

The Pottery of Ancient Chorasmia: From the Case Study of Akchakhan- kala

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Abstract

Ancient Chorasmia, located on the northern frontiers of Central Asia, south of the Aral Sea, was a polity barely known to the Classical world despite some scarce mentions in a few written sources. Chorasmian civilisation and material culture were initially recognised and defined by modern archaeological works carried out in the area since the early 1940s by the Soviet Archaeological-Ethnographic Expedition to Ancient Chorasmia led by S.P. Tolstov. While numerous archaeological sites have provided rich materials regarding multiple aspects of ancient Chorasmia, i.e., the construction of fortifications, ceramic typology and religious practices, the overall lack of a well-stratified sequence and solid chronological evidence has been a striking issue for most of the excavated sites. This is particularly problematic in the study of pottery which could easily be subject to arbitrary judgments without secure stratigraphy and dating.

The excavations at Akchakhan-kala (1995-present) by the Karakalpak-Australian Archaeological Expedition (KAE) in the Tash-K'irman Oasis have yielded well-stratified pottery sherds with chronological sequences spanning from the early 2nd BCE to 2nd Centuries CE. The site was identified as a royal seat closely linked with monumental and religious purpose, as attested at the Central Monument (Area 07) and Ceremonial Complex (Area 10), where painted texts testifying to the presence of a “Chorasmian King” were initially found. It provides a precious chance to review the existing pottery typology and chronology of ancient Chorasmia in term of new evidence acquired from Akchakhan-kala, and cast new light on the periodization of the antique period of Chorasmia.

Apart from reviews of archaeological sites and the ceramic chronology of ancient Chorasmia, the thesis provides a thorough analysis of the Akchakhan-kala assemblage, concerning fabrics, typology and chronology, presented by illustrations and catalogues. The time range this analysis concerns appears to correspond with the two most problematic phases of the antique period, namely Antique II (formerly “Kangyui” period) and Antique III (formerly “Kushan” period) –the division of the two has been tricky since the lack of solid archaeological evidence. However, the examination of the Akchakhan-kala pottery assemblage suggests that the turning point is likely to be around the late 1st Century BCE, corresponding with the potential change of rule witnessed in Akchakhan-kala from Stage IIA/B to Stage IIIA/B.

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SECTION I: BACKGROUND

Chapter 1. Introduction

1.1 Thesis Background

The land of ancient Chorasmia, located on the lower reaches of the old Oxus River (the present Amu Darya), south of the Aral Sea, was a close neighbour of some of the most legendary and prosperous regions across the continent —Sogdiana, Margiana and Bactria, among others. Interpretations of the history of these regions have generated heated discussions and prolonged controversy among scholars. Yet as the northern frontier of these oasis city-states, Chorasmia is less known to the outside world due to the lack of written sources — merely fragments have been retrieved from the literature of Greek, Iranian and Chinese authors, from whom we are used to acquiring most of our knowledge of ancient Central Asia (although this knowledge too often gets distorted out of the meaning of words or generated from relatively biased perspectives.¹). The absence of mention in classical sources has long left a broad misunderstanding of ancient Chorasmia as culturally deserted and lacking in settled civilization — a great misconception that has been proved wrong by extensive explorations and excavations since the early 20th century CE.

For centuries, we could only catch a glimpse of this mysterious land from accounts brought by travellers and explorers who witnessed therein grand monuments, ruins of ancient irrigation systems and military structures, which all pointed to the existence of an unknown civilization deep in the sand sea.² In the light of these indications, a series of archaeological and geological expeditions began to be conducted in this district from the 1930s. S. P. Tolstov with the team he led (the “Chorasmian Archaeological-Ethnographical Expedition”, KhAEE, division of the USSR Academy of Sciences) made the most extraordinary endeavours to explore and create the framework of Chorasmian archaeology, within which lies almost all the knowledge we have today of ancient Chorasmia—including livelihoods, religious beliefs, economic productions and cultural sequence. From their work emerged an awareness that, instead of the first impression of “strange deserts” along with “heavy sands”, there was a settled civilisation, a polity characterized by grandiose monuments, hydraulic systems, numerous mud-brick fortifications and a unique material culture, rooted along the banks of the Oxus from the 6th century BCE until the region was taken over by Arab troops in 712 CE.

¹ For instance, the authenticity of Herodotus’s records has undergone criticism since his own time. Common accusations comprised deliberate falsehood, inconsistency, especially his exaggeration of Xerxes’s military force regardless of common sense. See Baldwin 1964; Armayor 1978; Fehling 1994 and an analysis of Herodotus’s shortcomings in Waters 1985:152-166.

² Tolstov has explained in his monograph the motive that drove the Soviet Expedition into the remote southeastern area of Karakalpakstan and said “it was not an accidental choice”. See Tolstov 1948b:26-27.

For a long time, research on Chorasmia has been very much restricted within Russian academia and therefore remained little changed from the old traits of Soviet methodology. The prevalent cultural and ceramic sequence for ancient Chorasmia was first established in the 1950s.³, as one of the main outcomes of the Soviet expedition, yet stayed nearly unchanged thereafter, notwithstanding technological and theoretical advancements throughout the years.⁴ For instance, the stratigraphic evidence as well as radiocarbon dates, though rather vague in many cases, is often deficient or even absent in the previous studies of Chorasmian pottery, driving research into a problematic position where it depends mostly on typology alone, leaving it often subject to arbitrary judgements, rather than a comprehensive analysis of the archaeological context together with the pottery morphology.

The international gaze only started to turn to Chorasmia in the mid-1990s, following the collapse of the Soviet Union and the end of the work of the expedition, when a cooperative archaeological team under the auspices of the University of Sydney Central Asia Program (USCAP) and the Karakalpak Branch of the Uzbek Academy of Sciences — the Karakalpak-Australian Archaeological Expedition (KAE) began to conduct surveys and seasonal excavations in the Tash-k'irman oasis, one last region that has not been thoroughly investigated or studied during the Soviet era.⁵ Pursuing a more profound and accurate historical narrative of ancient Chorasmia out of the old Soviet paradigm, KAE has excavated three main sites: Tash-k'irman-tepe, a religious complex centred around a fire temple.⁶; Kara-tepe.⁷, a small fortified enclosure; and Akchakhan-kala (formerly named “Kazakl'i-yatkan”), a massive fortified site that consists of an upper and lower enclosure. The two parts of Akchakhan-kala were built separately, the upper enclosure first and the lower added to its south-eastern part at a later date. According to present evidence, both parts contained various structures that might be built and occupied in different times — the upper enclosure, in particular, had been used for a long time and partly re-occupied in the “Afrighid” period of the 4th and 5th centuries CE, as the main fortification was built probably around the early 2nd century BCE and abandoned in the early Antique III period around the 2nd century CE.⁸

The long-term occupation and multiple structures within made Akchakhan-Kala among the richest sites in ancient Chorasmia. Thousands of ceramic sherds have been found in different areas of the site, providing a precious chance to study and review the Chorasmian pottery sequence. This opportunity is especially unique as recent excavations in Area 9 (the eastern gateway of the Upper Enclosure) and Area 10 (the Ceremonial Complex) have presented well-stratified cultural layers

³ See I.1.2

⁴ A more recent pottery study of Kalaly-gyr 2 by Vainberg has shown consistency of methodology descended from the Soviet era, see Vainberg 2004:93-147.

⁵ The rest was either destroyed by extensive agricultural exploitation or once visible on the ground but failed to survive the everlasting weathering. In fact, even today most of the fortifications in Chorasmia are still under daily threat from the harsh environment and poor state of preservation.

⁶ The excavation of Tash-k'irman-tepe has revealed the nature of the complex preliminarily, see Betts and Yagodin 2007, 2008.

⁷ Betts and Yagodin 2007, 2008; Betts et al. 2018.

⁸ See Betts et al. 2012 and *infra* Section III.4.

with radiocarbon samples which, for the first time, enable a precise dating of a key part of the Chorasmian pottery sequence. Key information on contexts and radiometric dating are usually lacking in Soviet period pottery sequences (*infra*). The aim of this thesis is to review and revise the present paradigm of Chorasmian pottery and cast new light on the chronology, using a new system of classification based on “genres and types” (*infra* IV.5.1). This new evidence from Akchakhan-kala will then be used as the basis of the study of Chorasmian pottery in relation to those from the broader territories of Central Asia, providing new insights into the historical role of ancient Chorasmia in Central Asia.

1.1.1 The Polity of Ancient Chorasmia

Ancient Chorasmia is perhaps among the least known polities in Central Asia. An important question then emerges: without reliable historical records, how do we define ancient Chorasmia as a “polity” and of which kind. Furthermore, on which level did the “Chorasmians” recognize their own identities, compared with the interpretations from outsiders. The answer to the above questions forms the basis on which human activities in ancient Chorasmia and its unique material culture are understood in this study.

The social and economic society of pre-Achaemenid Chorasmia was nearly absent in written sources, while issues concerning this topic usually require more evidence from archaeological works. However, sketchy, meagre mentions of Chorasmia from classical sources have engendered many arguable stories of prehistoric Chorasmia, especially in regard to its confines and relation to early Zoroastrianism⁹. Among those hypotheses, a popular theory of the existence of a “Greater Chorasmia” which held sway over a broader region of Central Asia before the Achaemenid Conquest was forwarded by Markwart and Henning¹⁰. This notion was largely amplified by Tolstov to interpret his historical narrative of antique Chorasmia, particularly the so-called “Kangyui” and “Kushan” periods¹¹.

Another salient cultural feature of ancient Chorasmia is indicative of the relation to the Eurasian steppe. In terms of its geographical position on the threshold of the Inner Asia steppe across which numerous groups of nomads have come back and forth, it is not curious that pre-Achaemenid Chorasmia has shown a strong link to the Eurasian steppe culture (i.e. the Andronovo

⁹ For the argument of Chorasmia as the first seat of Zoroastrian sacred fire, see Jackson 1921 and Boyce 1983. Moreover, recent excavations of the fire temple Tash-kir'man tepe and the Akchakhan-kala ceremonial complex have confirmed the linkage of Chorasmia with the Zoroastrian world since the Antique period, see *infra*.

¹⁰ The theory based mainly on readings of Herodotus (III.92,117) and a fragment from Hecateus's work (*FGrH, Fragmente* I, 292), along with linguistic evidence, see Henning 1951: 43-45; Gershevitch 1959:14-15, n.145¹; Boyce 1975: 3-4, 275; Diakonoff 1985:131-132. Refutations of this can be found in Gnoli 1980:91-127 in detail; Humbach 1985; and more recently in Minardi 2015:11-13, as well as a convenient summary.

¹¹ The definitions of these two terms have been proved problematic and changed to “Antique II” and “Antique III” periods. See *infra*, also Helms 2005, n.30,31 and Minardi 2015.

culture).¹² According to scanty written sources and archaeological evidence, the very early inhabitants of Chorasmia show a close relationship with the steppic population, while also maintaining regular military and cultural communication with neighbouring sedentary civilisation to the south.¹³ During this period, the early Chorasmians had developed a semi-sedentary lifestyle characterised by small-scale irrigation agriculture and cattle breeding.¹⁴

The turning point occurred around the 6th century BCE when Chorasmia saw a major culture shift in pottery typology, along with the construction of new monumental buildings and irrigation systems—which proclaimed the advent of the local Antique period (namely the Antique I period, see *infra*) when the Achaemenid Empire first became involved in the history of ancient Chorasmia.

These involvements are partially manifested in a few ancient written sources, including Classical literature, Achaemenid records and inscriptions, Chinese Chronicles and the Sacred Book of Zoroastrianism, known as the *Avesta*.¹⁵ It appears that Chorasmia was first subdued by the Achaemenids in the reign of Cyrus II the Great (559-529 BCE), probably during his fatal march against the *Massagetae*.¹⁶ In an excerpt from the *Persica* by Ctesias (compiled by Photius in *Bibliotheca*).¹⁷, the author described the last scene of Cyrus II—who was then on his deathbed declaring his elder son Cambyses king, his younger son Tanyoxarces (Tanyoxarkes) governor of Bactria, Chorasmia (Chorasmia), Parthia, and Carmania, free from tribute.¹⁸ This is probably the earliest mention of “Chorasmia” among the eastern lands subjugated by Cyrus.

The political status of Chorasmia, as a polity under the domination of the Achaemenid Empire, was further testified by Herodotus in a later record when Darius I (522-486 BCE), the King of Kings after Cambyses II (529-522 BCE) and Cyrus II, came to power: in a list of the tribute paid by the twenty provinces, Chorasmia was included in the sixteenth province, together with Parthia,

¹² Rapoport 1991; See also Helms’ summary in Khozhaniyazov 2005, preface.

¹³ A centuries-later source by Strabo (XI.8.8) mentioned Chorasmia as belonging to the *Massagetae* and the *Sacae*, whose confederation then intended to fight against the campaign of Cyrus II (529 BCE). Similar suggestion can be found in Herodotus’ *Histories*: the Chorasmians used to own a tract of land surrounded by five different tribes, before the Persian rise to power (III.117). Modern archaeological works also found the trail of cultural exchange between Chorasmia and the southern civilisation, i.e., the emergence of Yaz type materials, see *infra*, section II. On the local Bronze Age material culture, see Itina 1977a, 1979. See also a summary in Rapoport 1994 and Minardi 2015:61-64.

¹⁴ The local Bronze Age culture, known as the Tazabag’yab culture (middle and late 2nd millennium BCE), followed by the Amirabad culture (10th -8th centuries BCE), is marked by the ICW (incised coarse ware) and hand moulded pottery attested to cultural links with both northern nomads and the southern civilisation, e.g. Turkmenia, Margiana. On local Bronze Age material culture, see Itina 1959:52-69; 1960: 82-103; 1963:107-129;1977. On the Bronze and Iron Age material culture of southern Central Asia, see Salvatori and Tosi 2008.

¹⁵ The mentions of the name “Chorasmia” in the last two sources, however, are subtler and very contentious (especially those in the Chinese sources), thus require further inquiries. See summaries in Helms 2005 and Minardi 2015: 11-13, 56-59.

¹⁶ Tolstov gave a supposition that Chorasmia might voluntarily recognize the supremacy of the Persians and thus surrendered itself, to maintain the sovereignty of the southern regions (Tolstov 2005, 108).

¹⁷ Although the original books of Ctesias were lost, there are many extracts and quotations of his works by ancient authors, including Photius (*Bibliotheca* §72), Pamphile (*Suda*, s.v. Pamphilē) and Diodorus (2.1-34). On Photius’ *Bibliotheca*, see Bigwood 1989.

¹⁸ Photius *Bibliotheca*. §72.8. See English translation by Roger Pearse, on <https://topostext.org/work/237>

Sogdiana and Aria.¹⁹ According to Herodotus (III.89), the establishment of the twenty provinces, also known as twenty satrapies, was credited to Darius, who created the “satrapy system” to administrate the vast conquered lands of the Great Empire and to assess for taxes.²⁰ Under the satrapy system, neighbouring nations were joined in a single unit with outlying peoples assigned to either this nation or that. The records from the Classical sources, of which the creditability remains debatable, are attested again in many epigraphs of the Achaemenid Empire. It is noticeable that Chorasmia, though remote as the frontier of the Empire, turned out to be a recurring name in the Achaemenid provincial lists, especially that of Darius’s reign. It took the name “*Uvārazmīy*” or “*Uvārazmis(h)*” in different texts. These sources include Darius’ Behistun text (DB); a group of texts found in Susa (DSaa, the text was inscribed on a marble block found *in situ* at a hall²¹, presented as [*Choresmia*], among [*Areia*] and [*Bactria*]; DSe, the trilingual text from Susa); inscriptions from Persepolis (DPe); the trilingual text from Darius’s tomb (DNa); and Xerxes’s Daiva inscription in Persepolis (XPh).²²

There have been scholarly discussions about the principle on which those names have been selected out of a larger list into the provincial lists. Among them, a serious effort was made by Toynbee, who compared the names on the Achaemenid inscriptions with those from Herodotus’s records, to link those names to the representative of the tax-paying peoples.²³ More arguments, however, refute the nations on the provincial lists as administrative satrapies or tax-paying districts, but instead various groups of people/*dahyu* of whom specific mentions met certain propaganda of the early Achaemenid Empire.²⁴ It is not the Achaemenid rulers’ intention to leave a complete and exact list of satrapies but to record a selection of names that bears the politico-ideological message they wished to transmit to their contemporaries.²⁵ That is to say, even though without enough documentation, it is undeniable that the polity of Chorasmia held a specific role in the Empire’s socio-political scheme, at least of the early age. This role of Chorasmia reflected the Empire’s strategy in Central Asia, which endeavoured to grasp the local revenue and military forces, but in the meanwhile let their culture and customs stay relatively intact (in some cases, with the help of local elites).²⁶ Under the strategy, the Persian domination of Central Asia was confirmed through

¹⁹ Herodotus, *Histories*, III.93.

²⁰ It would be far too arbitrary to draw the conclusion that the “satrapy system” originated from the Darius’s period, however, given the earlier evidence of the “governor of conquered lands” during Cyrus and Cambyses’s time. See more discussions in Briant 2002:63-64.

²¹ On discussions of the DSaa text, see Calmeyer 1987.

²² Kent 1939, 1943; Vogelsang 1992:95-106.

²³ Toynbee 1954:580-689.

²⁴ Burn 1962; Cameron 1973.

²⁵ Briant 2002:177.

