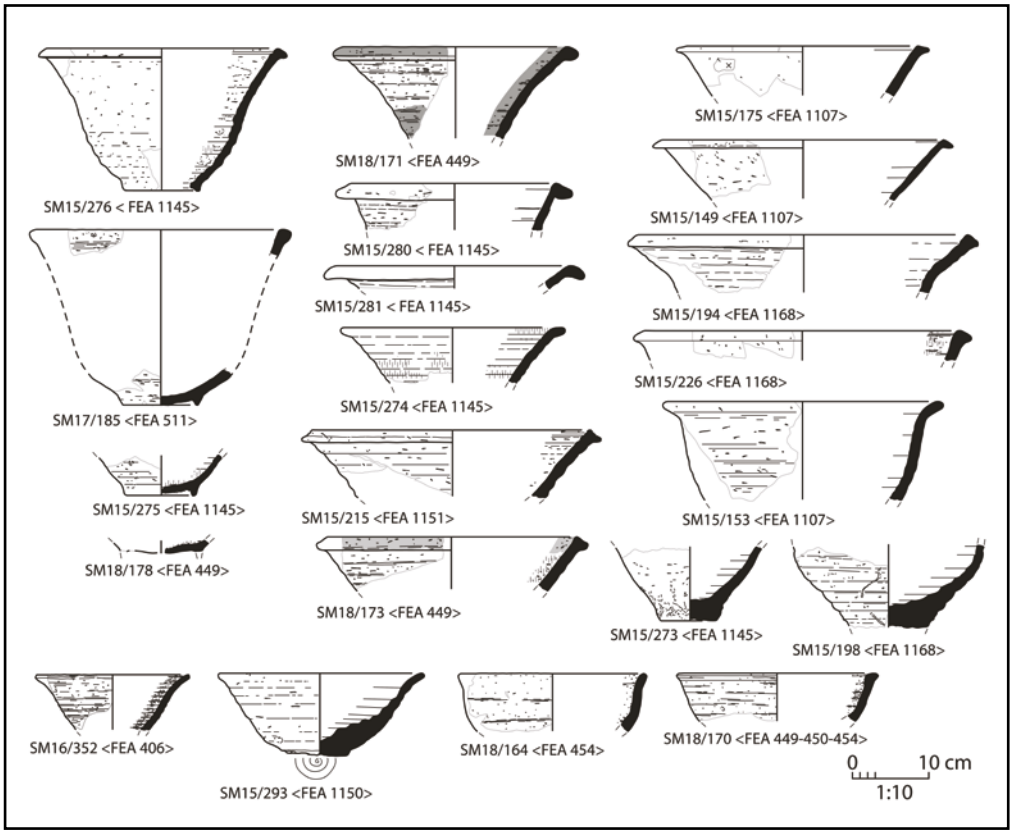


**Fig. 25.** Open conical vessels (sub-form M8). (Illustration: Jiří Honzl, Vlastimil Vrtal).

The most homogeneous variant of open conical vessels in the present corpus (and at the site in general) were open conical vessels with ring base (variant M8a1). Their body was bell-shaped, with sinuous profile, and had the proportion of height to rim diameter ca. 1:2. The base was

[177] *Wad Ben Naga Report* II, p. 74.

invariably of the ring type and was relatively short and wide (90–110 mm,[178] with some overlaps in both directions[179]). The rim, on the other hand, could take different forms, from plain rounded[180] to beaded (SM17/185), to flattened,[181] to ledge[182] (SM15/276), to flaring up.[183] The rim diameter ranged from 250 mm to 420 mm; vessels with a rim diameter between 280 mm and 350 mm were most common.

Examples of this variant were found in contexts that allow dating their production to the 1st century BCE and the first half of the 1st century CE. At Musawwarat es-Sufra, they predated formation of the main dump of a pottery workshop,[184] producing amongst others, kaolinitic fineware, although some possible examples were also included in the dump itself.[185] At Hamadab, they come from the context of palace H 3000, built between the 2nd century BCE and the first half of the 1st century BCE.[186] On the other hand, they were completely absent from the assemblage from the late Meroitic house H1600 and from Kiln 1 at the same site.[187] Approximate dating of open conical vessels with a ring base from the 50-Meters Line Trench at the foot of the Northern Mound at Meroe and from Muweis is indicated by the ceramic form types from the same contexts and ceramic groups, respectively.[188] In the area of temple M 6 at Meroe, two examples of the ceramic form type come from a slag heap MIS 1,[189] the formation of which likely covered the 1st century BCE.[190] Finally, several well-preserved pieces were retrieved from fills under the floors of the Palace of Amanishakhete at Wad Ben Naga, which demonstrably belonged to the latter's construction horizon,[191] and from a painter's pit and debris in the Small Temple (WBN 400), dated to the same period.[192]

The function of these vessels is unclear. Given their shape, they may have easily been quite versatile utensils.[193] It can be assumed that the shape was suitable for short-term storage, mixing

[178] See also Gerullat 2001, p. 76, no. GA/310, ZN-IA-60er-109; Wolf, S. et al. 2009, Abb. 43; Bąkowska 2010, Fig. 2, no. 15; Näser and Wettendorf 2014, Fig. 20; Näser and Wettendorf 2015, Fig. 11, g; *Wad Ben Naga Report* II, pp. 163, 166, SM10/101; *Wad Ben Naga Report* V, p. 271, Fig. 5.30, SM14/107, SM14/119.

[179] See Shinnie and Bradley 1980, Fig. 30, no. 33; Edwards 1999b, Pl. XV, no. 829; David-Evina 2016, Fig. 24, Mws11-Ka275; Nowotnick 2022, Pl. 3, MRB-VU-05-0055; Büchner 2018, VU-1828-MIS 1-1-17-003, HVU-17-033.

[180] See Shinnie and Bradley 1980, Fig. 30, no. 33.

[181] See *Wad Ben Naga Report* V, p. 271, Fig. 5.30, SM14/119.

[182] See *Wad Ben Naga Report* V, p. 271, Fig. 5.30, SM14/107.

[183] See David and Evina 2016, Fig. 24, Mws11-Ka275.

[184] See Edwards and Onasch 1999, p. 9, *stratum* 628, Figs. 6, 10; Edwards 1999b, pp. 36, 40, Pl. XV, no. 829 and likely also no. 828.

[185] See Edwards 1999b, p. 23, Pl. VII, nos. 754–755.

[186] Büchner 2018, HVU-17-033.

[187] Nowotnick 2022, pp. 15, 101, Figs. 53, 64.

[188] For the 50-Metres Line Trench see Shinnie and Bradley 1980, p. 140, P.238, p. 142, P.279; Fig. 30, no. 33; accompanied by deep conical round-based bowls (sub-form B1b2), open bowls with flat or ring base and ledge rim (sub-form B2b), spherical or ovoid jars with long neck (form J3), and spherical jars with narrowing neck (form J10). For the finds from Muweis see David and Evina 2016, Fig. 24, Mws11-Ka275; accompanied by an open bowl with flat or ring base and ledge rim (sub-form B2b), a late Ptolemaic bowl, deep vats (sub-form B4b), and a jar with wide neck and vertical handles (form J16).

[189] Büchner 2018, VU-1828-MIS 1-1-17-003, VU-1839-MIS 1-1-17-003.

[190] Slag heap MIS 1/2 situated to its north formed between the mid-4th and the end of the 1st century BCE; Humphris and Scheibner 2017, p. 394.

[191] *Wad Ben Naga Report* V, p. 271, Fig. 5.30, SM14/107, SM14/119.

[192] *Wad Ben Naga Report* II, pp. 163, 166, SM10/101; for the dating of the painter's pit and the construction of the temple, see *Wad Ben Naga Report* II, pp. 152, 168.

[193] Similar to Egyptian New Kingdom 'flower pots'.

substances, and perhaps even for gardening[194] and covering large basins.[195] Remarkably often, their inner or outer surface was blackened (SM15/275–276, SM18/178), thus raising the possibility of their utilisation as braziers filled with embers for heating (rather than cooking). The piece from Hamadab,[196] on the other hand, was covered with plaster on the outside and inside. This could indicate that these vessels were also somehow employed during construction works. Indeed, many extremely well-preserved examples come from underfloor fills,[197] which might indicate their discard in the very process of construction of the relevant buildings. Near absence of open conical vessels in funerary contexts is striking.[198]

Many morphological characteristics of open conical vessels with ring base were shared with open conical vessels with round or pointed base (variant M8a2). It resulted in frequent inability to ascribe fragmentary pieces (particularly rim fragments) to one form type or the other. The only unambiguous example in the present corpus may be represented by fragment SM18/171, which was otherwise interesting by the presence of a wash/slip only on certain parts of the vessel. Examples of the variant M8a2 had the same range of rim diameters and roughly the same height-to-rim diameter ratio as those of variant M8a1. They differed from the latter mainly by the presence of a round base, often bordering on pointed. The heterogeneity in the morphology of their walls may be explained by much longer production period, in comparison to vessels of variant M8a1, or indeed by lumping different vessel form types. The form type seems to be related to late Napatan handmade and wheelmade bell-jars of an analogic shape.[199] In early Meroitic period, the variant M8a2 was well-represented at Musawwarat es-Sufra in horizons from around the reign of Arnekhamani,[200] and perhaps even earlier;[201] the morphological variability is striking, however. Similar to examples of variant M8a1, the vessels were often retrieved from constructional contexts. Later renderings of the variant appear to be more standardised. Examples datable between the 1st century BCE and mid-1st century CE come from Musawwarat es-Sufra,[202] Meroe,[203] and Hamadab.[204] Finally, a piece very similar to the one from Hamadab was retrieved from tomb Beg W415, dated to as late as the mid-3rd century CE.[205] The presence of an askos in the latter tomb makes this late date very unlikely,[206] and a date around the Turn of the Eras is thus plausible. Interestingly, like the abovementioned example of the variant with a ring base (variant M8a1) from Hamadab, the

[194] See sub-form M8a2 below.

[195] See sub-forms M8a2 and M8c1 below.

[196] Büchner 2018, VU-1828-MIS 1-1-17-003.

[197] Besides all examples from the current study, see also *Wad Ben Naga Report* V, pp. 120, 271, Figs. 3.17, 5.30, SM14/107, SM14/119; Vrtal *forth*., Fig. 9, SM22/162; and likely also Otto 1967, p. 20, Abb. 14, VII.c.2; *Wad Ben Naga Report* II, pp. 163, 166, SM16/134; Malykh 2019, Fig. 43, AE15/II-R25/3, Fig. 47, AE17/II-R34/1; *Wad Ben Naga Report* V, p. 271, Fig. 5.30, SM17/170.

[198] In greater numbers, they were present in the pyramid cemetery at Jebel Barkal, see *RCK* IV, Fig. 130, nos. 16-2-378, 16-2-289, 16-2-377, Fig. 131, no. 16-2-349.

[199] Nowotnick 2011, Abb. 23, MRB-VU-05-0256, MRB-VU 10-1198; Welsby Sjöström 2023, Fig. 3.5.4, nos. 2242–2243x, 2730x, 3218x, 3060x.

[200] Otto 1967, p. 20, Abb. 14, VII.a.3, VII.b.2–3.

[201] See Eigner 2010, pp. 11–14; Näser 2017, pp. 323–326.

[202] Näser 2014, Abb. 16, no. 5. Accompanied by a deep vat (sub-form B4b) and jars with long neck (form J3).

[203] Robertson and Hill 2004, Pl. IIa, no. 1. From earliest occupation horizon in the area of trench C50.

[204] Nowotnick 2022, p. 258, Pl. 17, HVU-09-0236. Dated to horizon C (1st century BCE to 2nd century CE), phase 3.

[205] *RCK* V, Fig. C.14, no. 23-2-119; Edwards 1999a, Fig. 74.

[206] See Hoffman 1999, p. 577; Nowotnick 2016, pp. 404–405; *Wad Ben Naga Report* V, p. 269, Fig. 5.27, SNM 62/9/97, SNM 62/10/53; finds from tombs Bar 1 and Beg W18, W21, W30, W33, W157, W171, W177, W308, W415, and S66 are also indicative of the early dating; for the latter see Edwards 1999a, Fig. 74.

piece from Beg W415 also had traces of plaster on the inner surface.[207] The function of the vessels of this form type was then apparently similarly as versatile as the function of variant M8a1, as some of the pieces were supposedly also used as planting pots[208] and others could easily be imagined as large lids.[209]

In the case of most vessel fragments of sub-form M8a, demonstrable attribution to any of the two variants was not possible. It is striking, however, that no round or pointed bases attributable to variant M8a2 were retrieved from the contexts included in the present corpus while four ring base fragments could be added to the drawn vessels. The undoubtable morphological variability seems to be consistent with the examples from elsewhere, although too often the possibility of erroneous attributions must be admitted, given the fragmentary state of most of the pieces. All datable analogies can nevertheless be framed by the early 1st century BCE and the first half of the 1st century CE,[210] which corroborates such attributions.

