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The Early Imperial Fortress of Berkou, Eastern Desert, Egypt

J. Gates-Foster, I. Goncalves, B. Redon, H. Cuvigny, M. Hepa, T. Faucher

Figure 1. General view of the site of Ghozza/Berkou, looking southeast (©G. Pollin, IFAO/MAFDO)

Introduction

In 2020, the French Archaeological Mission to the Eastern Desert of Egypt excavated a Roman fortress of the late 1st and early 2nd c. AD in the Wadi Ghozza (Fig. 1). This small praesidium, identified in ostraca found in the fortress as Berkou (Βερκου), is located along the roadways leading to the Red Sea coast and the imperial quarries at Porphyrites and Mons Claudianus, which are in the vicinity.² Constructed under Vespasian, or even slightly earlier, the fortification was occupied for a brief time, perhaps as late as the early years of Trajan's reign when it was abandoned. Remarkably well-preserved, the fortress contained remnants of soldier's activities and supplies, providing a discrete snapshot of the infrastructure and economic activities associated with the fluorescence of Flavian activity in the Eastern Desert, as well as the water management infrastructure built to supply the fort's inhabitants and travelers.

Figure. 2. Topographic plan of Ghozza/Berkou after the 2020 campaign (©D. Laisney/MAFDO)

The Roman fort of Ghozza is located on a natural terrace at the edge of the north-western bank of the wadi Ghozza (Fig. 2). Over millennia, the water running seasonally in the main wadi and its north affluent formed this elongated terrace, which is about 200 m long, 40 m wide in the

² For the name of the fort, see discussion below of ostraca 3–8.

¹ The MAFDO is directed by Thomas Faucher. It is supported by the French Ministry of Foreign Affairs and the Institut Français d'Archéologie Orientale and works with the agreement of the Egyptian Ministry of Antiquities and Tourism. The mission is also sponsored by the ERC project Desert Networks, which has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program (grant agreement No 759078). The mission thanks the Ministry of Tourism and Antiquities of Egypt for its support.

center, and 1.50 m above the wadi floor at its highest point, and oriented from the north-east to the south-west. The fort that occupies this northernmost terrace is not the oldest construction on the site, however. Two other terraces located just a few meters to the south-east hosted a large Ptolemaic mining village dating to the 3rd and 2nd c. BC that was not occupied during the Roman period and traces of Ptolemaic remains are also visible to the north-east of the praesidium and also underneath the fort itself.³ A protected well of likely Ptolemaic date is also visible to the south of the Ptolemaic village in the center of the wadi (Fig. 2).⁴

In this article, we present the results of the excavations of the Roman *praesidium* including its architecture and water system, as well as the finds associated with the last phase of its occupation at the turn of the 1st c. AD.⁵ This evidence—its architecture, infrastructure, and indications of daily life—provides an important complement to the materials published from Mons Claudianus and Porphyrites. These sites differ both in their specialized infrastructure—huge quarry complexes vs. a small fort—as well as their duration of occupation; the two quarries were opened in the first half of the 1st c. AD (respectively under Claudius and Tiberius),⁶ and their occupation lasted several centuries after the abandonment of Berkou/Ghozza. However, the site of Berkou/Ghozza owed its existence to these two sites, and in particular to Porphyrites on which it seems to have depended administratively and militarily. The main access road in Roman

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³ Unpublished excavations by Th. Faucher and B. Redon. See Klemm, Klemm 2013 on the distribution of the ancient gold mining sites in the Eastern Desert of Egypt, and Redon, Faucher (ed.) 2020 on the Ptolemaic mining settlement of Samut North, excavated by MAFDO in 2014-2015. Gates-Foster and Godsey, forthcoming.

⁴ Unpublished environmental and structural study by M. Crépy, with the help of D. Laisney. Analysis of surface pottery surrounding this structure indicated a Ptolemaic date.

⁵ The fort was excavated under the supervision of B. Redon and I. Goncalves, with 15 workers overseen by the rais Baghdady Mohamed Abdallah. The pottery was studied by J. Gates-Foster, the small finds by M. Hepa, the coin by Th. Faucher and the ostraca by H. Cuvigny.

⁶ See Peacock and Maxfield 1997 and Peacock, Maxfield 2007

times from Qena,⁷ in the Nile Valley, to the Porphyrites quarries is generally placed by scholars in the Wadi al-Atrash, which passes through Bab al-Mukhayniq, Dayr al-Atrash, Qattar, and the Wadi Belih (Fig. 3).⁸ The work carried out in 2020 at Ghozza/Berkou demonstrated that another, possibly earlier, route to Porphyrites existed via this newly excavated Roman fort.

Figure 3. The site of Ghozza/Berkou in the regional road network during the Principate (©L. Manière, Desert Networks project/MAFDO)

The primary documents and other finds recovered at the fort illuminate both the date of establishment and function of the fort at Ghozza/Berkou, as well as its place in this regional network. Accordingly, the presentation of the material from the fort and its analysis focuses first on the architecture and construction history of the fort, and associated finds, including ceramic and glass vessels, as well as metal and stone artifacts. Secondly, we examine the objects and texts that offer a specific historical framework and regional context for the fortification including several ostraca and a coin recovered from abandonment levels inside the fort. Finally, we conclude with a discussion of the significance of Ghozza/Berkou and its role in the regional network, as well as its historical and archaeological significance.

Architecture and Stratigraphy

The pre-fort occupation: a Ptolemaic gold mining settlement

While the *praesidium* has a clear association with the Flavian era, the site itself has a much longer history and indeed these earlier occupation phases were directly relevant to the choice of the site. In addition to offering a convenient location for caravans traveling to Porphyrites, this site also offered access to building materials that could be repurposed from

⁷ The town, known as Kainè ("the new town") in the sources, is founded at the beginning of the Roman period, and plays an active role in the administration of the road leading to the quarries, and the supply of the quarrying settlements (Cuvigny 1998).

⁸ See the maps of the *Tabula Imperii Romani* published by D. Meredith in 1958, the *Barrington Atlas*, pl. 78, and Couyat 1910, pl. I, Meredith 1952, fig. 1, Sidebotham, Zitterkopf, Riley 1991, fig. 2, Brun 2018, fig. 11, to quote some of them.

abandoned Ptolemaic buildings and access to a well and cistern, both almost certainly constructed in the Ptolemaic era.

This earlier occupation is discernable on the terrace where the fort is located and is contemporary with the main occupation of the mining village to the southeast. The first clue appears directly on the top of the natural terrace in several locations in and around the fort (Fig. 4). In these areas, small chips of white quartz and quartz powder are plentiful. This material was not brought naturally by the floods of the wadi but resulted from the grinding of quartz blocks extracted from nearby mines by workers during the Ptolemaic period. The miners who lived in the village during these excavations may have had their ore processing stations on the north terrace that was the eventual location of the Roman fort.⁹

Figure 4. General plan of the fort of Ghozza/Berkou (©BR/MAFDO)

The large number of stone grinding tools found on the site supports this scenario. These included a few large rectangular and concave saddle querns, and many large, semi-circular rubbing stones with two small handles. These tools were everywhere on the terrace and in the fort itself. It is possible that they were brought by the Romans from the village itself, but the huge quantity of heavy stones associated with quartz processing in the fort area makes it unlikely.

These grinding stones were also used in the construction of the fort, as we will see below, but might already have been reused during the Ptolemaic period to construct floors on the terrace. Two floors paved with old handstones were found in and just outside the Roman fort.

Most of these stones lacked handles and had small circular hollow depressions in their centers that indicate workers reused them as anvils on which they broke up the gold-bearing quartz.

⁹ Ostraca and other archaeological evidence from the Ptolemaic phase demonstrate the presence of miners and mining activity at Ghozza. Gates-Foster and Godsey forthcoming.

Sherds of Ptolemaic date were found during the excavation of these two floors (SU 108.14 and 203.01-02),¹⁰ but that does not necessarily mean that the floors were built during the Ptolemaic period. Indeed, residual Ptolemaic pottery mixed with Roman material is found all over the site, from the deepest layers of the fort to the surface. However, this type of floor made of reused anvil stones also appears in the Ptolemaic village nearby, so an earlier date is likely.

A few stratigraphical units revealed purely Ptolemaic material and could be traces of occupation before the construction of the fort. These included simple deposits not associated with any structure, like layer 114.11 found beneath Room 114. Some built structures, such as the floor made of flat slabs and covered with a thin layer of sand and quartz chips (SU 107.06) at the bottom of Room 107, appeared to also be associated with this pre-Roman phase. Like the two others made of grinding stones, this floor may have been used to collect quartz dust after the grinding process, which was more easily done on a stone floor than on the natural surface of the terrace.

In the northwest corner of the fort, three earlier walls form a jogged line below the curtain wall, Staircase 119, and Room 118 (Fig. 5). Their orientation is different from the rest of the standing building and their position below the fort walls suggests that this structure could also be Ptolemaic, or at least predates the construction of the 1st c AD fort. These walls (MR 100.05, 100.06, 100.07 and 118.18) form the structure called Room 120.

Figure 5. Area of Room 118 and Staircase 119, with the pre-fort walls of Room 120. Looking west, scale 1 m (©BR/MAFDO)

 $^{^{10}}$ The abbreviation SU refers to stratigraphical unit throughout the text.

¹¹ The pottery associated with the Ptolemaic phase below the standing fortification is typical of other Eastern Desert sites established in the mid-3rd c. BC and active into the 2nd c. BC (Gates-Foster 2019). The most significant sample of Ptolemaic material was not recovered from the area of the fort, but in the town site, and thus will be published separately by the MAFDO ceramicist, Jennifer Gates-Foster, and not described here.

¹² The material found in the destruction level SU 118.17 also supports an earlier date for these walls. Another wall preceding the construction of the fort only appears as a demolition layer under Room 108 (108.18). It has not been excavated during this first campaign and it is not datable.

General description

The fort was built after a period of abandonment of this Ptolemaic settlement since the pottery shows that the site was no longer occupied beyond the end of the 2nd or early 1st c. BC in the pre-Roman era. The first step in the fort's construction probably consisted of the leveling of the terrace, which explains the spread of Ptolemaic pottery mixed with Roman material all over the site. The walls of the fort were then built directly on the compacted ground with no foundation, as is typical for Roman forts of the Eastern Desert.¹³ Inside Rooms 114 and 115 extremely thick layers of ash lay on the surface of the terrace (114.09 and 115.04). These may relate to the period of construction of the fort. Similarly, a large deposit of slag dumped behind the curtain wall to the southwest is also likely associated with the construction phase.

The Ghozza *praesidium* measures 29 m long by 25 m wide in its northern half and 31 m wide in the southern half, so approximately 827 m². Its plan is not regular. The curtain walls delimited an almost rectangular building oriented northwest/southeast, but the southeast wing protrudes to the southwest, forming an extension that interrupts the symmetry of the plan. Additionally, the north wall is not aligned with the other walls. The main gate is not preserved, but was certainly located in the southeast where violent floods have destroyed the corner of the fort and eroded the terrace. The trash dump adjacent to the gate disappeared the same way, taking with it the trash produced during the early years of the building's occupation. A small postern gate in the north corner gave access to an external cistern.

The fort centers on a large courtyard that was only partially excavated in 2020 (Court 100). At least 15 rooms were built in one row against the curtain wall, except to the northwest

¹³ See for instance the forts of the Roman road of Coptos/Qift to Myos Hormos/Quseir al-Qadim, in Cuvigny (ed.) 2003.

¹⁴ Trash dumps are consistently located in front of the gate in all the other forts of the Eastern Desert (Cuvigny ed. 2003).

where no rooms are visible either on the surface, or in the small trench excavated to the west. ¹⁵ These rooms all open directly onto the courtyard except for Room 112 that is only accessible through Room 113. Their surface area varies from more than 20 m^2 (5.05 x 4.10 m, Room 112) to 6.40 m² (2.40 x 2.65 m, Room 110).

Fourteen of these rooms were excavated during the 2020 campaign: Rooms 102, 106, 107 and 108, against the northeast curtain wall; Rooms 109 to 116 in the south corner of the fort, a group of rooms surrounding an open area called Space 121; Rooms 117 and 118 in the northwest. Between Room 118 and the north curtain wall, a staircase (Space 119) led to the top of the curtain wall. Considering the thinness of the curtain wall (see below), the fort probably had no parapet walk. The staircase accessed the top of the western corner of the curtain wall from which one had an overview of the route coming from the valley.

Figure 6. Curtain wall of Room 112. Looking southwest, scale 1 m (©IG/MAFDO)

All the walls of the fort were built using dry-laid local stones, mainly pink and black granite, that were left uncut or coarsely carved. In a few sections, the walls stand to a height of 2 m. The curtain walls are between 70 cm and 1.30 m thick, whereas the inside walls are between 50 and 90 cm thick. All walls are irregular and extensively reuse Ptolemaic rubbing stones in their construction. These reused elements appear built into the walls at all levels, but they were sometimes used specifically as the foundation course. This is particularly visible in Room 112 (Fig. 6), but also in Rooms 113 and 116. The handles of the grinding stones were removed and used to fill small holes in the walls.

Even if the fort was built almost entirely in a single phase, steps in that initial construction process were clear. For example, the curtain wall shows in some places running

¹⁵ The space between Rooms 102 and 106 has not been excavated, so the number of rooms is not known with certainty.

joints between blocks of several courses or unbonded joints at the corner, which is a structural defect due to the construction of a portion of the wall that is not linked to adjacent sections. ¹⁶ This is clearly visible inside Room 118 in the upper part of the curtain wall, which precludes the possibility that this was a door that was later blocked. The southwest corner of the fort also reveals a small space between the northwest wall of Room 114 and the curtain wall (Fig. 7). This narrow space, previously accessible from Room 115, was closed off for an unknown reason before the completion of the fort, as if the first design had been abandoned during the construction process.

<u>Figure 7. Room 114 with its north-west wall in the background. Looking northwest, scale 1 m</u> (©IG/MAFDO)

Other features show that the fort's plan was modified later and not necessarily as part of the initial construction episode. In Room 106 for instance, the southwest wall simply leans against the two other walls of the room is not boned to them. It is also not lined up with the southwest wall of Room 107, further demonstrating that these walls were added to the original layout. Also, between Room 107 and 108, the wall is in two misaligned sections; the west one is well-built and bonded to the southwest wall of Room 108, whereas the eastern part is thin and fragile. This suggests that this wall was repaired or modified at some point.

The northeast curtain wall was built using two parallel layers, probably also due to later repairs. In Rooms 102 and 106 to 108, the cleaning of the top of the walls and the collapse of several blocks of the inner cladding of the rooms revealed another wall surface below the exposed one. This can only be explained as the reinforcement of an original wall with a second layer of stones. Because no excavation was undertaken outside the fort against the bottom of the curtain wall, the chronology of these modifications is unclear.

¹⁶ This is not unusual in the Eastern Desert forts and does not indicate a particular chronology for the walls.

In the northwest corner of the fort, Staircase 119 accessed the top of the curtain wall (Fig. 8, see also Fig. 5). The first iteration of these stairs (118.05) was well-built and had at least six steps. Apparently, however, a fire destroyed wooden elements in this staircase during the occupation of the fort. A thick layer of ash lay on the stairs and in the courtyard in front of them (118.02 and 100.02). Instead of cleaning the ashes to clear the stairs, the occupants of the fort decided to build new stairs on top of them (118.04). These second stairs of four or five steps were roughly assembled and associated with stone benches also placed at the bottom of the staircase. Both installations sit on the ash layer and give easy access to the rebuilt stairs.

Figure 8. Section of Rooms 116-118 (©BR/MAFDO)

Length of occupation

Aside from these minor modifications, the Roman fort of Ghozza does not show the usual evidence of elaborate transformation that other Roman forts of the region usually present. Often these include the division of existing rooms, the addition of rooms in the courtyard built against the first row of rooms and the addition of equipment, such as small silos, ovens, or benches, with no visible organization.¹⁷ The absence of these features, along with other aspects of the material recovered at the fort, demonstrates that the occupation of the fort was unusually short. The Roman pottery recovered from the fort, for example, is uniformly associated with the middle and later decades of the 1st c. AD, with a small number of vessels that might indicate a Trajanic date (see discussion of pottery corpus below).

The short duration of the fort's use life is also clear in the stratigraphy as well as in the finds. In all the excavated rooms, the flattened surface of the terrace, sometimes covered by a thick layer of clay, served as a living surface. A few sherds of mixed date, both Ptolemaic and early Roman, sometimes lay at this level. Just above, a single occupation layer made up of small

¹⁷ See for instance the Roman fort of Didymoi, Cuvigny (ed.) 2011.

amounts of domestic debris related to food preparation and consumption represented the last (and perhaps also the first) important period of occupation in the rooms. Many complete or mendable cookpots, casseroles, and drinking cups appeared in these floor assemblages, and relatively few amphorae. The suite of rooms along the northeast side of the fort (rooms 102-108), for example, presented a single abandonment episode, with most rooms containing crossmends across the excavation units above the floor and identical groups of vessels in each room (see discussion below). A thick layer of abandonment material composed of fallen wall blocks and sand mixed with small amounts of archaeological material covered these deposits.

The only exceptions were Room 113, which acted as a vestibule for Room 112, and Rooms 111, 114 and 115. These rooms instead held middens (trash dumps) that formed during the final occupation of the fort. Many fragmentary ceramic vessels and other small objects, including both dated Domitianic ostraca (Ostraca 1-2), were found spread over the entire extent of Room 113, which would have made room 112 inaccessible. Similar trash deposits formed in other nearby rooms, apart from Room 111, which was almost empty. The pottery and glass found in the rooms surrounding Area 121 contained many cross-mending vessel fragments spread across several rooms, showing that they were being filled simultaneously with debris while other parts of the fort—Rooms 102-108—were kept clean and likely still occupied. This paints a picture of a gradual abandonment over a relatively short period of time since the dump fills are only 30 to 50 cm thick, and likely produced quickly given the uniformity of their contents and mends across the various strata.

These internal dumps, like the floor assemblages from the eastern suite of rooms, are revealing, as are the contents of adjacent rooms. Room 109, for example, contained many *AE3*

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 $^{^{18}}$ These occupation levels include SU 102.02, 106.03, 107.03, 108.07-08, 109.02, 110.02, 111.03, 112.02, 114.03, 115.03, 116.08, 117.02, 118.15.

amphorae (Fig. 24), suggesting it was used as a storeroom, while Rooms 111 and 112 had very little material in them at all. The middens in the other rooms presented a mix of functional types including many fragmentary amphorae, cooking vessels, bowls, and cups (Figs. 13-19; 23-26), as well as a small number of flagons and strainer jugs (Figs. 20-21). The latter vessels appeared exclusively in these dump deposits and outside the *praesidium* near the cistern. They denoted the latest (very late Flavian or early Trajanic) deposits on the site.

Most of the vessel types found at the fort have a date range at Mons Claudianus and Porphyrites from the mid-1st c. into the Trajanic era. The form variants at Ghozza/Berkou are most similar to the vessels contained in the 1st c. deposits from the small Hydreuma at Mons Claudianus, which was thought to date from the Neronian through the end of the Flavian period. ¹⁹ The absence of imported pottery at Ghozza makes it difficult to be more specific about the dating of the fort, but even so, it is quite clear that this is a Flavian foundation—perhaps slightly earlier—abandoned in the early years of the Trajanic era at the latest and possibly in the waning years of the Flavian dynasty. ²⁰ The ostraca and coin find discussed below also support a Flavian association, as does the location of the fortress in the regional network.

Installations and function of the rooms

Apart from the pottery and small objects found in the occupation layers and dump deposits, the rooms were almost devoid of installations; many did not include purpose-built features (Rooms 102, 106, 109, 111-113, 115, 117), making the function or functions of each room difficult to identify. Others had simple features, such as a small square bench in the north

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¹⁹ See Tomber 2006 and discussion below.