²⁶ Briant 2002:79-84. Some argued that the presence of columned halls in some early Chorasmian fortifications has manifested the link with Achaemenid culture. Some even suggest the early Chorasmian Columned hall as the palace of the Persian satrap or a Chorasmian influences by their culture, as the case in Kalaly-gyr 1, see Rapoport and Lapirov-Skoblo 1963:147-148, Francfort 1988:179. However, this comparison was refuted morphologically by Minardi who pointed out that the typical Chorasmian column base with a three-stepped plinth surmounted by a bell-

the succession of at least four kings, first established by Cyrus the conqueror, then developed and reorganized by Darius, and finally reaching a climax in the reign of Xerxes I (486-465 BCE). Herodotus describes a huge army of Xerxes comprised of numerous nationalities, including Chorasmia and other Central Asian nations, even the Sakas among them (VII.61-99). Apart from military service, the imposition of “tribute” or taxes was another technique of draining the resources and profiting from these Central Asian nations.²⁷

We could also have a glimpse of (or a stereotype of) the Chorasmian people from some Achaemenid royal reliefs, on which they were illustrated as throne bearers to hold the pedestal on which stands the Achaemenid King in front of Ahura Mazda. As already noticed by Schmidt, all the Chorasmian bearers seem to have followed the same pattern — wearing conoid headgear and Scythian style dress, with a beard — so does the Sogdian.²⁸ Yet when considering the Chorasmian figure from the Achaemenid source, we should always bear in mind what it truly reflects — not the reality but rather a single perspective of Chorasmia from the Persian scribes (or bureaucrats). The nomadic attributes on these representatives suggest the Empire’s ethno-geographic recognition of Chorasmia — a district with a strong link to the northern nomadic groups, adjacent to Sogdia and Bactria — which happens to echo Strabo’s impression in *the Geography*, despite the fact that there had already been settled fortifications and irrigation system in Chorasmia by then.²⁹ Obviously, even at its peak of domination, Persian knowledge of these eastern satrapies remained quite superficial and outdated, which means all our knowledge of Chorasmia from the textual sources could be relatively biased (it may be the case regarding the issue of Chorasmia’s independence, discussed below), since it only mirrored the gaze from the others but lacked a view of Chorasmian itself. This is a gap that might only be bridged by archaeological works, especially by the study of pottery, of which we have found a large amount in the excavation.

There is no official documentation on when and how Chorasmia terminated its subordination to the Empire and became “independent” and is still under debate,³⁰ though a turning point surely took place prior to the Central Asian campaigns of Alexander the Great in 328 BCE. In Arrian’s *Anabasis*, he mentioned a Chorasmian King, *Pharasmanes*, who travelled personally to meet Alexander at his headquarters with an offer of friendship to guide the army through the mountains and supply it with provisions (IV.15.4). According to Arrian, Alexander declined the offer but concluded a peace treaty with the Chorasmian King, leaving his land untouched. A similar statement

shaped torus has no parallel found so far in Achaemenid Iranian architectures (the only assumed one is considered post-Achaemenid), see Minardi 2015:101-102, also section II.

²⁷ Chorasmia was believed to be the main supplier of turquoise. Francfort 1988: 175-178.

²⁸ Schmidt 1970, Fig. 43 and the table following.

²⁹ E.g., Kyuzeli-Gyr on the left bank of the Oxus river, and Dingil’dzhe on the right bank.

³⁰ Traditional interpretation by Soviet scholars basically agrees with scarce historical records in which Chorasmia was illustrated as a remote and independent polity not involved in the fight with Macedonians at all, and accordingly generated the interpretation of Antique period of Chorasmia, e.g., Tolstov 1948a, 1948b;1962, criticized *infra*. However, the latest work by KAE has provided different arguments against this traditional thought, offering archaeological evidence of cultural links between Antique Chorasmia and the Hellenised world, and challenged the theory of the early separation of Chorasmia from the Achaemenid Empire, see in detail Minardi 2015.

can be found in the accounts of Quintus Curtius Rufus, in whose narrative the King did not come himself but sent his envoy together with that of the *Massagetae* and the *Dahae* (8.1.8). The textual sources above, though slightly different, both indicate a certain King in Chorasmia, whose existence is further testified by some painted Aramaic scripts from Akchakhan-kala referring to king's names.³¹ As far as we know, no such notion of kingship ever occurred in pre-Achaemenid Chorasmia, and it is rational to infer that it was borrowed from the Persian, although most likely of very different meaning from the status of the Persian King.³² Furthermore, the same Aramaic MLK, “the king” and BR MLK, “the son of the king” appeared in the Isakovka inscription, which, according to Livshits, manifests the earliest stage of the Chorasmian written language which developed on the basis of “Imperial Aramaic”.³³

Following its “independence” and the establishment of “kingship”, Chorasmia experienced an upsurge of new monuments, infrastructure and material culture, corresponding to the second chronological phase of Antique Chorasmia (Antique II period, see *infra*). The territory of Chorasmia was then extended with newly erected Kalas, i.e., Kalaly-Gyr 2, Koi-Krylgan-Kala, Akchakhan-Kala, Toprak-Kala etc., along with an extensive network of water supply canals. A unique material culture was nurtured and developed indigenously, in the meantime assimilating the Hellenistic culture radiating from the south.³⁴

The existence of the last phase of the local antique period (Antique III period, see *infra*) was attested by new changes to the material culture, which may also suggest a certain change of social and political status in the polity. This is probably in accordance with the origin point of the “Chorasmian Era”—unknown until the finds at Toprak-kala of administrative documents which were dated accordingly.³⁵ In addition to epigraphic evidence, the apparition of silver coinage³⁶ in imitation of Graeco-Bactrian models during the 1st Century BCE also attested to the change of socio-political environment. As for material culture, many previously popular forms disappeared while some traditional forms continued to grow with some changes until more abrupt changes in material culture were brought by the rule of the Afrighid dynasty, during late antiquity (4th-8th Centuries CE).

1.1.2 The Geographical Context

Ancient Chorasmia was a large oasis area on the Amu-Darya delta in north-western Central Asia. The region overlapped part of the territories of modern Uzbekistan, Turkmenistan and Kazakhstan. Geographically, it was located on the northern frontier of Central Asia, beyond which

³¹ A preliminary interpretation of the epigraphs by Vladimir A. Livshits has indicated a king and a son. Further reading by Pavel' B. Lurje has identified one or more names referring to “king”. Kidd and Betts 2010: 654-655; Betts et al. 2012: 136-137.

³² Betts et al. 2012: 137.

³³ Livshits 2003.

³⁴ See discussions in Minardi 2015, 2016a, b, 2018, 2020.

³⁵ The concept was argued by Minardi in *ib.* 2015: 113-124.

³⁶ On the numismatic evidence of ancient Chorasmia, see Vainberg 1977.

lies the great Eurasian Steppe. The unique location between the steppe and oasis spoke for itself of the duality that was bound to show in the history of ancient Chorasmia. Abutting the pasture in the north, bordering Bactria, Sogdiana and Margiana to the south, Chorasmia acted as a buffer zone between the northern nomadic groups and sedentary nations. This geographical information is of great importance when it comes to explaining many cultural phenomena in ancient Chorasmia, and thus requires further elucidation here.

The vast land of Chorasmia is physically confined by several natural landscapes (Map 1). To the north of Chorasmia lies the Aral Sea into which flow two great rivers of Central Asia, the Amu-Darya (the Classical Oxus River) and the Syr-Darya (the Classical Jaxartes River), which, together with its fertile delta and branches, nourished and formed the Central Asian Oasis. The area in the middle of the two rivers comprised scattered oases, i.e. Chorasmia, Sogdiana, Margiana and Bactriana, known to the classical geographers as “Transoxiana”, referring to the land beyond the Oxus. Benefiting from the streams, this area was able to sustain a long-term water supply and large-scale irrigation for a large population, and thus had always been the heartland in the history of Central Asia.

Ancient Chorasmia, in particular, was shaped and divided by the Amu-Darya into two parts – the “Right Bank” and the “Left Bank” of Chorasmia (derived from the Russian archaeological sources). The Left Bank of Chorasmia is defined by a natural border of sheer cliffs (chinks) in the west, separating it from the barren Ustyurt Plateau on the western shore of the Aral Sea, to the south of which vast stretches of marshland confine the territory of human activities from the north, and the Kara Kum Desert (Black Sands) which separates Chorasmia from the southern polities. Human habitation in this area was hence restricted to the deltas of the Sarykamysh Lake and branches of Amu-Darya. The Right Bank, in comparison, was more densely distributed with fortifications since the Antique period, e.g., Akchakhan-Kala, Toprak-Kala and Koi-Krylgan-Kala, probably because of the relatively complex and sustainable network of branches flowing from the Amu-Darya and Akcha-Darya.³⁷ As in the south, the eastern flank of Chorasmia is occupied by a vast desert, the Kizil Kum (Red Sands), and further reaches out to the southerly delta of the Syr-Darya.

Thus, ancient Chorasmia was closely surrounded by four natural blocks: the Aral Sea on the northern boundary, the cliffs of the Ustyurt Plateau in the west, as well as two deserts, the Kara Kum and Kizil Kum as the southern and eastern barriers. The Aral Sea and Ustyurt Plateau join the north-eastern boundary on which a seasonal communication point between Chorasmia and nomadic groups was formed naturally.³⁸ The Kara Kum and Kizil Kum together form an arid depopulated zone that separated the Chorasmian oasis from the fertile southern nations, i.e., Margiana, Sogdiana and Bactria. Nevertheless, ancient Chorasmia was never in complete isolation. There are still limited

³⁷ Helms 1998: 80-81 and 2005: 10-12.

³⁸ The southerly location of Ustyurt Plateau naturally formed a favourable winter grazing lands for the nomads of the Eurasian steppes from which a north-south seasonal movement of pastoralists was witnessed, and thus made the left bank of Chorasmia the frontier against northern nomads. For more geographical information of the region between the Aral and the Caspian Seas, see Betts 2007.

entrances to the exterior world left — for instance, the Amu-Darya to the south, and the Akcha-Darya, one of the branches of the Amu-Darya, though it has long been drained and covered with sand now³⁹, to the Syr-Darya delta, leaving restricted passage for culture and materials into the heartland of Chorasmia.

1.1.3 Summary

There are several key factors in considering the issue of ancient Chorasmia. The first one is related to the history of its incorporation into the Achaemenid Empire, which brought about a dramatic cultural shift in Chorasmian society. Apart from Achaemenid involvements, another critical influence on ancient Chorasmia was its connection with the Northern Steppic World. Due to its location between steppe and oasis, the inhabitants of ancient Chorasmia had long maintained a semi-nomadic lifestyle along with local material culture associated with the nomadic traditions (e.g. the prehistoric Andronovo Culture).

The underlying message from the historical and geographical context of ancient Chorasmia suggests a multicultural nature for the population. This multiplicity may come as a result of mixed ethnic groups, which most possibly comprised descendants of the original tribal groups, the Persian diaspora (if any), immigration from the south (suggested by material culture influenced by the south while made locally) and the mobile population from the northern steppe. Throughout the history of ancient Chorasmia, various external cultural elements had at one time come forward and assimilated into the local material culture, including that from the Achaemenids, the south polities (e.g., Margiana, Bactriana) and the Eurasian steppe etc. Despite superficial appearances, Chorasmia was never completely isolated; moreover, cultural exchange with the outer world had probably never been interrupted. To some extent, the unique material culture of ancient Chorasmia was literally shaped and evolved by constant cultural stimuli from exterior.

Even though new evidence from archaeological works have confirmed interactions between Chorasmia and the outer world⁴⁰, communication was very much confined by the natural obstacles that surrounded the oasis. This leads to another key feature; due to the naturally closed geographic location from the outer world, Chorasmia was able to retain a relative successive local material culture despite the overall Hellenised environment across Central Asia.

³⁹ Negus-Cleary 2014: 76-87; Minardi 2015:1-2; On the unique role of the Oxus River in connecting Chorasmia to the south, see also Minardi 2018.

⁴⁰ Despite the stereotype that claims Chorasmia free from Hellenistic Culture, there is archaeological evidence that links Antique Chorasmia to the Hellenistic world. Minardi has presented arguments in a whole chapter on this in his monograph (Minardi 2015:87-124), see more relevant discussions in Minardi 2016a, 2016b, 2018 and 2020. Kidd has also pointed out the cultural link between Chorasmia and Parthia for sharing iconographic features, e.g., the torque worn by the Parthian King and figures from Akchakhan-kala wall paintings, see Kidd 2011.

Therefore, despite an impression of multiculturalism, deep-rooted local tradition is another remarkable feature of ancient Chorasmia, which is especially manifested in the continuity of material culture, e.g., the tradition of pottery making⁴¹.

1.2 Previous Archaeological Works and Outcomes So Far

The historical territory of Ancient Chorasmia is divided into regions of modern Turkmenistan (the Daşoguz Region, in the north of the country) and Uzbekistan (Karakalpakstan and Khorezm), both former republics within the Soviet Union. Hence, it is the Soviet Chorasmian expedition team (KhAEE) who initiated the long-running investigation and field works in the area of ancient Chorasmia and held a leading position in corresponding studies. If it were not for their massive field works and resourceful monographs on the issue, our knowledge of ancient Chorasmia would still be almost a blank.

The archaeology of Chorasmia during the Soviet era saw three main stages: the pre-Second World War period; the post-war period and the new stage from the 1970s to 1990s.⁴² In the initial stage, preliminary investigations of several ancient remains with particular interest in the irrigation system affiliated to them were conducted by Ya. G. Gulyamov, who concluded the preliminary outcomes in his monograph⁴³. Shortly afterwards, aiming at a profound understanding of the dispersed historical monuments, ancient canals and other remains in the hinterland below the Aral Sea, a series of archaeological works were conducted by the KhAEE of which the notable Soviet archaeologist Sergei Pavlovich Tolstov took the leadership from 1937 to 1969. During WWII, the KhAEE mainly undertook investigation and survey on the *Kalas* along the Amu-Darya, most of which were then in good preservation and still visible above the ground. In 1948, two monographs of great importance were published, comprising observations and discussions based on the ten-year works of the KhAEE by Tolstov, *Ancient Chorasmia* and *Following the Tracks of the Ancient Chorasmian Civilization*. In *Ancient Chorasmia*, Tolstov presented the earliest model of periodisation in which he demonstrated three main periods of Chorasmia: Archaic Chorasmia, Antique Chorasmia and Medieval Chorasmia, with more sub-phases respectively⁴⁴. This periodisation, based on early archaeological works, has prevailed in Russian academia since then, as a theoretical foundation for Ancient Chorasmian archaeology.

The second stage saw the outstanding contribution of the KhAEE under the direction of Tolstov. The KhAEE embarked on intensive, long-term field work in the Amu-Darya Delta, including

⁴¹ See *infra* II.3.

⁴² Khozhaniyazov has elaborated on the three stages in his monograph, Khozhaniyazov 2005:26-32. On the general review of the phased achievement of KhAEE, see also Itina 1977b and Itina et al. 1996.

⁴³ Gulyamov 1957

⁴⁴ Tolstov 1948a:32-34, see also *infra* 1.3.

excavations of several important sites, e.g., the settlement near Dingil'dzhe⁴⁵, Koi-Krylgan-Kala⁴⁶, Kalaly-Gyr 1⁴⁷ etc. The results of these works were published gradually in a series of monographs named *Trudy Khorezmskoi Arkheologo-Etnograficheskoi Ekspeditsii* (TKhAEE) since 1952, and later in another series focused on material cultures, named *Materialy Khorezmskoi Ekspeditsii* (MKhE). In a later monograph of Tolstov, *Po drevnim deltam Oksa i Yaksarta [Following the ancient deltas of Oxus and Jaxartes]*, he summed up works done by the KhAEE, including several fortifications and material culture, of the Antique period in particular⁴⁸.

The amount of pottery obtained from these excavations is huge. A comprehensive monograph on Chorasmian pottery was published in 1959, as volume IV in the TKhAEE series, with a vast database comprising ceramics from the early prehistoric period to the Khanate period in the 14th century⁴⁹. Although as the first research monograph on Chorasmian pottery, the volume consists merely of findings from the first twenty-years field works of KhAEE (that before 1959). Still, it made a huge leap in the typological study of ceramics which greatly enriched and consolidated the previous Chorasmian periodisation proposed by Tolstov, establishing the cultural sequence of Chorasmian pottery for the first time. Furthermore, Vorob'eva commented on her materials in a comparative view, taking advantage of her thorough understanding of pottery from Merv, Samarkand and Bactria etc., offering a macro perspective of Chorasmian pottery in a greater territory of Central Asia. The work is a precious source and the theoretical foundation for the study of Chorasmian pottery of all time. It is a pity though, that very few serious works on ceramics have been done since then. The few subsequent studies were either put forward within the old framework of the Soviet era or remained at the level of general discussions⁵⁰.

The last stage can be regarded as a “post-Tolstov” period, as more excavations of some key sites were carried out during the time, under the direction of Tolstov's students Yu. A. Rapoport and E. E. Nerazik etc., including the site Kyuzeli-Gyr⁵¹, Kalaly-Gyr 2⁵², Toprak-Kala⁵³ and Ayaz-Kala. In the meantime, with the expanding knowledge obtained from new materials, the research focus has ascended smoothly to a new level concerning not only the material itself but also the connections between multiple populations and societies, i.e., the role of ancient Chorasmia on

⁴⁵ Vorob'eva 1973.

⁴⁶ Tolstov and Vainberg 1967.

⁴⁷ Rapoport and Lapirovo-Skoblo 1963.

⁴⁸ Tolstov 1962: 96-227.

⁴⁹ Tolstov and Vorob'eva 1959.

⁵⁰ For example, the new published monograph on the excavation of Kalaly-Gyr 2 carried out during 1980s, see Vainberg 2004. Minardi has presented a brief report on ceramics too, only as part of a material culture study, see Minardi 2015, section IV and V.

⁵¹ Vishnevskaya 1971, 1972, 1978, 1979.

⁵² Vainberg 1987 and 2004. Notably, a fine edition of the report on Kalaly-Gyr 2 has been published in 2004, offering a comprehensive view with the latest scholarly discussion on materials obtained from the site. See Vainberg 2004, chapter 3 in particular for pottery analysis.