The possibility that some of the open conical vessels had solid flat bases (see SM15/273, SM15/198) is rather unlikely given the absence of analogies but it cannot be ruled out. The two pieces perhaps belonged to small-sized deep conical vessels (variant M8c1). Having a similar morphology, these vessels were much subtler, reaching a maximum of 250 mm in their rim diameters. The only single example of small-sized deep conical vessels was represented in the corpus: SM16/352.[211] Its base was missing unfortunately, but it was likely flat.[212] Examples from Wad Ben Naga and Begrawiya West provide evidence for presence of this variant in (early) 1st century CE contexts,[213] but they also seem to reappear later. Clearly, they could be accompanied by a shallow lid – in the case of the piece from the Palace of Amanishakhete, one with a knob. Indeed, it may be the case that some of the shallow conical vessels (variant M8c2) of the same size but notably shorter (ca. 1:4 height-to-rim ratio) were knobbed lids. The base (or knob) is too often missing,[214] however, and a plain flat or round base could have also been present.[215] Possible examples, such as fragment SM15/293 had a flat base, but it is much rougher and more

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[207] *RCK* V, p. 114.

[208] See Wenig and Wolf 1998, pp. 42–43.

[209] Compare the shapes of SM18/171 from the present corpus, Otto 1967, Abb. 13, VII.a.3, Gerullat 2001, p. 72, GA/223=ZN-IA-60er-191, Robertson and Hill 2004, Pl. IIa, no. 1, and Näser 2014, Abb. 16, no. 5 with Robertson and Hill 2004, Pl. Ic, no. 1 and Rose 1996, Fig. 4.18, no. P268e.

[210] See *RCK* IV, Fig. 130, nos. 16-2-378, 16-2-289, 16-2-377, Fig. 131, no. 16-2-349 (spanning the 1st century BCE); Otto 1967, p. 20, Abb. 14, VII.c.1 (around 200 BCE?); Edwards 1999b, pp. 23, 36, 40, Pl. XV, no. 828 and likely also no. 829 (underlying main dump of a pottery workshop producing fineware), Pl. VII, nos. 754, 755, 776 (retrieved from the main dump); Bąkowska 2010, p. 190, Fig. 2, no. 24 (accompanied by a jar with long neck of form J3), p. 195, Fig. 5, no. 57 (indirectly accompanied by open bowls with flat or ring base and ledge rim B2b, deep vats B4b, and jars with wide neck and vertical handles J16); Bąkowska-Czerner 2018, Fig. 1, nos. 758, 1153 (accompanied by deep vats B4b, neckless jars J9, and jars with wide neck and vertical handles J16); *Wad Ben Naga Report* II, pp. 163, 166, SM16/134 (construction of the Small Temple in the reign of Amanishakhete); Malykh 2019, Fig. 43, AE15/II-R25/3, Fig. 47, AE17/II-R34/1 (fill underlying temple construction by Natakamani); Nowotnick 2022, p. 303, Pl. 3, MRB-VU-05-0269 (accompanied by a jar with long neck of form J3); *Wad Ben Naga Report* V, pp. 271, 273, Fig. 5.30, SM17/170, Fig. 5.32, SM14/086 (construction of the Palace of Amanishakhete).

[211] Its attribution to the same sub-form was supported in this case, besides morphology, also by traces of plaster noted on the vessel's walls.

[212] See Dunham 1970, Fig. 39, no. 20-1-199; Shinnie and Bradley 1980, Fig. 29, nos. 20, 21; *Wad Ben Naga Report* V, p. 264, Fig. 5.25, SNM 62/9/46, SNM 62/9/52; *Wad Ben Naga Report* VI, SM13/164, SM16/280.

[213] *RCK* V, Fig. F.23, no. 23-1-337 (Edwards' phase Ia, see Edwards 1999a); *Wad Ben Naga Report* V, p. 264, Fig. 5.25, SNM 62/9/46, SNM 62/9/52.

[214] Bąkowska 2010, p. 195, Fig. 5; *Wad Ben Naga Report* III, Fig. 4.22, SM16/008, SM16/010, SM16/011, SM16/012, SM16/015; *Wad Ben Naga Report* VI, SM16/243, SM16/284, SM16/276, SM12/615, SM16/089.

[215] See Dunham 1970, Fig. 32, no. 19-2-22.

robust, and together with the other, vaguely similar pieces SM18/170 and SM18/164 it represents less standardised variants of small-sized conical vessels.[216]

*Other*

In addition to the groups of pottery form types that appeared in greater numbers, the remaining, mostly singular finds helped to construct the typological, functional, and chronological profile of the assemblage.

Two distinctive fragments (SM15/217, SM15/218) [Fig. 14] made of the finest kaolinitic fabric with polished surface without a wash/slip were encountered in FEA 1147 associated with the destruction of structure WBN 700. SM15/218 belonged to a ledge-rimmed bowl (sub-forms B2b–d) and SM15/217 could either represent the same form type[217] or alternatively a bowl with a rounded base, carinated body, and collar rim (form B3).[218] Kaolinitic fineware vessels of these form types are quite uncommon in the Meroitic pottery repertoire and appeared mainly during the 1st–2nd centuries CE.[219]

An additional example of possible local imitations of imported amphorae was represented by the lower part of a vessel with a flat flaring base and a tall, narrow body SM15/286 [Fig. 16]. Although from the morphological point of view, it showed close affinity to some conical cups and footed bottles,[220] the finish of the piece differed considerably from the former on account of much higher quality of workmanship and a fine cream to light brown wash/slip on the outside. The absence of the slip on the inside and particularly the black core of the break reaching the inner surface of the vessel indeed indicated that its form was closed. We may thus speculate that the vessel represented a local imitation of an amphora.[221] Interestingly, two local imitations of amphorae Gempeler K703 (form F1) found in the Palace of Amanishakhete had fairly similar size and rendering of their outer surface and lower parts, albeit having ring bases.[222] Earliest examples of these Aswan amphorae come from the beginning of the 1st century CE.[223]

A single torso SM15/240 [Fig. 19] and several other fragments of cylindrical/ovoid jars with short neck (form J1/2)[224] most likely represented later intrusions.

The repertoire of mostly roulette-decorated fragments of spherical 'beer'-jars SM15/156, SM15/158, SM15/180, SM15/185–186, SM15/228, SM15/231, SM15/246, SM15/248, SM15/250 [Fig. 26] seem to have largely adhered to the morphological type frequent at the site in contexts from the early 1st century CE onwards,[225] spherical jars with narrowing neck and plain rim (sub-form J10a). The shape, with minor variations, does not seem to be particularly sensitive

[216] For a parallel to SM18/170, see *RCK* IV, Fig. 130, no. 16-2-297; *Wad Ben Naga Report* II, pp. 163, 166, SM16/132; for a parallel to SM18/164, see *Wad Ben Naga Report* VI, SM17/011.

[217] Cf. e.g. Fitzenreiter et al. 1999, Abb. 49, e.1–2.

[218] Cf. e.g. *Wad Ben Naga Report* II, pp. 161, 165, SM10/102; *Wad Ben Naga Report* V, p. 238, Fig. 5.8; see also *Wad Ben Naga Report* VI.

[219] *Inter alia* Bagińska 2015, p. 249, Fig. 2, i–l; Edwards 1998, Fig. 6.16, no. 9413; Mahmoud Bashir and David 2011, Fig. 1, nos. 3–4 (= Mahmoud Bashir 2015, p. 109, Fig. 12, B-1-3, B-1-4); Nowotnick 2022, p. 75, Pl. 24, esp. HVU-10-0001; *Wad Ben Naga Report* V, p. 281, Fig. 5.37, SM18/095.

[220] Buschendorf-Otto 1993, p. 301, Abb. 268; *Wad Ben Naga Report* V, p. 242, Fig. 5.11, SNM 62/9/47, SNM 62/10/15; *Wad Ben Naga Report* VI, SM17/143, SM12/617.

[221] Compare Grzymski 2003, p. 67, Fig. 40, P.151.

[222] *Wad Ben Naga Report* V, pp. 244–245, Fig. 5.13. Amphora SNM 62/9/98 had a very similar wash/slip. Amphora SNM 62/10/14 had similar morphology of the base.

[223] Martin-Kilcher and Wininger 2017, pp. 12, 17, nos. 190, 244, 250.

[224] See *Wad Ben Naga Report* VI.

[225] Represented above all by the assemblages from the Palace of Amanishakhete, including the construction horizon of the palace, but also elsewhere, see *Wad Ben Naga Report* V, pp. 253–255, 272, Figs. 5.18–21, 5.29.

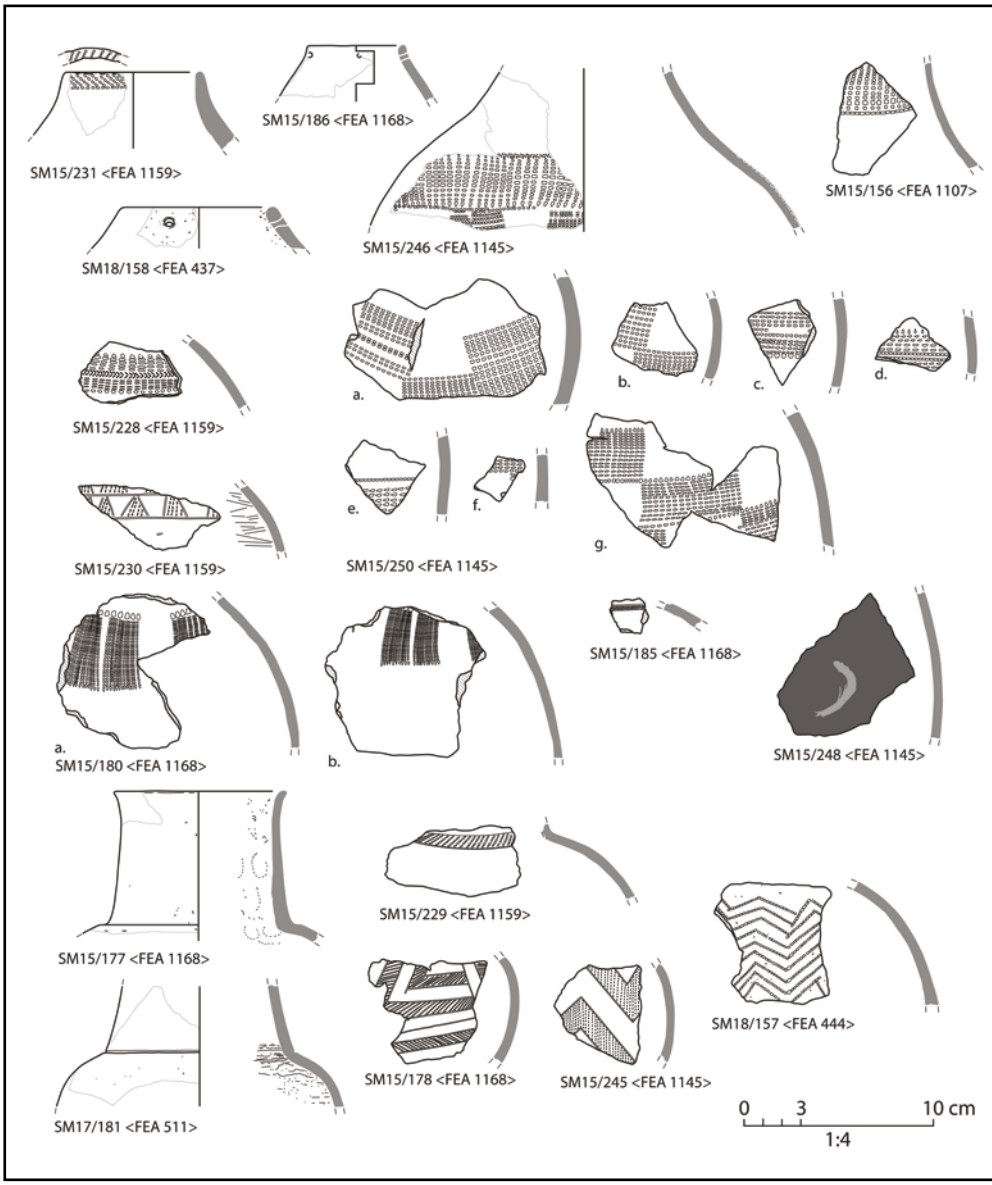



**Fig. 26.** Spherical jars with narrowing neck (form J10). (Illustration: Jiří Honzl, Vlastimil Vrtal).

in terms of chronology, however, and appears also much earlier.[226] Besides these fragments, the present corpus nevertheless also incorporated three fragments (SM15/177, SM15/229, SM17/181) [Fig. 26] that can be attributed to a modification of the form type – spherical jars with offset neck (sub-form J10c). Albeit relatively rare in general, jars with offset necks are also