²⁰ The floors of the rooms were regularly cleaned, resulting in the formation of dumps on the outside and the disappearance of the oldest stratigraphic levels on the inside. The stratigraphy of the rooms therefore often records only the last years of the fort's occupation, while the most ancient artefacts are found in the dumps. See for instance Brun 2003a: 83 on the Krokodilô fort and the disappearance of all levels of occupation inside the fort, which was nevertheless occupied for several decades. At Ghozza/Berkou, the outside dump has disappeared, which partly explains the lack of early material in the fort.

corner of Room 107, a bench or a bed along the north-west wall of Room 116, or the two niches built into the south-west wall of Room 110, which probably served either as seats or, more likely, as shelves.

Small U-shaped fireplaces or hearths (*kanun*) were common and usually built outside of the rooms, for obvious reasons. They were generally situated in the courtyard against the front wall of the room not far from the door. For example, two of them were found outside Rooms 106 (SU 107.20), and 107 (SU 107.19), associated with a layer of ash (107.21). Space 121 contained a concentration of five fireplaces between Rooms 111, 113, 114, 115 and 116 (SU 115.08, 09, 10, 13, 17). These, like the others in the fort, were made of flat stones arranged vertically and almost always built directly on the living surface (i.e., the alluvial terrace). The sole exception was fireplace 115.17, which was elevated slightly on a small square massif of stones. Inside Room 107, two saddle querns were positioned vertically against the southwest wall. They probably formed a fireplace that served not only for cooking, but also for heating the room, hence its indoor location. No ashes or burned material were found in it, however.

The fort also contained silos, especially in the southern corner of the fort, and the ostraca recorded the existence of a granary at Berkou (see Ostracon 2). These were made of low stone walls with an empty rectangular space in the middle and often contained archaeological fills with plentiful organic debris. They appeared in two varieties. The deeper type had walls of around 40 cm high. Two of them are preserved in Room 114 (see Figs. 2 and 7), and two in Space 121. The second type has very low walls less than 10 cm high and formed by a single course of stones. Three rectangular (Fig. 9a) and one semi-circular (Fig. 9b) example of this type were brought to light in the courtyard (Space 100) in front of Rooms 107 and 108.²¹ They were also filled with

²¹ See similar installations in the *praesidium* at Dawwi, preserved in front of rooms 9 and 31 (cf. *La route de Myos Hormos*, vol. I, p. 135 and fig. 152, p. 184).

archaeological material—including organic remains—and may have been used as animal feeding troughs. The northern part of Room 108 contained a larger storage space separated from the rest of the room by a low wall (30 cm high). This narrow space was filled with ashes and organic material, unlike the rest of the room. A coin of Vespasian, discussed below, was found lying on the top of the internal dividing wall in this room.

Figure 9a Structures in front of Room 108. Looking northeast, scale 1 m; 9b. Structures in front of Room 107. Looking northeast, scale 1 m (©IG/MAFDO) (14/15)

The last notable installation was found in Room 118. It consisted of a 45 cm high platform built against the room's northwest wall and topped by an oval cavity covered with clay where a grinding stone, now missing, was previously installed. Next to this, a low wall 70 cm long and formed of two blocks and a reused grinding stone partially closed the southern corner of the room. This platform resembles the milling installations found in Egyptian settlements of the first millennium BC,²² where the grinding device is accompanied by a small, adjacent low wall forming a place to store the grain or collect the processed flour.

Considering all these elements, and the size and organization of the 14 excavated rooms of the fort some differentiation by function is possible. Room 118 was at least initially dedicated to food preparation and Room 114 a storage room for foodstuffs. Room 112 is the largest room of the fort and was accessed through a vestibule, making it a good candidate for the *praetorium* (headquarters) that was generally located in one of the corners of the Eastern Desert's Roman forts.²³ Room 116, with the bed or bench at the rear, may have been an individual room for a soldier since it was also equipped with an oven just outside the door. Room 115, which is of the

²² See for instance in the 5th c. BC fort of Tell el-Herr, Marchi 2014, 6163. The Ghozza device is a little different from these examples, as there is no space between the massif and the wall for the miller to stand or kneel. However, this is already documented in the kitchen of the fort of 'Abbad, excavated in 2017 by our team (unpublished) dating from the early Ptolemaic period, and there is no doubt that it was used to grind flour.

²³ Cuvigny ed. 2003, 218–19; Reddé 2018, § 32.

same size, as well as Rooms 108 and 107, could also have been barracks; they had similar equipment and produced similar vessels in their abandonment groups. An iron knife and a stone bowl were found in Room 107, which also point to a domestic use of that space. Rooms 109 and 110 are smaller and seem to have been storage rooms based on the finds. However, all these functional designations must remain hypothetical, more so since most of the forts' rooms were probably multi-functional and accommodated a range of activities depending on the needs of the residents.²⁴

Water system

Most Eastern Desert forts hosted a large well in their courtyard. These have generally collapsed, but their existence is usually demonstrated by a shallow depression in the center of the *praesidium*. However, at Ghozza, no depression is visible in the courtyard. It has not been excavated, so the absence of an internal well is not definite, but the fort was certainly supplied with water from another well in the wadi floor located off the northeastern side of the terrace where the fort is built. This undated well has not been preserved, but large stones and pebbles extracted from the wadi during the digging of the well and now lying on the wadi surface in a rough circle around a slight depression indicate its location (see Fig. 2). According to geomorphological and topographical analysis, this position is ideal since wells were often located at the confluence of two wadis.²⁵ More importantly, the construction of a long channel on the preserved terrace that starts near this point points to the presence of a well in this location. The northeast end of the terrace has been eroded by past floods, so the connection between the well in the wadi and the channel on the terrace has been destroyed. Obviously, a lifting system must have been used due to the difference between the elevation of the well lower down in the

²⁴ See the recent functional analysis of the Ptolemaic fort of Bi'r Samut by Gates-Foster, Godsey, Redon Forthcoming.

²⁵ Analysis of D. Laisney and M. Crépy, whom we thank for the discussion about this feature.

wadi and the channel's situation on the top of the terrace, but no trace of this device was recovered.

Figure 10. Channel with the well area in the background. Looking north-east (©IG/MAFDO)

This conduit was clearly visible over a length of about 60 m (Fig. 10). With a slight slope of 0.75 %, it conducted water from the well in the northeast to a preserved cistern located next to the fort. The end of the channel was cleared to a length of around 4 m. With a maximum width of 80 cm, it narrows to only 30 cm at the edge of the cistern. It was made of stones covered with a hydraulic mortar, forming a narrow and shallow gutter in the middle of the channel that is about 6 cm deep and less than 10 cm wide. The gutter crossed a wall through a small tunnel to reach the tank. This wall was located northeast of the cistern and was probably built to protect the cistern from wind-blown sand.

Figure 11. Cistern and Room 201. Looking southeast, scale 1 m (©IG/MAFDO)

The cistern was complete and very well preserved (Fig. 11). Located directly to the north of the fort, it was accessible from the postern gate through a small stairway comprised of three or four steps. It was dug into the terrace and lined with smooth pinkish-white hydraulic mortar that covers the tank itself as well as the surface around the tank. With a square plan 3.70 m wide with rounded corners and a depth of 2.60 m, the cistern has a capacity of almost 35.6 m³, or 35,600 liters. The border of the tank was marked by a curved indention 30 cm wide and 20 cm high, the purpose of which is unknown. After the abandonment of the fort, the walls protecting the cistern on the northeast and southwest collapsed into the tank. It was then filled with sand brought by wind and floods.

The water of the cistern was not only consumed by occupants of the fort, but also by animals, as demonstrated by the presence of a long trough outside the northeast curtain wall of the fort. The connection between the cistern and the trough was an odd and complex system. At

the southeastern edge of the tank, a high platform of stones was built and coated with hydraulic mortar. The upper part is damaged, so it is no longer possible to see the channel where the water was poured. The device used to draw water from the tank has likewise not survived, but several long pieces of wood were found in the cistern during the excavations and could be remains of the lifting system, likely a *shaduf*. This stone platform leans against a poorly built wall. The water channel crosses this wall through an early Roman ribbed amphora neck (Fig. 31.8) protected by two saddle querns arranged upside down.

Figure 12a. Beginning of the drinking trough in Room 201. Looking north-west; 12.b. Drinking trough outside the fort. Looking northwest, scale 0.5 m (©IG/MAFDO) (18/19)

To the south of this wall is a narrow room with no door (Room 201, 1.20 m wide and 5.60 m long), built outside the fort and against the curtain wall. In its center it holds the beginning of the trough with its amphora-neck pipe running on a northwest/southeast axis (Fig. 12a). On both sides of the trough, inside Room 201, many fragmentary early Roman ceramics were found lying on the terrace (201.04-201.07). The southeast wall of Room 201 was pierced by a small tunnel to let the water run into the trough and outside the room. The trough was not completely cleaned during the excavation, but only a small section beside Room 201 remained unexcavated (Fig. 12b). The structure was not built directly against the curtain wall, so the animals could stand on all sides.

The trough is made of stones and completely coated inside with hydraulic mortar where the water was poured and on the exterior. Excluding the section enclosed in Room 201, the trough is 9.30 m long and 1.20 m wide. The basin has a U shape and is 60 cm wide at the top and 40 cm deep in the middle. The floor around the trough was covered with a layer of organic material certainly related to the presence of animals (202.07-203.02). Exterior water troughs are common in the Eastern Desert forts. They were found for example at the Roman forts of Dios

and Didymoi, and at the Ptolemaic forts of Bi'r Samut and 'Abbad.²⁶ Usually though, they are built directly against the curtain walls.

The Ghozza/Berkou fort in the typology of the Roman forts of the Eastern Desert

The fort of Ghozza/Berkou is unusual in several respects when compared with the dozens of Roman forts (*praesidia*) built in the Eastern Desert. As recently characterized by Reddé: "[Roman fort] plans are not standardized and no station is identical, but there are architectural similarities. The fortlets are geometric in shape and more or less regular, usually square, sometimes rectangular, with a curtain wall flanked by projecting round towers at the corners, and near the only gate; intermediary towers are sometimes known. The center of the space thus created is occupied by a large well, which is usually collapsed in on itself. The barracks are, therefore, placed against the curtain wall (...). The dimensions are about 50/60 m on each side." The *praesidium* at Ghozza diverges from this description in several key ways.

First, with a surface area of only around 800 m,² it is very small, especially when compared with the large Roman forts built in other areas of the Eastern Desert. Most of them are around 3000 m² (Krokodilô, Maximianon, Dawwi, El-Hamra, Dayr al-Atrash), with the largest being the large *praesidium* in the wadi Umm Hussayn at Mons Claudianus, which has a surface area of around 5300 m².²⁸ Smaller stations are also known, such as those of Qattar, Badiya, and Bi'r Bayzah, which occupy 1600 to 1700 m², but very few forts are as small as the fort of Ghozza. Smaller fortifications include El-Saqqia (475 m²), the Footpath station at the Porphyrites quarries (600 m²), the so-called Hydreuma (700 m²), which is the predecessor of the great fort mentioned above at Mons Claudianus and is dated to the first half of the 1st c. AD, the Roman

²⁶ For Diymoi, see Reddé 2018, § 9. The forts at 'Abbad and Bi'r Samut are unpublished.

²⁷ 2018, §6.

²⁸ A good illustration of the different size of the Roman forts of the northern part of the Eastern Desert is published by Meredith 1952, fig. 2, There is an error reagrding the size of the Ghozza fort, however, because Meredith thought that the entire terrace was enclosed.

station of Dweig/Phalakron (725 m²) on the road to Berenike, and the small fort of Kalalat (700 m²) near Berenike. The Ptolemaic fort of 'Abbad has also similar dimensions (760 m²), which is, conversely, quite large in the Ptolemaic corpus of stations.²9 Except for the forts of Kalalat and Dweig, which date to the 2nd c. AD,³0 the other forts – including the fort of Ghozza – are earlier in date and their smaller size could be an early Roman feature.

Secondly, the plan of the *praesidium* of Ghozza is very irregular, which is quite rare in our corpus of Roman forts except for the odd building at Belih, and the rounded enclosure of Deir al-Wikalah, ³¹ There are also a few examples of Roman forts with highly irregular plans built atop hills, but this is not the case for Ghozza's fort. ³² With these exceptions, other Roman *praesidia* are rectangular or square in shape with no protrusions. The placement of the well outside of the fort's enclosure by some 40 meters as well as an external cistern and a freestanding animal trough are all highly unusual. The few known parallels include the small Roman fort at Abu Shaar al-Qibli³³ and the very small stations of the Edfu-Berenike road, but these are smaller stations rather than forts. ³⁴ Indeed, this arrangement is very illogical, since the first aim of the stations of the Eastern Desert was presumably to secure the water supply for the caravans and soldiers by enclosing a well. ³⁵ A previous occupation of the area could explain this idiosyncrasy, with the fort reusing some ancient buildings in its construction, perhaps including the watering system.

²⁹ See Redon 2018, fig. 10.

³⁰ See Haeckl 2007 for Kalalat. The fort of Dweig/Phalakron is mentioned in the sources from the very beginning of the 2nd c. AD. It was only briefly excavated in 2010 by the MAFDO and only 2nd c. AD material was found (Cuvigny 2018, § 134).

³¹ For Belih see Sidebotham, Zitterkorpf, Riley 1991, fig. 4. For Deir el-Wikalah see Sidebotham et al. 2001, 135–70, fig. 11.

The best example of this phenomenon are the hilltop forts 3-5 at Wadi Abu Qraya/Vetus Hydreuma in the southern Eastern Desert (Sidebotham and Gates-Foster 2019, 86–91).

³³ Sidebotham, Zitterkopf 1997: 221–37.

³⁴ See for instance two of them in Sidebotham and Gates-Foster 2019, 104–10.

³⁵ Bagnall, Cuvigny, Bülow-Jacobsen 2001.

As discussed above, a significant Ptolemaic occupation occurred on the site, mainly located on the southeastern terrace, but also on the terrace where the Roman fort was eventually built some centuries later. This terrace saw activities linked to ore processing in these earlier periods, activities which required a lot of water. Thus, it is possible that the well to the northeast was already in use in the Ptolemaic period and supplied the processing area and the contemporary village using this same canal system and cistern. Assuming that the location of the well lower in the wadi was problematic due to flooding, the Roman architects opted for an unusual compromise with an offset well and an adjacent fort on the elevated terrace, thereby following the example of the older Ptolemaic village and building atop its ruins. There is no evidence that the fort at Ghozza had a well in its center, although this is not absolutely proven; the courtyard is certainly large enough to have hosted such a device and/or internal tanks.

In addition to this peculiarity, the Ghozza fort also had no tower. This recalls the layout of the small 3rd c. AD fort of Qusur al-Banat (ca 1250 m²),³⁷ on the Myos Hormos road that also has no well or tower, except for two very small platforms near the gate. The absence of a tower is a feature shared by many quarry forts, which differ from the road forts by their location in the northern part of the desert and their purpose.³⁸ The best example is the large *praesidium* of Mons Claudianus itself or the smaller fort of Umm Balad, which is a small copy of that building and dates to the 1st c. AD.³⁹

The absence of a tower and the small size of the fort give to the building at Ghozza a less defensive appearance and, presumably, function. For Umm Balad and the other similar forts of

³⁶ Cisterns of this type with a similar form and concrete have been found at the Ptolemaic fortresses at 'Abbad and Bi'r Samut (unpublished).

³⁷ The fort is probably built during the 3rd c. AD, see Cuvigny (ed.) 2003, 73–77, 276–277.

³⁸ Reddé 2018, § 63.

³⁹ For the praesidium at Mons Claudianus see Peacock, Maxfield 1997. For Umm Balad, see Peacock 1997, 141–8.

the region this is usually explained by the fact that their population was composed more of civilians than soldiers, because the sites were essentially dedicated to mining and work in the nearby quarries rather than defensive in nature. However, this is not the case at Ghozza, where the main purpose of the settlement was certainly the control of the Porphyrites road (as discussed below), and the presence of soldiers is confirmed by the ostraca. Furthermore, in contrast with the quarry forts, the interiors of which were densely occupied by partitions and rooms designed to house a large population, the enclosure of Ghozza is comparatively empty, and the garrison was surely limited in number.

Thus, even though the Ghozza fort shares some of the characteristics with the quarry forts, it was a classic, defensive road fort, intended to watch over the passage between the valley and the Porphyrites quarries, as confirmed by the ostraca. As one of the first forts built in the region, it was a relatively simple complex with limited defensive character, perhaps because this quality was unnecessary at the time of its construction. The short duration of its occupation, as shown by the pottery, coins and ostraca, makes it a rare example of a fort that was not transformed over time by many decades of military use and is therefore interesting as an example of a relatively unmodified fort of the 1st c. AD. But it is not a standard either in the sense that the fort has an irregular plan, perhaps because it takes into account older, existing architecture and was constructed quickly with the means at hand on a site where water was known to be available and easily accessible, and which was chosen for that precise reason.

⁴⁰ Reddé 2018, § 3.

Pottery

The pottery assemblage from Ghozza presents a relatively limited chronological snapshot of life in the Eastern Desert. It consists primarily of material dating to only two phases: the 3rd to 2nd c. BC (discussed above), and the second half of the 1st c. AD, and perhaps the very earliest years of the 2nd c. AD. Comparanda for the early Roman material is mainly drawn from sites in the Eastern Desert itself due to the regional specificity of these types and the availability of well-dated examples from several related sites in the region, especially Mons Claudianus and Porphyrites, which is only 29 km from Ghozza. Not only do these provide a way of dating the occupation and abandonment of the fort at Ghozza, but they also offer meaningful context for the types of vessels present and the activities they supported.

The earliest deposits at Mons Claudianus date to the mid-1st c. AD and material from the Hydreuma, the earliest construction in the complex, provide the most relevant comparanda for identifying and dating the Ghozza assemblage.⁴⁴ At the Hydreuma, only a handful of deposits were securely dated to the 1st c., but much material of the same date appeared residually in contexts dating to the Trajanic era and even later. Additionally, markers for the 1st c. phase of occupation at Mons Claudianus are paralleled by surface and residual material documented at the nearby site of Porphyrites, where the earliest attested activity dates to the Tiberian era.⁴⁵

⁴¹ A full catalog of the pottery from Ghozza illustrated here is presented in the Online Supplementary Material.

⁴² For discussion of select Ptolemaic pottery at Ghozza, see Gates-Foster and Godsey, forthcoming.

⁴³ For Mons Claudianus see Tomber 2006 and 2007. For Porphyrites see Tomber 2001.

⁴⁴ Tomber 2006.

⁴⁵ Key locations include the Fort at Porphyrites (Tomber 2001, Figs. 6.3–6.5) and the Worker's Village where a sample of pottery dating to the late 1st and into the mid-2nd c. was recovered (Fig. 6.7). The North-West Village (Fig. 6.16) is of the same date, as is the pottery from the South-West Village (Figs. 6.17–6.18). At Foot Village (Fig. 6.15) and Bradford Village (Fig. 6.13-6.14), surface assemblages of the first half of the 1st c. AD were found, contemporary with the Tiberian inscription which is the earliest historical evidence on the site, and comparable to the earliest material from the Hydreuma at Claudianus.

While this evidence provides good parallels for the forms and types at Ghozza, the absence of robust, well-dated and stratified Julio-Claudian or Flavian-era deposits at either Porphyrites or Mons Claudianus means that it is difficult to distinguish between the late Julio-Claudian, Flavian and Trajanic eras using this data on its own. Many vessel forms appear in contexts that allow for a date across these periods, particularly the Flavian and Trajanic periods, so as a result many vessel types at Mons Claudianus are dated more broadly, from the second half of the 1st c. AD into the Trajanic era. At Ghozza, however, the short-lived nature of the site's occupation, the relative uniformity of the pottery corpus and the dates provided by associated ostraca and the single coin of Vespasian argue for a much more discrete date range in the Flavian period. This material therefore helps to refine our understanding of the pottery assemblage of the Flavian period in the desert fortresses.