⁵³ Nerazik and Rapoport 1981; Rapoport and Nerazik 1984.

the trade route linking the nomads in the north and civilizations on the southern branches of Amu-Darya.⁵⁴

Since 1991 and the collapse of the Soviet Union, there have been more publications regarding the works of KhAEE offered to the international public, in English, French and German.⁵⁵ Research works on ancient Chorasmia (basically interpretive or in summary) by Russian scholars have been continuing since the 1990s.⁵⁶ Despite the lack of new material due to their limited access to the archaeological sites in Central Asia. Then later in 1995, a new archaeological expedition, initiated by the Karakalpak Branch of the Academy of Sciences of the Republic of Uzbekistan in collaboration with the University of Sydney, known as the Karakalpak-Australian Archaeological Expedition (KAE), has begun to conduct surveys and excavations in the vast area of Tash-k'irman Oasis and the site Akchakhan-Kala, on which excavations have been ongoing until the present. Recently the KAE has celebrated its 25th anniversary of excavation works on the site Tash-K'irman Tepe and Akchakhan-Kala, amassing a considerable corpus of material from both sites. In the past decade, members of the KAE team have produced numerous publications revealing new data from the sites, casting new light on the old Soviet paradigm.⁵⁷ Also, as mentioned above, the number of pottery sherds retrieved from the site is extensive. However, to date there has been a lack of organized and solid analysis of the pottery assemblage from Akchakhan-Kala, under the new light of KAE's work on the site. This thesis project is only possible at this very point when we have both the wisdom of the outstanding pioneers (*viz.*, S. P. Tolstov and his colleagues) and sufficient new material, and thus are capable of revisiting the pottery typology paradigm and to some extent challenging the existing Chorasmian chronology.

1.3 Chronological Considerations

One of the main purposes of this thesis is to provide a perspective from pottery analysis to shed some new lights on the former Chorasmian periodisation, with regard in particular to a time-span between the early 2nd Century BCE and the 2nd Century CE (regarding two successive chronological phases, Antique II and III, *infra*). Given the fact that the current sequence for Chorasmian pottery

⁵⁴ Bolelov 2005, 2013.

⁵⁵ Mainly based on the previous excavations of fortifications, e.g., Vainberg 1994, Rapoport 1994 and Khozhaniyazov 2005.

⁵⁶ For example, Bolelov has looked into the regional interactions between Chorasmia and the Ural region, see Bolelov 2005, 2013; a review and revision of the periodization of ancient Chorasmia, especially that of the late Archaic Period, see Bolelov 2004. For a monograph summarizing the sixty-year archaeological works of the Soviet expedition in Chorasmia, see Rapoport, Nerazik and Levina 2000.

⁵⁷ See Helms and Yagodin 1997, Helms et al. 2001, 2002 and Betts et al. 2009 for preliminary excavation reports. For more on Akchakhan-Kala wall paintings, see Kidd et al. 2004, Kidd 2011, Yagodin et al. 2009, Betts et al. 2012, 2015 and Minardi et al. 2018. See also research on fire temples in Betts and Yagodin 2008, Sinisi et al. 2018. And for the latest progress on the monumental building, see Minardi 2012, Minardi and Khozhaniyazov 2015, Minardi et al. 2017.

was built accordingly, it is necessary to give a general review of the evolution of Chorasmian periodisation in advance.

The current historical sequence of ancient Chorasmia adopted by most Russian scholars is an up-to-date version upgraded from the first Chorasmian chronology created by Tolstov in 1948. It confines the history of pre-Islamic Chorasmia roughly into four main stages: The Bronze Age, the Iron Age, the Antique Period and the Afrighid Period of the Middle Ages (Table 1, as an updated edition after Khozhaniyazov 2005). There are three phases concerning antique period of Chorasmia since the Achaemenid involvements in the 6th Century BCE: the “Archaic”, the “Kangyui” and the “Kushan” phases — the last two were entitled and defined according to Tolstov’s historical interpretation of two mighty polities who respectively had claimed suzerainty/dominion over Chorasmia. This thought, although not widely accepted due to lack of textual and archaeological evidence, has generated the whole chronology and periodisation currently prevailing for defining the facies of Ancient Chorasmia and the material culture.⁵⁸ The time range of the “Kangyui” and early “Kushan” phases from the 4th century BCE to the 2nd Centuries CE (shaded columns of Table 1,) which roughly overlaps the whole occupation time of Akchakhan-Kala, is the most problematic, as being based solely on the pottery typology by Vorob’eva, in addition to dating of metal arrowheads in some cases.

Table 1 Chorasmian Periodisation by KhAEE (after Khozhaniyazov 2005)

BRONZE AGE	
2 nd millennium – 9 th Centuries BCE	Suyargan
15 th – 11 th Centuries BCE	Tazabag’yab Culture
EARLY IRON AGE	
9 th – 8 th Centuries BCE	Amirabad Culture
ARCHAIC PERIOD	
7 th -4 th Centuries BCE	Kyuzeli-Gyr I (7 th /6 th century BCE)
	Dingil’dzhe (Mid 5 th century BCE)
	Kalaly-Gyr I (5 th century BCE)
	Khazarasp (5 th /4 th century BCE)
ANTIQUE: “KANGYUI”	
4 th – 3 rd centuries BCE	Early Kangyui
2 nd century BCE – early 1 st century CE	Late Kangyui
ANTIQUE: “KUSHAN”	
1 st – 2 nd centuries CE	Early Kushan
3 rd – 4 th centuries CE	Late Kushan
ANTIQUE: “KUSHAN-AFRIGHID”	
Late 4 th – 5 th centuries CE	Kushan-Afrighid
“AFRIGHID”	

⁵⁸ On the criticism of the methodology and periodisation of KhAEE in detail, see Minardi 2015.

Despite the “Archaic” phase that refers to the Early Antique period of Chorasmia, it appears that the so-called “Kangyui” and “Kushan” phases had very little physical contact with the two mighty powers of the same names, or rather, they represent only the endeavours of Tolstov seeking for the position of Chorasmia in the general historical context of Central Asia. In the very beginning of the research, this adoption of historical terms may provide a quick approach to understanding the chronology, however, it is also prone to deliver a biased historical interpretation of ancient Chorasmia.

The “Archaic” Phase (7th -4th Centuries BCE according to KhAEE), just as its name implies, corresponds to the initiation of historical Chorasmia when the Achaemenid Empire first claimed suzerainty over it. The socio-political transformation brought about outstanding new changes to the polity, including newly erected fortifications, extensive hydraulic systems and new material culture. Pottery from the “Archaic” sites already presented some traits of local production, e.g., the early appearance of red paint; the extensive use of red slip. Large storage vessels (“*Khoum*” or “*Khoumchi*” in Russian literature) prevailed in the assemblages, as well as the so-called “cylindrical-conical” vessels.⁵⁹ possibly related to the “Yaz” material culture (*infra*), a distinguishing feature of which is a sharp carination on the lower body.

The “Kangyui” Phase (4th BCE-early 1st Centuries CE, according to KhAEE) is named after a powerful nomadic/semi-nomadic polity *Kangju* (康居), which at the time controlled a vast territory corresponding roughly to the region between the Oxus (Amu-Darya) and the Jaxartes (Syr-Darya), as witnessed and recorded in the 1st century BCE Chinese chronicle *Shiji* (123). The notion was later adopted by Tolstov (Tolstov 1948a) to interpret the unknown period following the end of the “Archaic” phase, characterized by new material typology accompanied by various new features, i.e., the novelty of building techniques and craftsmanship.⁶⁰ In the meanwhile, Chorasmia witnessed accelerating growth in agricultural techniques and livelihood strategies.⁶¹ exemplified by the expansion of irrigation systems which, though already built on a smaller scale during the former period, were enlarged significantly.⁶² on account of the surging demand for irrigated agriculture to maintain the growing sedentary population from the nearby *kalas*, unfortified manors and houses. Nevertheless, the presence of “Kangyui” phase was most crucially defined by ceramic typology. In one of the most important research works of Vorob’eva—the ceramic typology of antique period (in *TKhAEE IV*), she for the first time identified several attributes of the typical “Kangyui” pottery: red/brown paints in various designs (e.g., spirals, circles, triangles and “comma”) on the exterior,

⁵⁹ Tolstov and Vorob’eva 1959:66-84; Vogelsang 1992:268-270.

⁶⁰ Adrianov 1969:124-137; Rapoport, Nerazik and Levina 2000:34-35; Khozhaniyazov 2005:40-42.

⁶¹ The cultivation of drought-tolerant crops along with cattle grazing remains the major livelihood strategy throughout the antique period. In addition, new crops such as grapes, melons, peaches, olives and pomegranates were cultivated as supplementary to the main livelihood, see Brite 2016, also Brite et al. 2017, figure 5.

⁶² Khozhaniyazov 2005:40-41.

the appearance of several new forms (e.g., pilgrim flasks, rhyta, jugs decorated with animal heads on the handle, and miniature vessels), also the standardisation of pottery production in general (Vorob'eva 1959). Large storage jars remained popular, with some new changes: the typical cylindrical wares completely disappeared, and carination on the lower body became rare.⁶³

The notion of the “Kushan” phase (1st-4th Centuries CE, according to the periodisation of the KhAEE) corresponding to the rise of Kushan power to the south of Chorasmia in confrontation with the *Kangju*.⁶⁴ in the north, was another historical interpretation by Tolstov to explain the new changes in material culture and the underlying socio-political change of the environment (Tolstov 1948a). In ancient Chorasmia, the “Kushan” phase was first identified in the excavation of the palatial architecture at Toprak-kala. It also saw an early phase coinciding with the final stage at Akchakhan-kala, and thus will also be revisited in the thesis.

To some extent, we could say that Tolstov's periodisation attests to Vorob'eva's typology, and *vice versa*. This is where the main defect of the system lies, lack of solid stratigraphic evidence and secured radiocarbon dates. Neither the periodisation nor pottery typology could provide reliable chronological conclusions, not to mention both that works have been literally set in stone for a long time notwithstanding new evidence from archaeological works in recent decades.

Thus, in light of the latest field works by the KAE, a more recent revision of the periodisation has been advanced by Minardi (Table 2) who in particular questioned the definition of the former “Kangyui” and “Kushan” periods and looked into the underlying chronological messages of such divisions (Minardi 2015).

Table 2 Chorasmian Periodization by Minardi (after Minardi 2015, table 2)

IRON AGE – “PRE-ARAL AREA”	
IRON AGE 1 9 th – 7 th Centuries BCE	“Right Bank”: Amirabad Culture “Left Bank”: Sacae?
IRON AGE 2 7 th - mid 6 th Centuries BCE	“Right Bank”: Late Amirabad Yakke Parsan 14 “Left Bank”: Kuyusai 2, Sacae
ANTIQUÉ – ANCIENT CHORASMIA	
ANTIQUÉ I (formerly ARCHAIC) Ca. mid 6 th - late 4 th Centuries BCE	Kyuzeli-gyr (ca. mid 6 th – 4 th Centuries BCE) Dingil'dzhe (mid 5 th – 4 th Centuries BCE)
ANTIQUÉ II (form. KANGYUI) 3 rd - mid 1 st Centuries BCE	Kalaly-gyr 1 (3 rd /2 nd Century BCE) Koi-Krylgan-kala “Lower Horizon” Akchakhan-kala Stages IA/B, IIA/B
ANTIQUÉ III (form. KUSHAN) Mid 1 st BCE- 4 th Centuries CE	
EARLY Mid 1 st BCE - early 3 rd Centuries CE	Akchakhan-kala Stages IIIA/B, IV Koi-Krylgan-kala “Middle & Top Horizons”

⁶³ For more detailed discussions on the pottery assemblage, see *infra* II.3.

⁶⁴ On the opposition between the *Kangju* and the Kushan, and the Iron Gates erected on the sedentary frontier, see Rapin 2007.

	Toprak-kala “Horizon I” (1 st /2 nd Century CE)
LATE Early 3 rd – 4 th Centuries CE	Toprak-kala “Horizon II”
AFRIGHID – LATE ANTIQUITY 4 th – 8 th Centuries CE	Toprak-kala “Horizon III”

As presented in Table 2, modifications mainly concern two periods: Antique II and early Antique III, corresponding to a time span from the 3rd BCE to early 3rd Centuries CE (as shaded in Table 2)—roughly overlapping the occupation period of Akchakhan-kala (ca. early 2nd century BCE-2nd century CE, as determined by radiocarbon dates, see *infra* III.4). The former “Archaic” period was replaced by Antique I as the beginning of the historical period of ancient Chorasmia coinciding with Achaemenid involvements in Central Asia issues in the 6th Centuries BCE. As for the second phase of Antique Period, Minardi has proposed a lower and shorter chronology different from the traditional “Kangyui” period (4th BCE-1st Centuries CE). His division of Antique II between 3rd -mid 1st Centuries BCE and new interpretation accordingly, on account of new archaeological evidence and reconsideration of the previously published materials by the Soviet archaeologists, has cast new light on the foreign relations of ancient Chorasmia, quite contrary to the traditional interpretation of “Kangyui” period as a cultural isolated time. It is actually only in this period (Antique II) that cultural elements from the Hellenised world finally assimilated into Chorasmia, as manifested in the novelty of material culture and various techniques which cannot be antecedent to the late 4th Century BCE (Minardi 2015:125-126). By the end of the 1st Century BCE a series of changes in the material culture marked the advent of a new period—the division of Antique III between the mid 1st BCE and 4th Centuries CE brings the start of Antique III to a century earlier than the former “Kushan” period. The periodisation also coincides with new evidence from the excavation of Akchakhan-kala (especially the end of Stage IIA and Stage IIIA/B) and the hypothesis of the start of “Chorasmian Era” in ca. 50 BCE (Minardi 2015). The calendar was first recognized in the excavation of the grandiose palatial site of Toprak-kala—the most likely royal capital of Chorasmia subsequent to the desolation of Akchakhan-kala, in which the presence of a Chorasmian “king” was testified.

The chronology of Akchakhan-kala roughly corresponds with the most problematic phases of the antique period (Antique II to early Antique III) and thus plays a crucial part in clarifying the chronology of the antique period. In terms of current scholarships of the KAE, this thesis will provide new evidence derived from pottery analysis from the past 25 years of excavation of the site, to hopefully cast new light on the revised periodisation.

1.4 Thesis Aims and Approaches

1.4.1 Aims

The primary aim of the thesis is to investigate the pottery of the site Akchakhan-kala and provide reliable a cultural sequence with archaeological contexts and secured dating evidence. Based on the outcomes of the Akchakhan-kala assemblage analysis, the thesis will further revisit the existing chronology of Chorasmian pottery and investigate potential interactions with foreign material cultures. As the latest works of KAE members have already elucidated various cultural links of Chorasmia with south polities, Parthia and the Hellenised world⁶⁵, there is still a lack of studies from the perspective of pottery.

Pottery, as one of the most common and important finds at an archaeological site, usually forms the ground upon which we establish the concept of “archaeological cultures”. The study of pottery typologies is not only crucial in understanding the material culture itself, but also key to tracking possible connections to other cultures. This is especially significant in archaeological cultures without or with little textual information, such as ancient Chorasmia. By analysing the pottery assemblage, I wish to open a door to placing Akchakhan-kala in the larger framework of Central Asian archaeological sites within the mainstream cultural influences, i.e., Hellenism, Persia, nomads etc.

1.4.2 Approaches and Presumed Limitations

The thesis works on the pottery of Akchakhan-Kala within a rational theoretical framework, studying the pottery assemblage in combination with archaeological context and stratigraphy information, in order to contribute to a more reliable cultural sequence of Chorasmian pottery than the former Soviet ones (Vorob’eva 1959). With radiocarbon samples collected in different areas of the site, it is now possible to nail down the chronology of the site within a relative precise time range with absolute dating⁶⁶.

In the following Section II, the thesis will present a comprehensive review of Chorasmian sites and ceramic assemblages based on Vorob’eva’s work in 1959 and later publications on the pottery excavated from Toprak-Kala, Koi-Krylgan-Kala and Kalaly-Gyr 2 etc. This overview comprises a broader chronological extension to include pottery of prehistoric period, i.e., the Bronze Age and early Iron Age assemblages, to illustrate the sudden cultural shift at the beginning of the 6th century

⁶⁵ For instance, Kidd 2011; Minardi 2015, 2016a, 2016b, 2018 and 2020.

⁶⁶ The results remain largely unpublished by now, although the radiocarbon determination collected early in Area 07 has indicated the primary stage of the fortification around the early 2nd century BCE which may also apply in Areas 01, 06, 09 of the early structures of the eastern wall of the upper enclosure. See Helms et al. 2001:136-139, table 2. Detailed information and more on dating of Area 09 and others, see *infra* III.4.2.

BCE. In addition, a brief note on the late antiquity period (the early 4th -8th Centuries CE) will be presented.

Considering the complexity of the excavation of Akchakhan-kala during the past decades, i.e., different methodologies applied in excavation and documentation⁶⁷, difficulties in accessing some early documents and materials⁶⁸, it has always been tricky when dealing with the materials from different excavations all together. Moreover, due to the severe natural environment in which the site was located, many upper layers and structures suffered serious wind erosion which left very few well preserved archaeological contexts of clear stratigraphy. Only two areas: the Fortification-related areas—including Areas 01, 06 and 09, and the Ceremonial Complex (Area 10)⁶⁹, can provide both well-stratified context and sufficient radiocarbon dates that can almost secure a chronological sequence. Two separate phasing systems⁷⁰ were then developed in the two areas. Unfortunately, excavations of other areas provide very little chronological and stratigraphic information in relation to these two, and cannot fit into the existing phasing. Accordingly, I have to break the corpus into three separate assemblages. The first one comprises diagnostic sherds from the Fortifications and their related contexts, i.e., Areas 01, 06, 09 and a single trench from Area 10 (10 13). It is of the uppermost importance to the development of chronology, as it has provided the most detailed dating information as well as good stratigraphy. The second group concerns the excavation of the Ceremonial Complex (Area 10), part of which (mainly the Central Building) has attested to a separate chronological sequence (Stages IB-III B). The third group is composed of diagnostic sherds from excavations in other areas of the site, which are lacking in successive stratigraphy and barely fit in the existing phasing. The division has certainly caused limitations in the analysis of each assemblage and also difficulties in combining them. In terms of the separation of three assemblages, I adopted a different system of classification based on “genres and types”. Detailed discussions on the issue are presented in Section IV.

Moreover, another critical limitation is relevant to the realistic issue of COVID restrictions around the world that has pricked my last bubble of hope going on the field myself for the rest of my PhD candidature, which caused many troubles with the thesis writing. As all the physical materials are kept on field, we managed to get everything photographed and transferred to me, with the help of local colleagues. There are certainly some gaps between photographs and physical objects, but it has been the only possible way to deal with the data for the thesis. I hope this could be possibly fixed in the final publication.