[226] See Bates and Dunham 1927, Pl. LXIII, Fig. 22; Addison 1949, pp. 221–223, Pl. XCII, R.2–3; *RCK* IV, Fig. 41, no. 22-1-10; Fernández Martínez 1983, pp. 1210, 1214, 1221, nos. 16-2, 25b-2, 100-6.

not exactly uncommon at Wad Ben Naga: one complete piece was retrieved from a storeroom in the Palace of Amanishakhete and the neck of another comes from the Typhonium.[227] Both had narrowing necks, similar to fragment SM17/181 and the abovementioned spherical jars (and much unlike most parallels from other sites), although in comparison with the latter, the vessels were typically smaller and more constricted. A lack of decoration in the case of piece SM17/181 is rather surprising. Fragment SM15/177, on the other hand, showed clear traits of the tradition of spherical jars with somewhat bi-conical neck with out-flaring rim, often with a thickened, grooved lip, which was missing in this particular case. Such jars, which sometimes also have the neck offset,[228] were common in the two centuries before the Turn of the Eras and around it. Collection of burial goods from tomb T11C at Gabati shows that spherical 'beer'-jars with both renderings of the neck, i.e. narrowing and biconical, could be found together in the period around the Turn of the Eras.[229] Jar neck fragment SM15/163 with its thickened, decorated lip may fall into this category of vessels likewise.[230]

Two relatively rough jar fragments SM15/178 and SM15/245 [Fig. 26] had notable, complex incised decorations reminiscent of some chronologically distant models. Similar decorations can nevertheless also be found amongst the finds from contemporary cemetery at Gabati on both bowls and jars.[231] Another handmade sherd SM18/157 [Fig. 26] bore a herringbone pattern. Similarly rendered versions of this ornament appeared especially (but not exclusively) on the handmade giraffe jars of the 1st century CE well-known especially from Lower Nubia[232] and other similar vessels.[233]

Amongst a handful of likely stands (form group M) [Fig. 27] represented in the corpus, there was SM15/109a that stood out by the presence of a bottom, sharp modelling of the rim, and particularly by its polychrome linear decoration overlying white wash/slip on the outer surface. These qualities remind of an example of a rare type of tall tubular stands with containers atop that was retrieved from the Palace of Amanishakhete.[234] These stands may represent larger, more elaborate, and perhaps also earlier examples of much commoner stemmed offering stands,[235] as well as a morphological variant of some tall plain tubular stands, which were found similarly decorated.[236] Another fragment, SM15/310, likely represented a foot of another, very popular type of offering stands (?), characteristic by plate-like top and a short, modelled foot, which was optionally equipped also with a handle (form M6).[237] Although the form type persisted for some time,[238] it may be significant that vessels morphologically closer to fragment SM15/370



[227] See *Wad Ben Naga Report* V, p. 257, Figs. 5.21, SNM 62/10/123, Appendix, cat. no. 222; *Wad Ben Naga Report* VI, SM16/355.

[228] See Dunham 1970, Fig. 1, no. 16-3-325a; Shinnie and Bradley 1980, p. 136, F.167, Fig. 36, no. 93; Rose 1996, Fig. 4.1, P.228k2; Edwards 1998, Fig. 6.22, no. 6901. For the dating, see also Bishop-Wright 2021, Fig. 4.70; at Meroe, the pot F.167 came from the same context as two ledge-rimmed bowls of sub-form B2b1.

[229] Edwards 1998, Fig. 6.19.

[230] See Edwards 1998, Fig. 6.24, no. 867/5.

[231] Edwards 1998, Fig. 6.23, nos. 586/1, 022/37, 137/1, Fig. 6.25, no. 876/3, Fig. 6.27, no. 1007/1. See also Addison 1949, Pl. CIX, nos. 7, 12, Pl. CX, no. 2, Pl. CXI, no. 3.

[232] Esp. Bishop-Wright 2021, *passim*, esp. p. 256; David 2018, p. 482; Edwards 2014, pp. 57–58; Kilroe 2021, pp. 161–162.

[233] E.g. Bishop-Wright 2021, p. 221, Fig. 4.43, no. 3.

[234] *Wad Ben Naga Report* V, p. 261, SNM 62/9/99, Appendix, cat. no. 86.

[235] See *inter alia* Malykh 2017, Fig. 12.

[236] Dunham 1970, Fig. 33, no. 20-1-380; Shinnie and Bradley 1980, Fig. 40, no. 119; Edwards 1998, Fig. 6.12, nos. 507/1, 937/7.

[237] See *RCK* V, Fig. C, nos. 27–28, Fig. H, nos. 2–9; Edwards 1999a, *type BR/2*.

[238] At Begrawiya West, it spanned Edwards' seriation phases Ib–III; Edwards 1999a, Fig. 74.

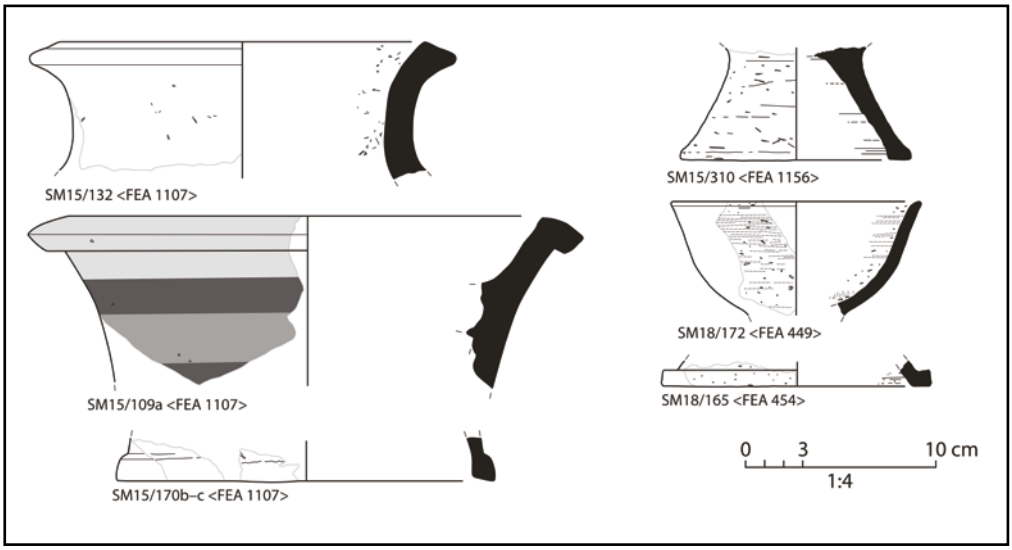



**Fig. 27.** Various stands (form group M). (Illustration: Jiří Honzl, Vlastimil Vrtal).

with its plain, unmodelled foot with rather vertical inclination tend to come from somewhat earlier contexts.[239] A bowl-like fragment SM18/172 nearly certainly originated from a stemmed chalice-like censer (form M9). Interestingly, unlike most examples from Wad Ben Naga and elsewhere, it lacked both a rough, untreated surface[240] and matte white wash/slip.[241] Instead, its red surface was burnished on the outside and inside, reminding of a similar treatment of jars of form J3. On both sides, the vessel was stained with traces of burning, corroborating its use as a censer, and providing evidence on early performance of cultic rituals at the site preceding the construction of monumental building WBN 700.[242]

A single fragment of an offering mould (form G1),[243] SM16/346 [Fig. 28] was found in FEA 405 underlying the Typhonium. It clearly represents an intrusion of the later temple's cultic equipment, of which the offering moulds comprised a well-attested part.[244]

Several fragments of a single, tubular strainer, also called 'klepsydra', SM15/176 were retrieved from FEA 1107 [Fig. 28]. Such utensils, intended for serving and filtering liquids[245] – mainly wine, but also oil, and perhaps in the Meroitic context also sorghum beer –, appeared in Meroitic ceramic production under the influence of Hellenistic culture of wine consumption

[239] *RCK* IV, Fig. 66, no. 16-12-368 (Bar 6), Fig. 133, no. 16-2-336 (Bar 4); *RCK* V, p. 118, Fig. C.27, no. 23-1-158 (Beg W5). See also Edwards 1998, p. 145, Fig. 6.15, nos. 523/1, 553/1.

[240] See *RCK* IV, p. 172, Fig. 113, no. 21-3-489, p. 192, Fig. 125, no. 21-2-430; *RCK* V, pp. 223, 262, 275, nos. 22-1-512, 23-2-52, 23-2-252; Kröper et al. 2011, Abb. 108, 133; *Wad Ben Naga Report* II, pp. 103–105, 128, SNM 11924–11925.

[241] *RCK* V, p. 194, Fig. K.22, Fig. 140a, no. 22-1-516; *Wad Ben Naga Report* V, p. 265; *Wad Ben Naga Report* VI, SM13/121-127.

[242] Among the earliest occurrences of the form type is a piece from the tomb of Amanishakhete, see *RCK* IV, Fig. 73, no. 21-3-427. It was coated with a red wash.

[243] E.g. Jacquet-Gordon 1981, pp. 21–22.

[244] See *Wad Ben Naga Report* VI.

[245] Firth 1927, p. 168; see also Devries 1973, p. 67; Nowotnick 2016, pp. 402–404.

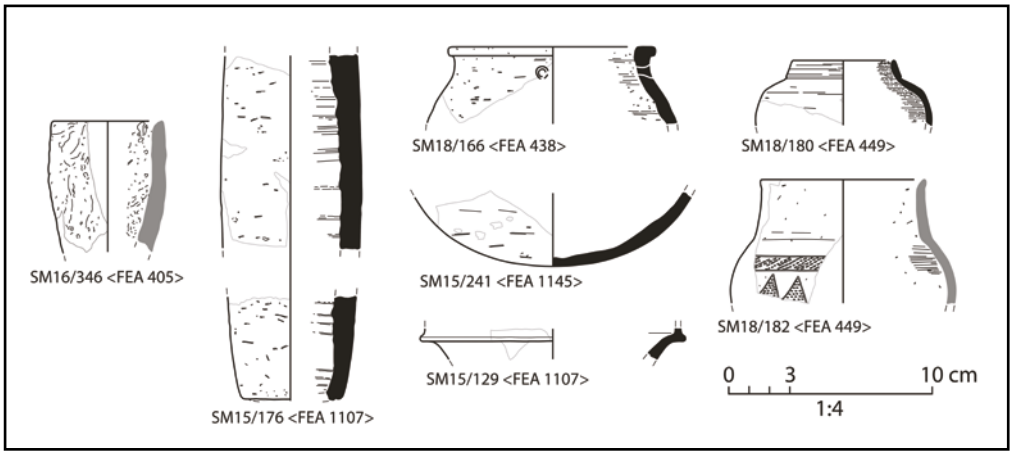



**Fig. 28.** Miscellaneous pottery form types. (Illustration: Jiří Honzl, Vlastimil Vrtal).

through appropriation and adaptation of northerly metal models.[246] This adaptation may have been a product of Aswan workshops,[247] rather than Meroitic ones, but local imitations were also produced, particularly in the Meroitic heartland,[248] where the finds are much rarer. The earliest ceramic examples were deposited in graves in the early 1st century BCE,[249] fragment SM15/176, with its medium long, narrow body, and slightly bulging, pierced base seems to be morphologically closer to finds from around the Turn of the Eras and later, including those from Wad Ben Naga.[250] Arguably, they might indicate local supply from a single, (nearby?) workshop. SM15/176 was made of locally-frequent wadi clay (W7) and had glossy, burnished red surface.

Apart from several undiagnostic fragments of imports, most likely belonging to transport amphorae, retrieved from potentially disturbed strata, a small fragment of a fine-slipped vessel SM15/129 [Fig. 28] was recovered from FEA 1107, a partly disturbed floor fill of structure WBN 700. The piece belonged to Egyptian Red Slip A ware (ERS A) coming from Aswan.[251] It came from a small bowl with a distinct carination and ledge on the upper body, a type imitating Eastern Sigillata patterns.[252] At Aswan, such bowls started being produced during the 1st century CE.[253] Specimens of the type belonging to various wares are well attested at various Meroitic sites, in contexts dated to corresponding time frame.[254]



[246] See Nowotnick 2016, Fig. 4.