This is particularly significant since it offers a concise snapshot of the pottery in use during a time of major transformation in the desert infrastructure under Flavian reorganization. The role of the army in these initiatives is well-known, and indeed the fort at Ghozza was constructed, occupied, and used by the Roman military, as the ostraca make clear. Hence, the pottery assemblage offers a remarkable outline of the 'kit' utilized by Flavian-era soldiers, and the supply chains utilized to supply these remote outposts, which can be fruitfully compared to contemporary deposits at the port towns of Myos Hormos and Berenike, as well as Syene (Aswan) in Upper Egypt.

The pottery assemblage is remarkably repetitive, which again suggests that the occupation was quite limited, perhaps only 10 or 15 years. The deposit groups in the rooms without dumping activities (rooms 102-108) present a limited number of functional types: barbotine beakers (Fig. 13.4-7), carinated bowls that imitate *ESA* and Cypriot sigillata (Figs. 14-

15), ledge rim casseroles (Fig. 17), cookpots with either an everted or plain, tall rim (Fig. 18-19) and the occasional jar (Fig. 22) or amphora (Figs. 23-24). This group, found in proximity with cooking installations just outside the doors of these rooms or scattered on the floor, is the remains of the daily life activities of the fort's last occupants. The paucity of amphora remains in these rooms, in comparison with the fills in the courtyard and the dump contexts on the opposite side of the fort, demonstrate a division in utilitarian space in the final episodes of the fort's life; the occupants lived in this small suite of rooms near the cistern and animal troughs and dumped their garbage across the courtyard.

These vessels types are also present in the dump contexts in the suite of rooms on the western side of the fort (Rooms 109-118), but with a much higher proportion of amphorae, flagons (Fig. 20) and other storage forms. These midden deposits also contain a small number of strainer jugs (Fig. 21) that Tomber associates exclusively with the Trajanic period at Mons Claudianus. This form—a heavy-walled cylindrical jar with an internal pierced ledge at the neck—does not appear at the Hydreuma at Mons Claudianus or in the early 1st c. AD groups at Porphyrites. Rather, an earlier variant with a simple ledge at the neck and no strainer is associated with this phase at those sites. The presence of these strainer jugs—some 10-15 vessels at most—at Ghozza suggests either that this form has its origins in the late Flavian period, slightly earlier than previously thought, or that the abandonment of Ghozza took place in the early years of the Trajanic era. Both interpretations are possible.

Figure 13. Thin-walled wares (© Drawing M. Hepa/Photo G. Pollin, IFAO/MAFDO)

Figure 14. Hemispherical and carinated bowls (© Drawing M. Hepa/Photo G. Pollin, IFAO/MAFDO)

Figure 15. Flanged bowls and dishes (© Drawing M. Hepa/Photo G. Pollin, IFAO /MAFDO)

Figure 16. Lids (©M. Hepa/MAFDO)

Figure 17. Casseroles (© Drawing M. Hepa/Photo G. Pollin, IFAO /MAFDO)

Figure 18. Cookpots with everted rims (©M. Hepa/MAFDO)

Figure 19. Necked cookpots (©M. Hepa/MAFDO)

Figure 20. Flagons (©M. Hepa/MAFDO)

Figure 21. Strainer jugs (© M. Hepa/MAFDO)

Figure 22. Jars and kegs (©Hepa/MAFDO)

Figure 23. Imported amphora (© Drawing M. Hepa/Photo G. Pollin, IFAO /MAFDO)

Figure 24. Egyptian amphorae (© Drawing M. Hepa/Photo G. Pollin, IFAO /MAFDO)

Figure 25. Miniature vessels (© Drawing M. Hepa/Photo G. Pollin, IFAO /MAFDO)

Figure 26. Reworked vessels (© A. Bülow-Jacobsen/MAFDO)

Many of the forms found at Ghozza are associated by Tomber with the Trajanic period at Mons Claudianus—barbotine beakers, for example—but the totality of the assemblage at Ghozza, which also includes many of the 1st c. indicators in contexts with these 'Trajanic' vessels, suggests that indeed some of these forms begin earlier than her limited evidence from the Hydreuma suggested. The morphology of the thin-walled wares, which differ in their form from the Mons Claudianus examples, also argues for an earlier date in the 1st c. as do the Egyptian amphorae. These latter vessels all belong in the category of Egyptian Amphora 3 (*AE3*), and the rim and toe morphologies skew towards the mid to late 1st c. AD (Fig. 24). Imported amphorae were rare at the site and confined exclusively to the Dressel 2-4 variety, all produced in a post-79 AD fabric associated with north Campania (Fig. 23).

The source of the vessels found at Ghozza, as indicated by their fabrics and wares, conforms to the same profile as those at Porphyrites and Mons Claudianus. The finewares and serving bowls are almost all produced in the Aswan region, while the cookwares—also remarkably uniform—are entirely in gritty, micaceous alluvial fabrics. The jars, flagons and jugs are produced in white to cream calcareous fabric produced in Middle Egypt and well-documented as a marker for early Imperial sites in the Eastern Desert. The *AE3* smooth-bodied

amphorae (Fig. 24.1-7, 9-10), which dominate, are uniformly produced in the dark brown, friable alluvial fabric described at Claudianus.⁴⁶ A single ribbed *AE3* amphora (Figs. 12a and 24.8) in calcareous fabric was recovered used as a pipe in the installation south of the cistern (see discussion above). This vessel has parallels at Tebtynis in the late 1st to early 2nd c. AD, and no direct equivalent at Mons Claudianus or Porphyrites.

The pottery from Ghozza elaborates on the Eastern Desert corpus of pottery by offering a discrete, well-dated sample of forms and wares in circulation in the Flavian (and perhaps very early Trajanic) period in Egypt. Some of the forms present at Ghozza are also represented at Mons Claudianus and Porphyrites, but in many cases present new variants not documented at these larger sites. Their recovery both in stratified dump contexts in the fort with dated ostraca and abandoned in sealed room contexts make this corpus an invaluable addition to our knowledge of Roman military supply and organization in the Flavian era.

Small finds

In addition to pottery, the excavations in the *praesidium* produced a considerable quantity of small finds; almost 200 objects were registered.⁴⁷ In general, the objects reflect the needs and activities of daily life, which is evident in the glass vessels, metal utensils, and the large number of stone vessels and tools. A number of typologically variable ceramic lamps from the Roman period were also found in the fort.

Figure 27. Glass vessels (drawing ©M. Hepa/photo © G. Pollin, IFAO /MAFDO).

Glass vessels were found throughout the fortress and occur in quantity in rubbish deposits, especially from the domestic dumps in the southeastern rooms around Space 121. Some

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⁴⁶ Tomber 2006; Tomber 2007.

⁴⁷ A catalog of representative small finds from Ghozza discussed here are presented in the Online Supplementary Material. The objects were described and registered in the database by N. Villars.

joins were noted between different contexts as well as in different rooms of the fort and are useful indicators of contemporary filling that complements the pottery evidence described above. The very fragmentary nature of the material has sometimes made it impossible to precisely determine the forms represented since only a few rims and bases were preserved. Most of the recovered fragments were body sherds.⁴⁸ The catalogued glass is clear green-blue, pale green or colorless, sometimes with a milky tinge on the surface (Fig. 27.1-5). Some pieces were additionally decorated with horizontal incised lines.⁴⁹

All the recovered fragments were associated with common glass tableware, including toilet vessels, beakers or bowls (difficult to distinguish with only body sherds) and flasks. The *unguentarium* (Fig. 27.1) made of green-blue glass is a common early Roman type characterized by a thick base. ⁵⁰ Mending fragments of this single vessel were found in midden deposits in Rooms 115 (SU 115.07), 114 (SU 114.02), 100 (SU 100.07) and 111 (SU 111.03). This type was popular in the second half of the 1st c. AD, particularly during the Flavian and early Trajanic eras. In Egypt, the vessel form is ubiquitous in early Imperial contexts. Parallels have been found in Syene, Elephantine island, Quseir al-Qadim, Medinet Madi (Fayum) and Tell el-Herr. ⁵¹ The vessel was probably used for medical essences or oil. Fragments of a one-handled flask (Fig. 27.2) with a flanged rim and ribbed handle are of similar date. ⁵² This vessel type appears at

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⁴⁸ The typology employed to identify the shapes of the vases follows the types established by C. Isings (1957) and S. Fünfschilling (2015) because of the lack of a reliable typology for Egyptian glass vessels.

⁴⁹ The glass fabrics are not described, as the chemical composition of the glass has not been determined. Nevertheless, some of the fragments may have been produced in Egyptian glass workshops. Nenna, Picon and Vichy 2000, 97–112.

⁵⁰ Form Isings 28a 1957, 42. See also Fünfschilling 2015, 144, fig. 192, 14 (form AR 128 = Isings 28a).

⁵¹ In Syene similar *unguentaria* were found in contexts dated to the Flavian era. See Keller 2017, 344; 344, Abb. 10.6, G8–G11; Elephantine island, Rodziewicz 2005, pl. 4, 72–74; Quseir al-Qadim, Peacock 2011, 59, Fig. 7.1; Karanis, Peacock 2011, 57; Medinet Madi, Silvano 2012, Tav. XXX, 439–481; similar specimen in Tell el-Herr, Nenna 2007, 280, Fig. 219, 5–7.

⁵² Form Isings 51 1957, 67–68. See also Fünfschilling 2015, 431, Abb. 600, 1–6 (type AR 160 = Isings 51).

several early Roman sites in the Eastern Desert, especially in the Flavian era.⁵³ Interestingly, it is rare in Egypt outside the Eastern Desert and similar specimens can only be verified from Elephantine.⁵⁴

Some vessel bases cannot be associated with a definite shape. These include a flat base of white, milky glass (Fig. 27.3) and a base with a foot ring (Fig. 27.4), probably belonging to a beaker or bowl. ⁵⁵ A few sherds were decorated with horizontal incised lines. The illustrated example (Fig. 27.5) consisted of two fragments of thin green glass that probably belonged to the same vessel, likely a flask or *balsamarium*. ⁵⁶ The horizontal cutting lines on the body and the narrow neck-mouth are similar to fragments found in Didymoi in the Eastern Desert and at Elephantine. ⁵⁷

Figure 28. Ceramic lamps (Drawing © M. Hepa/Photo © G. Pollin, IFAO/MAFDO).

Seven completely preserved lamps, five of which are illustrated here (Fig. 28.1-5), were recovered in the fortress. All lamps are of Egyptian manufacture and mold-made. The lamp fabrics can be divided into three major groups: Nile alluvial clay, pink clay from the Aswan region⁵⁸ and Egyptian calcareous (marl) clay, which is light-colored. Given the fabrics represented, the likely production zone for these objects is Qena, Ballas or Esna.⁵⁹

A neo-Hellenistic 'frog' lamp (Fig. 28.1) made of alluvial clay is among the most widely distributed types in Ptolemaic and early Roman Egypt.⁶⁰ The round body with a slightly recessed

⁵³ Brun 2011, 237, fig. 269, 113–15; 2003b, 535, fig. 243, 67.

⁵⁴ Fragments of handle on Elephantine island, Rodziewicz 2005, pl. 4, 80

⁵⁵ For fragment GHO 083b similar type: AR 40: Fünfschilling 2015, 481; 566, Taf. 22, 1184.

⁵⁶ For similar specimen in the Fayum, see Silvano 2012, Tav. XXXII, 529–49.

⁵⁷ The type is similar to form Isings 51. For Didymoi see Brun 2011, 238, fig. 270, 118. For Elephantine see Rodziewicz 2005, pl. 5, 84–85.

⁵⁸ Peloschek 2015, 178, Fig. 36, a-b.

⁵⁹ Tomber 2006, 10–12; Peloschek 2015, 29–32.

⁶⁰ Bailey 2007, 215–16 (here called as: `Monkey-in-a-palm-tree' group) or described by Peacock 2011, 47–48 as 'Early frog lamps' for lamps in Quseir al-Qadim; Martin-Kilcher and Wininger 2017, 92, fig. 4.8, 84.

filling hole and elongated nozzle are typical of this type. The nozzle is rectangular in shape and carries relief decoration. The date of these lamps, which are derived from Hellenistic types, falls in the late Ptolemaic to Early Imperial period.⁶¹ Other lamps from Ghozza belong to a type of globular lamp with a representation of palm or wheat motifs on the upper surface. These motifs are associated with the fertile Nile flood and are common in the lamps from Mons Claudianus dated to the 1st and mid-2nd c. AD.⁶² The first example (Fig. 28.2) is produced in an Egyptian calcareous clay and carries a Greek *post cocturam* inscription on the base that contains the letters ελι. The inscription probably gives the owner' name. Parallels for this inscription are as yet unknown. A second lamp of this type (Fig. 28.3) but produced in Aswan was also recovered from the fort. A single mold-made 'Boss' lamp (Fig. 28.4), decorated with three impressed bosses one of which is almost entirely abraded, was also found at Ghozza. Parallels for this kind of decorative Roman lamp can be found in large quantities and in different varieties at Mons Claudianus and throughout Egypt during the late 1st and the beginning of the 2nd c. AD.⁶³

The final example is a small lamp with a pierced handle made of Nile alluvium. Its shape is similar to an Egyptian Loeschcke type IX (Fig. 28.5) with a continuous discus rim, while on this example the discus rim seem to be heavily abraded with a plain outward-sloping shoulder.⁶⁴ It has a central filling hole and a pierced horizontal handle. The absence of the typical square shoulder lugs and the channel leading from the hole to the nozzle suggests that this is an Egyptian variant of this type. According to the numerous examples at Mons Claudianus⁶⁵ and

⁶¹ Shier 1978, 77; Knowles 2006, 324–37.

⁶² Thomas 2017, 12 Fig. 46.2–3; Knowles 2006, 309.

⁶³ For 'Boss lamps' see Thomas 2017, 12; Knowles 2006, 367–68.

⁶⁴ Loeschcke 1919, 255–57.

⁶⁵ Knowles 2006, 349–50.

Porphyrites⁶⁶ a date from the end of the 1st to the beginning of the 2nd c. AD is reasonable, which is also confirmed by the overall dating of the fortress of Berkou.

Figure 29. Metal implements (Drawing © M. Hepa/Photo © G. Pollin, IFAO /MAFDO):

In addition to the domestic items, some metal objects (Fig. 29.1-2) found in the fort are associated with production activities. A narrow bronze utensil (Fig. 29.1) was likely used to produce nets, ⁶⁷ as can be seen on grave-reliefs showing fishing scenes dating to the Old Kingdom in Saqqara. ⁶⁸ The netting needle has a blunt tip and the planes where the forks are located are at right angles to each other. Netting needles are attested in Naukratis, Algeciras in Spain, and in graves dated to the Late Bronze Age in Tell el-Ajjul in the Southern Levant. ⁶⁹ They were used to create the 'knotted netting' required for casting nets as well as other objects, and for producing or repairing fishing nets. Further finds from England testify that this type of needle was also used to produce nets in the Middle Ages. ⁷⁰ It is possible that this tool was used to create netting for use in snares or other kinds of animal traps in the Eastern Desert context. Another well-preserved metal object is an iron knife (Fig. 29.2). ⁷¹ This narrow knife has an eyelet as a suspension device at its end. The knife was personal equipment and the eyelet suggests it was probably part of a set consisting of several tools.

Figure 30. Stone vessels, objects and tools (Drawing ©M. Hepa/Photo ©G. Pollin, IFAO).

Many stone objects produced locally from the types of stone found in the vicinity were used in domestic production at Ghozza.⁷² Granite bowls (Fig. 30.1-4) in varying sizes functioned

⁶⁶ Bailey 2007, 225–30.

⁶⁷ The object is not a surgical tool, as can be seen on finds from Pompeii: Bliquez 1994, pl. III, 10; It has a considerable affinity with the nail pick, but it may not be the most fitting parallel: Milne 1907, pl. XXI, 3. ⁶⁸ Sahrhage 1998, 107, Abb. 46.

⁶⁹ For Naukratis see Thomas 2017, 20–21, Fig. 51. For Algeciras see Bernal et al. 2010, 341–42, Fig. 3. For Tell el-Ajjul see Sparks 2013, 34, Fig. 1.

⁷⁰ Crowfoot, Pritchard and Staniland 2001, 147, Fig. 118.

⁷¹ Hense 1996, 218, fig. 11–17.

⁷² Klemm and Klemm 1993, 205–6.

as storage vessels or mortars (Fig. 30.4). The large stone bowl (Fig. 30.4) was found together with the iron knife (Fig. 36.2) on the occupation level of Room 107, for example. The soapstone pounding stone (Fig. 30.5) was probably used in food production activities such as the pounding of wheat or herbs.⁷³ Some of these items were unfinished (Fig. 30.3) and mortars made from granite, granodiorite, soapstone or sandstone were sometimes damaged during production or use. Many appeared discarded in the fort or reused as building materials.

Several small, elongated soapstone objects were found in the dumps inside the fortress (Fig. 30.6a-e) and are of particular interest. These objects are worked on the outside and have a hole drilled through their center; sometimes the object is completely pierced (Fig. 30. 6a, c, e) and in some cases the hole is incomplete (Fig. 30.5d). All of them are fragmentary, so the function of the objects is unclear and the only known parallels from outside the Eastern Desert come from Qantir/Pi-Ramesses.⁷⁴ Similar objects in worked bone or wood have been found in other Roman forts in the Eastern Desert and have been interpreted as a handle for a needle or an awl, which is also possible for the Ghozza finds.⁷⁵ Finally, a small rectangular palette (Fig. 30.7) was commonly used in Roman Egypt to produce cosmetic or medical substances and several have been found at different sites in the desert.⁷⁶ In the fortress of Berkou the object is made from soapstone and shows traces of wear on the surface. It probably belongs to a group of personal items used by residents of the fort.

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⁷³ Rodziewicz 2005, 32–33.

⁷⁴ Prell 2011, 69, fig. 11, 2–4.

⁷⁵ Peacock 2001, 395, fig. 13.2, 30; Gaitzsch 1980, 27–28; Vermeeren 1998, 338, fig. 16.5.

⁷⁶ Mons Claudianus: Peacock 2001, 393, fig. 13.2, 39–40; Porphyrites: Peacock 2007, 277; Didymoi: Brun 2011, 137, fig. 199, 3; Myos Hormos: Matelly 2003, 603, fig. 269, 33.

Numismatic Evidence

Five copper alloy coins were unearthed at the site of Ghozza in 2020. Four of them were Ptolemaic coins from the 3rd c. BC associated with the earlier phase of occupation at the site and found in the mining village to the southeast. The only coin found in the Roman fort was a bronze coin of Vespasian found in Room 108 (SU 108.09, see above).

Figure 31. Copper-alloy coin of Vespasian (©G. Pollin, IFAO/MAFDO)

Obverse: laureate head of Vespasian right, AYTOK [KAI Σ Σ EBA OYE Σ Π A Σ IANOY].

Reverse: Canopus jar facing left, LI.

Obol; 18 mm; 4.04 g.

The year 10, visible on the left side on the reverse of the coin gives the date of minting: 10th year of the reign of Vespasian, AD 77/8. The coin would not be in itself a remarkable find, but its location in the fortress, and the fact that this type seems to be unique, provides fuel for discussion, as does its implications for the fort's date of establishment and usage.

The coin is worn but its designs are clearly visible. On the obverse, the laureate head of Vespasian is easy to distinguish as is much of the first part of the legend, AYTOK, on the left side of the coin. This leaves little doubt as to the identification of the Emperor. The legend is certainly AYTOK KAIΣ ΣΕΒΑ ΟΥΕΣΠΑΣΙΑΝΟΥ, even if the letters after AYTOK are not decipherable. The legend could also be AYTOK ΚΑΙΣΑΡΟΣ ΟΥΕΣΠΑΣΙΑΝΟΥ, but we prefer the first option as it is the legend used in all the coins of Vespasian depicting a Canopus on the reverse.