⁶⁷ In early cases, particularly KAE works of 1990s, the absence of provenance information is a too common problem, and it is extremely hard to retrieve from old archives in which pottery finds were usually mentioned briefly.

⁶⁸ As I personally visited the Archaeology Institute of Nukus where the pottery finds of Akchakhan-kala are kept, most of them were placed in an unsecure open environment, while some sherds were already missing, broken or kept in mixed bags.

⁶⁹ For a more detailed report on the excavation of Akchakhan-kala, see *infra* III.4.

⁷⁰ However, we can hardly link them due to the lack of stratigraphical evidence, see *infra* III.4.

1.5 Summary

The thesis presents new data on Chorasmian pottery obtained from the latest excavation of the site Akchakhan-kala, together with new chronological and stratigraphic evidence. One of the ultimate goals of the thesis is to contribute to the revision of the current Chorasmian pottery chronology and typology by Soviet scholars, hitherto barely challenged since the 1950s. The Akchakhan-kala assemblage offers a good chance to do that as it was secured by solid radiocarbon evidence and good, although limited, records of stratigraphy to create a reliable sequence for pottery. In addition, excavations at the site and the continuing data analyses afterwards were carried out in recent years using scientific, modern methodologies. Unlike the sketchy style of records (lack of information on provenance, fabrics and size etc.) commonly seen in ceramic publication of the Soviet-era, the thesis manages to provide systematic pottery catalogue with detailed description on key information, such as provenance (area/trench/level), size (diameter), fabrics, surface treatment and decorations, with reference to drawings or photographs. This is of benefit to any further in-depth research that may in need of the materials. All of the above form the theoretical ground of the thesis in seeking for the rational updated pottery typology and chronology of ancient Chorasmia.

Except for Section I as preamble and introduction to the scholarly background of the research, the thesis comprises several sections as follows. Section II reviews archaeological sites and ceramic assemblages with regard to the current ceramic chronology and typology, spanning a broad time range from pre-Achaemenid Chorasmia before the 6th century BCE to the end of the Antique Period in the 4th century CE (II.2-3). Section III focuses on the important excavations by KAE in the Tashk'irman Oasis, introducing the excavation of Akchakhan-kala throughout the whole twenty-five years (III.4). Chapter 4 unravels key stratigraphy and phasing of the site, and provides new evidence on absolute dating. Systematic analyses of the Akchakhan-kala pottery assemblages will be presented in the following Section IV, including fabric analyses (IV.5) and classifications in terms of basic forms, rim morphology and important decorated features (IV.6). Moreover, in Chapter 7, I intended to combine the analyses of the three major assemblages and present a thorough understanding of the Akchakhan-kala corpus with regard to its chronological sequence. Furthermore, a brief note on the comparative study of Akchakhan-kala pottery with the external world will be presented in IV.7.

One of my best hopes for this thesis is to form an academic foundation to inspire further in-depth studies on ancient Chorasmia. Nevertheless, there is an unpredictable factor that I have to confront during the writing. As a consequence of the lasting COVID pandemic, it has been tough to travel abroad for data collection, which considerably affected the writing of the thesis. As a result, I have had to adjust my working pattern to a remote mode, leaning mainly on data collected and transferred by local colleagues in Uzbekistan. The outcomes have not been ideal but I managed to mitigate the inconsistency caused by remote working (see details in IV.5.1). Consequently, this

work should be seen as a preliminary outcome of the study of Akchakhan-kala pottery, and a foundation for further continuing studies.

SECTION II: THE ARCHAEOLOGY OF ANCIENT CHORASMIA

“From this place we saw the grandiose and unforgettable panorama of ancient Khorezm. Far on the northern horizon we saw the blue silhouette of Sultan-Uiz-Dag and everywhere there were countless ruins of fortresses, palaces and small cities.”⁷¹

When Tolstov’s caravan first arrived at the rich irrigable land of the Amu-darya Delta, apart from rolling dunes and desert vegetation, they saw countless ruins of fortresses, manors and hydrological works of different times, from the early Antique to Medieval period, old and new all standing together. It is no wonder that in his later monograph *Drevnii Khorezm*, the antique period of Chorasmia was referred to as “the time of a thousand cities”⁷². As mentioned in Section I, the rise of large fortification works with monumental buildings affiliated to them is a remarkable achievement of Antique Chorasmia. The start of Antique period corresponds with Chorasmia’s incorporation into the Achaemenid satrapy during the reign of Cyrus the Great (559-530 BCE) through which new techniques (architecture, large-scale irrigation and craftsmanship etc.), material culture and religion (Zoroastrianism) flowed into Chorasmia, proclaiming a new era of local prosperity—up until the native Chorasmian Iranian Dynasty, the Afrighids (early 4th-8th Centuries CE), brought sharp changes to the local material culture.

In this section, the following chapters will work through previous archaeological works of Antique Chorasmia by regions-sites and accordingly present a thorough review of the study of Chorasmian pottery, for a timespan this thesis concerns most, scilicet ca.6th century BCE to 4th Century CE, roughly overlapping the entire Antique period of Chorasmia. Through reviews of key sites and pottery assemblages, the following two chapters will provide the foundation for better understanding the Akchakhan-kala corpus within the Antique context of ancient Chorasmia. The revisiting of several important sites and assemblages is particularly crucial, for introducing a larger corpus to which a smaller one like Akchakhan-kala could refer and for the latter to be more clearly presented in the following chapters.

Chapter 2. Archaeology of Ancient Chorasmia

Written sources regarding ancient Chorasmia are scanty, partly due to its remote and closed location, and partly as a result of the Arab Conquest in 712 CE when ancient literature was almost

⁷¹ An excerpt from Tolstov 1948b: 31

⁷² Tolstov 1948a: 77.

all destroyed or lost in war, leaving the past of pre-Islamic Chorasmia in deep obscurity⁷³. Therefore, archaeology undoubtedly plays a major role in reconstructing the history of pre-Islamic Chorasmia. There is no exaggeration to say that Chorasmia, as an ancient polity, is defined by modern archaeological works on mud-brick fortifications, monumental structures, canalisations, and distinct ceramic repertoire etc. To look into the nature of the ancient polity, one has to go through archaeological sites on the territory first.

Excavations and surveys of sites over the vast territory of Chorasmia have been conducted intensively by the Chorasmian expedition (*KhAEE*) in the 20th Century, followed by the joint expedition of Karakalpakstan and Australia (*KAE*) during the last two decades⁷⁴. Many scholars have presented convenient summary/gazetteers of these archaeological results⁷⁵ from different viewpoints. For instance, Khozhaniyazov has provided a view of investigations into Chorasmian defensive works in both northern and southern areas⁷⁶; Negus-Cleary has assembled a large amount of data from publications and fieldwork to present a comprehensive database—including information on the site location, dating, plan and image, etc., of sites in the Amu-darya Delta⁷⁷; Minardi's interest lay on the external stimuli on Chorasmian material culture and he has presented a detailed analysis⁷⁸. In terms of archaeological works done since the Soviet era, this chapter will provide the latest review on selected sites with reported pottery information or relevant special finds. Sites without such information or those that have not been thoroughly investigated are not discussed in this chapter.

As well as the Antique Period (ca.6th Century BCE-early 4th Century CE) which the thesis concerns most, key sites of the precedent late Iron Age (7th- mid 6th Centuries BCE) and that of the subsequent Kushan-Afrighid/Early Afrighid periods will also be included to observe the shift and continuity of material culture.

Sites discussed in the text are listed below (Table 3). The period/dating information is based mostly on published reports, yet in the meantime bearing in mind the big loophole in Chorasmian periodisation: without solid radiocarbon dates, there is no absolute date for most of the sites. The few sites with secure calibrated radiocarbon dates will be marked with “C”.

⁷³ This loss was noted by the Chorasmian Arab scholar Al-Biruni (973-ca.1050 CE) when examining the chronology of ancient nations. He wrote that, “Kutaiba ben Muslim had extinguished and ruined in every possible way all those who knew how to write and to read the Khwarizmi writing, who knew the history of the country and who studied their sciences. In consequence these things are involved in so much obscurity, that it is impossible to obtain an accurate knowledge of the history.” (Al-Biruni 36)

⁷⁴ See Section I.1.2.

⁷⁵ Summaries in general, see Tolstov 1948a, 1948b, 1962; Vogelsang 1992:289-291; Helms 1998.

⁷⁶ Khozhaniyazov 2005:46-69.

⁷⁷ Negus-Cleary 2004, appendix 3.

⁷⁸ Minardi 2015, chap. IV, V.

Concerning the extreme geographical and hydrological context in which subsistence counted on limited areas with water supply, it is natural to see a distribution pattern of ancient Chorasmian sites closely bound up with the change of river channels.⁷⁹ Accordingly, the chapter will break down the Chorasmian territory into a few geographical/hydrological areas, i.e., west Chorasmia (in the pre-Sarykamysch Delta along branches of ‘Daudan’ River), east Chorasmia (mainly located in the Akcha-darya delta), the north-eastern area (which goes slightly beyond the north-eastern boundary to reach the southern Syr-darya Delta) and the southern area in which sporadic sites stood by the southern gateway of Chorasmia to Bactria and Sogdiana. (Map 1)

Table 3 Key archaeological sites of ancient Chorasmia

Area	Site	Period/Dating	Publications
West Chorasmia	Kuyusai 2	Iron Age (7 th -6 th Century BCE)	Vainberg 1979a, <i>TKhAEE XI</i> : 7-76
	Kyuzeli-gyr	Antique I (ca. 6 th - 4 th Century BCE. ⁸⁰)	Tolstov 1948a:77-82 ---; 1958a in <i>TKhAEE II</i> :143-153 ---; 1962:96-109 Vishnevskaya 1971; 1972; 1978; 1979 Vishnevskaya and Rapoport 1997
	Tarym-kaya	5 th -4 th Centuries BCE	Vainberg 1979a; Trofimova 1979; Yusupov 1979 in <i>TKhAEE XI</i>
	Tumek-kichidzhik	7 th -6 th Centuries BCE; 2 nd - 1 st Centuries BCE	Lokhovits 1979; Vainberg 1979a, b in <i>TKhAEE XI</i>
	Kalaly-gyr1	Antique II 5 th /4 th Century BCE; 4 th -2 nd Centuries BCE; 2 nd -4 th Centuries CE. ⁸¹	Tolstov 1948a: 77-82 ---. 1958a, <i>TKhAEE II</i> : 153-167 ---. 1962: 109-117 Rapoport and Lapirovo-Skoblo 1963, <i>MKhE VI</i> :141-156 Rapoport 1987

⁷⁹ Cf. Dodson et al. 2015, fig 2.

⁸⁰ The time range was initially proposed by Tolstov in id. 1948a and then revised to the 6th-5th Centuries BCE by the same author, cf. Tolstov 1958a:143-153,1962:96-109. A higher chronology up to the 7th -6th Centuries BCE was advanced by Vishnevskaya and Rapoport in id.1997, cf. Khozhaniyazov 2005, tb.1, and was most recently refuted in Minardi 2015 (idem, 66-72, n.305).

⁸¹ Again, a lower chronology between the early 3rd-2nd Century BCE was argued by Minardi, see id. 2015:97-103, also *infra*.

	Kalaly-gyr 2	Antique II (4 th -2 nd Centuries BCE)	Vainberg 1987;1994; 2004 Bolelov 2000; 2010
	Toprak-kala Shavatskaya	Antique II-III	Mambetullaev 1986
	Kunya-uaz	Antique II/III, medieval period	Nerazik 1958 in <i>TKhAEE II</i> : 367-396
East Chorasmia	Yakke- Parsan 2	Late Bronze Age/Early Iron Age	Tolstov and Vinogradov eds. 1963 <i>MKhE VI</i> Itina 1977 <i>TKhAEE X</i>
	Yakke- Parsan 14	Iron Age (7 th -6 th Centuries BCE)	Itina 1977 <i>TKhAEE X</i>
	Dingildzhe	Antique I (5 th Cenrury BCE)	Tolstov 1958b:116-118 ---. 1962: 96-109 Vorob'eva 1973, <i>MKhE IX</i> (the whole book)
	Bazar-kala	Antique I?	Tolstov 1948a:112-113; ---. 1962: 82, 86, fig.21
	Dzhanbas- kala settlement	Antique III (1 st -3 rd Centuries CE)	Tolstov 1948a: 87-98 Nerazik 1976: 23-35
	Koi- Krylgan-kala	Antique II - the “Lower Horizon” Antique III – the “Upper Horizon” (1 st - 3 rd Centuries CE)	Tolstov 1953:160-174 ---. 1958a, <i>TKhAEE II</i> : 168-192 ---. 1958b:118-123 ---. 1962: 117-135 Tolstov and Vainberg 1967, <i>TKhAEE V</i> (the whole book)
	Akchakhan- kala (C)	Antique II-Stage I/ IIA, B (ca. 2 nd -1 st Centuries BCE) Antique III-Stage IIIA/B (1 st Century BCE – mid 2 nd Century CE)	Helms and Yagodin 1997 Helms et al. 2001; 2002 Betts et al. 2009; 2012; 2015 Minardi 2012 Minardi and Khozhaniyazov 2015
	Tash- K'irman Tepe (C)	Antique III? (ca.1 st Century BCE-3 rd Century CE)	Betts and Yagodin 2007; 2008

	Ayaz-kala 3; settlement	Antique II/III	Nerazik 1976: 37-48 Bolelov 1998
	Toprak-kala	Antique III (1 st /2 nd -3 rd Centuries CE) Afrighid (4 th -6 th Centuries CE) Middle Age	Tolstov 1948a: 119-127 ---. 1952, <i>TKhAEE I</i> : 31-45 Orlov 1952, <i>TKhAEE I</i> : 47-66 Tolstov 1958a, <i>TKhAEE II</i> : 195-216 ---. 1962: 204-227 Nerazik and Rapoport 1981, <i>TKhAEE XII</i> (the whole book) Rapoport and Nerazik 1984, <i>TKhAEE XIV</i> (the whole book) Rapoport 1994
South Chorasmia	Khumbuz-tepe	Antique I /II/III (7 th BCE-4 th Centuries CE)	Mambetullaev 1984:21-39 Levina and Mambetullaev 1986 Bolelov 1999: 85-90
	Elkharas	Antique II/III	Itina (ed.) 1991 <i>TKhAEE XVI</i> : 80-154 Levina 2001 Bongard-Levin and Košelenko 2005
	Kaparas	Antique II/III	Itina (ed.) 1991 <i>TKhAEE XVI</i> :155-263
	Khazarasp	Antique II/III, Medieval time	Vorob'eva, Lapirovo-Skoblo and Nerazik 1963 in <i>MKhe VI</i> : 157-200
Sites about Syr-darya	Uigarak	7 th -5 th Centuries BCE	Vishnevskaya 1973 <i>TKhAEE VIII</i> (the whole book)
Delta	Chirik-rabat	5 th -2 nd Centuries BCE	Tolstov, Vorob'eva and Rapoport 1960: 23-40 Tostov 1962:139-154 Vainberg and Levina 1993
	Babish-mulla 1&2	5 th -2 nd Centuries BCE	Tolstov, Vorob'eva and Rapoport 1960: 40-62 Tolstov 1962:154-170

2.1 West Chorasmia

The sites on left bank Chorasmia were located most extensively within reach of the now lost Daudan River, and consisted mainly of two different cultures: the Kuyusai culture of the late Iron Age named after the site Kuyusai 2, and the Antique Chorasmian culture, e.g., Kyuzeli-gyr, Kalalygyr 1 & 2, as well as numerous kurgan burials. (Map 2)

At some point around the 6th Century BCE, an abrupt change of material culture took place in Chorasmia, marked by the sudden appearance of large fortified sites and new ceramic types, apparently related to the socio-political shift of the state under the dominion of the Achaemenid Empire—this is the classic commencement of a new Chorasmian era which is called the Antique Period in the current revision of the Chorasmian chronology after Minardi (2015). This new era was preceded by the local Iron Age culture, which prospered between the 7th and 6th Centuries BCE and continued to last in parallel with the Antique culture for centuries. The Iron Age material culture is characterised by pottery related to the Yaz type⁸² in addition to new elements from the Antique culture. Such sites are most manifest on left bank Chorasmia, such as Kuyusai 2, a contemporary of which can be found on the Right Bank, Yakke-Parsan 14— a number of sites which attest to the new development of the Amirabad Culture (the local Iron Age culture that flourished specifically on the Right Bank, see *infra*).

In proximity to the earliest known Antique stronghold Kyuzeli-gyr lies the settlement of Kuyusai 2, the site dated back to the 7th Century BCE, shortly before the appearance of Achaemenid cultural influence, while the homonymous culture extended to a later period up to the 4th Century BCE in the area⁸³. The site was initially explored by Andrianov in 1953, followed by a further survey in 1970 when a series of interesting surface finds was disclosed, including bronze arrowheads, pottery sherds belong to the “Yaz-II” type and the “Archaic Dehistan”⁸⁴ type of South Turkmenistan (Itina 1979, tab. IX), remains of copper forging and iron making, as well as turquoise processing⁸⁵. It is worth noting that no traces of irrigation were found near the Kuyusai settlement, nor a fortified structure, while in close vicinity stood the first fortress of Chorasmia (as far as known

⁸² The “Yaz” type material, first excavated and studied by V. M. Masson, is an important material culture of the Iron Age recognized in the site Yaz-depe, Margiana. The “Yaz” sequence has then generally applied throughout Central Asia to sites of the same time range, after Masson (Masson 1959). See *infra*.

⁸³ Itina 1979:5.

⁸⁴ The “Archaic Dehistan Complex” is known as an Iron Age sequence of the Dehistan Plain located in Northern Hyrcania. The material culture is a highly self-developed one, without much external influence. Key sites include Tangsikyl’dzha, Chialyk-depe, Madau-depe etc. Masson 1956: 385-458; Masson and Sarianidi 1972: 155-158. Muradova 1991; Lecomte 2005.