[247] Fernández Martínez 1983, pp. 487, 530; Williams 1991, pp. 63, Fig. 21; Nowotnick 2016, p. 404; David 2019, p. 879.

[248] Shinnie and Bradley 1980, p. 135, Fig. 43, no. 141; Nowotnick 2016, p. 404; Nowotnick 2022, p. 61, Pl. 20, MRB--VU-10-0149; *Wad Ben Naga Report* V, pp. 265–266.

[249] Fernández Martínez 1983, pp. 170, 487, 530, 749, 1253; Fernández 1984, pp. 50–51; Fig. 8, no. 166-1; Williams 1991, pp. 9, 12, 19, Fig. 21, c–d; cf. Bishop-Wright 2021, p. 381.

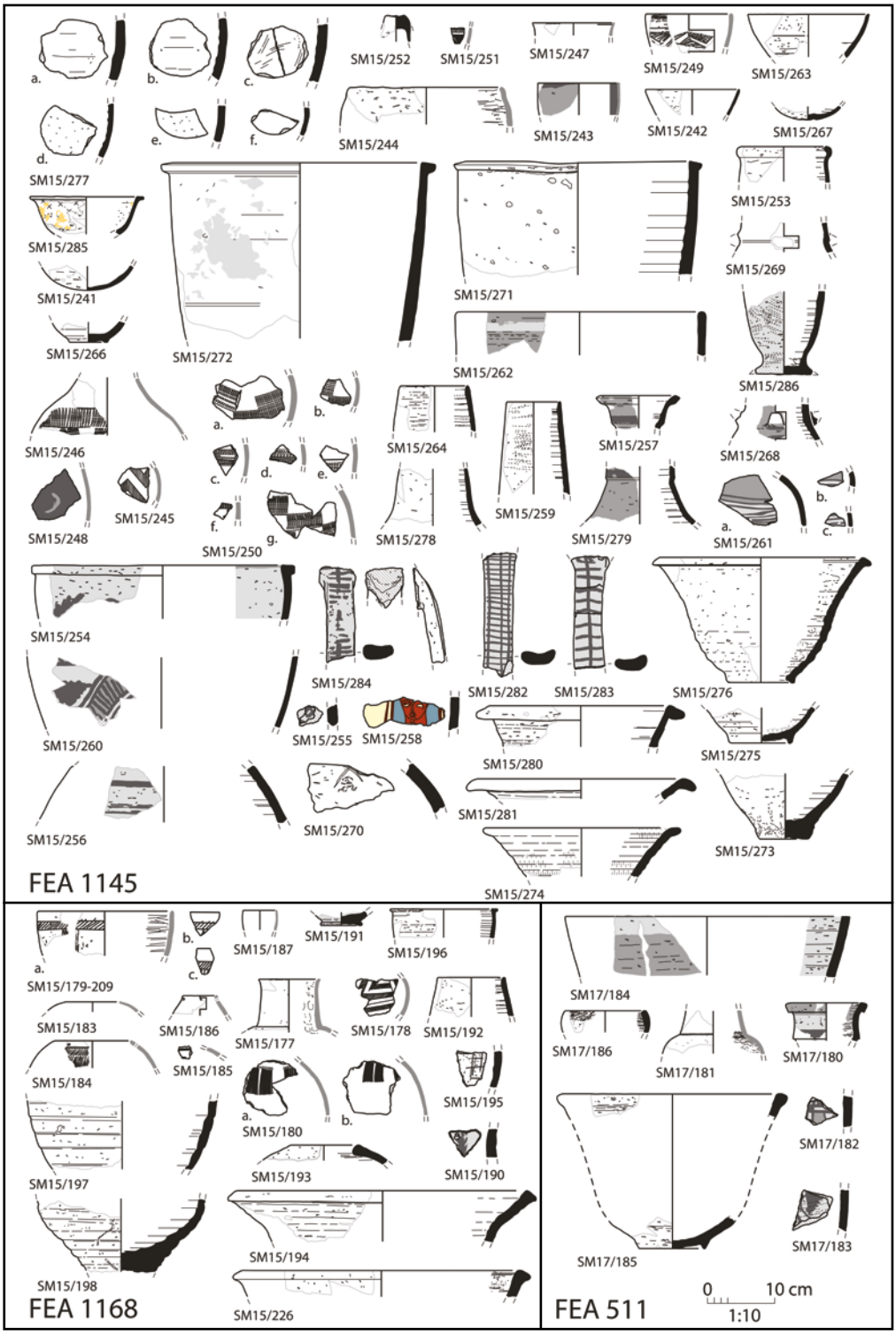
[250] See Williams 1991, Fig. 21, d; *Wad Ben Naga Report* V, Fig. 5.26; see also Rose 1996, Fig. 4.15.

[251] Confirmed by Andrea M. Berlin, pers. comm., 2018; cf. Gempeler 1992.

[252] Esp. Rembart 2020, pp. 52–53, Taf. 4, T 66, T 67.

[253] Rembart 2020, p. 53; see also Török 1989, p. 129.

[254] David and Francigny 2018, p. 258, Fig. 5, no. 15, Fig. 6; Orzechowska 2003, Pl. 3, k; *RCK* IV, Fig. 131, no. 16-2-385 (= Török 1989, p. 129, no. 66; for the dating see esp. Török 1989, p. 129); *RCK* V, Fig. F, no. 20 (for the dating see Edwards 1999a); Thomas 2008, Fig. 2, no. 9; Williams 1991, pp. 12, 19–20, Fig. 146, d; Woolley and Randall-MacIver 1910, Pl. 94, no. 8875.


a.
b.
c.
SM15/252
SM15/251
SM15/247
SM15/249
SM15/263
d.
SM15/277
e.
f.
SM15/244
SM15/243
SM15/242
SM15/267
SM15/253
SM15/285
SM15/269
SM15/241
SM15/271
SM15/266
SM15/272
SM15/262
SM15/286
SM15/246
a.
b.
SM15/264
SM15/257
SM15/268
c.
d.
e.
SM15/248
SM15/245
f.
g.
SM15/250
SM15/278
SM15/259
SM15/279
a.
b.
c.
SM15/261
SM15/254
SM15/284
SM15/282
SM15/283
SM15/276
SM15/260
SM15/255
SM15/258
SM15/280
SM15/275
SM15/256
SM15/270
SM15/281
SM15/273
SM15/274
FEA 1145
a.
b.
c.
SM15/187
SM15/191
SM15/196
SM15/179-209
SM15/183
SM15/186
SM15/177
SM15/178
SM15/192
SM15/184
SM15/185
a.
b.
SM15/180
SM15/195
SM15/197
SM15/193
SM15/190
SM15/198
SM15/194
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FEA 1168
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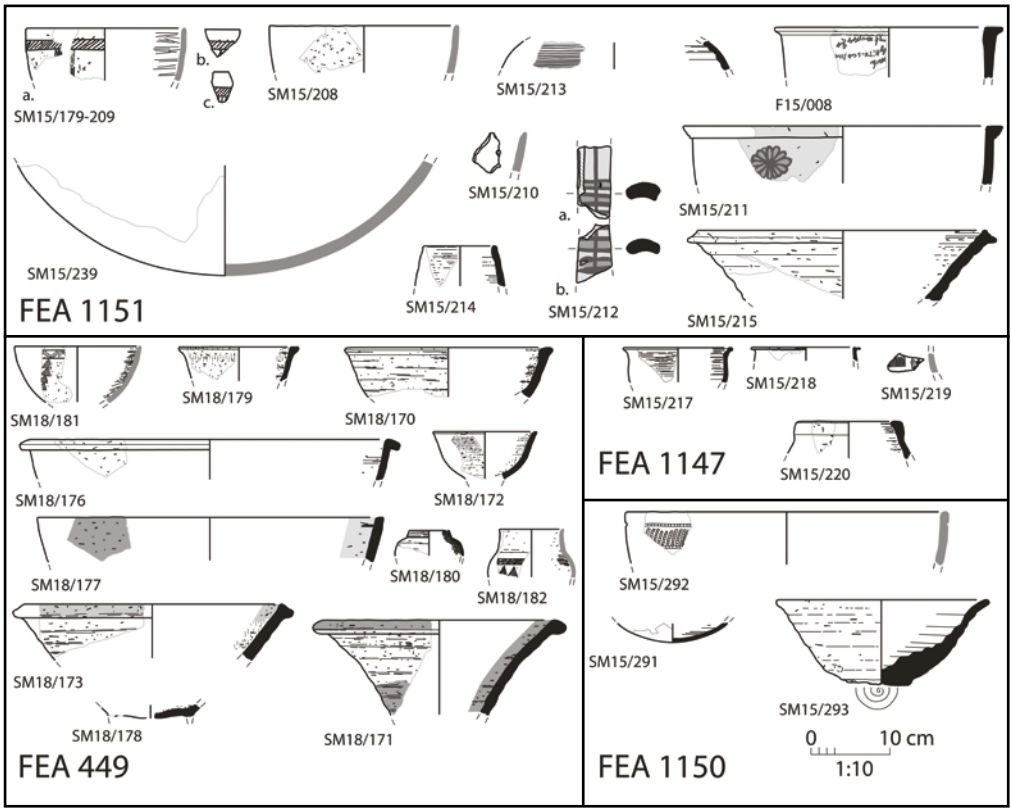


**Figs. 29–30.** Selected pottery contexts from trenches T28, T38, and T44. (Illustration: Jiří Honzl, Vlastimil Vrtal).

Finally, two interesting small spherical bottles [Fig. 28] were included in the corpus. The smaller one, SM18/180, could be ascribed to the finest, burnished blackware, but its surface, unusually, showed horizontal turning marks so regular that production on the wheel seems more likely. A few vessels with similar qualities, namely extremely thin walls, glossy burnished surface, and sometimes regular turning marks, were found also in the Palace of Amanishakhete.[255] Other examples from the present corpus are represented by fragments of plain handmade cups SM15/243 and SM15/247 [Fig. 12]. Such vessels represent a yet little understood state-of-the--art ware category of Meroitic pottery from around the Turn of the Eras, which may have been influenced both in appearance and morphology by metal vessels.[256] Indeed, fragment SM15/247 finds suitable analogies amongst bronze bowls.[257] Parallels for the shape of bottle SM18/180 are somewhat lacking,[258] but one may speculate that it either reflected or indeed was reflected in spherical bottles with short vertical neck that represented the earliest Meroitic forms

[255] *Wad Ben Naga Report* V, pp. 228–229, 232, Fig. 5.04, SNM 62/10/58; Fig. 5.04, SNM 62/10/57; Appendix, cat. nos. 152–153.

[256] *Wad Ben Naga Report* V, p. 229.

[257] *Wad Ben Naga Report* V, pp. 182–183, SNM 62/9/65, Appendix, cat. no. 52.

[258] See Grzymski 2003, p. 68, no. P.137, Fig. 29.

of kaolinitic fineware production.[259] The other bottle with a longer neck, SM18/182 [Fig. 28], further illustrates the rich morphological repertoire of handmade blackware in the course of the 1st century BCE.[260]

## Discussion

Analysis of the finds in the present corpus in general corroborated the attribution of the strata to the pre-Natakamani horizon. There were no finds that would significantly challenge the late limit of the formation of the corpus in the mid-1st century CE.

In terms of stratigraphic development and reliability of informative value of the strata, the present corpus could nevertheless be divided into three distinct units that were analysed separately to allow more detailed and reliable distinctions [Tab. 2]. The divisions were both chronological and interpretative: The first unit[261] (2,616 sherds, 82,575 g) comprised strata that could be associated directly with the construction of structure WBN 700 and that had been well-sealed on their upper limit, mostly by later construction activity of the Natakamani horizon, or their limits were distinct at least. The strata that were linked to possible later constructions preceding the Natakamani horizon or were demonstrably affected by later disturbances, and thus can be either dated later within the pre-Natakamani horizon or could contain intrusions, potentially including admixtures as late as the post-Natakamani horizon, formed another unit[262] (3,757 sherds, 89,434 g), separated from the former in order to avoid distortions to the overall pottery profile analysed. Finally, several strata[263] (265 sherds, 5,797 g) could be tentatively associated with the grading of structure WBN 700, presumably in the reign of King Natakamani. The interpretative potential of the pottery assemblage associated with the destruction of building WBN 700 is largely hindered by its size, in particular the limited amount of diagnostic potsherds (33 pieces).