The design of the reverse is also common: a Canopus jar. What is less common is the fact that the jar is facing left, a clearly unusual orientation since only few other specimens (a small coin of 12mm struck in the 11th year of Hadrian, a diobol of Antoninus Pius and other coins showing Faustina on the obverse) are also facing left, on about a hundred issues. Adding to this,

the coin is showing what must be the year 10 on the left field. Only the I is visible but the possibility that it could be a mark of value rather than a date is slim.⁷⁷ To our knowledge, there is only one other coin struck in Alexandria in the 10th year of Vespasian.⁷⁸

As mentioned above, a series of fortresses in the Eastern Desert were built under Vespasian in year 76/7.⁷⁹ It is likely that large batches of coins reached the Eastern Desert with soldiers at that precise moment and continued to circulate for some time.⁸⁰ Even if diobols (of about 24mm) are the most common coins found in the fortresses, the obol (the denomination of our coin) is also well represented in these contexts. Because this is the single specimen found in the *praesidium* of Ghozza, this coin cannot elucidate the broader monetary economy of the site, but it does suggest that it was—if not actually founded under Vespasian—potentially part of the Flavian reorganization and exploitation of Eastern Desert infrastructure. Taken with the dates offered by the ostraca discussed below, a Flavian foundation and occupation seem likely, and this conforms to the observations offered by the ostraca, pottery, and other small finds.

Dates and place names in the ostraca

Because its outer midden has been washed away by floods, the *praesidium* at Ghozza yielded only forty-six ostraca.⁸¹ We present here the two which carry a date, as well as most of

⁷⁷ We would like to thank Andrew Burnett for putting forward this possibility. A. Burnett is "reluctant to create new types from semi-illegible specimens" (personal communication) which we totally understand but, in this occasion, the details seem to advocate for a new type.

⁷⁸ A copper-alloy coin 29mm large and weighing 14.24g, which was not known to the editors of *RPC* II. It was added to the *RPC* online version, number 2461A: https://rpc.ashmus.ox.ac.uk/coins/2/2461A.

⁷⁹ Cuvigny 2003, 197–98.

⁸⁰ The coins of Claudius are the most commonly found in the Eastern Desert fortresses even though the occupation levels where they are often recovered date to a few decades later (Cuvigny, Lach-Urgacz 2020). This single coin should not be taken as definitive evidence of a foundation under Vespasian but it does not preclude that possibility. it simply provides a *terminus post quem*.

⁸¹ Images of each of the ostraca discussed in the text but not illustrated (Ostraca nos. 1, 4-9) can be found in the Online Supplementary Material as Figs. 35-41

those which mention place names, first that of the *praesidium* itself, Berkou. The two dated ostraca are from the month of Thoth of years 10 and 11 of Domitian (AD 90 and 91). This is during the term of office of the prefect of Egypt Mettius Rufus (AD 88–92), who was very active in the Eastern Desert; he had the Koptos Tariff engraved (*OGIS* 674 = *I.Portes* 67), ordered the building of a new cistern at Didymoi (*I.Did.* 2) and was probably instrumental in the opening of the *metallon* at Umm Balad, founded under Domitian since the name of the prefect has been erased in the fragmentary dedication of the *praesidium* there.⁸² Mettius Rufus is the only *praefectus Aegypti* who is securely known to have been subjected to *damnatio memoriae*.

Umm Balad is situated c. 36 km from Berkou as the crow flies (Fig. 3). It was excavated in 2002 and 2003 by the MAFDO but, although the *praesidium* yielded c. 1300 ostraca (=O.KaLa.), there is still some hesitation about its name, since it seems to be called Domitiane and Kaine Latomia at any period without distinction.⁸³ For that reason, we refer to it here as Umm Balad.

The name Berkou, which is reminiscent of the village-name Βερκυ in the Oxyrhynchite nome, is presumably Egyptian, but too short to attempt a guess at its etymology. Here is some chance that it was already the name of the Ptolemaic village, the name of which has not yet appeared in the Ptolemaic ostraca from Ghozza. Berkou is not part of the recurrent placenames in the corpus of Umm Balad: it occurs only in O.KaLa. inv. 847 (see Ostraca 10). Conversely, there is no mention of Domitiane or Kaine Latomia in the O.Berkou. But the ostraca of both sites mention regularly another placename, Sabelbi. Sabelbi is, along with Prasou, the most

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⁸² This inscription will be published by H. Cuvigny in J.-P. Brun (ed.) et al., *Domitianè–Kainè Latomia (Umm Balad)*. *Le* praesidium *et les carrières* (forthcoming).

⁸³ Cuvigny 2018, § 33.

⁸⁴ H. Verreth, *per litt*.

⁸⁵ On Sabelbi, see Cuvigny 2018, § 167.

frequently attested toponym in the O.KaLa. (apart, of course, from Domitiane and Kaine Latomia).

We conclude then that they must be the names of the two neighboring stations, Qattar and Badiya, but the O.KaLa. did not contain conclusive evidence which could help relate the two names to one or the other site. Badiya was excavated in 1996–1998 by the British team directed by David Peacock and Valerie Maxfield, but yielded few ostraca. Qattar has never been excavated. Now, the relatively frequent mentions of Sabelbi in the smallish corpus of Berkou, which contains, on the other hand, no mention of Prasou, invites us to identify Sabelbi with Qattar, and Prasou with Badiya. There is a route between Berkou and Qattar, which passes the well of Bi'r Umm Disi and the small Roman *metallon* of Umm Shejilat. Was this track part of the original road to Porphyrites, and did the *praesidium* of Dayr al-Atrash, which is on the direct route from Kaine (Qena) to Porphyrites, replace Berkou? The O.KaLa. suggests that Dayr al-Atrash should be identified with the place-name Melan Oros, but nothing is certain unless we find there amphoric *tituli* with the name of the site. The first season of excavations at Dayr al-Atrash, in January 2020, yielded only two *tituli* with shipping addresses, but these are Porphyrites and Berkou (O.Atrash inv. 24).

1-2. Dated ostraca

Two dated ostraca were found in the *praesidium*. Although they were written at an interval of one year, they come from the same stratigraphic unit. Hands are different.

⁸⁶ This was already the hypothesis of A. Bülow-Jacobsen, based on the mention of a descent of the road at Sabelbi in an ostracon from Umm Balad (Cuvigny 2018, § 167).

⁸⁷ For Bi'r Umm Disi see Cuvigny 2018, § 170. For Umm Shejilat see Cuvigny 2018, § 34 and 170; Harrell and Brown 2002.

⁸⁸ Cuvigny 2018, § 160.

1 (fig. 39)	inv. 54	AD 90, September 14 (12 Greg.)
GHO 113.03	9.3 x 11.5 cm	Nile silt

Lower part of a faded ostracon. Since there is no *formula valedicendi*, but a date, it was either an order of delivery or a receipt.

↓ εἰς λόγον καμή[λων
 ὑδροφορούντων [ἐν Σαβελ-]
 βει. (ἔτους) ι Δομ[ι]τιανοῦ
 4 μηνὶ Θωθ ιζ.

3 L

- "... on account of (n^2) camels of the water-carrying service in Sabelbi. 10^{th} year of Domitian, month of Thoth, 17."
- καμή[λων: presumably followed by a number. Or καμη[λιτῶν, since the subject of ὑδροφορεῖν can also be a person, as in O.Claud. inv. 1759, 5-6: κόμισ{σ}αι παρὰ Πετησίου τοῦ δεκανοῦ τοῦ μέλ[λ]οντος ἐν τῷ
 Κλαυδιανῷ ὑδροφορεῖν, "receive from Petesios, the dekanos who will do water-transport in Claudianus, ..."
- 2-3. [ἐν Σαβελ-]|βει. For the restitution of ἐν (instead of εἰς), cf. previous note as well as O.KaLa. inv. 803, 5 : ἐν Μέλανι "Όρει ὑδροφοροῦσι (the subject of the verb is missing) and further, lines 8-9: καμή[λους 1-2²]| ἀφήκαμεν ἐν Σαβελβι ὑδροφορεῖν, "we have left *n* camels in Sabelbi for them to carry water" or rather "we have left *n* camels to carry water in Sabelbi." "Carrying water in Mons Claudianus" is easily understandable, since the *metallon* was a large district inside which camels would shuttle between the wells and various sites, but how should we interpret "carrying water in Melan Oros, in Sabelbi", when these sites are only *praesidia*? Does it mean that these camels were administratively attached to Melan Oros and to Sabelbi, the water from

which they carried to neighboring sites?

Figure 32. Ostracon 2 (© A. Bülow-Jacobsen/MAFDO) OSM (40)

Right part of a receipt issued by the guard of the granary at Berkou to a camel driver for 80 artabas of an unspecified grain.

↓]ς θησαυροφύλαξ

] Ποσιδωνίου καμη(λίτη) χα(ίρειν).

[ἔλαβον²] εἰς Βερκου ἀπὸ καμη

4 ἀ]ρτάβας ἑβδομήκον
[τα πέντ] ε καὶ οὐηξιλλαρίου

[ἀρτάβας² π]έντε, (γίνονται) (ἀρτάβαι) π. (ἔτους) ια

[Δομιτιαν]οῦ τοῦ κυρίου, Θωθ κβ.

 $2 \kappa \alpha \mu^{\eta} \bar{\chi} = 6 / - L$

"[NN], guard of the granary, [to NN] son of Posidonios, camel driver, greetings. [I have received] in Berkou, from Kames?, seventy five artabas, and, (from?) the *vexillarius*, five [artabas?], total 80 (artabas). 11th year of Domitian our lord, Thoth 22."

1. θησαυροφύλαξ. Not a frequent trade-name in the Eastern Desert, where it occurs only in its northern part.

Only three secure occurrences in Trajanic ostraca from Claudianus: O.Claud. inv. 555 (note of the *thesaurophylax* of Raïma), inv. 1538, 9 (Cuvigny 2005: *thesaurophylax* of barley), inv. 7896 (receipt by a *thesaurophylax* of loads of chaff). And two occurrences in letters from Umm Balad (O.KaLa. inv. 624 and 772 [Domitian or Trajan]).

- 3. [παρέλαβον] may be too long (cf. restitution at line 5).
 ἀπὸ καμη. One expects here παρὰ σοῦ (rather than ἀπὸ σοῦ), as in other receipts from Claudianus or Umm
 Balad issued to camel drivers. Restoring καμή(λων) or καμη(λιτοῦ) does not lead to any usual formula.
 Perhaps ἀπὸ καμή-|[λων number], but the number of pack-animals is never given in receipts from the Eastern
 Desert (camels are reckoned only in accounts of hydrophoria from Claudianus and Umm Balad). Or ἀπὸ
 καμη-|[λίτου], which would be redundant. Or ἀπὸ Καμῆ, "from Kames"? In that case, the camel driver would
 have brought grain sent by two different persons, Kames and the vexillarius (comm. ad 5). But the name
 Καμῆς is not attested in the Eastern Desert, and the genitive Καμῆ is late.
- 4. In the lacuna at the beginning of the line, one expects the nature of the grain.
- οὐηξιλλαρίου. This rank is seldom attested in the Eastern Desert, see O.Did., 16–17. In O.Did. 346 (AD 77–92) as well as in SB XXVIII 17089 (Maximianon, AD 76–125), they are defined as "the vexillarius of such praesidium." The word seems to be on the same level as ἀπὸ καμη. It should refer to grain sent by the vexillarius or meant for the vexillarius.

3–8. Berkou

Figure 33. Ostracon 3 (© A. Bülow-Jacobsen/MAFDO) OSM (41)

3 (fig. 41)	inv. 1	Domitian
GHO 117.02	16 x 12.5 cm	Nile silt

Titulus on the shoulder of an AE3 with the shipping address. Stylized hand which foreshadows Roman chancery writing (cf. especially the two omicrons, the first high and narrow, the second one very small).

"Doles, horseman. To Berkou."

Δόλης. With one exception, all the occurrences of this Thracian name in Egypt are found in the *praesidia* of the Eastern Desert (*OnomThrac*, 159). With a shipping address, one would expect a dative. A few examples of the nominative are attested in such amphora *tituli* from the *praesidia*, especially in Umm Balad (O.Claud. inv. 7551, *O.Did.* 243, O.KaLa. inv. 9; 32; 281; 290; 965).

Titulus on the lower part of the neck of an AE3.

2 τυρ

"Berkou. Iulius [cognomen], of Serenus' squadron."

- The wide blank before Βερκου suggests that there was no preposition before the toponym, as in 5 and 6. It is not unparalleled in the *tituli* of the Eastern Desert. Instances from Umm Balad are O.KaLa. inv. 183, 192, 319, 327, 363, 401, 521, 622, 686, 962 (most concern amphorae belonging to the association of quarrymen, not to individuals).
- 2. Σερήν[ου] or, less probably, Σερην[α νῆς]. On the inversion of the name of the soldier and that of his squadron or century, see *O.Krok*. I 102, introduction.

Titulus on the lower part of the neck of an AE3.

Titulus on the shoulder of an AE3.

2. The two faded letters before $\lambda\epsilon$ may be an illusion. The owner's name may begin at $\Lambda\epsilon$ -.

Titulus on the shoulder of an AE3. The hand is coarse.

The shipping address has been inserted in the upper margin.

8].[

1 Ι. ἱππεῖ, εἰς

"To [praenomen?] Valerius, horseman, at Berkou.

[...]os to Valerius, his brother, many greetings. You will do well to send me quickly the four unguent containers and two ..."

5-6. μυροβροχία. This compound is attested only in private letters from the Eastern Desert, mainly in Umm Balad (O.KaLa. inv. 89, 238, 243). The simple βροχίον occurs once in Egypt, in *SB* X 10241, r°, 10 (Oxyrhynchos, *c*. AD 45): τὸ βροχίον τοῦ μέλανος, "the ink-pot." Apart from Umm Balad, there is an occurrence in Maximianon (O.Max. inv. 1160 [*c*. 150–175]).

6. θ υρ[or θ υμ[. Incense-burners?

9-10. Sabelbi

9 (fig. 47) inv. 29 Domitian

GHO 102.02 10 x 12.5 cm Nile silt

Faded and broken to the right. The missing part of the first lines may be long and the object of this letter remains obscure. The name of the sender is characteristic of imperial administrative personnel in the quarries. The addressee is a curator, presumably of Berkou.

→ 'Επαφρόδειτος [...ω... κουρά[τορι εἰ ἔχεις ἀλλαξιμ[

4 ἀσκοὺς πέμψον ἕνᾳ [
ἐπεὶ εἴρηκα Ἡούφῷ περὶ [

αὐτῷν ... ἀλλα[

οἱ ἀπὸ Σαβελβει καὶ α .[

8 ἀπὸ Βερκου ἐρωτῷ σε Ἰούλις σ .. εντα ... Ἰταλικὸν

ἀποστεῖλαι πρὸς αὑτόν.

ἔρρωσο.

4 α[[σ]]κους

- 3. ἀλλαξιμ[. Probably ἀλλάξιμος and not ἀλλαξιμάριον, which is not attested before the 5th or 6th c. ἀλλάξιμος qualifies a stater coin in O.Did. 319, 10–11 (the meaning is discussed in Cuvigny, Lach-Urgacz 2020, 327).
 Could it have the same meaning here as when it refers to clothes, "changes of raiment" (LSJ). If it refers to ἀσκούς (which is doubtful, because of the lacuna to the right), perhaps "spare water-skins."
- 7. oi ἀπὸ Σαβελβει . The letter after the *iota* may belong to the place-name which presents sometimes an extra final letter (Cuvigny 2018, §168). Does ἀπό mean that these persons have come from Sabelbi, or is it used as in the expression of the *origo*: then, it would be people who are posted at Sabelbi. The same strange phrase is found in O.KaLa. inv. 785 and 811, where it seems to refer to people in authority at Sabelbi: the author of both letters asks that a messenger tells "those at Sabelbi" that a horseman should be (or was) sent out to escort a camel.
- 9. One cannot say if the letters between Ἰού-|λις and Ἰταλικόν correspond to one or two words (in the latter case, the first word would be a cognomen, unless the pronoun σου).

Figure 34. Ostracon 10 (© A. Bülow-Jacobsen/MAFDO) OSM (48)

10 (fig. 48)	inv. 55	Domitian
GHO 107.03	7 x 7.2 cm	Nile silt

Left side of a letter written by Iulius, centurion. The missing part may be considerable, especially if, as we shall see, we are to surmise at line 1 the names of two addressees and their title. What is left indicates that the letter concerns Barbarians. The adverb ἀναγκαίως and the adjective ἀσφαλεῖς suggest that the affair is serious. The plurals ἀσφαλεῖς as well as ἵν' εἰδῆτε at line 3, suggest that there is more than one addressee. The first named may be Ignatius, known as curator of Sabelbi (comm. ad 1), while the second one would be the curator of Berkou. This text should be compared with O.KaLa. inv. 847 (c. 91–100), a fragmentary letter adressed by Iulius Rufus (title in lacuna) to Bassus curator [of Umm Balad?], informing him of some action of n Barbarians that took place [in] Berkou (is this Iulius Rufus the same as the centurion Rufus known at Umm Balad under Domitian or Trajan?). By contrast with the situation in the Desert of Berenike, Barbarians do not appear as a danger in the Porphyrites-Claudianus district before the reign of Antoninus.⁸⁹ Hand influenced by the Latin cursive.

`Ιούλιος (κεντυρίων) Ἰχ[νατίω?
ἀναγκαίω[ς
ἵν' εἰδῆτε • βαρβ[αρ-?

4 περὶ Σαβελβει[
ἀσφαλεῖς η . . [

43

 $^{^{89}}$ Cuvigny 2014, 169–170 and 173.

 $\bullet \widecheck{\kappa \gamma} \bullet$

 $1\widehat{\rho}$

- Iγ[. An Ignatius, curator of Sabelbi, is mentioned as the sender of several letters found in Umm Balad, always addressed to the centurion Iulius Proculus and stratigraphically dated to c. 91–100. The latter is unlikely to be the same persons as the sender here, since in the three letters authored by the centurion Iulius Proculus which were found in Umm Balad, his cognomen is never omitted.
- 2-3. ἀναγκαίω[ς. Because of ἵν' εἰδῆτε at line 3, this adverb relates probably not to an order ("by all means"), but to a verb meaning "to inform." Cf. the business letter *P.Col.* X 282, 9-11 (III-IV AD): ἀναγκαίως ἐπιστέλλω σοί, φίλτατε, ἵν' εἴδης καὶ πρόνοιαν τούτου ποιήσης.
- 5. η . [. ἦτε?
- 6. The date (the 23rd of an unknown month)? But the number is furnished with unusual signs. Perhaps the two dots aim only at highlighting (but the first one may be actually a slash).

Conclusion

The *praesidium* at Berkou dates to the early Roman period, when the porphyry quarries were first initiated,⁹⁰ but it was abandoned quickly, probably at the end of the 1st or early 2nd c.

AD, while the peak of porphyry exploitation was only reached later in the 2nd c AD. We thus may assume that the initial route from Qena in the Nile Valley to Porphyrites was opened in the

⁹⁰ The quarries are opened under Tiberius, and the intensity of the exploitation peaks during the Antonine period. See Peacock, Maxfield 2007, Chapter 1.

1st c. AD through the Wadi al-Ghozza, possibly as early as the late Julio-Claudian or early Flavian eras. It was eventually replaced by the Wadi Atrash "highway," where another fort, Dayr al-Atrash, discussed above, was built. Dayr al-Atrash already existed when Berkou was in use since an ostracon from its dump mentions Berkou. The two roads leading to Porphyrites coexisted for a period of time although the duration of this overlap is difficult to estimate, probably only a few years at most.

The camel road network reconstructed by the Desert Networks project that details the network of desert tracks suitable for camel traffic in antiquity confirms this hypothesis; ⁹³ the Wadi Ghozza was one of the routes reconstructed between the Nile Valley and the porphyry quarries that was accessible to camel caravans. After the fort of Ghozza, this track passed through the wadi of the same name, turned left into the Khirim Ijayd valley before reaching the fort of Qattar. Along the way the caravans passed the quarries of Umm Shegilat on their right – a little off road, 3.5 km to the east of the juncture of the Wadi al-Ghozza and the Khirim Ijayd – and the natural water source of Qalt Umm Disi located 1.8 km to the east of the road. ⁹⁴ In total, the itinerary from Bab al-Mukhayniq where the two roads separate to the main fort of the Porphyrites quarries is 60 km via Dayr al-Atrash, and 69 km via Ghozza. ⁹⁵

The first route probably passed via Ghozza because the site was long known to desert travelers due to its much older occupation history and water resources. The well that was

⁹¹ The fort, long known and visited by many scholars, was excavated in 2020 by MAFDO (Unpublished excavations of J. Le Bomin and J. Marchand).