⁸⁵ Vainberg 1979a:7.

to us), Kyuzeli-gyr, where more specimens of the similar “Yaz” type pottery were unearthed, known later as the Chorasmian “Archaic” pottery. Given the fact that no substantial evidence of any Bronze Age cultural layer has yet to be found in this area (coinciding with the drying-up of the southern pre-Sarykamysch delta during the period, *ibid.*), the Kuyusai settlement is probably among the earliest ones⁸⁶. Vainberg has proposed a hypothesis on the origin of the Kuyusai people. She suggested, chiefly in accordance with the combination of “Yaz-II” and “Archaic Dehistan” specimens among the assemblage, and secondarily with materials from the burial mounds, that the origin of the Kuyusai people should be within southern Turkmenistan or northern Iran⁸⁷. In fact, the finds at Kuyusai sites illustrate vigorous communication with the neighbouring regions: apart from the pottery characteristic of the south/south-east areas, there are arrowheads associated with the northern steppe in Kazakhstan; turquoise productions that may testify to the Susa inscription in which “Chorasmia” was mentioned as a source of precious turquoise for the decoration of the palace⁸⁸ (e.g., DSf §3h. 35-40, Kent 1950); and lapis lazuli that originally derived from Badakhshan in north-eastern Afghanistan⁸⁹.

Kuyusai 2 is dated to a shorter timespan between the 7th and 6th Centuries BCE, chiefly based on the finds of “Yaz-II” and “Archaic Dehistan” pottery of which a rather thoroughly studied chronology has already been established beyond Chorasmia⁹⁰, and then on the morphology of arrowheads (Vainberg 1979a). Meanwhile, Kuyusai material continued to last in later nomadic burials (kurgan) nearby, e.g., Tarym-kaya, Tumek-kichidzhik (*ibid.*) etc., until it faded into the local Chorasmian material culture by the 4th Century BCE (*ibid.* 44-45).

The nature of the Kuyusai Culture, according to the excavator, is a semi-sedentary one, with dug-out dwellings and cattle-breeding, yet lacking in mature irrigation farming (which cannot lead to the total absence of agriculture, as in fact, there is evidence hinting to the existence of agriculture, though it remained at a quite primary level [Vainberg 1979a])⁹¹. The material culture saw strong local traits (e.g., the traditional hand-modelled pottery, extensive use of red slip etc., see detailed summary in II.3) interwoven with *Saka* styles, while several elements, especially that of the pottery, demonstrate evident cultural elements from the sedentary southern regions. Moreover, it appears that regular interaction had existed, in various ways, between the Kuyusai culture and Antique Kyuzeli-gyr. It is not only manifested in the similar Yaz-related pottery found in both sites, but also seen in a continuity of local hand modelling traditions, i.e., the Kuyusai pottery among Kyuzeli-gyr

⁸⁶ *Ibid.* 9

⁸⁷ *Ibid.* 45-52.

⁸⁸ Also found in Kyuzeli-gyr and Dingildzhe.

⁸⁹ Vogelsang 1992:290.

⁹⁰ Masson 1959

⁹¹ Itina 1979:5-6.

assemblage⁹². Evidence from Tarym-kaya I and II (5th -4th Centuries BCE) further confirmed the extension of cultural exchange from material culture up to the level of religion⁹³. In summary, Kuyusai culture is a local culture born in the pre-Sarykamysch delta based on small unfortified settlements, with limited primary agriculture and a unique typology of pottery that highly resembles the Yaz-II pottery in Margiana. In the meantime, there was a rather close relationship with the nearby Saka groups and the early Antique culture. In this regard, the Kuyusai material culture can be seen as an early example of acculturation before the rise of a more homogenous local material culture in Antique II period (from the 3rd Century BCE).

As one of the iconic monuments of the early Antique period, Kyuzeli-gyr is the earliest fortified site found in the territory of Chorasmia. It has set the prototype for the classic Chorasmian *gorodishche*, a fortified settlement built upon natural highland, encircled with fortification walls made of mudbrick and *pakhsa*. The general plan of Kyuzeli-gyr is irregular in line with the natural topography (Fig.1⁹⁴), with a total length of about 1 kilometre from south to north. The walls have a one-storeyed internal corridor (archers' gallery) with flat roofs, while towers are applied beyond the curtain wall; both have rectangular loopholes. Residential and industrial premises are found huddled against the fortress wall, as cultural layers evidenced in the same area also hint to temporal occupation within the wall⁹⁵. However, there is no trace of permanent dwellings in the centre of the fortress, nor a street system or other facilities. The latest excavation in 1982 has disclosed a cultic centre (Area VII) which reveals no trace of economic or housing purpose, next to the three-tower complex (Area IV) to the north of the central building (Area VI) (Vishnevskaya and Rapoport 1997, fig.1, 3,5; here Fig.1). Production activities including turquoise processing, bronze and iron making, were evidenced within the site. Although excavated iron tools are very rare, except for an iron sickle, there is evidence of a large iron production area with accumulations of slag covering several hearths in Area II adjacent to the south wall. (*ibid.* 155; Tolstov 1962:99)

⁹² As noted by Vainberg, Kyuzeli-gyr ceramic assemblage has demonstrated the continuity of some Kuyusai traditions, i.e., hand-modelled pottery, the extensive use of red slip rather than any other colours, see Vainberg 1979a:45.

⁹³ Vainberg (1979a: 28-52) has already noted the two concurrent funerary rituals in the 5th- 4th Centuries BCE Kuyusai burials. One is the traditional whole-body inhumation, whereas another one, apparently in consequence of the external cultural penetration of the Achaemenid/Achaemenid Chorasmia, witnessed the transition of funerary rituals from local to Zoroastrian ones, i.e., the use of ceramic vessels as containers of cleaned human bones, a Zoroastrian funerary ritual that would sweep across the whole Central Asia soon after.

⁹⁴ A general plan for the site, see Tolstov 1962, fig.43, Vishnevskaya and Rapoport 1997, fig.1; a latest output on the excavation plans of Area VI and IV, see *ibid.* fig.3&5.

⁹⁵ Tolstov had speculated a theory of "residential wall" to explain the phenomenon. He depicted a unique type of settlement which has residential space within the walls, and a large open space in the centre for herding animals. See Tolstov 1948b:99; 1958a; 1962; Vogelsang 1992:290-291. This notion was generally rejected by many scholars, see Frumkin 1970:89; Boyce 1975: 94-95, with n. 65; Francfort 1979, n.114, but also *cf.* Helms 2005, n.45.

The chronology of Kyuzeli-gyr is a long-argued issue, since the subdivision of the two main construction periods (Tolstov 1958a: 146-148) is quite problematic⁹⁶, and the lack of complete publication of the excavation results has left the issue open to discussion. The site was tentatively ascribed to the 6th -5th Centuries BCE during the first survey in 1939, and the dating was further reaffirmed according to the typology of pottery and bronze arrowheads found in excavations between 1950 and 1953⁹⁷. The main occupation was divided into two main phases by Tolstov, as the so called “Lower Horizon” (early phase), and “Top Horizon” (late phase), a problematic chronology which was thence applied to interpret all the materials unearthed from the site. Even Tolstov himself had admitted the homogeneous nature of materials from the two “Horizons” (Tolstov 1958a: 148), although he explained it as a result of a relatively short period of occupation. Masson has raised further question on the chronology of Kyuzeli-gyr, as he pointed out that some ceramic specimens resemble the Yaz-III (450-350 BCE, according to Masson, see more discussions in II.3) pottery from Margiana, some of which can be as late as the early “Kangyui” period⁹⁸ (which is ascribed to the 4th -3rd Centuries BCE, according to the Russian periodisation). Yet Tolstov disagreed on Masson’s lower chronology of Kyuzeli-gyr; he underlined the analogy between Kyuzeli-gyr and the Yaz-II pottery, which is obvious from the original materials⁹⁹. Unfortunately, such contradictions can hardly be truly settled as long as the material from Kyuzeli-gyr has not been fully published, while the selection of specimens published is also a problematic issue. Also noteworthy is a later argument made by Vishnevskaya and Rapoport, who have raised the chronology to an unprecedented high one between the 7th and 6th Centuries BCE, according to the typology of bronze arrowheads and historical interpretations regarding the nomadic migration (Vishnevskaya and Rapoport 1997). This chronology has been more recently refuted by Minardi, who argued for the nature of Kyuzeli-gyr as a fortified stronghold positioned at a strategic frontier of the new-born Chorasmian polity for better control over the Pre-Sarykamysch area, where abundant nomadic kurgan burials are scattered around¹⁰⁰. He also considered the relatively high-level technology of iron making at the site, which cannot agree with the chronology as early as suggested by Vishnevskaya and Rapoport¹⁰¹.

Despite the arguments on the precise dating of Kyuzeli-gyr, it is still the earliest centre of Antique Chorasmian culture known to us throughout the whole territory, and the sole fortified one

⁹⁶ The subdivision of two constructive periods is primarily differentiated using different shapes of mudbricks, as presented by Tolstov, the rectangular ones for the “Lowe Horizon” and square ones for the “Top Horizon”. Minardi has already pointed out that shape of bricks is not necessarily relevant to the chronology, since there is evidence for both shapes used simultaneously in Akchakhan-kala, see Minardi 2015:66-68.

⁹⁷ Tolstov 1958a:148; 1962:98.

⁹⁸ Masson 1959: 53.

⁹⁹ Tolstov 1962, note 6.

¹⁰⁰ Minardi 2015:68-72, especially note 305, see also note 301.

¹⁰¹ *Ibid.* note 280.

in Antique I (6th -4th Centuries BCE). This is especially manifested in the building techniques¹⁰² of the fortification and the ceramic materials, for which one cannot find any earlier example in the area. It is as if it appeared out of nowhere. As one of the key sites of this early Antique period, Kyuzeli-gyr has yielded abundant data for the recognition of Antique I pottery, which is characterised by a majority of wheel-made, lightly tempered and well fired pottery, usually covered with whitish or red slip. It is also notable the large amount of the typical cylindrical-conical vessels in the assemblage (more detailed discussions in II.3). As mentioned above, similar traits have already been spotted in the site Kuyusai 2, such as the use of red slip, and the resemblance to Yaz-II material. In Kyuzeli-gyr, these similarities have evolved into a new mature typology which learned from both the local traditions and the southern imports, yet worked out its own solution of Chorasmian style. As noted by Vorob'eva, pottery of Kyuzeli-gyr finds parallels in several southern and south-eastern regions of Central Asia, such as Afrasiab I (Sogdiana), Gyaur-kala (Old Merv), Kobadian I (north Bactriana), yet meanwhile shows a striking preference for red slip, especially on table wares, less common on large storage jars, while pottery from southern regions preferred yellowish or whitish slip¹⁰³.

As the second major complex on the left bank after Kuyusai 2, Kyuzeli-gyr undoubtedly made huge leaps over the former, in terms of subsistence strategy, metallurgy, building techniques and ceramic production. If there is still hesitation about the existence of agriculture and sedentary lifestyle in the Kuyusai culture, it is quite convincing in Kyuzeli-gyr. Mature irrigated agricultural systems along with a unique sedentary pattern surrounded a central defensive fortification (plus irrigation system). The importance of agriculture is clearly indicated by the storage vessels found at the site, which have holes at the bottom as openings to keep grain dry (Vorob'eva 1958a:345). These large storage vessels, usually called *khoums/khoumchis* in Russian literature, are massive and heavy, functionally designed to place *in situ*, rather than staying mobile. Although there are still arguments about evidence that indicates nomadic elements in Kyuzeli-gyr, e.g., the large proportion of animal bones from horses, cattle and camels over others, sets of "Scythian" bronze arrowheads¹⁰⁴, it would be far too arbitrary to draw the conclusion that the main population of Kyuzeli-gyr was made up of nomads or immigrants of certain nomadic groups¹⁰⁵, regardless of other evidence that clearly attests to a relatively high level of agriculture and production industry, i.e., the iron tool and iron making remains found within the fortification. On the other hand, the presence of nomadic elements in Kyuzeli-gyr is natural considering the physical location in which it was placed adjacent to the favoured pastoral land of nomadic groups (the Ustyurt Plateau), and the precedent local culture

¹⁰² See Khozhaniyazov 2005:71-72.

¹⁰³ Vorob'eva 1958a:342-344.

¹⁰⁴ Tolstov 1958a, Vishnevskaya and Rapoport 1997.

¹⁰⁵ This view was argued in Vishnevskaya and Rapoport 1997.

Kuyusai that was tied closely with the neighbouring nomads. In this regard, nomadic elements at the site may happen to attest to the very early stage of the new-born Chorasmian Antique culture blending with local cultural traditions.

It would be quite bewildering to consider that a cultural centre with such high-level techniques could just come out of nowhere. Given that short period of local development since the late Iron Age (Kuyusai Culture), and the strong cultural link with the southern Central Asia states manifested since then, it is evident that the sudden emergence of Kyuzeli-gyr with its fortifications and its new material culture were prompted by a series of “intrusions” made by the external world, namely the military moves of Cyrus the Great against Central Asia and the latter’s subsequent subjugation to the Persian Empire. Some scholars also stressed the existence of a “Great Bactria” unification, consisting of vast regions of Margiana, Sogdiana and Bactriana, which in fact held greater sway over Central Asia than the Achaemenid power.¹⁰⁶ It is noteworthy, however, that this theory, based on archaeological finds, especially the Yaz I-II-III typology widespread across south Central Asia since the late Bronze Age, has hardly any connection to Chorasmia until the imported “Yaz” pottery was found in the settlement of Kuyusai (*cf.* the emergence of “Yaz-related” materials in the settlement of Yakke-Parsan 14, on the right bank Chorasmia, *infra*), in the late Iron Age. It could be partly due to Chorasmia’s closed and remote geographical location from the rest of Central Asia states that added to the difficulty of cultural assimilation. However, the extension of the Achaemenid sovereignty to Chorasmia in the 6th Century BCE apparently accelerated the cultural assimilation across Central Asia, especially from the southern area to the pre-Aral area. This is in accordance with the testimony of historical texts in which Chorasmia was administrated under a satrapy system with several Central Asian states. Since the Achaemenid control over Central Asia was not direct but rather through the existing local unity, it is more logical to recognise cultural elements from south Central Asia, i.e., Margiana, Sogdiana and Bactriana, rather than direct Achaemenid influence.¹⁰⁷ Nevertheless, following the collapse of the Achaemenid Empire, the strong cultural connection with the southern area faded, and Chorasmia saw a new period of prosperity of local material culture, from the late 4th Century BCE.

The so-called “Kangyui Period” (late 4th Century BCE-1st Century CE, according to the Russian periodisation), revised as Antique II period (early 3rd -mid 1st Centuries BCE, based on the revision by Minardi, *ib.* 2005, table 2) in this thesis, is a flourishing stage of local development characterised by numerous new fortifications, techniques and new material culture bearing strong local traits. The appearance of several new ceramic types (e.g., rhyta, pilgrim flasks with decorative reliefs on one side, zoomorphic/anthropomorphic handles, miniatures etc., see *infra* II.3), in

¹⁰⁶ Cattenat and Gardin 1977:243-246. See also Lyonnet 1990.

¹⁰⁷ This phenomenon is apparently in line with the religious and cultural tolerance policy played by the Persian rulers in their conquered lands. See Briant 2002:76-78.

accordance with the Hellenistic context of most Central Asian regions, added new dynamism to the material culture. Meanwhile, an unprecedented homogeneity of ceramic manufacture can be found across the whole territory of Chorasmia, probably corresponding with the socio-political shift of ancient Chorasmia to an independent polity around the late 4th Century BCE.

Not far from the old stronghold of Kyuzeli-gyr are located two large fortifications of the subsequent Antique period, Kalaly-gyr 1&2. The site Kalaly-gyr 1 is probably one of the most complex sites of Antique Chorasmia, as it is assumed to have witnessed the transition of material culture from the previous Antique I to the second phase (the so-called “Kangyui” period). The transitional feature was also attested at the 5th Century BCE manor of Dingildzhe on the right bank (see *infra*).

First surveyed in 1939, Kalaly-gyr 1 was initially ascribed to the 6th-4th Centuries BCE based on ceramic assemblage in parallel with the Kyuzeli-gyr.¹⁰⁸ Extensive excavations of the site were carried out in 1953 and 1958, led by Yu. A. Rapoport. Three main periods were identified— the first links to the late stage of the “Archaic” period from the end of 5th – early 4th Centuries BCE; the second period (4th -3rd Centuries BCE), appearing subsequent to a short time of desolation, yielded a distinct ceramic assemblage close to the typical “Kangyui” ceramics attested at the “Lower Horizon” of Koi-Krylgan-kala (one of the key sites on the right bank of Chorasmia, see *infra*); and then in the last period (2nd- 4th Centuries CE), the site was completely reused as a Zoroastrian necropolis.¹⁰⁹

Unlike Kyuzeli-gyr, the fortification of Kalaly-gyr 1 has a much more regular plan in rectangular form, with 4 gates.¹¹⁰, one on each side, and towers projected beyond the wall (see general plan in Rapoport and Lapirov-Skoblo 1963: fig.1, or here Fig.2/a). However, this fortified wall appears to defend an almost empty space, except for the only palatial building found adjacent to the west wall. The layout of the building is close to square, and consists of a massive room complex and two large courtyards adjoining to it in the south and east respectively (Rapoport and Lapirov-Skoblo 1963: fig.2, Fig.2/b). According to the excavator, these “rooms” are joined with columned corridors covered with flat roofs, and such a combination has analogies in the late 5th Century BCE in Persepolis.¹¹¹ Column bases of the typical Chorasmian style, (i.e., three-stepped plinth with a “bell” shaped torus on the top, examples can be found in the Ceremonial Complex [Area 10] of Akchakhan-kala as well as the later palace of Toprak-kala.¹¹²), were found in Room 8, 12, 23 (as seen from the layout, Fig.2/b), the last one with two rows of three, probably used as the

¹⁰⁸ Tolstov 1948a:77; *ibid.* 1948b.

¹⁰⁹ Tolstov, Zhdanko and Itina 1963: 11-13; Rapoport and Lapirov-Skoblo 1963:141-143; Tolstov 1962:115.