As outlined above, the majority of strata that can be associated with the construction of structure WBN 700 were interpreted as fills of elevated floors, the surfaces of which were seldom, if at all, preserved due to later grading. The fills highly likely employed soil deposits that were not extracted from any natural sources, but clearly originated either from the pre-existent settlement's waste dumps or directly through clearing the area of the future construction from previous remains of occupational activity. Indeed, this waste-rich soil contained – besides pottery – also ash, animal bones, constructional debris, and ostraca.[264] Such artefacts and ecofacts clearly reflected a wider spectrum of activities that took place in the area before (and during) the construction of the building. Domestic (?) cooking was one of them, as evidenced, in addition to ash and bones, by several ceramic vessels with traces of burning. Amongst these, one can list common tableware bowls SM15/236 and SM18/179, apparently used for cooking in the dry and wet modes, respectively, but also several neckless spherical jars intended and eventually used as cooking pots (including SM15/161).[265]

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[259] See *RCK* IV, fig. G, nos. 14, 18, 32–35; Török 1997a, Fig. 87, no. 289-11, Fig. 115, no. 922-1; Edwards 1999b, Pl. XIV, no. 951.

[260] For parallels from this period, see *RCK* IV, Fig. 133, no. 16-2-326 (Bar 3); Vila 1967, Fig. 297; Edwards 1998, Fig. 6.22, no. 557/2; Macadam 1955, Fig. 47.

[261] FEAs 443, 449, 452, 453, 511, 1145, 1150, 1151, 1155, 1168.

[262] FEAs 405, 406, 410, 438, 444, 454, 462, 1107, 1110, 1127, 1156, 1159, 1166.

[263] FEAs 437, 1140, 1142, 1146, 1148, 1152.

[264] Some of the dipinti could represent labels on the vessels, and thus be directly linked to them, however.

[265] Nearly complete neckless jar SM15/090 can be rather associated with much later occupation based on its position in stratigraphy. The same may actually apply to bowl SM15/236.

The construction of the building thus represents only *terminus ante quem* for the formation of this part of the corpus, although some finds may have been linked to the construction in terms of both function and chronology even more closely: it was already mentioned above that fragments of large open conical vessels (sub-form M8a) were notably common in construction horizons of various structures at the site and elsewhere in the Meroitic heartland, and thus may have been utilised directly during the construction work. This can be further supported by their higher distribution in the well-sealed contexts of the present corpus, but perhaps also by traces of burning linked to some sort of manipulation with fire or embers. The same may apply to plaster- and pigment-stained bowl SM15/285 and pigment-stained potsherds SM15/169 and SM15/172.

In the strata that can be directly associated with the construction of the structure and presumably contained no inclusions, all the forms, sub-forms, and variants characteristic for the corpus as a whole and discussed individually in detail above were represented. Based on the analysis of the contexts in which they were distributed elsewhere, the production periods of the particular form types – and therefore also the formation period of the fills in general – can thus be dated roughly from before the 1st century BCE till at latest the late 1st century CE. Majority of the form types nevertheless seemed to be most prevalent in contexts from the second half of the 1st century BCE and the early 1st century CE. Indeed, a striking similarity can be observed between the ceramic profile of the present corpus and compositions of ceramic inventories of royal tombs at Begrawiya North and Jebel Barkal dated between the reigns of a king with the Horus name Kanakht (Beg N20) and Queen Nawidemak (Bar 6).[266]

Other indices seem to corroborate this overall picture. Finds of kaolinitic fineware, the production of which started presumably only around the Turn of the Eras[267] are limited, in the first unit, to a single piece, SM15/241 from stratum FEA 1145. This round-based fragment had relatively rough, poorly levigated fabric and no wash/slip, and possibly came from a spherical bottle.[268] This would indicate that kaolinitic fineware was nearly non-existent in the construction horizon of structure WBN 700. It would also indicate that two dozen fragments of kaolinitic fineware that appeared in the potentially disturbed strata (such as SM15/227) were only later intrusions. Notably, two pieces of kaolinitic fineware coming from stratum FEA 1147 attributed to the grading of structure WBN 700 (SM15/217, SM15/218) belonged to ceramic form types that were atypical for the ware.

While it is not surprising that examples of thick-walled white wash/slip ware (e.g. jars with wide neck and vertical handles) and white/cream wash/slip ware (e.g. bowls SM18/163 and SM15/167 and amphora SM15/286) were present, as they are common or even characteristic of this period in general,[269] it is striking that the strata attributed to the construction period also lacked any imports from the Mediterranean or Egypt, including Aswan. Interestingly, many pieces nevertheless clearly reflected northerly models in their morphology. This applied to



[266] See in particular also tombs Bar 1, Bar 9.

[267] Various authors arrived at slightly different conclusions: Török suggested its appearance in the late 1st century BCE or the early 1st century CE, although he accepted its occasional use even earlier, see Török 2011, p. 261. David and Evina proposed date around the Turn of the Eras or in the first decades of the 1st century CE, with more widespread production starting only in the mid-1st century CE, see David 2019, p. 880, David and Evina 2015, p. 50. At Ballana and Qustul, kaolinitic wares started to appear in graves dated between the mid-1st century BCE and the 1st century CE, see Williams 1991, p. 19. First century CE date is supported also by the appearance of kaolinitic fineware at Gabati, see Edwards 1998, pp. 42–45, and dating of the pottery workshop at Musawwarat es-Sufra, see Edwards 1999b.

[268] See earliest vessels made of kaolinitic fineware from Begrawiya West, e.g. from tomb Beg W284; *RCK* V, pp. 140–141.

[269] See e.g. David and Evina 2016, p. 102; Török 2011, esp. pp. 245–246.

open ledge-rimmed bowls with ring base (variant B2b1), amphorae with collar rim with inner concavity (form F5), small amphora SM15/286 (form F1), jars with vertical handles, ring base, and flaring rim (form J15), jars with wide neck and vertical handles (form J16), and a tubular strainer SM15/176 (form Q1), which were all (tentatively) identified as Meroitic adaptations of Egyptian forms. The same can be said for some decoration motifs the origin of which has been established in Hellenistic Egypt. The exceptional figural fragment SM15/258 fits well with this trend, representing another distinct manner of adaptation of the Hellenistic model. On the other hand, spherical or ovoid jars with long neck (form J3) were taken over from the earlier Meroitic repertoire of handmade ceramics. The common appearance of such adapted form types fits well with and further exemplifies the dynamic developments of Meroitic pottery industry in the century before and after the Turn of the Eras, in particular the renaissance of the wheelmade production.[270]

Actual imports appeared only in strata that were affected by later disturbances, and therefore may reflect more intensive influx and distribution of such goods in Meroitic heartland in later periods, starting around the Turn of the Eras.[271] The small ERS A bowl from Aswan of the type whose production started only in the 1st century CE, SM15/129, illustrates this pattern well.

Still other characteristics observed in the present corpus which have chronological distinction include clear prevalence of ring bases (60 %), otherwise rare in later Meroitic pottery repertoire, and possibly also greater relative proportion of handmade blackware, predominating in early Meroitic contexts,[272] presence of thin-walled glossy handmade blackware, several examples of which were retrieved from the Palace of Amanishakhete, and the fairly regular appearance of bright orange/red slips with horizontal burnishing marks.[273]

Although pottery finds from strata that were found disturbed or poorly sealed from above corresponded in general to the composition appearing in the undisturbed strata, in several cases wares or form types were identified in this unit of finds that did not correspond in their presumed chronological setting to the rest of the corpus, and thus such finds highly likely represented intrusions from overlying, posterior strata. These were nearly always singular occurrences, in contrast to wares and form types characteristic of the corpus as a whole.

In conclusion, the strata associated with the construction of structure WBN 700 and cleaned of potential intrusions offered a relatively compact and homogeneous profile of ceramic wares and form types, which was distinct in several minor aspects, such as near absence of kaolinitic fineware, from a slightly later assemblage associated with the building's grading. Although the finds reflected not only the period of the construction of the building, but also the whole formation of the waste-rich soil deposited under its floors, the composition of ceramic form types and the dating of their contexts elsewhere revealed that the formation likely did not span more than just a few decades. Radiocarbon dates from the strata seem to largely support this notion, as they concentrate in the (second half) of the 1st century BCE and at the beginning of the 1st century CE. The source of the material thus reflected in its composition either its accumulation only over a short period of the settlement's history (were it a conveniently utilised dump heap) or it was indeed limited by the space dedicated for the building and by the occupation that shortly preceded it in the area.[274] Not only the dating of the individual form types, but

[270] *Inter alia* David 2019, pp. 878–884; David and Evina 2016, esp. pp. 104–111; Edwards 2014, esp. pp. 58–61; Nowotnick 2016; Török 2011, esp. pp. 256–295.

[271] See e.g. Bagińska 2013, 30–31; David 2019, pp. 879, 884; Török 1989, esp. 97–98.

[272] E.g. Edwards 2014; David 2019, pp. 876–879.

[273] See e.g. Rose 1996, pp. 122–123. Such treatment perhaps reflected the appearance of Aswan products.

[274] Cf. Grzymski and Grzymska 2008, pp. 48–49.

particularly similarities between the composition of the present corpus and the ceramic profiles observed, amongst others, in the assemblages from some of the abovementioned royal tombs from around the Turn of the Eras allowed to set the formation of the corpus more firmly in the relative chronology. While the builder of structure WBN 700 – and thus also the time of the deposition of the predominant part of the present corpus – must remain unknown,[275] he/she must have ruled sometime around the late limit of the dating of its formation, and thus may perhaps be sought in the succession of ruling kandakes Amanirenase, Amanishakhete, and Nawidemak, and King Amanikhabale. Amanishakhete may seem the most likely candidate, given the relative time distance that would have allowed development of minor distinctions in the ceramic material between the construction of the building and Natakamani's grading, and that would have brought about the need to raze the building in the latter's reign, but most importantly given the queen's other numerous constructions at the site.[276] The data hardly point to her unequivocally, however.

Together, the vessel form types represented in the present corpus, particularly those from the construction horizon of structure WBN 700, appear to reflect – and to some extent construct – a distinct profile of Meroitic ceramic culture characteristic for a settlement in the Meroitic heartland in the decades immediately preceding and possibly also immediately following the Turn of the Eras that is strictly delimited by the changes thereof that occurred during the reign of King Natakamani. As such, it may contribute to refinement of chronologies in other contexts, including at other sites of the Meroitic heartland, in which similar profiles of ceramic wares and form types are present. It also sheds further light on the dynamic processes under way in the Meroitic pottery industry of that time.



[275] See *Wad Ben Naga Report* I, p. 23; Onderka and Vrtal 2023.
[276] *Wad Ben Naga Report* I, pp. 23–24.