⁹² The definitive date of the construction of the fort at Dayr al-Atrash remains unclear, although limited evidence suggests a foundation in the second half of the 1st c. CE. The earliest pottery thus documented at the site dates to this period (Marchand, personal communication).

⁹³ Manière, Crépy, Redon Forthcoming.

⁹⁴ Sidebotham, Hense, Nouweis 2008, 308.

⁹⁵ The reconstructed path goes through the Footpath station, although in antiquity, it is highly probable that the caravans preferred the longest path, through Umm Sidri. This is not the place to discuss the role of the Footpath station here.

eventually incorporated into the Roman infrastructure may still have been functioning. However, when this route proved too complicated to cross for the heavily loaded wagons carrying porphyry, and when it became clear that the Wadi al-Atrash was easier to cross and shorter, the alternative route took precedence. The new road, certainly inaugurated by the Roman administration by the 2nd c. AD and probably earlier, follows almost exactly the least cost path reconstructed by our model, highlighting the ability and expertise of Romans engineers to find the shortest routes to build their roads. It is possible in fact that the two fortresses—Dayr al-Atrash and Berkou—were briefly occupied simultaneously given the presence of the ostracon found at Dayr al-Atrash that mentions Berkou (see above).

At Berkou, the gradual abandonment of the fortress—perhaps as traffic shifted to Dayr al-Atrash—is abundantly clear, as suites of rooms including the possible *praetorium*, were repurposed as dumping spaces and a small number of occupants confined their activities to rooms adjacent to the cistern and the postern gate. These quarters were occupied until the final desertion of the structure, when the last occupants left behind their cooking vessels and drinking cups, along with personal items and tools. No pottery postdating the early Trajanic period has yet been recovered at the site even around the cistern or well, where available water might have attracted interest even after the cessation of the fort's role in the official Roman road network. This abrupt end suggests that the fort's raison d'être was entirely tied to the military networks guarding the Porphyrites road and that once this shift occurred, the *praesidium* was summarily abandoned.

Taken together, the materials recovered from the early Roman *praesidium* at Berkou anchor the fort's life in the Flavian era, and perhaps into the early Trajanic years, offering important new information about the evolving organization of the stone extraction industries of

the Eastern Desert and its associated infrastructure during the Principate. Its establishment on the ruins of a Ptolemaic settlement demonstrates that Roman planners were aware of older communities and resources and, when feasible, organized their planning to take advantage of this infrastructure. Even more interesting, the abandonment of the fort just as the extraction industries at nearby Porphyrites intensified suggests that Roman engineers were in a constant process of evaluating the efficiency of their transportation and security arrangements. This archaeological evidence offers an unparalleled window into the logistics of early Imperial military installations and their spatial organization in the Eastern Empire as well as the place of Berkou in the local network.

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Abbreviations

I.Did. = Greek and Latin inscriptions published in H. Cuvigny (ed.), Didymoi. Une garnisonromaine dans le désert Oriental d'Égypte II (Cairo 2012) 39–56.

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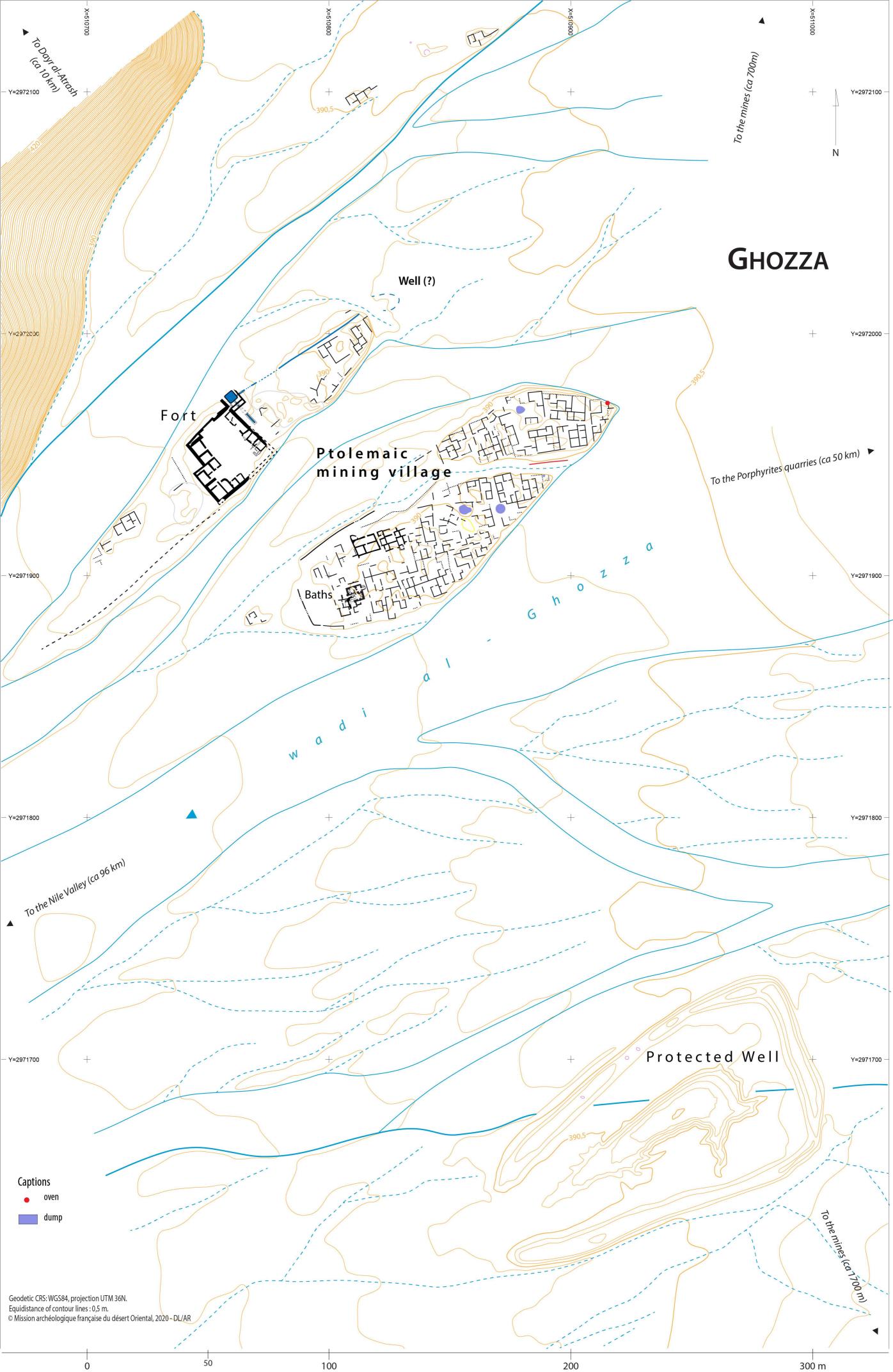
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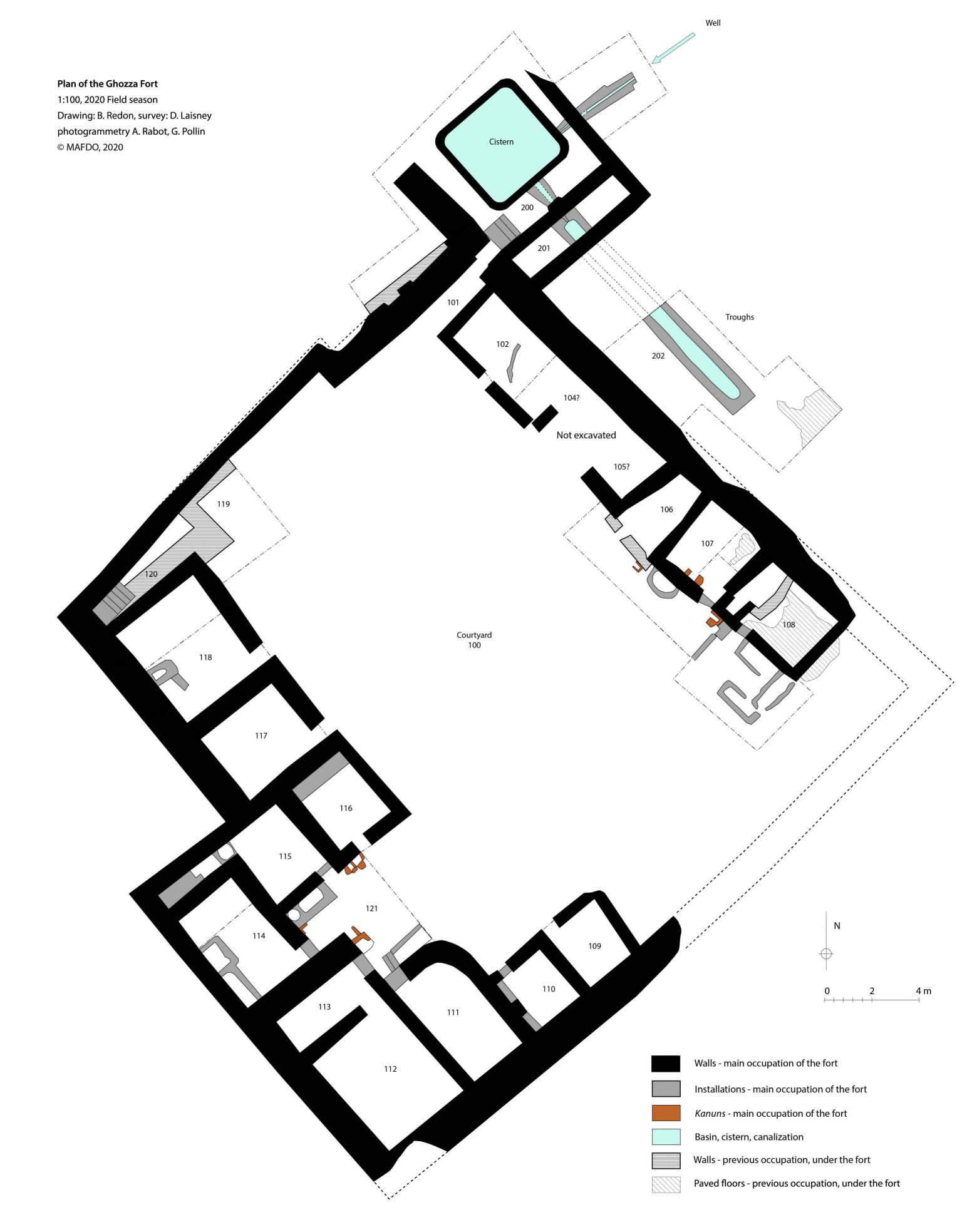
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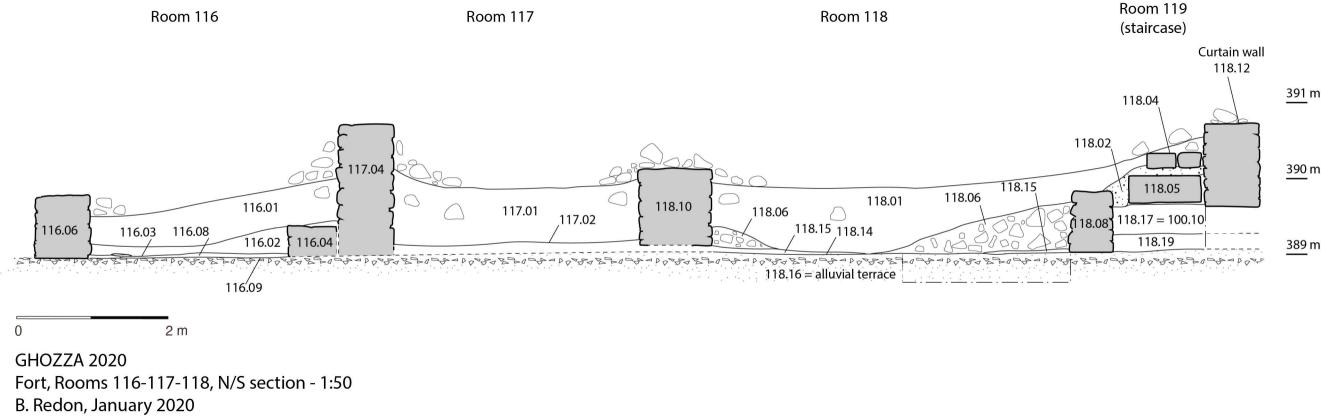