¹¹⁰ Only three of them are distinct on Tolstov’s plan (Tolstov 1962: fig.51), the existence of the other one remains highly conjectural. Cf. Khozhaniyazov 2005: 72, note 208.

¹¹¹ Rapoport and Lapirov-Skoblo 1963:144-146.

¹¹² Minardi, Betts and Khozhaniyazov 2017.

main hypostyle hall for holding ceremonies, *cf.* the columned hall of Akchakhan-kala. Also based on arguments by Tolstov, the palace was built simultaneously with the outer fortification, and both were abandoned at some point, evidenced by stairs found by the south wall and some traces hinting at unfinished construction of the palace, e.g., the absence of a cultural layer on the lower floor, incomplete column base, etc.¹¹³ Notwithstanding unpublished details concerning the issue, this theory is widely acknowledged by scholars¹¹⁴, until recently questioned by Minardi (Minardi 2015:99). In fact, stratigraphic evidence regarding the construction period of the palace is meagerly published, while no material relevant to the late “Archaic” has been found in the palace. Moreover, the main archaeological evidence that supports the construction period within the 5th Century BCE was found in the foundation of the wall where scanty ceramic specimens¹¹⁵ considered analogous to some specimens from the manor of Dilgildzhe (dated to the 5th Century BCE, *infra*) were unearthed. The specimens from the foundation of Kalaly-gyr 1 appear to share parallels with the transitional forms attested in the Dingildzhe. In Vorob’eva’s opinion, the Kalaly-gyr 1 specimens are “even closer to the ‘Kangyui’ type than those of the Dingildzhe” (Vorob’eva 1959:77). In this regard, the Kalaly-gyr 1 pottery, even later than the Dingildzhe “Top Horizon”, may be closer to the very beginning of Antique II, which leads to a later chronology of the site to early Antique II. To summarise, based on published reports of the site, no solid archaeological evidence contradicts the idea of a higher chronology of Kalaly-gyr 1, nevertheless, evidence directly indicating the dating of the 5th Century BCE seems slim. It seems more likely that the dating was set earlier so as to fit into the interpretation of the first Achaemenid Palace in Chorasmia¹¹⁶. Unfortunately, arguments on “Period I” of the site can only remain hypothetical, since the results of the excavation have not been fully published, and there are still many details absent from Tolstov’s original publication.

Almost all materials retrieved in the palace are found from a higher cultural layer, separated from the original floor by a layer of “sterile debris and sediments” (indicates a short term of desolation, Tolstov 1958a:159). It is interesting that “Kangyui” materials in parallel with the “Lower Horizon” of Koi-Krylgan-kala are abundant in this layer (*ibid.*, 30 plus medium/large vessels, miniatures, and two statuettes of horses etc., specimens are published in Vorob’eva 1959: fig.9/3,8,15; fig.11/1,4; fig.12/1,2,7,9,10,13,17,19,20,24,30; fig.13/2; fig.17/1,7-9,14,19,28,33; fig.20/2,3,4,6; fig.22/23-25,27,28,33,34; fig.23/10,13,16,17,21), apparently attesting to occupation

¹¹³ Tolstov 1958a: 155-159; *ib.* 1962:112-113.

¹¹⁴ For instance, see Rapoport and Lapirovo-Skoblo 1963; Rapoport 1987; Vogelsang 1992:289.

¹¹⁵ The total number of specimens is not recorded (or published), yet only four of them are published by Vorob’eva (*ib.* 1959: fig.6). We should assume a very small total number.

¹¹⁶ The layout of the palace is seen as a parallel to Achaemenid ones, see Tolstov and Zhdanko and Itina 1963:13; Rapoport and Lapirovo-Skoblo 1963: 145-148; and in particular, see Rapoport 1987 for demonstration of the theory. This interpretation is refuted by Minardi, see *ib.* 2015:101-103.

in the “Kangyui” period¹¹⁷. Ceramics were scorched by fire and lay among the charred collapse of the roof *in situ*, which implies that a fire terminated the occupation.

There are also some special finds that provide even more insights into the chronology of the site. One is a fragmented alabaster mould in the shape of an eagle’s head (Tolstov 1958a: fig.61), probably used as decoration of the palace. This mould is considered by the excavator to be a parallel to the Gryphon sculpture in Persepolis, and again a strong testimony to the original “Achaemenid Palace” interpretation¹¹⁸. Nevertheless, the lack of details of the beast’s ear which is crucial in recognising the gryphon was noticed by Minardi, according to whom the technique of casting unbaked-clay bas-relief (which is probably the purpose this mould was made for) is associated with the introduction of Hellenistic material culture into Chorasmia¹¹⁹. The Hellenistic influence is also manifested on the two fine ceramic wares found in the palace.

One is a polished grey rhyton decorated with the *protome* of a winged horse (Tolstov 1958a:159-160, fig.62; Vorob’eva 1959:109, fig.18 Fig.3/a), found in Room 4. It is noteworthy that grey-coloured polished vessels¹²⁰ are very rare in Chorasmia where red/whitish slipped wares prevailed, thus to some extent, the presence of grey slipped ware may infer imports from the external world. Coincidentally, in the nearby site Kalaly-gyr 2, another rare black polished rhyton was unearthed, the horse *protome* of which shows an impressive high level of both manufacture and aesthetics, with detailed carvings of the facial features, mane and bridle, distinct from local productions (Vainberg 2004: 167, pl.10, 11, fig.3/21:4,7, Fig.3/b, c). The clay rhyta which demands a relatively complex techniques of pottery and coroplastic construction, has been seen as an important form among the assemblage of the “Early Kangyui” (Vorob’eva 1959:86-87)/Antique II period. Notwithstanding its metal prototype in Iran, the introduction of clay rhyta into Chorasmia (probably no earlier than the 3rd Century BCE/Antique II period) was most likely owing to the overall Hellenistic Central Asia¹²¹. In terms of archaeological evidence so far, the vessel was completely absent in the previous Antique I period until attested in several Antique II sites, e.g., Koi-Krylgan-kala, Kalaly-gyr 1 and 2. Distinct from the cups previously found in Kyuzeli-gyr and Dingildzhe, the spread of rhyta suggests more advanced molding techniques and possibly new

¹¹⁷ Radiocarbon analysis carried out by *KhAEE* dated the cultural layer to the late 4th -3rd Centuries BCE (not calibrated), Tolstov 1962:113, note 30.

¹¹⁸ Rapoport and Lapirovo-Skoblo 1963:148-149, for the comparison to the Gryphon examples in Persepolis, see *ib.* fig.5, also in Tolstov 1962: 112-113, fig.53.

¹¹⁹ Minardi 2015:102 for the discussion of the eagle-headed mould. For more discussion on Chorasmian unbaked-clay sculptures, see *ibid.* 2020.

¹²⁰ Nevertheless, the grey-coloured feature of this specimen is only underlined by Tolstov (*ib.* 1962:113), while in other sources only indefinite mentions were made among those of “red or dark red slipped wares” (e.g., Vorob’eva 1959:109-110; Tolstov and Vainberg 1967: 111). The poor quality of the published photograph fails to provide further detail on this particular specimen. Another possibility is that the specimen was badly scorched to black.

¹²¹ Cf. Minardi 2015b; 2016b.

drinking habits developed by the local elite class.

Another important find is a lion *protome* handle attached to a jug (published by Vorob'eva, see *ib.* 1958b: fig.1,3; fig.2,1; fig.3,7), once again a new form occurred in the Antique II period. This type of jug, usually made of good quality clay and externally polished, is characterised by the animal-headed decoration on the terminal of the handle attached to the rim. The animal bas-reliefs are made separately in a small mould and applied to the handles with liquid clay after the whole vessel has been moulded and dried. The resemblance of this specific type of ceramic ware to corresponding metalworks has been widely acknowledged by scholars¹²², and for Chorasmian specimens in particular, the imitation of Hellenistic metal vessels was suggested (Minardi 2015: 88-89). Based on archaeological finds so far, jugs with lion-headed handles, likewise rhyta, only existed for a short time in Antique II period, e.g., at sites Koi-Krylgan-kala "lower horizon", Kalaly-gyr 1 and 2, Akchakhan-kala (see *infra* IV.6.13, Fig.77/0509), Dzhanbas-kala, Bazar-kala and the "Kangyui" period kiln of Kyuzeli-gyr, etc.

Although disputes on the construction period remain unsettled due to the lack of full publication, judging by materials (new ceramic forms) unearthed from the palace complex and other traces concerning building techniques (e.g., unbaked-clay casting), it is more reasonable to ascribe the major occupation of Kalaly-gyr 1 to the early Antique II period (late 4th /3rd Centuries BCE).

In close proximity to Kalaly-gyr 1 is located a second stronghold of the area—Kalaly-gyr 2. As the site underwent nine successive excavation seasons in the 1980s, it has provided rich materials pertinent to Antique II period. Likewise, it has also attested to the influence of Hellenism. The site was initially explored and surveyed in the 1940s and 1950s when some surface finds were collected, among which a fragment of pilgrim flask was found bearing reliefs depicting the scene of a rider on top of a camel (photograph published in Tolstov 1958a:177, fig.73). Extensive excavation of the site was carried out in 1981 and lasted for nine seasons until forced to cease due to funding issues in 1991. Fortunately, nine seasons of excavation have unravelled most key structures of the fortification and a rich material culture. The results were published by B.I. Vainberg in a monograph (Vainberg 2004) consisting of many illustrations and coloured photographs of good quality. Nevertheless, due to the Soviet style methodology adopted in excavation and documentation, the flaw in this publication is obvious too, lying in the lack of stratigraphic information. Materials were studied separately from their contexts, and grouped solely based on the work of typology (Vainberg 2004, chapter 3). Like previous archaeological works of the Soviet time, secure stratigraphic information was still neglected here. In the circumstances, it has allowed a lot of wiggle room again on the absolute date of the site (4th -2nd Centuries BCE in Vainberg 2004, basically on account of the typological works of ceramics).

¹²² Vorob'eva 1958b:48; Minardi 2015:88-89.

Kalaly-gyr 2 is located 6 kilometres northeast of Kyuzeli-gyr, at the northern spur of the Yassy-gyr upland. The general plan of the fortification, as clearly outlined in the aerial photography (Vainberg 2004, fig.2/2), is close to a quarter of a circle composed of two straight sides and a curved side in the north, adjoined by a large rectangular entrance (*ib. fig. 2/4, Fig.4*). Like the typical Chorasmian fortification, the outer wall of Kalaly-gyr 2 has an “archer’s gallery” built within the wall on the *pakhsa* foundation.

The finds at Kalaly-gyr 2 considerably enriched our knowledge of the new material culture following Antique I period. According to the latest scholarship on the periodisation¹²³, Antique II is a period characterized by the boom of new material culture types and innovation of techniques in relation to cultural penetrations from the external world, recognisably Hellenistic ones. It definitely goes beyond the traditional thought of this period (the historical interpretation of “Kangyui period”) in which Chorasmia had experienced an isolated and self-developed time cutting ties with the western world, and completely free from the reach of Hellenistic culture. Quite on the contrary, Antique II is actually the sole period that witnessed such contacts with the Hellenistic world— this is evidenced by the rich material culture of the period indicative of cultural links with the Hellenised South (attested especially at the corresponding cultural layer of Kalaly-gyr 1-*supra*, Kalaly-gyr 2, Koi-Krylgan-kala “lower horizon” and Akchakhan-kala Stages I and IIA/B-*infra*). The Hellenistic elements are especially manifest in the assemblage of Kalaly-gyr 2, exemplified by several new forms analogous to specimens from Ai-khanoum, e.g., goblets Type 2 and 3, craters, various imported black wares (see discussions in II.3.3).

Among the fine wares unearthed at Kalaly-gyr 2, there is a unique type of amphora-rhyta that requires special note. Two complete specimens have been recovered (Vainberg 2004, fig.3/22, 1 and 3, Plate 21; 3/22, 2 and 4 Fig.5/a, b). The first one is made of fine red clay, with red slip on the exterior. As noted by Vainberg, the decoration of this vessel was organized into several horizontal zones, each representing different themes, in imitation of metal works of the same form (Vainberg 2004: 164). Another one is more decorative with a lion’s *protome* affixed to each of the two handles, very close in appearance to jugs with a lion’s *protome* handle. Comparable specimens were found in the “lower horizon” of Koi-Krylgan-kala, yet only the bottom was preserved (Tolstov and Vainberg 1967: tab.5/23,24). The closest parallel of this amphora-rhyton beyond the territory of Chorasmia was found in Tall-i Takht, Pasargadae¹²⁴, ascribed to the post-Achaemenian period (ca. 3rd Century BCE?) by the excavators. It has a rather modest appearance with two loop handles terminating in small bosses, in addition to a rope pattern encircling the base, while another zoomorphic rope pattern decorates each spout at the bottom (Fig.5/c). A later variant of this form is

¹²³ Minardi 2015:125-127, table 2.

¹²⁴ Stronach 1978: 184, Pls. 171 and 172, fig.114,6.

attested at Shahr-i Qumis. Associated with the Parthian occupation of the site, the specimen has provided a rare example which sees the survival of amphora-rhyton in the heartland of Persia till as late as the 1st Century BCE.¹²⁵ Beyond the territory of Iran, a much later close analogy to the Pasargadae amphora rhyton was found at Begram II.¹²⁶ (Fig.5/d) in the Kushan Empire (ca. the 2nd Century CE).

To some extent, the emergence of amphora-rhyton reflects the development of the metal prototypes/counterparts which are better known from an earlier age and have spread to broader areas. One example is the famous Panagyurishte Treasure.¹²⁷ of 4th Century BCE ancient Thrace (in modern southern Bulgaria). The treasure consists of nine pieces of golden vessels, with a total weight in gold of 6.1 kilograms. The collection is not only impressive for its weight but also the aesthetic value presented on the motifs and arrangement of ornamentation. One of the most elaborately decorative artworks is a golden amphora-rhyton. Most part of the body is covered with figurative decorations, of which several scenes are recognizable illustrating themes from Hellenistic mythology.¹²⁸ (Marazov and Fol 1977: 75; Venedikov 1977: pl.10,11; Fig.6/a). Both the decorative themes and the highly developed techniques of goldsmith are indicative of a strong Greek influence or craftsmanship (probably a production of the late 4th Century BCE). As broadly recognized, the occurrence of amphora-rhyta in Thrace originally reflects Persian involvement during the early stage of Achaemenid rule (late 6th -5th Centuries BCE), with the partly gilt silver amphora from Duvanli being the most likely prototype (Marazov and Fol 1977:74, Fig.6/b). It was recognized as a royal gift figuring Achaemenid court life.¹²⁹ and was brought as a diplomatic gift to the Thracian ruling class. Nevertheless, the Thracians ended up with their own taste for amphora-rhyta quite different from the Persian one, as manifest in the Panagyurishte Treasure from which in total eight rhyta of different types were found. Apart from typical horn-shaped ones, there is a variety of jug-rhyta and amphora-rhyta, both with spouts on the bottom (while the Duvanli specimen has one spout on the handle). Needless to say, the special design of amphora-rhyta indicates the ritual use of the vessel in feasts, ceremonies and libations.¹³⁰, while the double spouts suggest sharing between blood kin or royal members.

¹²⁵ It could be seen as a testimony of the essential role of this form to some particular occasions which continued to exist in Persian world from Achaemenid to Parthian times. Hansman and Stronach 1974: 19 and note 21, fig.5,1.

¹²⁶ Ghirshman 1946: pl. XLI, B.G.465

¹²⁷ Tsonchev 1955; Venedikov 1977; Marazov and Fol 1977; 1998.

¹²⁸ For recognition and interpretation of the figures and scenes from the Greek mythology, see Tsonchev 1955 in detail.

¹²⁹ A more recent revision on the origin of this specimen was advanced by Rehm, who argued from the perspectives of techniques and decoration that it was more of a satrapal production, from Sardis or Daskyleion; see Rehm 2010:173-174.

¹³⁰ From the same context, there are a lot of other drinking vessels found, e.g., goblets, suggesting a specific set of drinking vessels— Vainberg 2004:167.

It appears that Chorasmian potters at some point (no earlier than the 3rd Century BCE—the earliest pottery analogy in Pasargadae is post-Achaemenian, while the earliest gold parallel manifests strong Hellenistic elements—most likely in the late 3rd to the 2nd Centuries BCE) learned of the appearance of amphora-rhyta from western imports, probably brought to Chorasmia as gifts.¹³¹ Eventually, a small number of ceramic amphora-rhyta was made probably in imitation of the same type toreutics, while the techniques to a large extent remained Chorasmian, i.e., the use of high-quality red clay and red slip.

Despite the rich archaeological repertoire found at Kalaly-gyr 2, the stratigraphic information of the site has been presented very sketchily in the final publication. The whole lifespan of the site (approximate 150 years) can be roughly divided into three main stages in addition to the last reuse of the site as an ossuary necropolis, after long-term abandonment. The initial stage is the construction of the fortress walls and the round building, followed by the first occupation of the “cult complex” which was damaged by a large fire at the end of the period. After a partial restoration, the “cult complex” experienced a second period of occupation until ruined by a deadly fire. Yet even Vainberg herself has admitted that the stratigraphy of the fortress (or the stratigraphy published) in fact reflects very little on the chronology of the site. The latter, however, was imprecisely fitted into the existing Chorasmian periodisation, namely the “Kangyui” *facies* attested in the “lower horizon” of Koi-Krylgan-kala, on account of the chronology of the recovered materials (ceramics in particular, Vainberg 1994; 2004:17). The ceramic repertoire was studied as a whole in comparison with the “lower horizon” Koi-Krylgan-kala one, disregarding the underlying chronological difference, while other finds, i.e., bronze arrowheads, a stone spoon and a clasp from the early Sarmatian culture as secondary dating materials, were considered “not contradicting the proposed dating (4th -2nd Centuries BCE)” (Vainberg 2004:17).