**Tab. 1.** List of SM (study material) fragments of pottery recovered from the structure WBN 700. For the fabric types and form types not mentioned in the present paper see *Wad Ben Naga Report* II; *Wad Ben naga Report* III; *Wad Ben Naga Report* V; *Wad Ben Naga Report* VI. The other abbreviations are as follows: HM = 'handmade', WHM = 'wheelmade', W = 'wiped', B = 'burnished', W/S = 'washed or slipped'.

| | Form type | Main forming technique | Surface treatment (outs.) | Colour | Fabric | Diameter (mm) / EVE (%) | Provenance |
|---|---|---|---|---|---|---|---|
| **Fig. 9** | | | | | | | |
| SM15/066a | A7b | HM | W | 10YR 5/3 (surf.) | H1 | 100 / 30 (rim) | T29, FEA 1110 |
| SM15/066b | A7b | HM | W | 10YR 5/3 (surf.) | H1 | 100 / 15 (rim) | T29, FEA 1110 |
| SM15/168 | A5 (?) | WHM | - | 10YR 5/3 (surf.) | W17 | 40 / 100 (base) | T29, FEA 1107 |
| SM15/171a | A7a | WHM | W/S + B | 10R 4/6 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/171b | A7a | WHM | W/S | 7.5YR 5/3 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/171c | A7a | WHM | W/S | 10R 5/6 (surf.) | W7 | - | T29, FEA 1107 |
| SM15/171d | A7a | WHM | W/S + B | 2.5YR 5/6 (surf.) | W7 | - | T29, FEA 1107 |
| SM15/171e | A7a | WHM | W/S | 10R 4/6 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/171f | A7a | WHM | W/S | 5YR 5/3 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/171g | A7a | WHM | W/S | 2.5YR 4/6 (surf.) | W7 | - | T29, FEA 1107 |
| SM15/171h | A7b | WHM | W/S + B | 10R 4/8 (surf.) | W6 | 90 / 33 (rim) | T29, FEA 1107 |
| SM15/171i | A7b | WHM | W/S | 5YR 6/4 (surf.) | W1 | 110 / 17 (rim) | T29, FEA 1107 |
| SM15/171j | A7b | WHM | W/S | 2.5YR 5/4 (surf.) | W5 | 120 / 12 (rim) | T29, FEA 1107 |
| SM15/235 | A7b | WHM | W/S + B | 10R 4/8 (surf.) | W1 | 90 / 20 (rim) | T29, FEA 1159 |
| SM15/252 | A | WHM | - | 7.5YR 6/4 (surf.) | W7 | 40 / 45 (base) | T28, FEA 1145 |
| SM15/277a | A7a | WHM | W/S + B | 2.5YR 4/6 (surf.) | W1 | - | T28, FEA 1145 |
| SM15/277b | A7a | WHM | W/S + B | 2.5YR 4/6 (surf.) | W2 | - | T28, FEA 1145 |
| SM15/277c | A7a | WHM | W/S | 2.5YR 6/6 (surf.) | W5 | - | T28, FEA 1145 |
| SM15/277d | A7a | WHM | W/S | 2.5YR 5/4 (surf.) | W7 | - | T28, FEA 1145 |
| SM15/277e | A7b | WHM | W/S | 10R 5/6 (surf.) | W11 | 90 / 27 (rim) | T28, FEA 1145 |
| SM15/277f | A7b | WHM | W/S | 10R 5/4 (surf.) | W5 | 110 / 32 (rim) | T28, FEA 1145 |
| SM16/351 | A9 | WHM | W | 7.5YR 6/4 (surf.) | W7 | 65 / 45 (rim) | T39, FEA 406 |
| SM16/373 | A7b | WHM | W/S | 10R 5/6 (surf.) | W5 | 100 / 33 (rim) | T39, FEA 410 |
| SM18/114 | A | WHM | W/S | 2.5YR 4/4 (surf.) | W5 | 210 / 4 (rim) | T39, FEA 405 |
| **Fig. 12** | | | | | | | |
| SM15/157 | B1 | HM | B | 2.5N (surf.) | H7 | - | T29, FEA 1107 |
| SM15/158 | B1b | HM | B | 10YR 3/2 (surf.) | H6 | 240 / 4 (rim) | T29, FEA 1107 |
| SM15/159 | B1 | HM | B | 2.5Y 4/1 (surf.) | H5 | - | T29, FEA 1107 |
| SM15/160 | C2 | HM | B | 2.5N (surf.) | H3 | 110 / 11 (rim) | T29, FEA 1107 |
| SM15/162 | C2 | HM | B | 7.5YR 4/2 (surf.) | H3 | 110 / 44 (rim) | T29, FEA 1107 |
| SM15/179-209 | B1b | HM | B | 2.5YR 4/2 (surf.) | H6 | 200 / 12 (rim) | T28, 1151-1168 |
| SM15/187 | C1 (?) | HM | W | 10R 4/6 (surf.) | H2 | 50 / 11 (rim) | T28, FEA 1168 |
| SM15/208 | B1b | HM | B | 2.5N (rim) | H7 | 240 / 4 (rim) | T28, FEA 1151 |
| SM15/210 | B1 (?) | HM | W | 5YR 4/1 (surf.) | H1 | - | T28, FEA 1151 |
| SM15/219 | B1 (?) | HM | W | 2.5Y 4/1 (surf.) | H5 | - | T28, FEA 1147 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SM15/243 | C2/3 | HM | B | 2.5N (surf.) | H5 | 120 / 14 (rim) | T28, FEA 1145 |
| SM15/244 | B1b | HM | B | 3N (surf.) | H7 | 230 / 11 (rim) | T28, FEA 1145 |
| SM15/247 | C | HM | B | 2.5N (surf.) | H3 | 120 / 6 (rim) | T28, FEA 1145 |
| SM15/249 | B1b | HM | W | 3N (surf.) | H5 | 130 / 4 (rim) | T28, FEA 1145 |
| SM15/251 | B1b | HM | W | 7.5YR 5/3 (surf.) | H5 | - | T28, FEA 1145 |
| SM15/290 | C | HM | B | 2.5Y 3/1 (surf.) | H7 | 90 / 6 (rim) | T28, FEA 1166 |
| SM15/292 | B1b | HM | B | 2.5N (surf.) | H3 | 410 / 4 (rim) | T28, FEA 1150 |
| SM15/308 | B1b | HM | W | 3N (surf.) | H5 | 340 / 4 (rim) | T29, FEA 1156 |
| SM16/348 | B1b | HM | W | 2.5N (surf.) | H3 | 160 / 9 (rim) | T39, FEA 405 |
| SM16/349 | B1b | HM | B | 5YR 3/2 (surf.) | H6 | 250 / 3 (rim) | T39, FEA 406 |
| SM18/181 | B1b | HM | B | 2.5N (surf.) | H6 | 160 / 6 (rim) | T38, FEA 449 |
| **Fig. 13** | | | | | | | |
| SM15/128 | B1a (?) | WHM | W/S | 10R 6/6 (surf.), 10R 4/2 (paint), 7.5YR 7/6 (paint) | K2 | - | T29, FEA 1107 |
| SM15/227 | B1a | WHM | W/S | 10R 4/8 (surf.) | K3 | 140 / 36 (rim) | T29, FEA 1159 |
| SM15/236 | B1b | WHM | W/S + B | 10R 5/6 (surf.) | W5 | 150 / 18 (rim) | T29, FEA 1159 |
| SM15/242 | C2 | WHM | W/S + B | 2.5YR 4/8 (surf.) | K3 | 140 / 10 (rim) | T28, FEA 1145 |
| SM15/263 | B1a | WHM | W/S | 2.5YR 5/4 (surf.) | W11 | 180 / 13 (rim) | T28, FEA 1145 |
| SM15/267 | B/C | WHM | W/S | 10R 4/7 (surf.) | W2 | - | T28, FEA 1145 |
| SM16/345 | C3 | WHM | W/S | 10R 4/8 (surf.) | W4 | 80 / 11 (rim) | T39, FEA 405 |
| SM16/347 | B1b1 | WHM | W/S | 10R 5/8 (surf.) | W5 | 240 / 3 (rim) | T39, FEA 405 |
| **Fig. 14** | | | | | | | |
| SM15/145 | B2b | WHM | W/S + B | 10R 5/6 (surf.) | W3 | 190 / 9 (rim) | T29, FEA 1107 |
| SM15/146 | B2b | WHM | W/S + B | 2.5YR 4/4 (surf.) | W5 | 150 / 8 (rim) | T29, FEA 1107 |
| SM15/166 | B2 | WHM | W/S | 2.5YR 4/6 (surf.) | W5 | 70 / 100 (base) | T29, FEA 1107 |
| SM15/167 | B2 | WHM | W/S | 10R 6/2 (surf.) | W15 | 60 / 33 (base) | T29, FEA 1107 |
| SM15/173 | B2b | WHM | W/S + B | 2.5YR 5/6 (surf.) | W4 | 120 / 19 (rim) | T29, FEA 1107 |
| SM15/191 | B2 | WHM | W/S | 2.5YR 7/4 (surf.) | W5 | 60 / 50 (base) | T28, FEA 1168 |
| SM15/217 | B3b | WHM | W | 10YR 7/3 (surf.) | K1 | 140 / 12 (rim) | T28, FEA 1147 |
| SM15/218 | B2 | WHM | W | 7.5YR 7/6 (surf.) | K1 | 140 / 12 (rim) | T28, FEA 1147 |
| SM15/234 | B2b | WHM | W/S + B | 2.5YR 5/6 (surf.) | W2 | 150 / 12 (rim) | T29, FEA 1159 |
| SM15/266 | B2 | WHM | W/S | 2.5YR 5/4 (surf.) | W5 | 55 / 100 (base) | T28, FEA 1145 |
| SM15/285 | B2b | WHM | W/S | 2.5YR 6/4 (surf.), 10YR 7/8 (pigment) | W2 | 170 / 56 (rim) | T28, FEA 1145 |
| SM15/311 | B2b | WHM | W/S + B | 10R 5/6 (surf.) | W1 | 150 / 13 (rim) | T29, FEA 1156 |
| SM16/372 | B2 | WHM | W/S | 2.5YR 5/6 (surf.) | W4 | 70 / 30 (rim) | T39, FEA 410 |
| SM18/163 | B2b | WHM | W/S | 7.5YR 8.5/1 (surf.) | W1 | 140 / 6 (rim) | T38, FEA 454 |
| SM18/179 | B2b | WHM | W/S | 10R 5/6 (surf.) | W5 | 150 / 4 (rim) | T38, FEA 449 |
| **Fig. 15** | | | | | | | |
| F15/008 | B4b | WHM | W/S | red | W3 | 290 / 7 (rim) | T28, FEA 1151 |
| SM15/061 | B4b | WHM | W | 5YR 5/4 (surf.) | W7 | 340 / 28 (rim) | T29, FEA 1110 |
| SM15/164 | B4b | WHM | W | 7.5YR 5/4 (surf.) | W7 | 450 / 6 (rim) | T29, FEA 1107 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SM15/165 | B4b | WHM | W | 5YR 5/4 (surf.) | W6 | 270 / 9 (rim) | T29, FEA 1107 |
| SM15/196 | B4b | WHM | W | 2.5YR 5/4 (surf.) | W6 | 400 / 8 (rim) | T28, FEA 1168 |
| SM15/262 | B | WHM | W/S | 10R 5/6 (surf.), 5YR 6/4 (paint) | W5 | 370 / 7 (rim) | T28, FEA 1145 |
| SM15/271 | B4b | WHM | W | 2.5YR 5/4 (surf.) | W3 | 340–370 / 90 (rim) | T28, FEA 1145 |
| SM15/272 | B4b | WHM | W | 5YR 8/4 (surf.) | W5 | 410 / 33 (rim) | T28, FEA 1145 |
| SM15/313 | B4b | WHM | W | 7.5YR 6/4 (surf.) | W7 | 350 / 10 (rim) | T29, FEA 1127 |
| SM17/184 | B4d | WHM | W/S | 10R 5/6 (surf.), 7.5YR 8/2 (inner surf.) | W5 | 340 / 5 (rim) | T44, FEA 511 |
| SM18/176 | B4 | WHM | W | 5YR 6/4 (surf.) | W5 | 480 / 6 (rim) | T38, FEA 449 |
| SM18/177 | B4d | WHM | W/S | 10R 5/8 (surf.), 7.5YR 7/2 (paint) | W7 | 440 / 5 (rim) | T38, FEA 449 |
| **Fig. 16** | | | | | | | |
| SM15/147 | F5 | WHM | W/S | 2.5YR 5/6 (surf.) | W1 | 90 / 15 (rim) | T29, FEA 1107 |
| SM15/220 | F5 (?) | WHM | W/S | 2.5YR 6/6 (surf.) | W2 | 130 / 8 (rim) | T28, FEA 1147 |
| SM15/232 | F5 | WHM | W/S | 2.5YR 6/6 (surf.) | W4 | 120 / 23 (rim) | T29, FEA 1159 |
| SM15/233 | F5 | WHM | W/S | 2.5YR 5/6 (surf.) | W1 | 130 / 3 (rim) | T29, FEA 1159 |
| SM15/253 | F5 | WHM | W/S | 2.5YR 6/6 (surf.) | W9 | 130 / 16 (rim) | T28, FEA 1145 |
| SM15/269 | F5 (?) | WHM | W/S | 2.5YR 5/6 (surf.) | W2 | - | T28, FEA 1145 |
| SM15/286 | F (?) | WHM | W/S | 7.5YR 6/4 (surf.) | W5 | - | T28, FEA 1145 |
| SM17/186 | F5 | WHM | W/S | 10R 6/6 (surf.) | W2 | 120 / 11 (rim) | T44, FEA 511 |
| **Fig. 18** | | | | | | | |
| SM15/090 | J9a | HM | W | 3N (surf.) | H3 | 170 / 33 (rim) | T28, FEA 1142 |
| SM15/161 | J9a | HM | W | 5YR 4/1 (surf.) | H6 | 110 / 10 (rim) | T29, FEA 1107 |
| SM15/163 | J | HM | W | 10YR 5/3 (surf.) | H5 | 90 / 13 (rim) | T29, FEA 1107 |
| SM15/169 | J (?) | HM | W | 10R 4/4 (surf.), 2.5YR 4/8 (pigment) | H6 | - | T29, FEA 1107 |
| SM15/183 | J9a | HM | W | 3N (surf.) | H6 | 180 / 11 (rim) | T28, FEA 1168 |
| SM15/184 | J9a | HM | B | 10YR 5/4 (surf.) | H4 | 120 / 5 (rim) | T28, FEA 1168 |
| SM15/239 | J (?) | HM | - | 5YR 5/3 (surf.) | H5 | - | T29, FEA 1159 |
| SM15/309 | J9a | HM | W | 10YR 6/3 (surf.) | H6 | 70 / 15 (rim) | T29, FEA 1156 |
| **Fig. 26** | | | | | | | |
| SM15/156 | J10 | HM | W | 7.5YR 3/1 (surf.) | H1 | - | T29, FEA 1107 |
| SM15/177 | J10c | HM | W | 5YR 2.5/1 (surf.) | H3 | 90 / 12 (rim) | T28, FEA 1168 |
| SM15/178 | J | HM | W | 7.5YR 3/1 (surf.) | H4 | - | T28, FEA 1168 |
| SM15/180 | A7a | HM | W | 10YR 4/2 (surf.) | H1 | - | T28, FEA 1168 |
| SM15/185 | J10c (?) | HM | B | 2.5N (surf.) | H7 | - | T28, FEA 1168 |
| SM15/186 | J10a | HM | W | 10YR 4/1 (surf.) | H5 | 50 / 20 (rim) | T28, FEA 1168 |
| SM15/228 | J10 | HM | B | 10YR 4/2 (surf.) | H6 | - | T29, FEA 1159 |
| SM15/229 | J10c | HM | W | 2.5N (surf.) | H7 | - | T29, FEA 1159 |
| SM15/230 | J | HM | W | 10YR 7/3 (surf.) | H5 | - | T29, FEA 1159 |
| SM15/231 | J10a | HM | W | 2.5Y 5/2 (surf.) | H3 | 70 / 10 (rim) | T29, FEA 1159 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SM15/245 | J | HM | W | 3N (surf.) | H3 | - | T28, FEA 1145 |
| SM15/246 | J10a | HM | W | 2.5Y 5/2 (surf.) | H1 | - | T28, FEA 1145 |
| SM15/248 | J10 | HM | W | 10YR 6/3 (surf.), 10R 5/8 (paint.) | H1 | - | T28, FEA 1145 |
| SM15/250 | J10 | HM | B | 2.5Y 5/1 (surf.) | H2 | - | T28, FEA 1145 |
| SM17/181 | J10c | HM | W | 10R 4/6 (surf.) | H2 | - | T44, FEA 511 |
| SM18/157 | J | HM | W | 4N (surf.) | H6 | - | T38, FEA 444 |