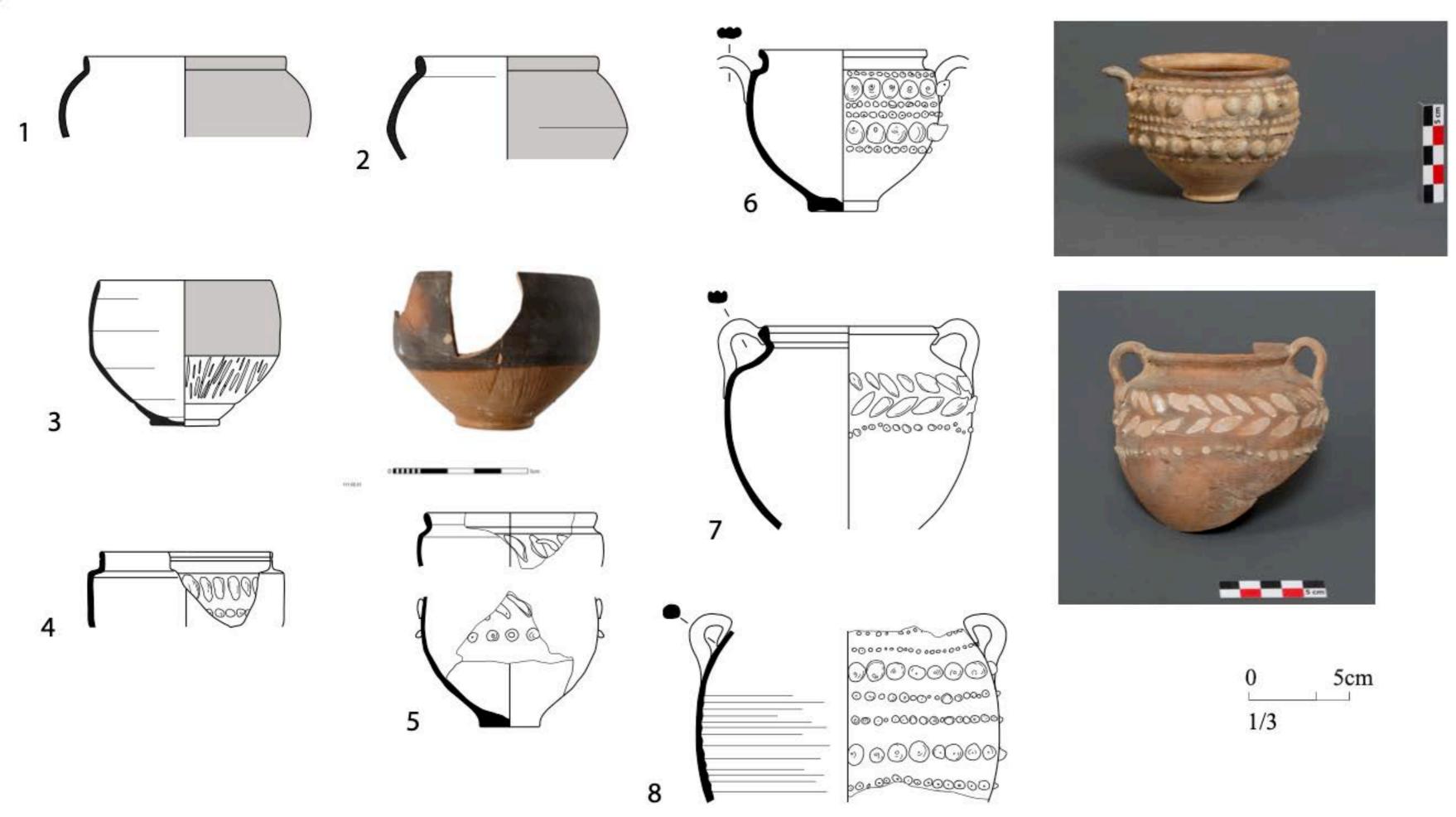


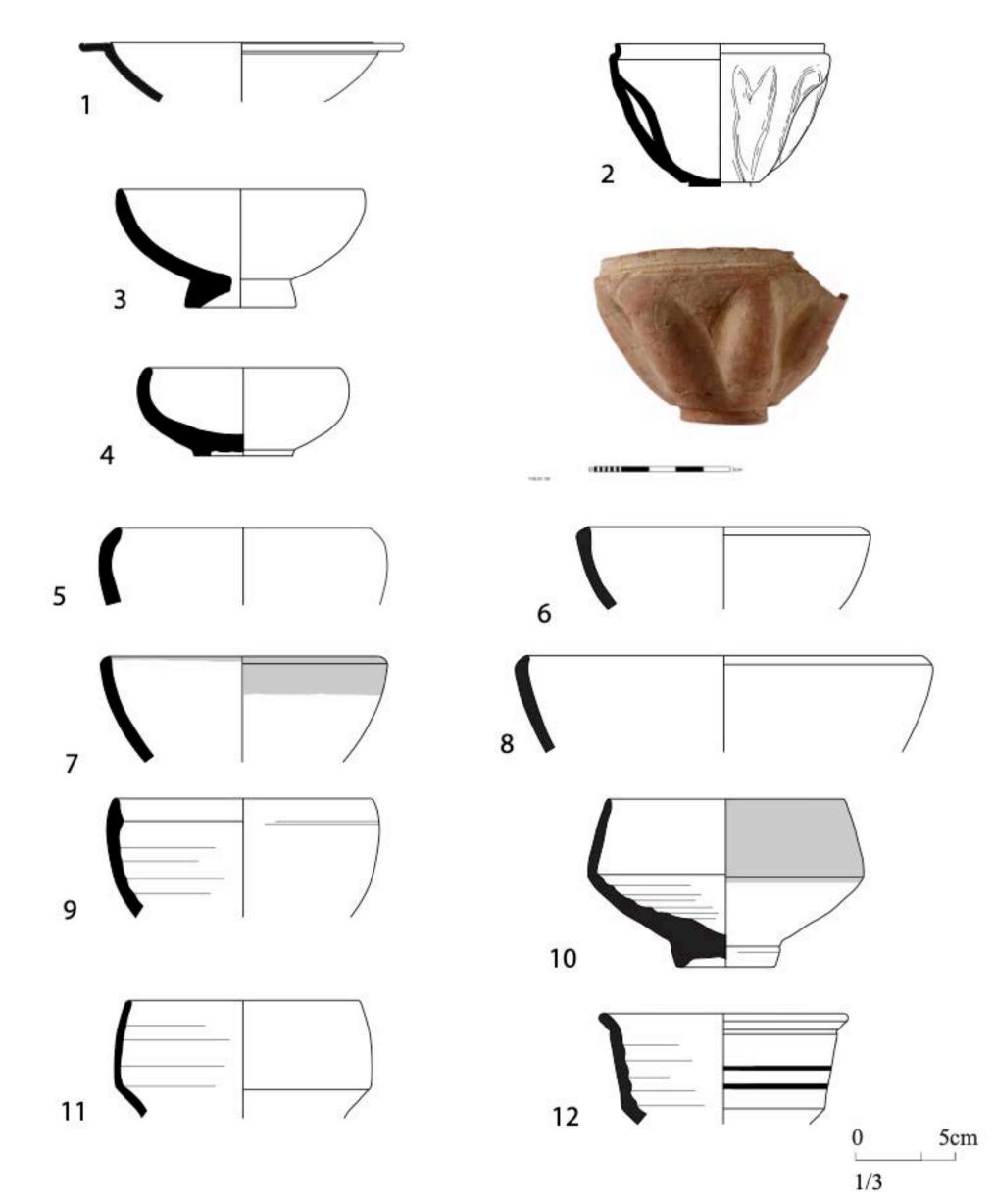


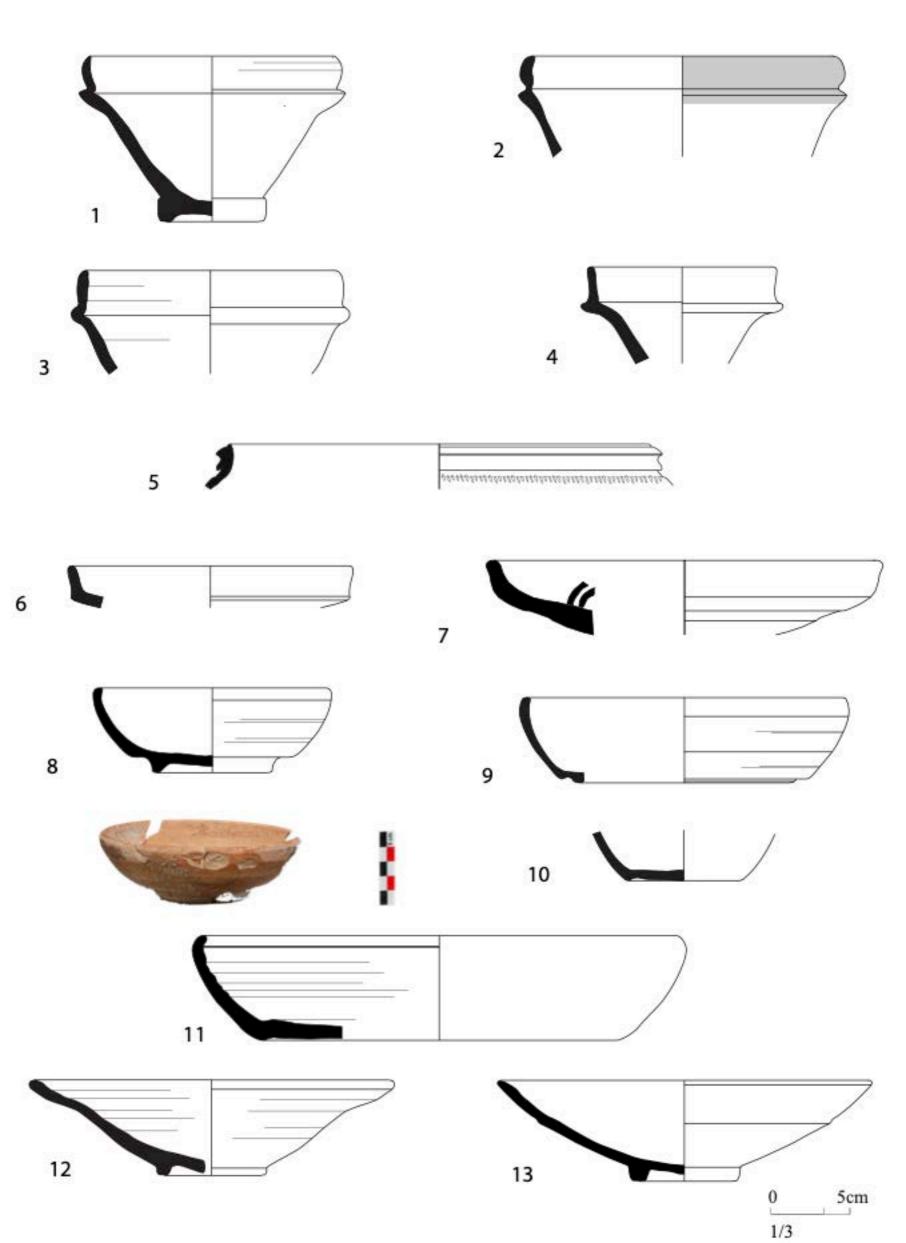


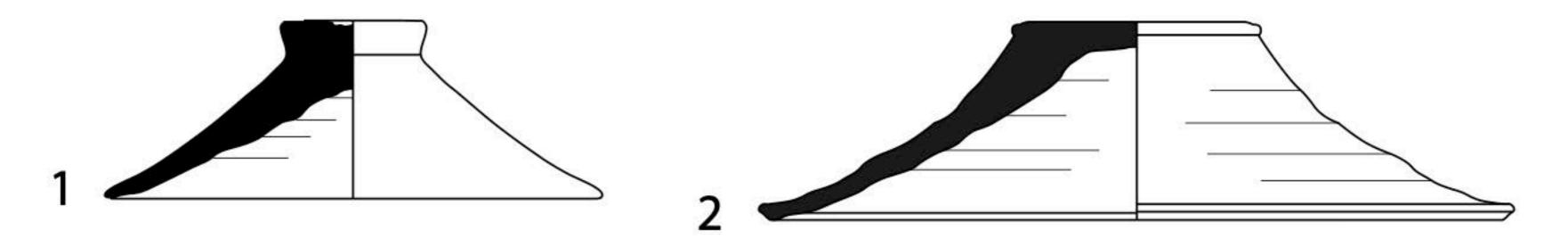


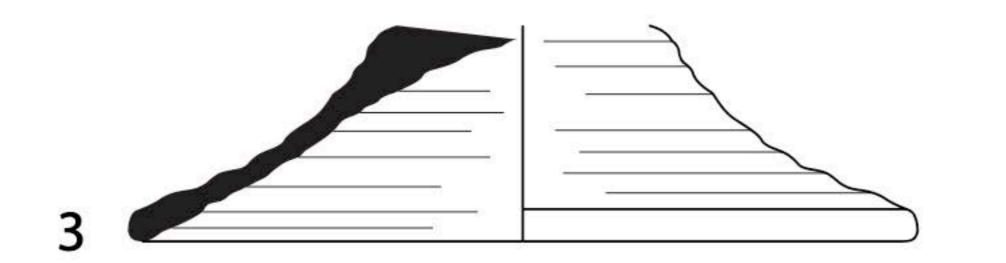


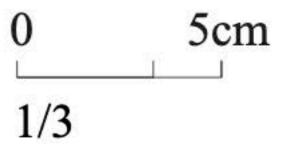


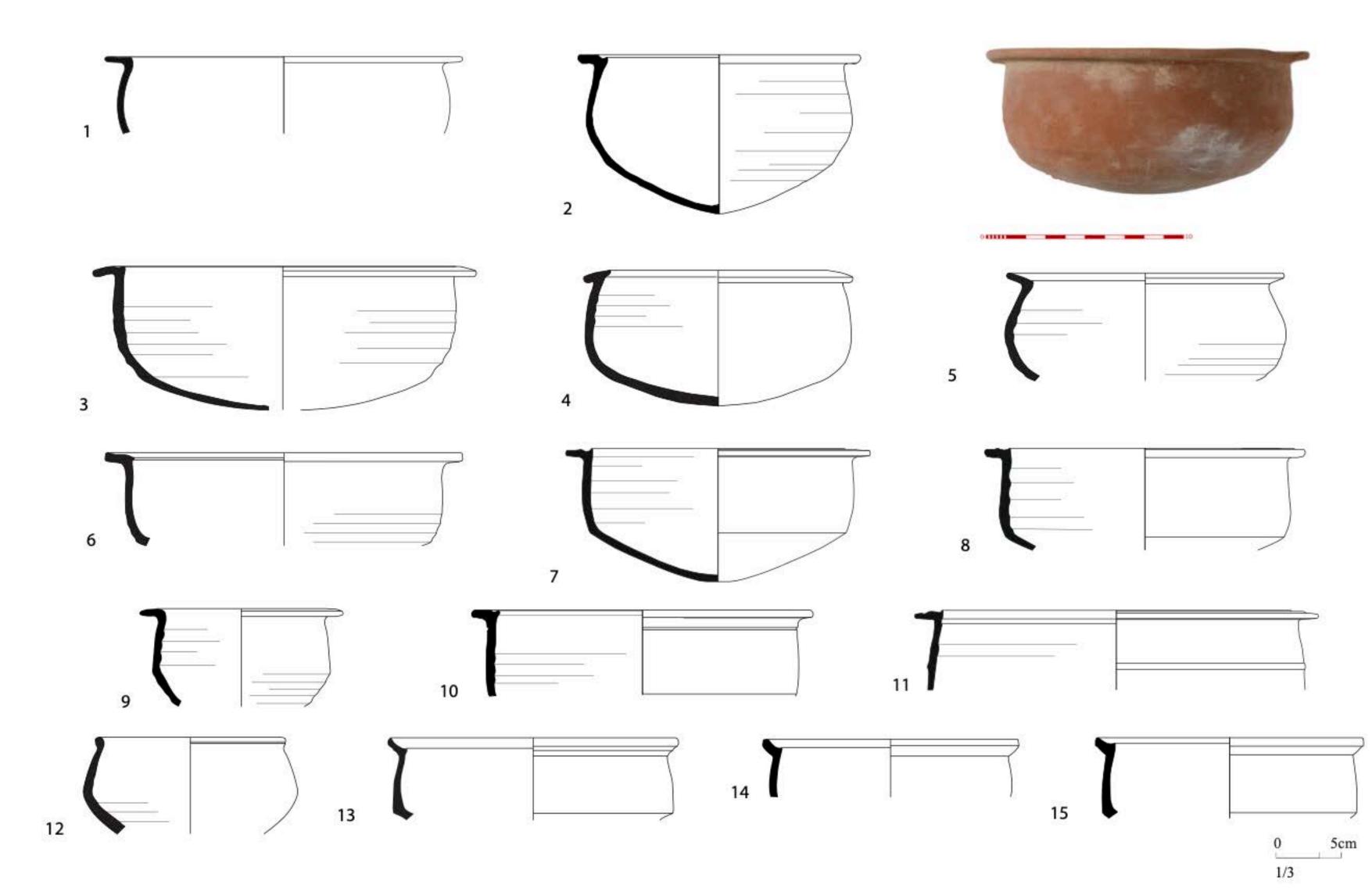


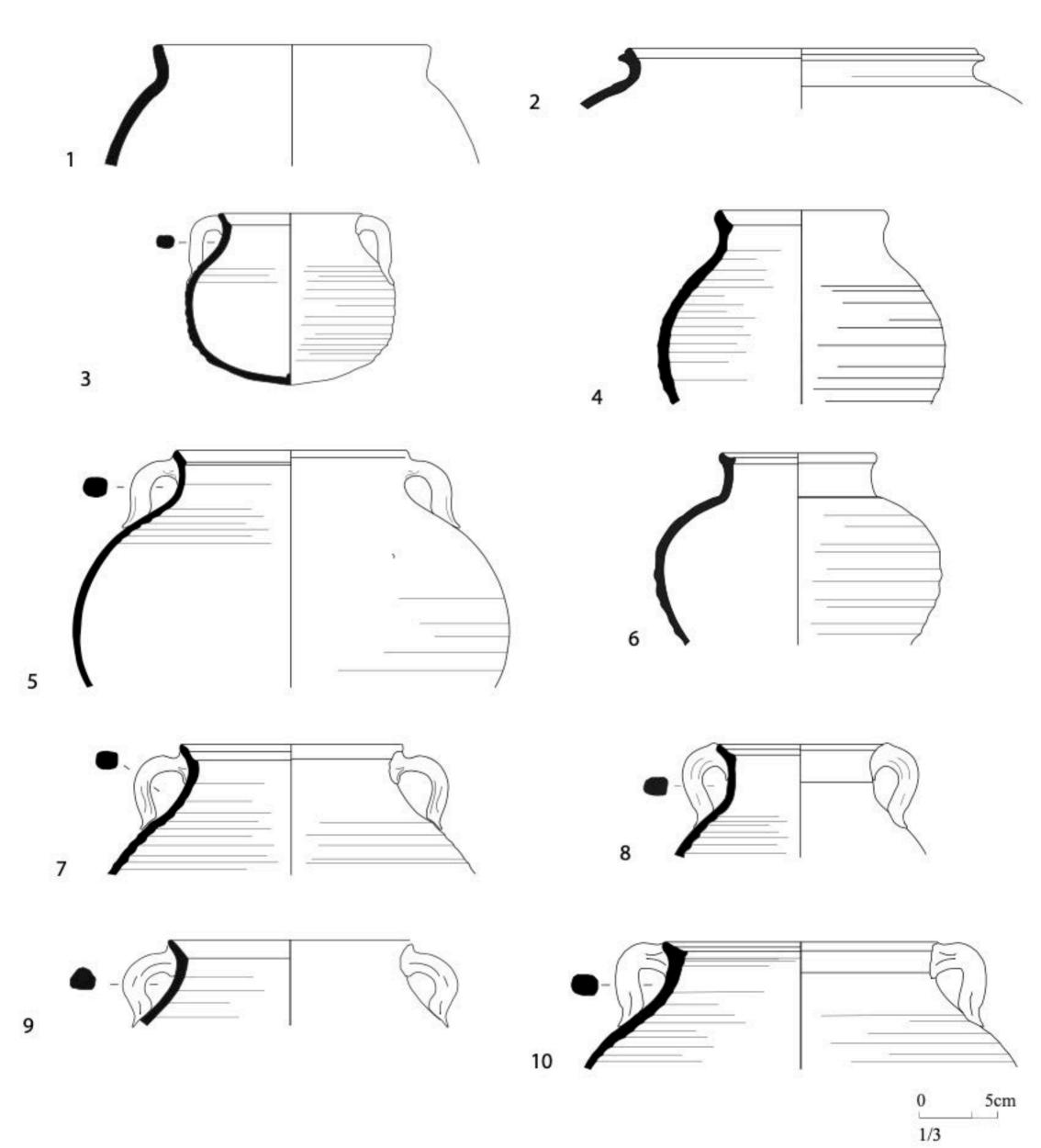


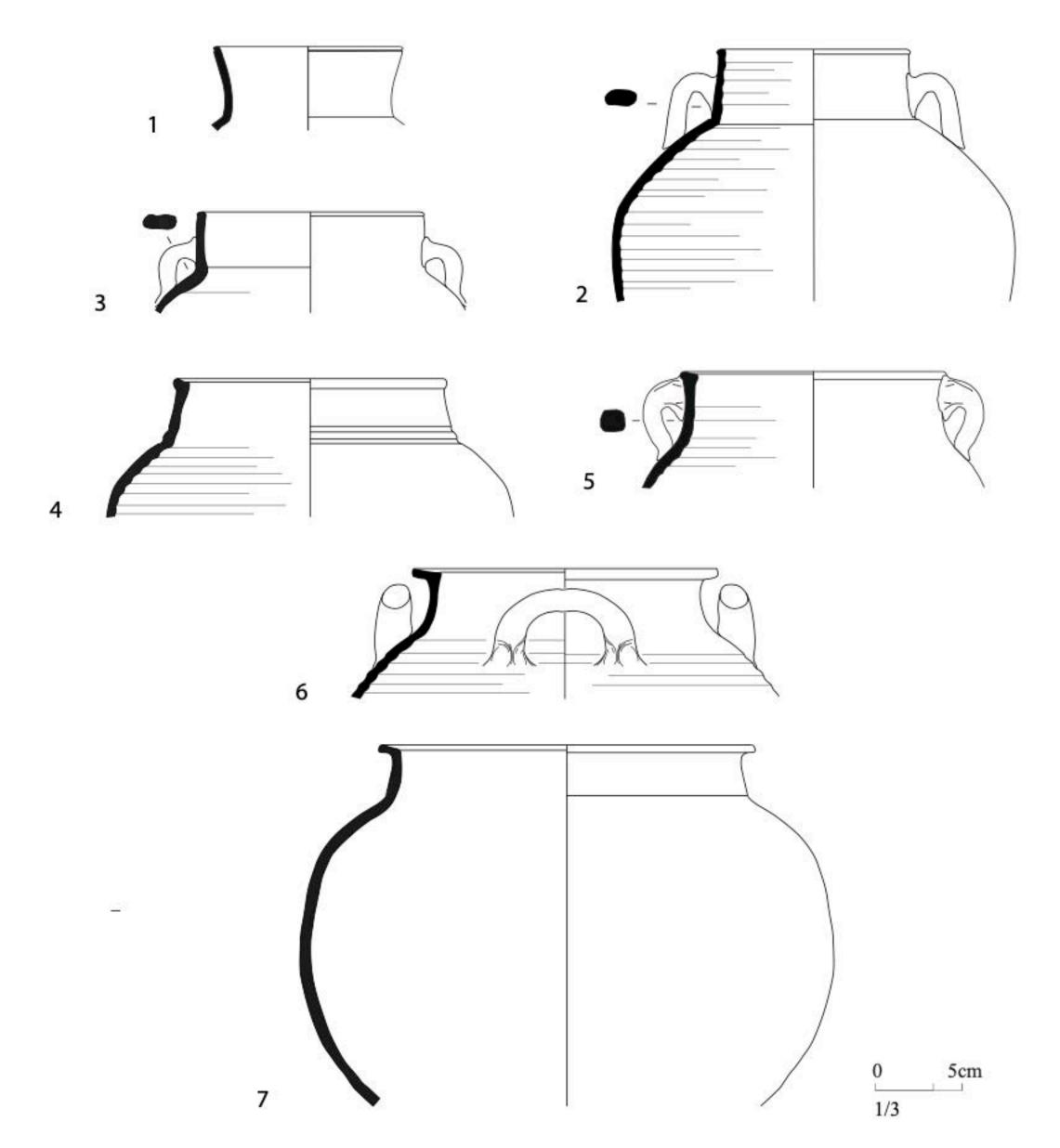


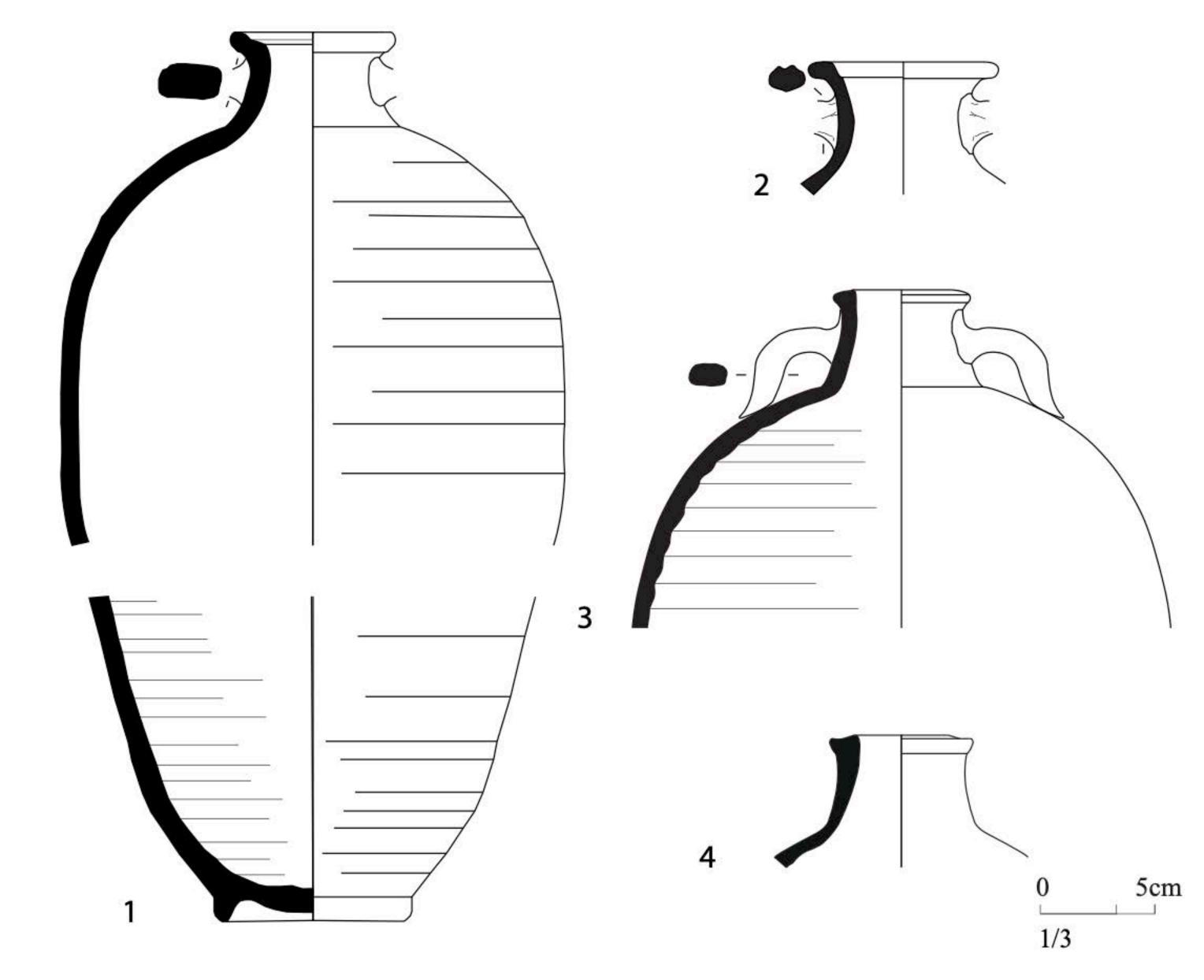


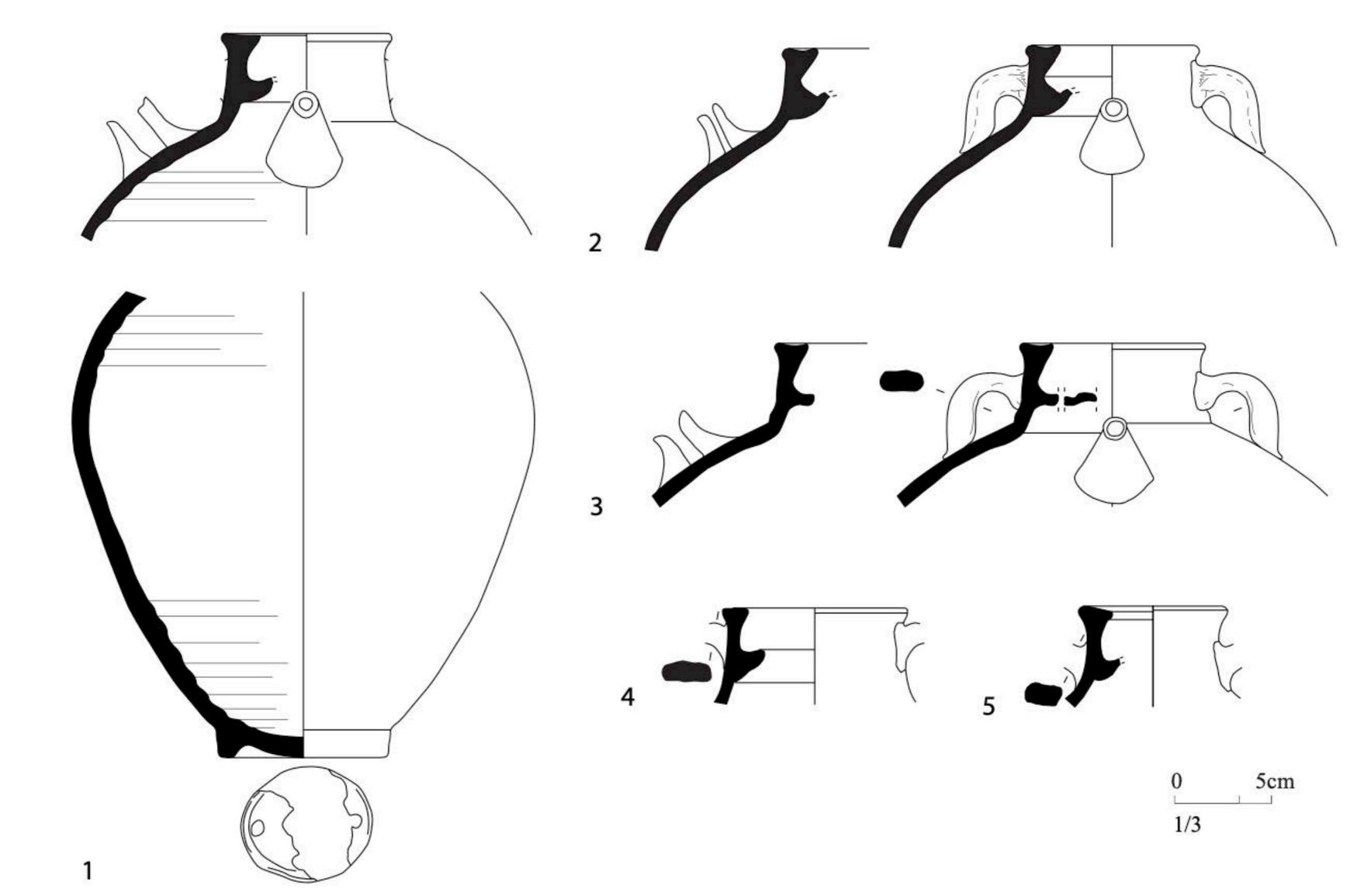