Considering the Hellenistic elements and the ceramics in parallel with Ai-khanoum, it may allow us to suppose a later chronology of Kalaly-gyr 2 in a general Hellenised context of Central Asia. As in the latest revision of periodisation (Table 2), the beginning of Antique II period could be lowered to the early 3rd Century BCE, especially considering the emergence of new materials manifesting Hellenistic influence.¹³² This new interpretation of the second antique period apparently overturns the cliché of the “Kangyui” phase when Chorasmia had separated from the

¹³¹ It is tempting to assume also the introduction of practice concerning certain ceremonies into Chorasmia, accompanied by the rare ceramic form.

¹³² Given the time for Hellenistic material culture to develop properly across most regions of Central Asia and then be transmitted secondarily into Chorasmia, it is more rational to assign the early Antique II phase to the late 3rd Century BCE, or even later to the early 2nd Century BCE, see Minardi 2015. Furthermore, recent chronological consideration of the Hellenised Central Asia advanced by Lyonnet has suggested an initial stage of Hellenization took shape in Ai Khanoum and Sogdiana during the reign of Antiochus I Soter (294-261 BCE, Lyonnet 2012), corresponding to the late chronology of Antique II.

past Achaemenid satrapy and begun an independent development free from the historical mainstream of Central Asia, i.e., the conquest of Alexander the Great and the Hellenization in subsequent centuries.

The advent of Antique I and II period mirrors the socio-political shift of Chorasmia that took place respectively in the 6th and 3rd Century BCE when left bank Chorasmia had been the cultural centre at the frontier of novel techniques and material culture. However, when it comes to Antique III, the leading role seems to shift to the right bank where two successive capital centres.¹³³— Akchakhan-kala and Toprak-kala (*infra*) were established, along with other *gorodishches*. On the left bank, in the meantime, very few finds regarding Antique III were known to us, for instance Kunya-uaz, a site that revealed multiple thick cultural layers from “Kangyui”, “Kushan” to medieval times, yet was only scantily published (Nerazik 1958).

2.2 East Chorasmia

Unlike the blank history of Bronze and early Iron Age in the pre-Sarykamysch region, a succession of local prehistoric cultures can be traced on the right bank of Chorasmia where the earliest local Neolithic population of “Kel’teminar”¹³⁴ (4th -3rd millennium BCE) lived and built their dwellings. And then in the subsequent mid 2nd millennium BCE, a local Bronze Age culture, named as “Tazabag’yab” culture, bearing evident similarity with the Andronovo culture of west Kazakhstan and Srubnaya¹³⁵ culture of Pontic-Caspian Steppe, flourished in the same region of the Akcha-darya and spread westward through the watercourses.¹³⁶ One remarkable fact about the Tazabag’yab population is the sedentary lifestyle characterised by cattle breeding, small-scale irrigation agriculture and shelter building in the form of semi dug-out houses (Itina 1977a: 39-40), which is exemplified by a series of key sites ascribed to this cultural horizon, i.e., the Kokcha 3, 15, 15A, 16, Angka 5 and Kavat 3 etc.¹³⁷. Materials from these sites testify to the tradition of ICW (incised coarse wares).¹³⁸ typical of the nomadic population over a vast portion of Eurasia. Notably,

¹³³ It is said the third capital centre of the right bank following the abandonment of Toprak-kala was built by King Afrig near Kyat (Biruni?), which we can hardly prove now since it had been washed away according to Al-Biruni.

¹³⁴ One of the best-preserved sites of the Kel’teminar culture is Dzhanbas 4, see Vinogradov 1963:91-102 and Tolstov 1948a, fig.2 on reconstruction of dwellings of Dzhanbas 4; for general introduction to the Neolithic culture, see Tolstov 1948a:59-66; 1948b:73-80; 1962:23-47.

¹³⁵ A Late Bronze Age culture coexisted with the Andronovo culture in the Ural region, see Koryakova and Epimakhov 2007:111-160.

¹³⁶ Itina 1960; 1977a:39.

¹³⁷ See Itina 1959b and 1960 for detailed information of Angka 5 and Kavat 3; Itina 1977a:44-104 on the excavation of Kokcha 15, 15A, 16 and Dzhanbas 30, 33; on the cemetery of Kokcha 3, see in particular Tolstov (ed.) 1961 and Vinogradov, Itina and Yablonskii 1986:123-152.

¹³⁸ For tempered wares with abundant lithic inclusions and incised decorations with various geometric motifs, see detailed studies in Cerasetti 1998.

as recent archaeological work in south Turkmenistan has demonstrated, at the end of the Bronze Age, this material culture had spread beyond Chorasmia to many places throughout the Murghab Delta.¹³⁹, presumably in parallel with the migration of some pastoralist groups.¹⁴⁰

As it turned out, the delta of the Akcha-darya and its natural branches seem to have cradled most of the acknowledged Bronze and Iron Ages cultures in Chorasmia, including the last phase of the Chorasmian prehistoric era, namely the Amirabad culture. In the vicinity of previous Neolithic remains at Dzhanbas 4, materials of the Amirabad *facies* were initially recognized and defined by Tolstov, who explained the material culture as the result of mixtures of the local Tazabag'yab and alien Suyargan cultures.¹⁴¹ in addition to certain connections with the early materials from Kyzeli-gyr.¹⁴² In comparison with previous Bronze Age cultures, the Amirabad witnessed remarkable development in irrigation systems, and the construction of dwellings which could accommodate larger numbers of family members. This can be seen in the excavation of the large Amirabad settlement Yakke-Parsan 2.¹⁴³ All the dwellings are still rectangular semi-dug out houses like those of the Tazabag'yab *facies*, and are arranged deliberately in similar patterns along the main street, with entrances on the same side (as shown in the general plan, Itina 1977a: fig.71). Some of them are connected by an inter-passage to form an even larger residential complex. Ceramics from Yakke-Parsan 2 are characterised by hand-made coarse wares which can be divided into two functional groups: table wares and kitchen wares. Table wares are often burnished, sometimes covered with red slip, while the exterior surface usually exhibits a pink/red colour due to improvements in firing. Some kitchen wares have simple geometric incisions distributed in horizontal friezes under the neck (*ib.*:153-154). Among the rich body of excavated materials, a bronze sickle and a grain grinder are especially noteworthy. The former attests to the specialisation of metalworks, while the latter indicates the development of agriculture in parallel with the growing canalisation networks. The emergence of burnished table wares and bronze agricultural tools, as well as the techniques for building long-term dwellings, reflects the transition of the subsistence strategies of the Amirabad population like the sedentary farmers of the south, continuing in the following Iron Age. This early phase of the Amirabad culture, corresponding with the final phase of the Chorasmian Bronze Age, was ascribed to the 10th/9th -8th Centuries BCE (Itina 1977a:147),

¹³⁹ Tazabag'yab type materials were found in the Namazga VI *facies* at Namazga-depe and Tekkem-depe, southern Turkmenia, see Itina 1959a:53. On the general information of the prehistoric archaeology of Turkmenia, see Masson and Sarianidi 1972; on the late Bronze Age *facies* of southern Turkmenia (Namazga VI), see Khlopina 1981:35-60.

¹⁴⁰ Salvatori 2008:64.

¹⁴¹ Another Bronze Age culture contemporaneous with late Tazabag'yab, yet bore different material culture from the latter, see Tolstov and Itina 1960; Tolstov 1962: 60-68.

¹⁴² Tolstov 1948a:69; Itina 1977a:16.

¹⁴³ Tolstov 1962:68-74; Itina 1977a:148-162 with a general plan of the site—fig.71, and drawings of ceramic finds—fig.73-76.

and the Amirabad population continued a further development in the Iron Age before the eve of historic Chorasmlia.

The best manifestation of this last phase of the Amirabad culture is a later settlement on the opposite bank of Yakke-Parsan 2—the settlement of Yakke-Parsan 14 (7th -6th Centuries BCE).¹⁴⁴, among 11 others on the same bank, which was once densely populated around the first millennium BCE. The settlement comprised several small single houses, arranged quite tightly, rectangular or square in plan (6×5, 4×4 m). A large number of potsherds were recovered at the site, and are generally close to early Amirabad types. There are also similarities with the Tagisken assemblage in the north, and as stated by Itina, connections with the Yaz I materials from south Turkmenia (Itina 1977a:170), represented by jars with a pronounced ledge at the shoulder (*ib.*: fig.84, 5-7). On account of the dating of Yaz I and Tagisken materials, the site was then ascribed to a period later than the alleged timespan of Amirabad culture, in the 7th Century BCE. It is interesting to note though, the presence at the site of the so-called Yaz I related materials, namely hand-modelled jars with a ledged shoulder, which according to Itina have some “chronological links with Yaz I specimens” (*ib.*:170). Nevertheless, since the study of Yaz culture advanced, the initial Yaz chronology (consisting of three main periods: Yaz I-900-650 BCE, Yaz II-ca.650-450 BCE, Yaz III-ca.450-350 BCE, by Masson 1959:48, see also *infra* II.3 for further discussion) has been through a major amendment concerning the beginning of local Iron Age culture which should date back to around 1500 BCE instead of the 1st millennium BCE.¹⁴⁵ In other word, the current dating of the late Amirabad *facies* is actually much later than the period when Yaz I materials were widespread in southern Turkmenia. Even though a length of time for the transmission of material culture may explain a certain time lag between the appearance of Yaz materials in different areas, the presence of Yaz II/III related materials in the contemporary Kuyusai 2 on the left bank cannot be ignored. The Kuyusai culture (considered by many scholars to be associated with migration from the south) has no precedent on the left bank, whereas the Amirabad culture has a long history rooted in the delta of Akcha-darya. This difference may explain the extent to which the two different Iron Age cultures might potentially accept and assimilate the alien Yaz culture, which could consequently affect the different number of Yaz related materials found in the two sites. However, considering the revised dating of the Yaz culture, it is more plausible that the alleged chronological links with “Yaz I materials” in Yakke-Parsan 14 are more relevant to the spread of Yaz II/III material during the second quarter of the 1st millennium BCE.¹⁴⁶, as testified in sites of Kuyusai 2, Kyuzeli-gyr and

¹⁴⁴ Itina 1977a: 167-172.

¹⁴⁵ Thanks to newly acquired C¹⁴ dates from Yaz-depe and a better understanding of the late Bronze Age and early Iron Age, this new chronology has been broadly acknowledged by more scholars, see for instance, Cattani and Genito 1998: 75 (in which Yaz I was ascribed to 1400-900 BCE); Francfort 2001:221-235; Vogelsang 1992:270; Wright 2008: table 4.1; Lhuillier 2018:258.

¹⁴⁶ Vogelsang 1992:291.

Dingildzhe. In my opinion, even the alleged resemblance between Yakke-Parsan 14 specimens and Yaz I materials is not absolute—despite the similar liking for hand-modelled wares which in the case of Yakke-Parsan 14 can be seen as a continuation of the tradition of hand-made pottery in this area since the Bronze Age.

On the development of Yaz-related materials on the right bank Chorasmia, the late “Archaic” site Dingildzhe in the same area has provided further attestation. The rural manor of Dingildzhe is another key site of the first antique period later than the fortified site Kyuzeli-gyr on the left bank. It is located in the eastern part of the southern Akcha-darya delta, together with numerous small rural settlements of the early antique period placed along the complex network of canals (see the layout in Vorob’eva 1973: fig.1). The Oasis of Dingildzhe, where a total of 53 remains of ancient houses and monuments assigned to the “Archaic” period have been found, was extensively excavated from 1958-1960 under the direction of M.G. Vorob’eva. Outcomes of the excavations were later published by the same scholar in 1973 (Vorob’eva 1973, MKhE IX). The homonymous “Archaic” manor was located at the north-western corner of the oasis, fully excavated and published in the monograph. It is a large multi-room complex (60.9×48.3 m) comprised of several rectangular rooms divided by an inter-corridor into two main sections (as illustrated in *ib.*:18-19, fig.6), which, according to Tolstov, is representative of the estate of the local aristocracy (Tolstov 1962: 106). Remains of a *pakhsa* base 2-2.4 m in width encircled the manor, indicative of the existence of an external wall. Beyond the northern wall, only 2 metres north of the manor, there is an irrigation ditch which is considered to have been built simultaneously with the main building complex. During two successive stages of life in the manor—respectively associated with two floors of the complex, the main structure and layout had been through several changes. In the first stage, as presented by the general plan (Vorob’eva 1973: fig.6), a “large house” was located at the north-eastern corner of the manor, to the west and south of which were two large courtyards (No.22 and 19). Notably, rooms within the “large house” included two ceremonial rooms, one of which (Room 8) was the classic Chorasmian columned hall. There were also several storage rooms and utility rooms. In the south-western corner of the front courtyard was set a large pool (No.17) with walls of adobe bricks. To the east of the main building, there was a roofed gallery stretching from north to south (No.3) and further extending beyond the house. In the second stage, a series of repairs and renovations took place in the eastern part of the “large house”, while an extra room (Room 18) was added to the pool structure. However, one of the radical changes took place at the ceremonial structure, Room 8, which seems to transfer from sacred functions into normal household use, as indicated by the removal of columns (*ib.*:64-65, fig.22).

A unique burial was found just 6 metres from the eastern wall of the manor (*ib.*:83-86). Although already having been looted several times in antiquity, it still revealed many details

regarding the original funerary ritual—the corpse seems to have been originally placed in an alabaster sarcophagus accompanied by sacrificial food and funerary objects placed on the floor of the tomb. In addition, the sarcophagus was accompanied by a variety of animal bones, including legs, spines and the head from a horse¹⁴⁷, three skulls of dogs and a piece of sheep/goat jaw. The diversity of animal bones and the different spots they were scattered around possibly suggest the presence of a post-funeral ceremony (possibly *Totenmahl*? a funeral banquet), from which may be further inferred a relationship to the ancient Eurasian funeral traditions.¹⁴⁸ Nevertheless, the specific preference for an alabaster sarcophagus (or box) that is rarely seen in Central Asian or Eurasian burials has added more confusion to the occupant’s identity. It can only be assumed from limited materials unearthed—consisting of objects surviving from several robberies in the past, including various chalcedony ornaments, bronze bracelets, rings and ceramics belong to the same group of the manor of Dingildzhe (Vorob’eva 1973: fig.29)—that a rich collection of funerary objects should have been originally arranged for the afterlife of the tomb’s occupant. Minardi has provided insights into the related parallel of the tomb with a late Achaemenid tomb, coinciding with his comparison of a chalcedony seal and a bronze signet ring from the tomb with their Achaemenid counterparts (Minardi 2015:79). In terms of analysis of the alabaster sarcophagus, sacrificial animals and funerary objects (especially ceramics), it could be speculated that the occupant of the tomb, who was closely associated with the manor, certainly attested to a higher class of local society in the early antique period, and was potentially susceptible to various cultural influences, namely Achaemenid and Eurasian steppe ones.

Apart from the large manor of Dingildzhe, surveys in the same area have revealed evidence from several smaller settlements and workshops (e.g., furnace for iron smelting, as well as an assortment of turquoise production locations and bronze objects, including bronze seals, Vorob’eva 1973), most of which were considered to belong to the same period as the manor. Finds include pottery, numerous bronze arrow heads, iron implements and turquoise beads etc., indicating complex production activities existed in the vicinity of the settlements. In addition to industrial activities, a special structure with a circular shape was identified by the excavators as a “sanctuary” (No.67, see the photograph and drawings of plan and section in *ib.*: 15, fig.5A&B). According to the excavators, the appearance of the special structure resembles that of an earlier altar in South Turkmenia (*ib.*:15). Encircled by narrow grooves, the “sanctuary” has a central platform, in the

¹⁴⁷ It is to be noted that the skull was found separately in the backfill layer.

¹⁴⁸ It seems as if the horse head was placed there in the process of the funerary ceremony, probably after a feast. The presence of animal sacrifices, such as horses, dogs and cattle, in Kurgan burials has a long history since the Neolithic period and is usually associated with Eurasian nomads, see examples in Kuzmina 2007. In addition to ritual use, evidence from food residues and certain combination of bones also suggests horses as preferred source for feasting, on the various exploitation of horses, see Anthony and Brown 2000; see also Outram et al. 2001 on case study of horses as funerary food in the Late Bronze Age cemeteries in Kazakhstan.

middle of which was marked a carefully coated depression filled with ash, divided into three layers. A column was found overlapping the top layer of the ash (foundation of the altar?), destroyed from the top with a remaining height of 0.36 m. Fragments of ceramics and animal bones were found in the ash and the grooves, in addition to a bronze bracelet and more arrowheads laid in proximity.

In the territory of the large manor as well as other settlements of the same area, a great number of potsherds were excavated, bearing attributes similar to the “late Kyuzeli-gyr” type, i.e., wheel-made, the use of whitish slip on the exterior, the cylindrical-conical vessels, acknowledged as a typical feature of Yaz II/III materials (Vorob’eva 1973: fig.33,34). As well as the Yaz related pottery, a series of new forms appear, in relation to further development of Chorasmian pottery in the following Antique II period, and thus recognised by the excavators as being transitional forms between “Archaic” and “Kangyui” periods. According to Vorob’eva (*ib.*:118), the transitional feature is characterised by application on the “Archaic” pottery forms of decoration motifs (e.g. red paint in circle or spiral) which is almost close to that of the later “Kangyui” period (*ib.*: fig.36, 39: 6,9,17,21,24), and in some cases the emergence of new forms in transition to the typical “Kangyui” forms (*infra*). She also pointed out another new feature of the Dingildzhe assemblage which sees increasing use of red slip rather than whitish/yellowish slip common in Kyuzeli-gyr—the former is more of a Chorasmian local preference, while the use of whitish/yellow slip is more common in Yaz II and III materials of Margiana.

Some rare new forms widespread in Antique II period are also attested at Dingildzhe. One of them is probably the earliest known specimen of a pilgrim flask in Chorasmia (only three fragmentary specimens are preserved, one of them remains almost whole but without neck¹⁴⁹), an important pottery type widely spread across Central Asia and Iran during the second half of the 1st millennium BCE. The Dingildzhe specimen has a typical plano-convex body with a pair of lug handles. On the convex side, there are pronounced concentric circles or wheel-marks serving as simple ornamental features comparable with Late Achaemenian specimens from Persepolis and Pasargadae.¹⁵⁰

The Achaemenid presence is further confirmed by a rare new form of “tulip” bowl listed by Vorob’eva in her monograph as type VII.¹⁵¹, represented by only 3 specimens (*ib.*: fig.38, 68-70). Specimens comparable with this new form are attested in Persepolis, Susa, Sardis and Pasargadae.¹⁵², as suggested by Minardi, who also found more parallels to type VI bowls of Dingildzhe assemblage (carinated bowl with everted rim) across many regions of Achaemenid Iran

¹⁴⁹ Associated with the upper floor, Vorob’eva 1973: 137, fig.35,7.