| SM18/158 | J10a | HM | W | 10YR 6/3 (surf.) | H3 | 80 / 9 (rim) | T38, FEA 437 |
| **Fig. 17** | | | | | | | |
| SM15/143 | J3 (?) | WHM | W/S + B | 10R 5/6 (surf.) | W2 | 90 / 24 (rim) | T29, FEA 1107 |
| SM15/151 | J3 | WHM | W/S + B | 2.5YR 5/6 (surf.) | W6 | - | T29, FEA 1107 |
| SM15/152 | J | WHM | W/S | 2.5YR 5/6 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/154 | J3 | WHM | W/S + B | 7.5YR 5/4 (surf.) | W2 | 110 / 17 (rim) | T29, FEA 1107 |
| SM15/192 | J3 | WHM | W/S + B | 10R 4/8 | W2 | 100 / 3 (rim) | T28, FEA 1168 |
| SM15/214 | J3 (?) | WHM | W/S + B | 2.5YR 4/8 (surf.) | W11 | 90 / 15 (rim) | T28, FEA 1151 |
| SM15/223 | J3 | WHM | W/S + B | 10R 5/6 (surf.) | W2 | - | T28, FEA 1148 |
| SM15/259 | J3 | WHM | W/S + B | 10R 5/6 (surf.) | W2 | 80 / 20 (rim) | T28, FEA 1145 |
| SM15/264 | J3 | WHM | W/S + B | 10R 5/6 (surf.) | W2 | 100 / 17 (rim) | T28, FEA 1145 |
| SM15/278 | J3 | WHM | W/S | 10R 4/6 (surf.) | W2 | - | T28, FEA 1145 |
| SM16/370 | J3 | WHM | W/S | 5YR 7/3 (surf.) | W3 | 95 / 37 (rim) | T39, FEA 410 |
| SM18/155 | J3 | WHM | W/S + B | 10R 6/8 (surf.) | W10 | 90 / 26 (rim) | T38, FEA 452 |
| **Fig. 20** | | | | | | | |
| SM15/136 | J15 (?) | WHM | W/S | 10R 5/6 (surf.), 10R 3/3 (paint) | W5 | - | T29, FEA 1107 |
| SM15/137 | J15 | WHM | W/S | 10R 5/6 (surf.), 10R 4/2 (paint) | W2 | - | T29, FEA 1107 |
| SM15/140 | J15 (?) | WHM | W/S | 2.5YR 5/6 (surf.), 10R 4/1 (paint), 2.5YR 6/4 (paint) | W2 | 120 / 17 (rim) | T29, FEA 1107 |
| SM15/150 | J15 (?) | WHM | W/S | 10R 5/6 (surf.) | W15 | 90 / 100 (base) | T29, FEA 1107 |
| SM15/170a | J15 (?) | WHM | W/S | 10R 5/6 (surf.) | W2 | - | T29, FEA 1107 |
| SM15/203-238 | J15 (?) | WHM | W/S | 10R 5/6 (surf.) | W2 | 130 / 42 (rim) | T29, FEA 1121-1159 |
| SM15/213 | J15 (?) | WHM | W/S | 2.5YR 5/6 (surf.), 10R 4/3 (paint), 10R 7/4 (paint) | W1 | - | T28, FEA 1151 |
| SM15/225 | J15 (?) | WHM | W/S | 10R 6/6 (surf.) | W11 | - | T28, FEA 1142 |
| SM15/257 | J15 | WHM | W/S | 10R 6/6 (surf.), 10R 4/1 (paint) | W21 | 120 / 14 (rim) | T28, FEA 1145 |
| SM15/261 | J15 (?) | WHM | W/S | 5YR 5/6 (surf.), 10R 4/2 (paint), 7.5YR 7/3 (paint) | W3 | - | T28, FEA 1145 |
| SM15/268 | J15 | WHM | W/S | 2.5YR 5/6 (surf.), 10R 4/2 (paint) | W2 | - | T28, FEA 1145 |
| SM15/279 | J15 | WHM | W/S | 2.5YR 4/6 (surf.), 10R 8/1 (paint) | W5 | - | T28, FEA 1145 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SM15/314 | J15 (?) | WHM | W/S | 2.5YR 6/6 (surf.), 10R 4/3 (paint), 10R 8/4 (paint) | W4 | 120 / 17 (rim) | T29, FEA 1127 |
| SM16/371 | J15 (?) | WHM | W/S | 2.5YR 4/8 (surf.), 10R 7/4 (paint), 10R 3/3 (paint) | W5 | - | T39, FEA 410 |
| SM16/374 | J15 | WHM | W/S | 10R 5/6 (surf.), 10R 4/3 (paint) | W1 | - | T39, FEA 410 |
| SM17/180 | J15 (?) | WHM | W/S | 10R 6/6 (surf.), 10R 3/3 (paint), 10R 8/3 (paint) | W2 | 120 / 30 (rim) | T44, FEA 511 |
| **Fig. 21** | | | | | | | |
| SM15/109b–d | J16 | WHM | W/S | 10YR 8/2 (surf.), 10R 4/2 (paint) | W7 | - | T29, FEA 1107 |
| SM15/130 | J16 | WHM | W/S | 2.5Y 7/4 (surf.), 10R 4/2 (paint) | W6 | - | T29, FEA 1107 |
| SM15/133 | J16 | WHM | W/S | 7.5YR 7/4 (surf.), 10R 5/1 (paint) | W5 | 460 / 8 (rim) | T29, FEA 1107 |
| SM15/142 | J16 | WHM | W/S | 5YR 8/4 (surf.), 10R 4/2 (paint) | W7 | - | T29, FEA 1107 |
| SM15/211 | J16 | WHM | W/S | 10YR 7/3 (surf.), 10R 4/2 (paint), 10R 5/8 (paint) | W3 | 410 / 9 (rim) | T28, FEA 1151 |
| SM15/212 | J16 | WHM | W/S | white (surf.), weak red (paint), red (paint) | W3 | - | T28, FEA 1151 |
| SM15/216 | J16 | WHM | W/S | 10YR 7/3 (surf.), red (paint) | W5 | 420 / 4 (rim) | T28, FEA 1148 |
| SM15/254 | J16 | WHM | W/S | 10YR 7/3 (surf.), 10R 5/1 (paint) | W5 | 390 / 10 (rim) | T28, FEA 1145 |
| SM15/260 | J16 | WHM | W/S | 5YR 8/3 (surf.), 10R 3/2 (paint), 10R 6/6 (paint) | W5 | - | T28, FEA 1145 |
| SM15/282 | J16 | WHM | W/S | 7.5YR 7/4 (surf.), 10R 4/2 (paint) | W3 | - | T28, FEA 1145 |
| SM15/283 | J16 | WHM | W/S | 7.5YR 8/3 (surf.), 10R 3/2 (paint) | W11 | - | T28, FEA 1145 |
| SM15/284 | J16 | WHM | W/S | 10YR 7/4 (surf.), 10R 4/1 (paint) | W6 | - | T28, FEA 1145 |
| SM16/369 | J16 | WHM | W/S | 7.5YR 8/4 (surf.), 10R 3/2 (paint) | W7 | - | T39, FEA 410 |
| **Fig. 22** | | | | | | | |
| SM15/131 | J16 | WHM | W/S | 10YR 7/4 (surf.), 10R 3/3 (paint), 10R 7/4 (paint) | W3 | - | T29, FEA 1107 |
| SM15/134 | J16 | WHM | W/S | 5YR 7/3 (surf.), 10R 4/3 (paint), 10R 6/8 (paint) | W5 | - | T29, FEA 1107 |
| SM15/135 | J16 | WHM | W/S | 7.5YR 8/3 (surf.), 10R 4/2 (paint), 10R 5/6 (paint) | W2 | - | T29, FEA 1107 |
| SM15/138 | J16 | WHM | W/S | 7.5YR 7/4 (surf.), 10R 4/2 (paint) | W1 | - | T29, FEA 1107 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| SM15/139 | J16 | WHM | W/S | 7.5YR 7/3 (surf.), 10R 4/2 (paint), 10R 6/6 (paint) | W7 | - | T29, FEA 1107 |
| SM15/189 | J16 | WHM | W/S | 7.5YR 8/4 (surf.), 10R 4/2 (paint), 10R 6/8 (paint) | W4 | - | T28, FEA 1168 |
| SM15/190 | J16 | WHM | W/S | 5YR 8/2 (surf.), 10R 5/2 (paint) | W1 | - | T28, FEA 1168 |
| SM15/255 | J16 | WHM | W/S | 10YR 8/2 (surf.), 10R 4/1 (paint) | W7 | - | T28, FEA 1145 |
| SM15/258 | J16 | WHM | W/S | 10YR 7/3 (surf.), 10R 4/2 (paint), 10R 5/6 (paint), 7.5YR 6/2 (paint) | W5 | - | T28, FEA 1145 |
| SM15/315 | J16 | WHM | W/S | 7.5YR 8/4 (surf.), 10R 3/3 (paint), 10R 5/8 (paint) | W4 | - | T29, FEA 1127 |
| SM17/182 | J16 | WHM | W/S | 5YR 7/4 (surf.), 10R 3/3 (paint), 10R 4/4 (paint) | W7 | - | T44, FEA 511 |
| SM17/183 | J16 | WHM | W/S | 10YR 8/4 (surf.), 10R 3/2 (paint) | W7 | - | T44, FEA 511 |
| SM18/156 | J16 | WHM | W/S | 10YR 8/4 (surf.), 10R 3/2 (paint) | W7 | - | T38, FEA 452 |
| SM18/159 | J16 | WHM | W/S | 2.5YR 8/3 (surf.), 10R 3/2 (paint) | W7 | - | T38, FEA 437 |
| SM18/160 | J16 | WHM | W/S | 5YR 8/3 (surf.), 10R 3/3 (paint), 10R 4/4 (paint) | W7 | - | T38, FEA 437 |
| **Fig. 19** | | | | | | | |
| SM15/068 | J | WHM | W/S | 7.5YR 7/4 (surf.), 10R 4/2 (paint) | W4 | - | T29, FEA 1159 |
| SM15/144 | J9 | WHM | W/S + B | 10R 5/6 (surf.) | W1 | 100 / 13 (rim) | T29, FEA 1107 |
| SM15/148 | J | WHM | W/S | 10R 5/6 (surf.) | W1 | - | T29, FEA 1107 |
| SM15/172 | J | WHM | W/S | 5YR 5/4 (surf.), 2.5YR 5/6 (paint) | W3 | - | T29, FEA 1107 |
| SM15/174 | J | WHM | W/S | 5YR 4/4 (surf.) | W1 | - | T29, FEA 1107 |
| SM15/193 | J9 | WHM | W/S + B | 5YR 5/6 (surf.) | W5 | 100 / 16 (rim) | T28, FEA 1168 |
| SM15/195 | J | WHM | W/S | 5YR 5/4 (surf.) | W5 | - | T28, FEA 1168 |
| SM15/197 | J (?) | WHM | W | 5YR 6/4 (surf.) | W5 | - | T28, FEA 1168 |
| SM15/224 | J9 | WHM | W/S | 2.5YR 4/6 (surf.) | W1 | 110 / 34 (rim) | T28, FEA 1142 |
| SM15/237 | J7 | WHM | W/S | 10YR 8/2 (surf.) | W19 | 120 / 13 (rim) | T29, FEA 1159 |
| SM15/240 | J1/2 | WHM | W/S | 2.5YR 5/6 (surf.) | W5 | 90 / 25 (rim) | T29, FEA 1159 |
| SM15/256 | J | WHM | W/S | 7.5YR 6/4 (surf.), 10R 4/2 (paint) | W7 | - | T28, FEA 1145 |
| SM15/270 | J | WHM | W/S | 2.5YR 6/4 (surf.) | W5 | - | T28, FEA 1145 |
| SM15/291 | J | WHM | W | 7.5YR 6/4 (surf.) | W1 | - | T28, FEA 1150 |
| SM16/350 | J9 | WHM | W/S | 10R 4/8 (surf.) | W1 | 120 / 5 (rim) | T39, FEA 406 |
| SM16/353 | J1 | WHM | W/S | 2.5YR 5/6 (surf.) | W7 | - | T39, FEA 406 |
| SM18/169 | J9 | WHM | W/S | 10R 5/6 (surf.) | W20 | 100 / 16 (rim) | T38, FEA 449 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Fig. 27** | | | | | | | |
| SM15/109a | M2 | WHM | W/S | 10YR 8/2 (surf.), 10R 4/2 (paint), 10R 5/6 (paint) | W7 | 290 / 13 (rim) | T29, FEA 1107 |
| SM15/132 | M1/2 | WHM | W/S | 5YR 7/4 (surf.) | W1 | 190 / 17 (rim) | T29, FEA 1107 |
| SM15/170b–c | M1/2 (?) | WHM | W/S | 10R 5/6 (surf.) | W2 | 200 / 6 (base) | T29, FEA 1107 |
| SM15/310 | M6 | WHM | W/S | 2.5YR 4/6 (surf.) | W7 | 120 / 30 (base) | T29, FEA 1156 |
| SM18/165 | M1/2 (?) | WHM | W/S | 10R 5/6 (surf.) | W2 | 140 / 13 (base) | T38, FEA 454 |
| SM18/172 | M9 | WHM | W/S + B | 10R 5/8 (surf.) | W4 | 130 / 6 (rim) | T38, FEA 449 |
| **Fig. 25** | | | | | | | |
| SM15/149 | M8 | WHM | W | 2.5YR 5/6 (surf.) | W7 | 370 / 5 (rim) | T29, FEA 1107 |
| SM15/153 | M8 | WHM | W/S | 10R 5/6 (surf.) | W7 | 370 / 16 (rim) | T29, FEA 1107 |
| SM15/175 | M8 | WHM | W/S | 2.5Y 5/4 (surf.) | W5 | 330 / 39 (rim) | T29, FEA 1107 |
| SM15/194 | M8 | WHM | W | 7.5YR 5/4 (surf.) | W7 | 430 / 15 (rim) | T28, FEA 1168 |
| SM15/198 | M8c1 | WHM | W | 7.5YR 6/4 (surf.) | W7 | - | T28, FEA 1168 |
| SM15/215 | M8 | WHM | W/S | 2.5YR 5/6 (surf.) | W1 | 370 / 23 (rim) | T28, FEA 1151 |
| SM15/226 | M8 | WHM | W | 10R 5/6 (surf.) | W7 | 420 / 11 (rim) | T28, FEA 1168 |
| SM15/273 | M8c1 | WHM | W | 5YR 5/4 (surf.) | W7 | 75 / 95 (base) | T28, FEA 1145 |
| SM15/274 | M8a | WHM | W | 5YR 5/4 (surf.) | W1 | 290 / 20 (rim) | T28, FEA 1145 |
| SM15/275 | M8a1 | WHM | W | 5YR 5/4 (surf.) | W5 | 95 / 50 (base) | T28, FEA 1145 |
| SM15/276 | M8a1 | WHM | W/S | 2.5YR 5/6 (surf.) | W2 | 330 / 25 (rim) | T28, FEA 1145 |
| SM15/280 | M8a | WHM | W/S | 2.5YR 5/6 (surf.) | W7 | 310 / 13 (rim) | T28, FEA 1145 |
| SM15/281 | M8a | WHM | W/S | 10R 5/6 (surf.) | W5 | 340 / 25 (rim) | T28, FEA 1145 |
| SM15/293 | M8c2 | WHM | W | 5YR 6/4 (surf.) | W5 | 265 / 45 (rim) | T28, FEA 1150 |
| SM16/352 | M8c1 | WHM | W/S | 10R 5/6 (surf.) | W5 | 200 / 6 (rim) | T39, FEA 406 |
| SM17/185 | M8a1 | WHM | W/S | 2.5YR 5/8 (surf.) | W4 | 340 / 7 (rim) | T44, FEA 511 |
| SM18/164 | M8c | WHM | W | 5YR 6/4 (surf.) | W5 | 240 / 25 (rim) | T38, FEA 454 |
| SM18/170 | M8c | WHM | W | 5YR 6/4 (surf.) | W7 | 260 / 100 (rim) | T38, FEA 449 |
| SM18/171 | M8a2 | WHM | W/S | 10R 5/6 (surf.) | W5 | 290 / 14 (rim) | T38, FEA 449 |
| SM18/173 | M8 | WHM | W | 5YR 6/4 (surf.), 10R 5/6 (inner surf.) | W7 | 330 / 13 (rim) | T38, FEA 449 |
| SM18/178 | M8a1 | WHM | W/S | 10R 5/6 (surf.) | W5 | 110 / 6 (base) | T38, FEA 449 |
| **Fig. 28** | | | | | | | |
| SM15/129 | X | WHM | W/S | 2.5YR 5/8 (surf.) | Y3 | - | T29, FEA 1107 |
| SM15/176 | Q1 | WHM | W/S + B | 2.5YR 4/8 (surf.) | W5 | - | T29, FEA 1107 |
| SM15/241 | J | WHM | W | 5YR 7/4 (surf.) | K2 | - | T28, FEA 1145 |
| SM16/346 | G1 | HM | - | 7.5YR 6/4 (surf.) | W8 | - | T39, FEA 405 |
| SM18/166 | S2 (?) | WHM | W/S | 10R 5/6 (surf.) | W3 | 100 / 10 (rim) | T38, FEA 438 |
| SM18/180 | S | HM | W | 10YR 3/1 (surf.) | H6 | 50 / 32 (rim) | T38, FEA 449 |
| SM18/182 | S | HM | W | 2.5N (surf.) | H5 | 80 / 6 (rim) | T38, FEA 449 |