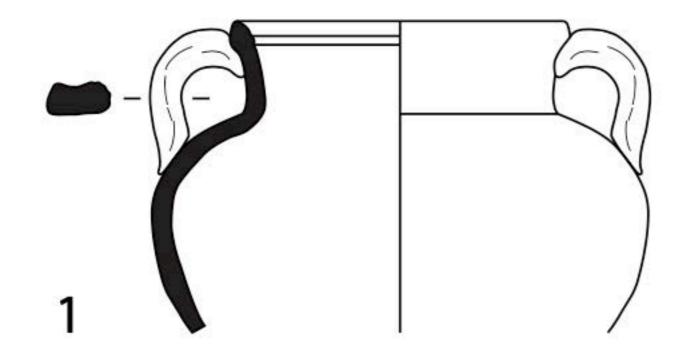


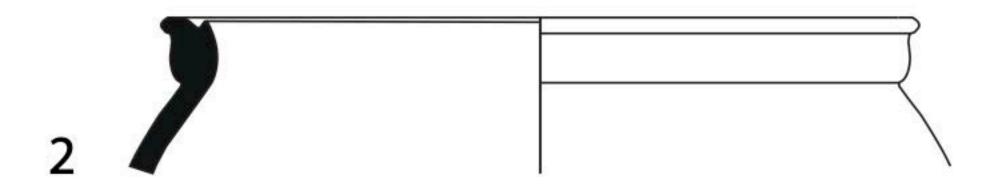


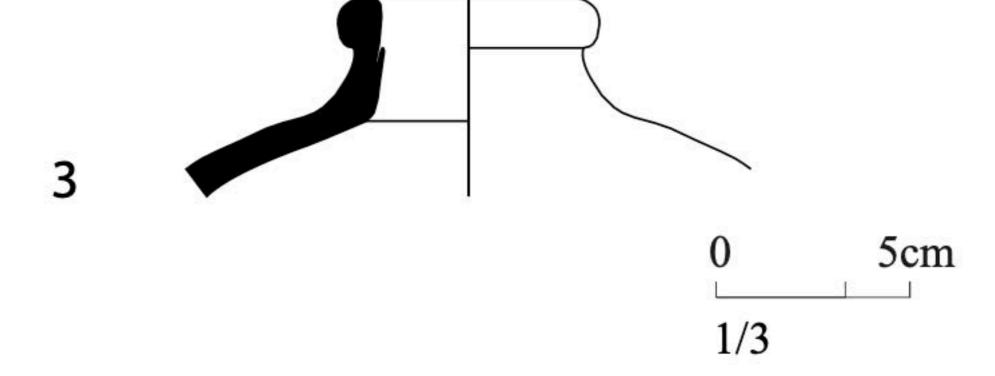


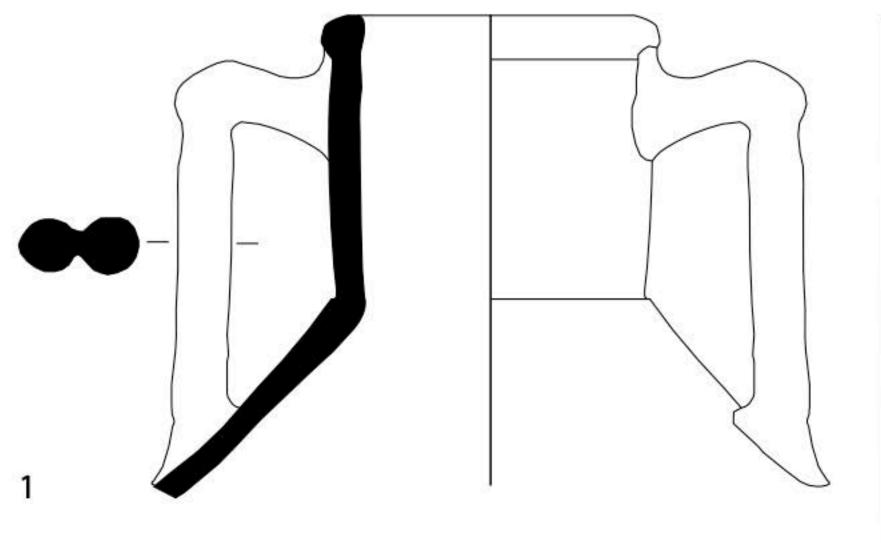




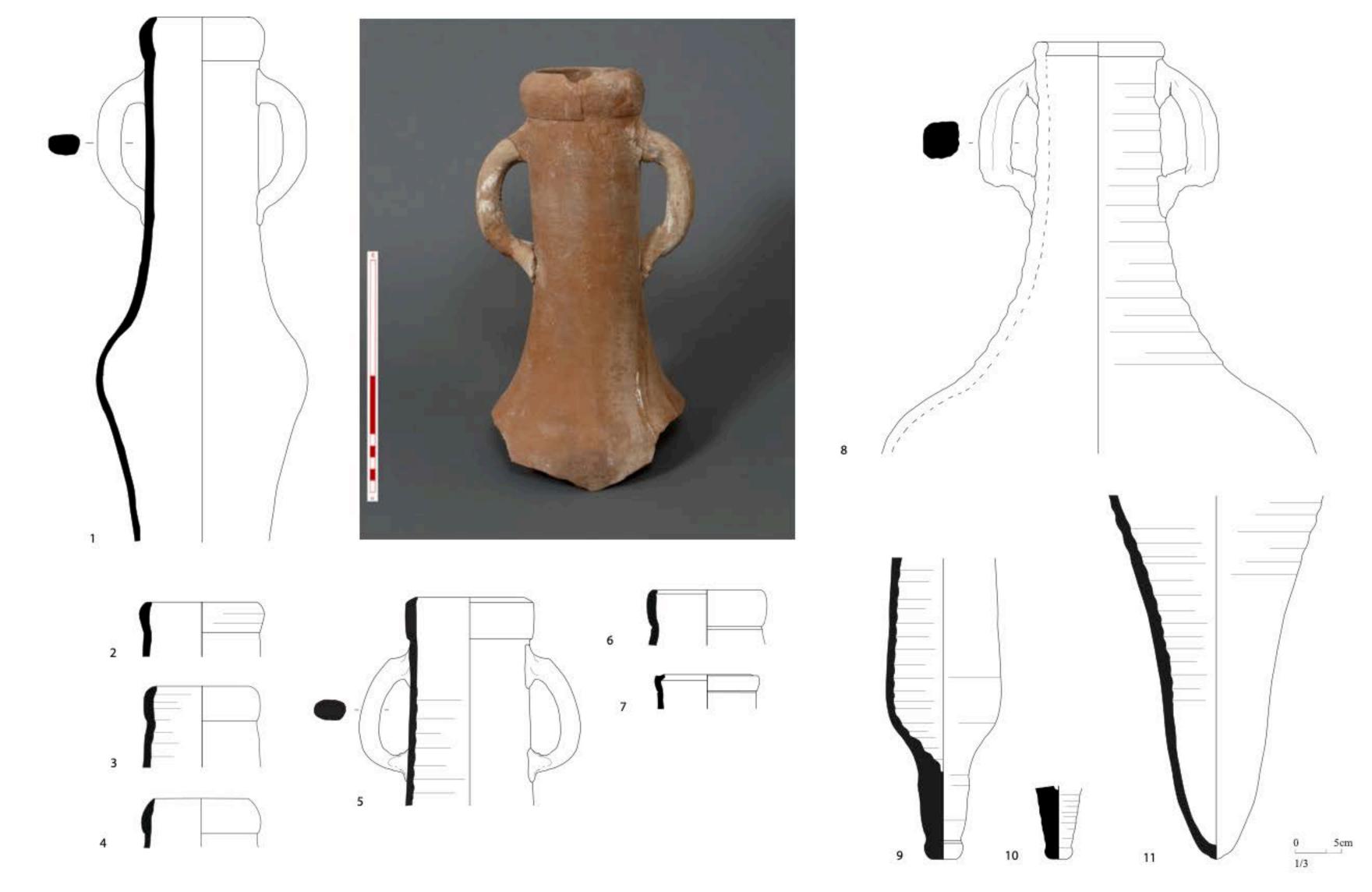


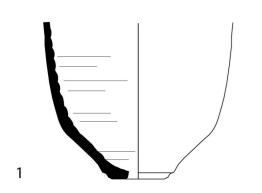






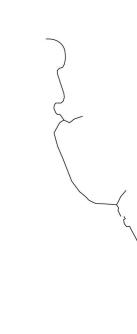


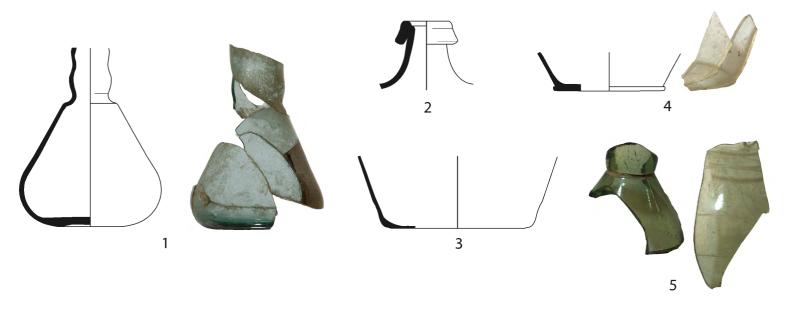




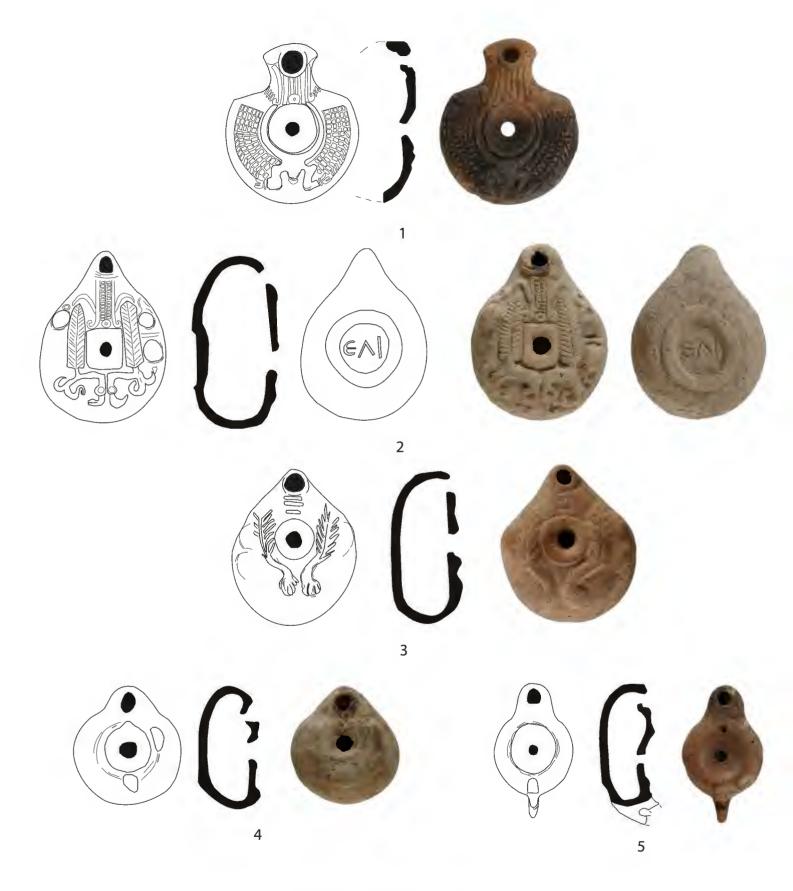


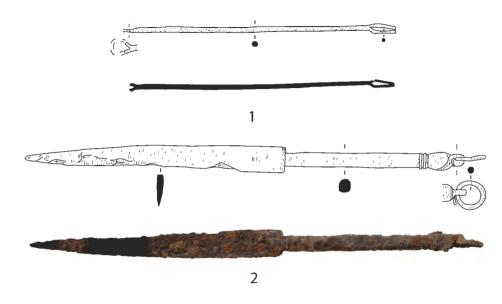
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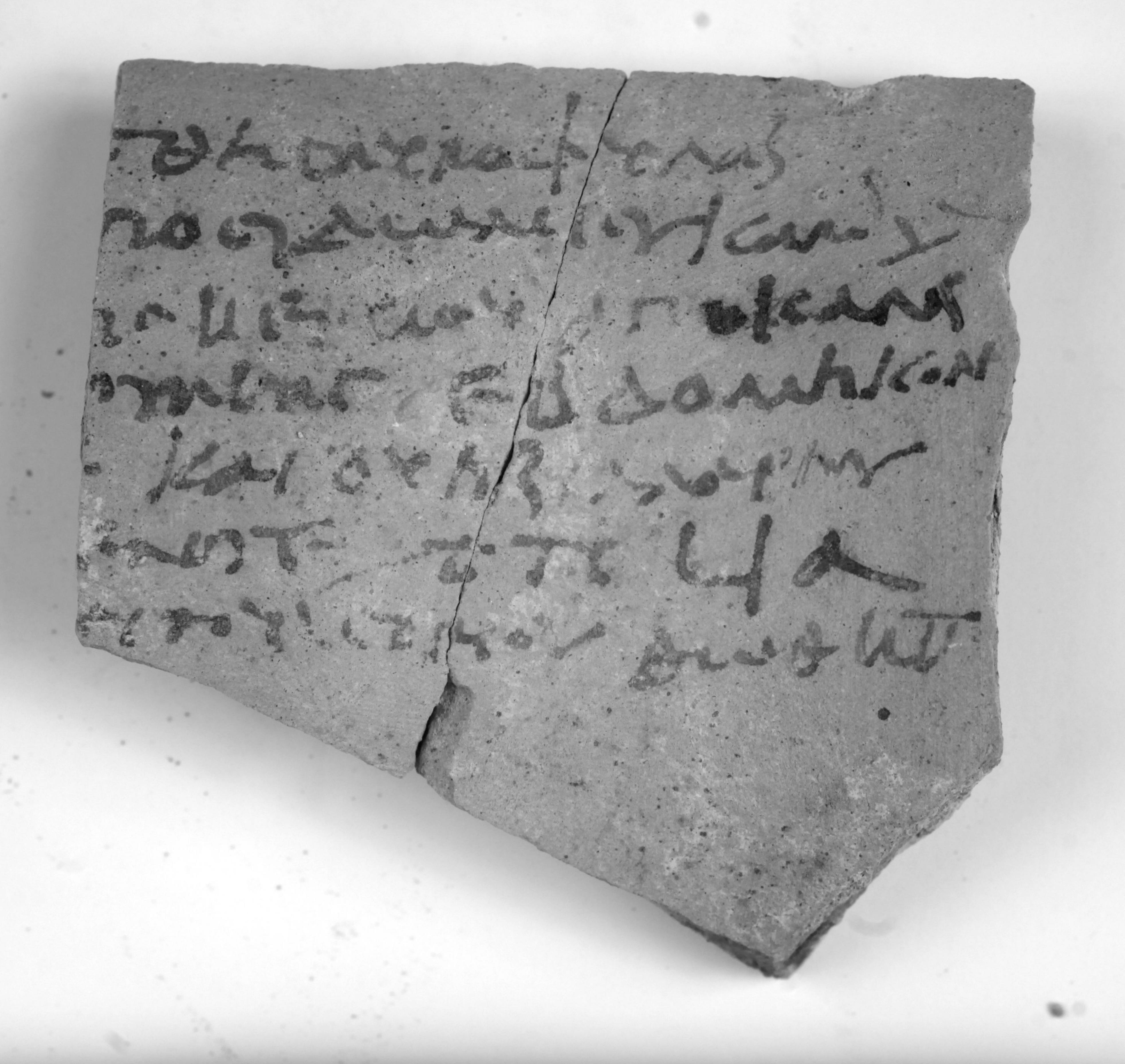
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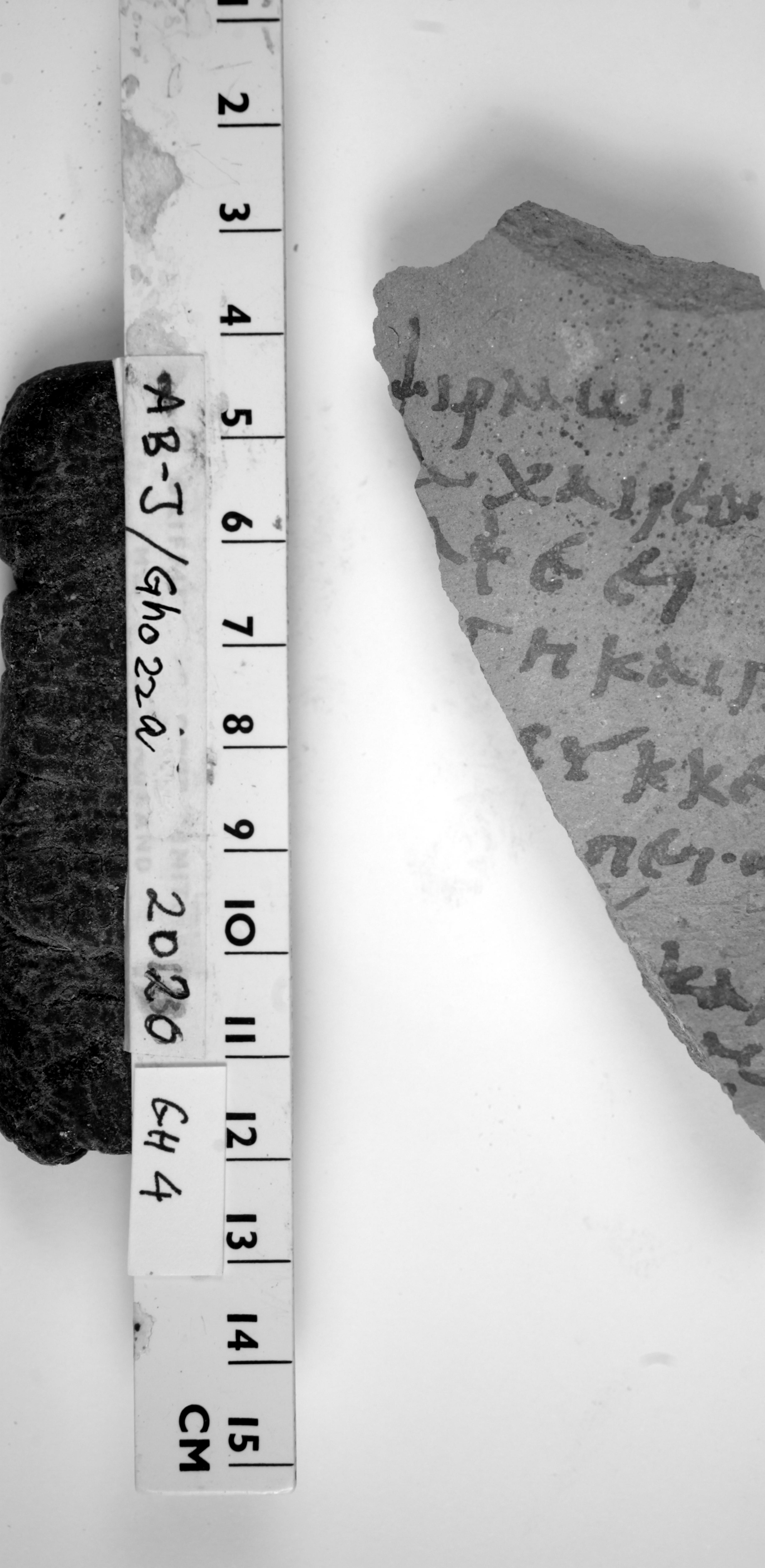


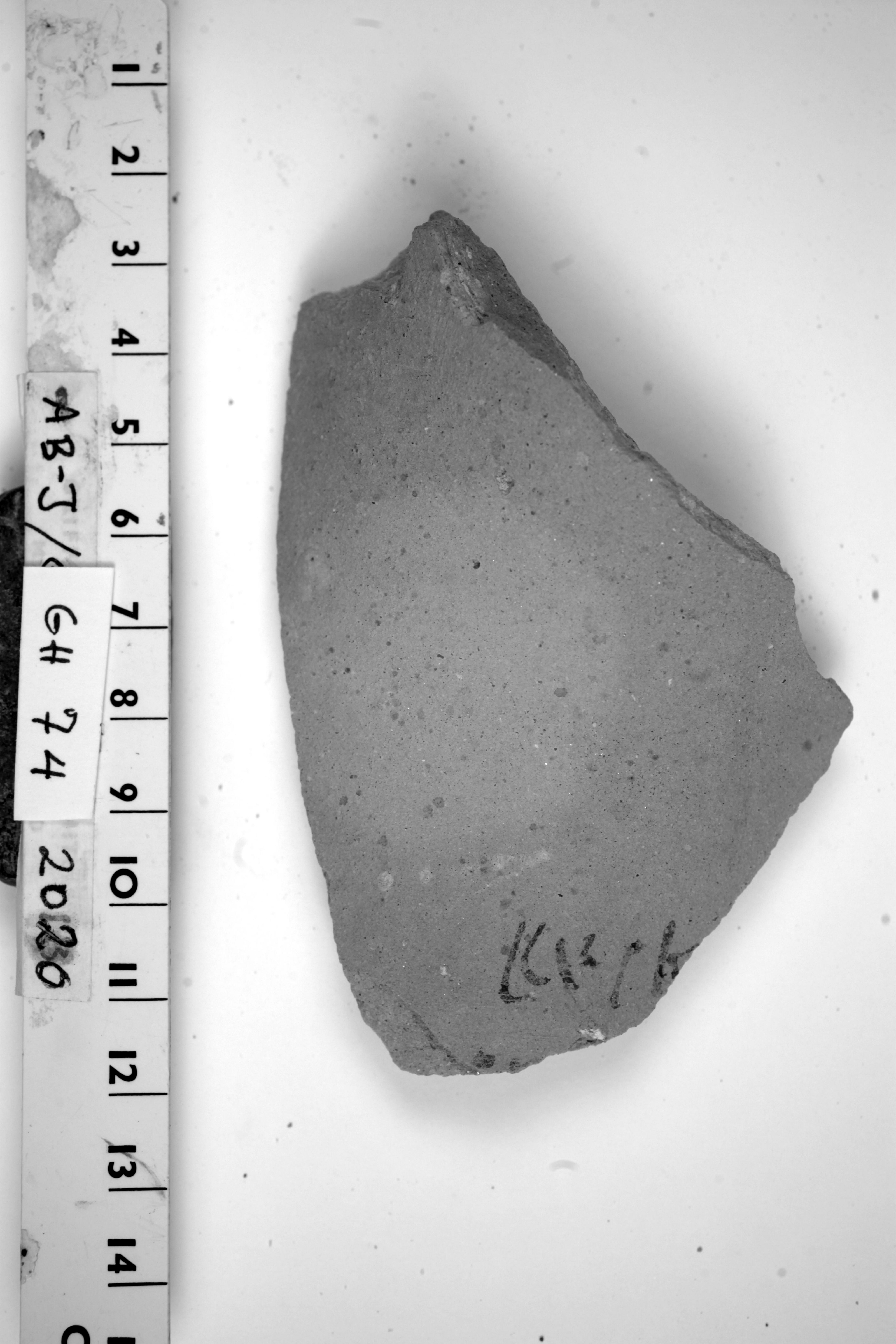
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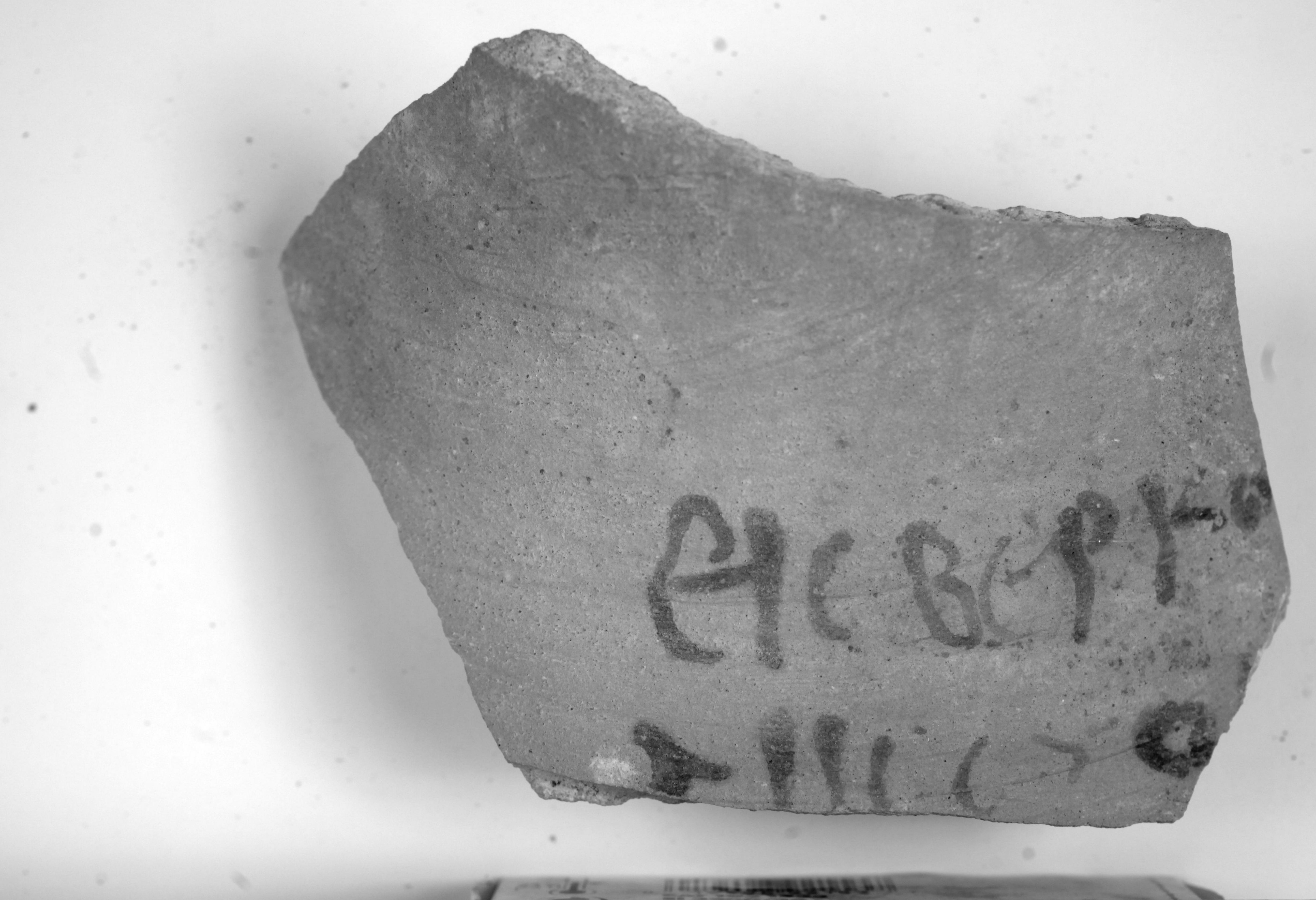




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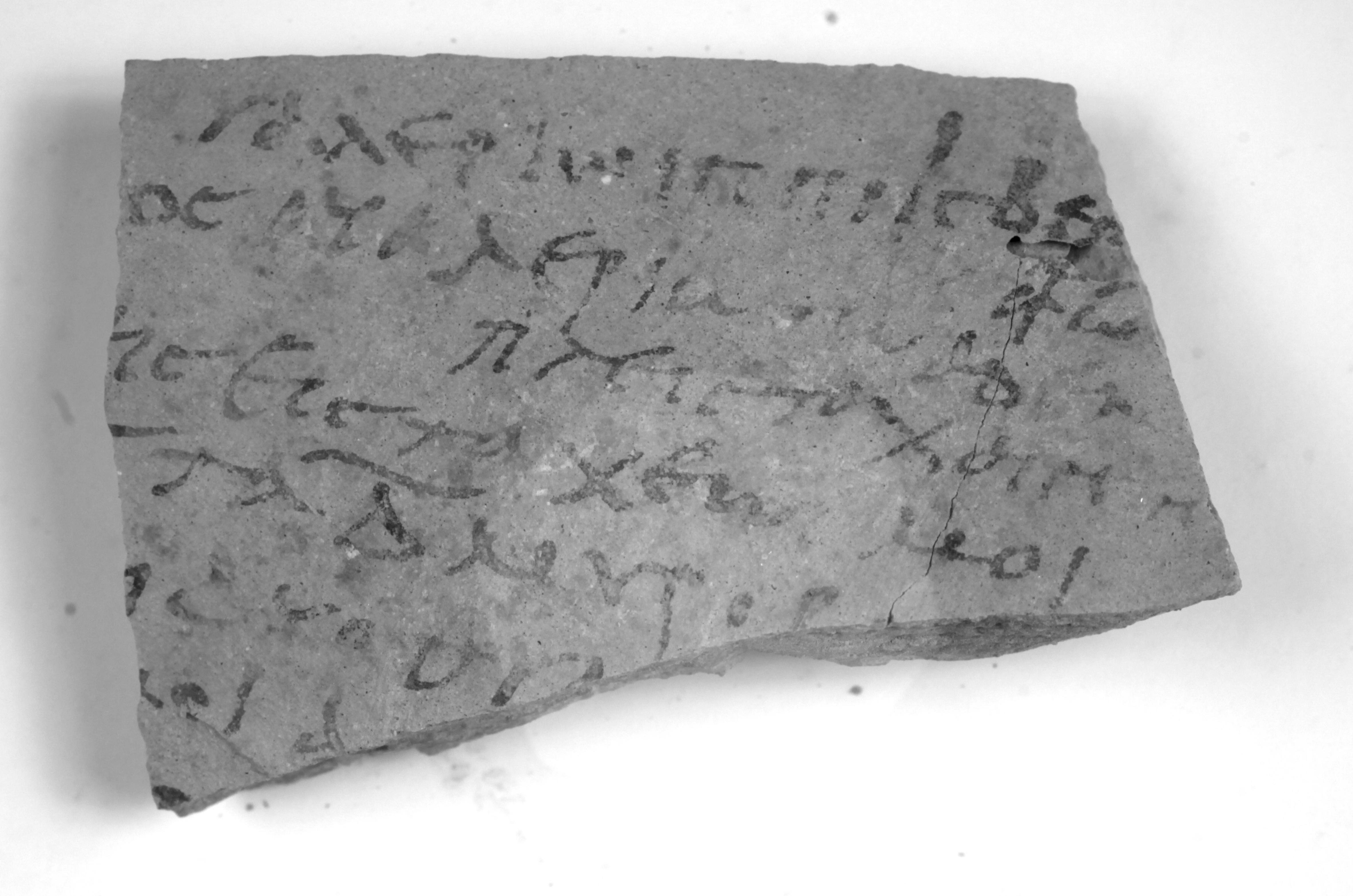


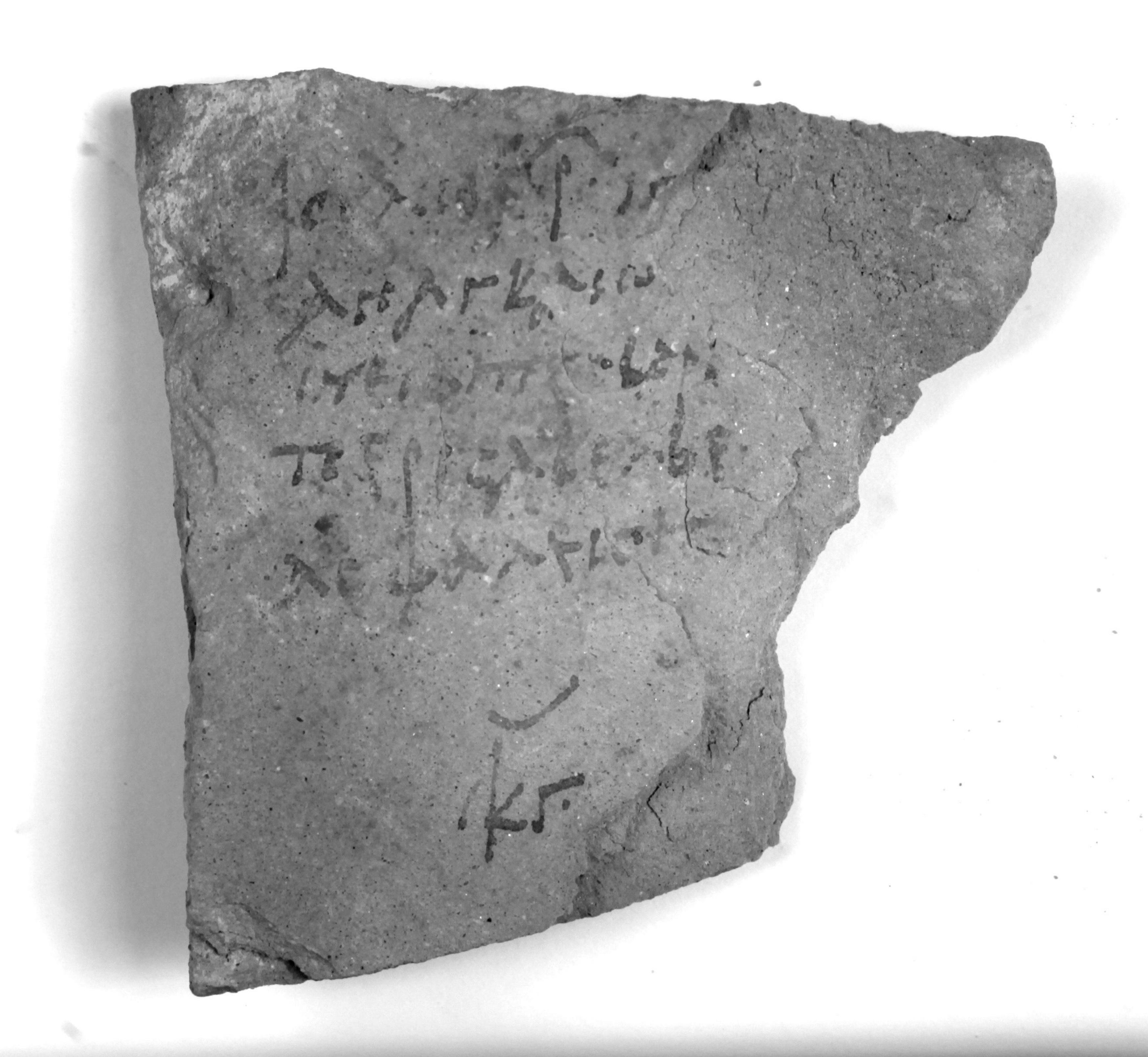


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