**Tab. 2.** Comparative pottery quantification analysis of the major stratigraphic phases of the structure WBN 700. For the form types not mentioned in the present paper see *Wad Ben Naga Report* II; *Wad Ben Naga Report* III; *Wad Ben Naga Report* V; *Wad Ben Naga Report* VI.

| Form type | Construction phase (well-sealed) | | Construction phase (disturbed) | | Destruction phase | |
|---|---|---|---|---|---|---|
| | weight (%) | EVEs (%) | weight (%) | EVEs (%) | weight (%) | EVEs (%) |
| A | 0.19 | 0.92 | 1.68 | 0.33 | 0.00 | 0.00 |
| A2 | 0.00 | 0.00 | 0.09 | 0.56 | 0.00 | 0.00 |
| A7 | 2.86 | 1.35 | 5.56 | 2.95 | 0.00 | 0.00 |
| B | 1.61 | 3.02 | 2.05 | 3.49 | 3.28 | 7.76 |
| B1 | 0.24 | 1.56 | 0.97 | 0.42 | 0.40 | 0.00 |
| B1a | 0.18 | 0.70 | 0.25 | 1.69 | 0.00 | 0.00 |
| B1b | 2.05 | 6.35 | 2.35 | 4.83 | 2.36 | 6.90 |
| B2 | 0.91 | 4.15 | 2.84 | 8.44 | 0.40 | 5.17 |
| B2b1 | 0.56 | 4.63 | 1.48 | 3.52 | 0.00 | 0.00 |
| B3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.81 | 5.17 |
| B4 | 2.69 | 1.29 | 0.10 | 0.14 | 0.00 | 0.00 |
| B4b | 23.74 | 11.20 | 9.90 | 4.92 | 1.27 | 1.72 |
| B4b (?) | 0.00 | 0.00 | 1.08 | 1.03 | 0.00 | 0.00 |
| C1–3 | 0.10 | 2.21 | 0.47 | 5.32 | 0.23 | 5.60 |
| F5 | 0.26 | 2.58 | 0.74 | 2.81 | 0.00 | 0.00 |
| F5 (?) | 0.07 | 0.00 | 0.00 | 0.00 | 0.92 | 3.45 |
| G1 | 0.00 | 0.00 | 0.24 | 2.39 | 0.00 | 0.00 |
| J | 9.30 | 4.85 | 16.60 | 8.72 | 2.13 | 9.05 |
| J1–2 | 0.07 | 0.54 | 10.74 | 2.20 | 0.00 | 0.00 |
| J3 | 1.54 | 5.92 | 2.54 | 4.78 | 5.01 | 6.47 |
| J3 (?) | 0.24 | 3.12 | 0.60 | 6.37 | 0.00 | 0.00 |
| J9 | 1.23 | 4.47 | 2.53 | 4.78 | 15.13 | 18.10 |
| J9a | 2.21 | 3.72 | 0.28 | 1.78 | 33.26 | 14.22 |
| J10 | 1.05 | 1.08 | 0.49 | 0.98 | 1.15 | 3.88 |
| J10c | 0.44 | 0.65 | 0.21 | 0.00 | 0.00 | 0.00 |
| J15 | 0.77 | 1.24 | 0.26 | 0.00 | 0.00 | 0.00 |
| J15 (?) | 1.27 | 2.96 | 3.42 | 4.97 | 2.70 | 0.00 |
| J16 | 6.38 | 1.78 | 7.97 | 0.94 | 11.97 | 1.72 |
| J16 (?) | 0.07 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 |
| M | 0.36 | 0.70 | 2.83 | 2.81 | 4.20 | 2.59 |
| M1–2 | 0.00 | 0.00 | 2.23 | 3.70 | 0.00 | 0.00 |
| M3/6/8 (?) | 1.93 | 2.05 | 4.59 | 4.92 | 0.00 | 0.00 |
| M4, M9 | 0.09 | 0.32 | 0.05 | 0.00 | 0.00 | 0.00 |
| M8 | 27.51 | 18.26 | 6.00 | 4.03 | 7.31 | 5.17 |
| M8 (?) | 8.83 | 6.35 | 7.47 | 5.69 | 7.48 | 3.02 |
| Q1 | 0.00 | 0.00 | 1.14 | 0.00 | 0.00 | 0.00 |
| Other | 1.24 | 2.05 | 0.10 | 0.47 | 0.00 | 0.00 |
| **Total diagnostic fragments:** | 22,342 g (additional 200 g of undeterminable form) | | 18,403 g (additional 892 g of undeterminable form) | | 1,738 g (additional 8 g of undeterminable form) | |
| | 18.57 EVEs (additional 0.60 EVEs of undeterminable form | | 21.34 EVEs (additional 1.42 EVEs of undeterminable form | | 2.32 EVEs | |

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