¹⁵⁰ Stronach 1978: fig.115:2,3, both two belong to Achaemenid period (4th -early 3rd Centuries BCE), see also note. 1-6 for more examples of Achaemenid Iran. Another immediate parallel to this lug handled pilgrim flask was from the “Quarters of the Garrison” in Persepolis, Achaemenid, see Schmidt 1957: 96; Plate 72:12, PT3 59.

¹⁵¹ On the typology of red slipped bowls in Dingildzhe, see detailed discussions in II.3.

¹⁵² Minardi 2015: 78 with notes.

(*ib.*). The type VII bowl in particular finds close parallels in metal wares from Persepolis¹⁵³ and other peripheral areas of Achaemenid control.¹⁵⁴

Compared with Late Amirabad settlements in the same area and Kyuzeli-gyr on the left bank, Dingildzhe demonstrates a series of developments in industrial activities, architecture and material culture which offer a precious glimpse of Chorasmian society in transition to the full prosperity in Antique II period. On the development of pottery forms, Dingildzhe witnessed a continuation of the Yaz II/III tradition as well as a hint of the Achaemenid presence (e.g. the tulip bowl) which the published materials from Kyuzeli-gyr seem to lack. If we ignore the possible omission¹⁵⁵ in the Kyuzeli-gyr publications, it could be seen as an example reflecting the reinforcement of Achaemenid influence on peripheral north-eastern regions in the 5th Century BCE.

Following the desolation of the manor of Dingildzhe, in the oases further north of the Akcha-Darya, numerous fortifications were erected successively (Map 3), e.g., Dzhanbas-kala, Bazar-kala and the most important site of Antique II— Koi-Krylgan-Kala, materials from which have formed the primary typological and chronological ground of “Kangyui” period.¹⁵⁶

Koi-Krylgan-kala was first explored and surveyed by the KhAEE in 1938, and extensively excavated from 1952 to 1957. A monograph of the same name co-edited by S.P. Tolstov and B.I. Vainberg was published in 1967 (the 5th volume of *TkhAEE*). The layout of Koi-Krylgan-kala is close to a circle comprised of three main sections: they are, from center to periphery, the central building, the outer ring structures with numerous corridors and rows of rooms, and the outer wall with other auxiliary structures (Tolstov and Vainberg 1967: fig.6—general plan, Fig.7). Three separate construction periods were investigated. The “lower horizon”, characterized by the presence of a symmetrical ceremonial space¹⁵⁷ in the central building, was composed of eight vaulted rooms, staircases at two opposite ends and two wells (general plan of the “lower horizon”, see *ib.*: fig.7). The “middle horizon” attests to new material culture and the partial rebuilt of the outer ring (*ib.*:62-92, fig.35). The “upper horizon”, very close to the “middle horizon” in materials and architectural structures, thus is hardly distinguished from the former (*ib.*:93-100, fig.43). It is interesting to note that in the published report, descriptions of the “lower horizon” are outstandingly longer and more detailed than the summation of the “middle and upper horizons”— the latter was subtly referred to as the same period (or at least two very close), due to the similarity of materials found in the two

¹⁵³ Schmidt 1957: plate 68, 1, PT7 117; also plate 70, c.

¹⁵⁴ For instance, from workshops of Thrace and Macedonia, see Stoyanov 2007: fig.2, a.

¹⁵⁵ As mentioned in the report of Dingildzhe, some unpublished materials from “Top Horizon” of Kyuzeli-gyr are close to the new forms of Dingildzhe, Vorob’eva 1973: 148.

¹⁵⁶ In many Russian reports, pottery is simply ascribed to the “Kangyui” period by comparing with the “Koi-Krylgan-kala” assemblage, e.g. Vainberg 2004.

¹⁵⁷ Speculations about its function include astronomical observatory (largely based on the presence of rectangular windows under the loopholes), and burial temple etc., see Tolstov 1958b:123 and Tolstov and Vainberg 1967: 227 ff. Yet no archaeological evidence so far can absolutely confirm either of the speculations.

horizons¹⁵⁸. While materials from the “lower Horizon” attest to the alleged “Early Kangyui” phase of Chorasmia (4th -3rd Centuries BCE), the “middle and upper horizons”, after a major destruction of the central monument that brought about the first abandonment of the site¹⁵⁹, were considered within a much later context of the “Kushan” period up to the 4th Century CE¹⁶⁰.

Pottery from the “lower horizon” manifests typical Chorasmian “Early Kangyui” features, such as the majority of wheel-made wares with fine paste and good firing (most of the sherds are in red/orange colour, very few in grey), red paint of spiral, triangle, rectangle and dripping.¹⁶¹ Painted wares, usually white slipped with red overpaint (a few examples have red paint on bare surface), became very popular. One of the most typical painted motifs is the filled geometric patterns, defined by incisions in the pattern of “zigzag”, “rectangle” or “triangle” filled by red paint, which are distributed neatly in horizontal zones marked by ridges or grooves. In some cases, there are four pre-firing holes on the neck of a closed jar, interpreted by the excavators as air holes.¹⁶², yet they could also have been used as string handles given their symmetrical distribution. In the meantime, a series of new forms appear and largely expand the typology of fine table wares¹⁶³, i.e., pilgrim flasks decorated with relief images on the flat side (Tolstov and Vainberg 1967: tab.2, 1,2), jug with a handle sculptured by an animal *protome* (*ib.*: tab.2, 35; fig.46, 5, 7) and clay rhyta. The emergence of these rare new forms, in parallel with the rise of the local elite class, reflects the increasing demands for the local artisans to create new forms to complement the newborn aristocratic class. This is further manifested by the innovation of drinking vessels, namely the goblets on long stems.¹⁶⁴, and the peculiar amphora-rhyta attested at Kalaly-gyr 2 and Koi-krylgan-kala.

From the middle and upper horizons, many old forms retain minor changes from the lower horizon, notwithstanding the disappearance of many rare fine wares. It is worth noting a group of wares with unique fabrics, usually pale grey or purple with whitish slip on the exterior. Wares are made of lightly tempered paste, carefully modelled by hand or made on a stand by skilled potters, and fired at high temperature.¹⁶⁵. Moreover, another noteworthy fabric group is the black polished

¹⁵⁸ Tolstov 1958b: 118-119; Tolstov and Vainberg 1967.

¹⁵⁹ In the meantime, part of the site was reused by the potters as workshops—evidence also indicates metal processing industries.

¹⁶⁰ Tolstov and Vainberg 1967: 19-20.

¹⁶¹ Most frequently seen on different “jars”, see detailed discussions in the following Chapter 3.

¹⁶² Tolstov and Vainberg 1967: 106.

¹⁶³ According to Vorob’eva, the appearance of the following new forms can date, with confidence, to the early “Kangyui” period, see *ib.* 1959: 137.

¹⁶⁴ The specimens found in Koi-Krylgan-kala seem to be smaller than the usual size, see Tolstov and Vainberg 1967: tab.4-22,35. Larger sized version of the goblets were widespread in southern Central Asian areas, e.g. Sogdiana (Afrasiab III, dated around the 1st Century BCE to the turn of 2nd Century CE) and Bactria. See Lyonnet 1997: fig.48; *ib.* 1998: 151, fig.4; *ib.* 2018: 433, fig.2. In terms of latest data from Bactria, this kind of vessel completely disappeared from the local Kushan layers, by the end of the 2nd Century CE. The same is probably true in other regions of Central Asia, Lyonnet 2018: 433.

¹⁶⁵ Tolstov and Vainberg 1967: 119.

ware, apparently non-Chorasmian, usually decorated with geometric incisions on the upper body (*ib.*: 126-127; fig.51; tab.12). The origin of the black ware remains enigmatic, as no direct analogies have been found in either Chorasmia.¹⁶⁶ or other areas of Central Asia.

Throughout the occupation period of Koi-Krylgan-kala, exotic cultural elements, namely the western or Hellenised Central Asian one, is attested once again, exemplified by decorative motifs on pilgrim flasks.¹⁶⁷ the preference for stone miniature wares.¹⁶⁸, especially a grey-marble spool saltcellar (Tolstov and Vainberg 1967: 141-142, tab.15, 5) which closely resembles its Greek prototypes, as well as a specimen from Ai-Khanoum.¹⁶⁹

Material culture of the lower horizon of Koi-Krylgan-kala is closely tied with the typology of “Early Kangyui” period (Antique II in the thesis), and further helps the identification of other contemporary sites on the right bank, such as Ayaz-kala 3, Dzhanbas-kala and the initial stages of Akchakhan-kala.

Ayaz-kala 3 and Dzhanbas-kala are both located within the radius of the Amu-darya and the Sultan-uiz-dag. Almost surrounded by Kizil-Kum deserts to north and south, the limited oasis area contained several meandering water channels which generated the prosperity of ancient *kalas* on the right bank. From the early “Kangyui” up to the “Kushan” periods, ancient fortifications were densely distributed throughout the land. Due to the lack of thorough archaeological excavations and solid dating methodology, the study of these sites mainly relies on the existing information of “Kangyui” and “Kushan” materials obtained from Koi-Krylgan-kala. For instance, in Dzhanbas-kala, modelled pottery comparable with that of the “middle and upper horizons” of Koi-Krylgan-kala was found, e.g., modelled jars with zigzag incisions, from House 3, 7 and 8 (Nerazik 1976: 27-28; fig.9, 1-3; fig.14, 5-7) with the modelled ware group type 1 from Koi-Krylgan-kala “middle horizon” (Fig.26/6,46,83,56,130). Like Dzhanbas-kala, Ayaz-kala 3 was also recognized and studied principally by comparing with materials from Koi-Krylgan-kala, and was accordingly dated to a time range between 4th/3rd Century BCE-2nd Century CE. Two distinct chronological groups were studied on the basis of a comprehensive understanding of the Koi-Krylgan-kala assemblage (comparable with the “lower horizon” and “middle and upper horizons” respectively).¹⁷⁰, i.e., the

¹⁶⁶ There are several fragmented sherds of black/grey paste found in Akchakhan-kala, but they seem to belong to a different origin, as they are wheel-thrown and plain on the surface.

¹⁶⁷ E.g., the scene depicting a griffin and a gryllos (triple headed creature of which two heads are human, the last one belongs to a bird), Tolstov and Vainberg 1967: 205, fig.78; the banqueting scene composed of a reclining naked man holding a drinking vessel in one hand in front of a harp, *ib.*: fig.76; another similar scene depicted a couch on which lay a man and a woman with a child in her arms—the last two motifs very much indicative of the typical banqueting scenes, probably took place in a vineyard, of a western origin.

¹⁶⁸ Tolstov and Vainberg 1967: tab.15.

¹⁶⁹ Francfort 1976: fig.1.

¹⁷⁰ Or compared with materials from Dzhanbas-kala House 2, again dated by the comparison with Koi-Krylgan-kala materials, see Bolelov 1998.

already developed knowledge of Chorasmian “Kangyui” or early “Kushan” wares. This domination of “Kangyui” materials on the right bank Chorasmia was only terminated or replaced by the rise of a new material culture, known as the Chorasmian “Kushan” culture, mainly attested at the rising new star—one of the most well-known royal seats of Chorasmia in the antiquity, the *Gorodishche* Toprak-kala on the right bank.

To the north of the ruins of Akchakhan-kala (ca. early 2nd Century BCE- mid 2nd Century CE, see *infra* section III) from which old power of the polity shifted to a new form, based in the nearby *gorodishche* Toprak-kala. Against the dark silhouette of Sultan-uiz-dag looming on the horizon, the panorama of Toprak-kala is visible from a great distance, while the most remarkable structure, the palatial complex, is built on platforms which can easily offer a good view of his realm for the Chorasmian King¹⁷¹. The construction of this magnificent *gorodishche* combined an unprecedented high level of novel techniques and artistic styles, represented by the splendid artefacts, wall paintings and sculptures found in the palace. Furthermore, corresponding with the invention of the first local calendar, known as the Chorasmian Era¹⁷², the erection of this new royal seat attests to the advanced cultural and socio-political system that Chorasmia had achieved by then, and thus marked the beginning of a new era¹⁷³ (*infra*).

The main structure of Toprak-kala is a fortified city comprised of the “High Palace” in the north-western corner and settlements in the south. The High Palace, as indicated by the name, was a luxurious palace built on a platform about 15 metres high, located at the north-western corner of the fortified city (Rapoport 1994: general plan fig.1, Fig.8). It comprises several themed halls (e.g., “Hall of Kings”, “Hall of Victories”, Rapoport 1994) of which the monumental nature was disclosed by the exquisite sculptural reliefs, unbaked-clay models and mural arts within the halls¹⁷⁴. To the north of the High Palace beyond the fortification, a large building complex, referred to as the “palace and temple complex”, adjoined a vast empty space encircled by embankments—its function remains mysterious so far¹⁷⁵. According to the excavators, all these structures were built simultaneously under a systematic scheme in advance with the participation of probably all the artisans and craftsman of the polity¹⁷⁶, which cannot be achieved without a certain extent of centralism and

¹⁷¹ Especially given the fact that almost no trace of residential activities was found in close proximity to the palace, Nerazik and Rapoport eds. 1981: 8.

¹⁷² The earliest Chorasmian year found so far is 188, among other five years retrieved from the inscriptions of Toprak-kala, Livshits 1984; and the latest Chorasmian year 738 is attested at the Middle Age site Tok-kala, Tolstov and Livshits 1964, see also Livshits 1968.

¹⁷³ See discussions on the “Chorasmian Era” in Minardi 2015.

¹⁷⁴ On the decorative themes and identification of Zoroastrian elements, see Rapoport 1994, Rapoport and Nerazik 1984, TKhAEE XIV.

¹⁷⁵ It is speculated by Rapoport (*ib.* 1994:181) that the vast empty ground could be used as a royal hippodrome or military ground, however, this assumption is highly questionable, as such structures are more of Greek traditions and were not attested in the territory of Chorasmia.

¹⁷⁶ Again, this is speculative, without sufficient proof. Rapoport 1994; Rapoport and Nerazik 1984:11.

control of the labours. To the south of the palace, traces of street systems, monumental complexes and residential areas constitute a large settlement, in which three chronological horizons can be recognised, corresponding with a broad timespan of the 1st /2nd -6th Centuries CE.¹⁷⁷ dated by the finds of coins.

Pottery of Horizon I is close to the material culture attested in the “middle and upper horizons” of Koi-Krylgan-kala, Ayaz-kala 3 and Dzhanbas-kala, recognised as early “Kushan” material.¹⁷⁸ Among them, a group of modelled jars.¹⁷⁹, usually coated with white slip, defined by everted or upright squared rims, short neck and globular bodies, often with zigzag incisions on the shoulder (Nerazik and Rapoport 1981: 80-81), can be paralleled with those found in the “middle horizon” of Koi-Krylgan-kala, settlements of Dzhanbas-kala and also Ayaz-kala 3. Meanwhile, differences between pottery from the rural manors, farmstead and the large fortified centres seem to appear.¹⁸⁰ Moreover, despite a majority of local produced pottery, there was a small amount of pottery that represented connections with the greater territory of Central Asia. For instance, red-slipped vessels (bowl? only the base part preserved) on triple feet.¹⁸¹, previously absent from Chorasmian sites.¹⁸², can be closely analogous to the triple-feet bowl from the site of Dal’verzin-tepe in Yuezhi/Bactria of the Kushan period.¹⁸³

The material culture of the last two horizons (Horizons III and IV) shows remarkable differences from the early stage, characterised by an outstanding decline in the quality of ceramics, e.g., coarser fabrics, poor slip and the increase of hand-made wares. Some new forms became popular in both horizons, e.g., jars with two handles (on the shoulder, see Fig.28/right, 29, 44; Fig.29/8, etc.), vessels with modelled zoomorphic handles (roughly made, Fig.29/4,13; from the upper horizon, the modelled part became poorly shaped, for instance, see Nerazik and Rapoport 1981: fig.47/42,47). In Horizon IV, new forms bearing the transitional style between late “Kushan” and early Afrighid periods appeared (referred to as the “Kushan-Afrighid” period), including vessels with wavy ornamentations.¹⁸⁴ (e.g., *ib.*: fig.46:8,19), jars roughly formed by hand on the rim (*ib.*: fig.46:10,11), and jars/bowls with a row of fingerprint/notch ornamentation on the rim (*ib.*: fig.47:

¹⁷⁷ The site was re-occupied as burial grounds in late antiquity, Nerazik and Rapoport (eds.) 1981: 11 ff.

¹⁷⁸ Vorob’eva 1959:145 ff.

¹⁷⁹ Distinct from hand-modelled kitchen wares, this specific group initially recognised in the middle horizon of Koi-Krylgan-kala was described as “carefully made by specialists (potters) on a stand”, “usually covered by light-slip, with a lilac/grey hue”, Tolstov and Vainberg 1967: 119; Nerazik and Rapoport 1981:80-81.

¹⁸⁰ Vorob’eva 1959:156-157; Nerazik and Rapoport 1981:80-81.

¹⁸¹ Nerazik and Rapoport 1981: 79-80, fig.40:31; Rapoport and Nerazik 1984: fig.94:48.

¹⁸² Possible analogies to this type of vessel were found in Akchakhan-kala Area 03 and 10 (*infra* Section III). Unfortunately, only the foot parts survived, but from the shape of preserved feet and the red slip finishing on the surface, they are very close to the Toprak-kala one.

¹⁸³ Pugachenkova and Rtveladze 1978:16, fig.6: VII/VIII/IX.

¹⁸⁴ The motif had already been widely spread in other regions of Central Asia by the 1st Century CE, in comparison with the much later period at the end of Antique III, when it first appeared in Chorasmia.

9-12).

Excavation of the High Palace disclosed three periods, corresponding with two main stages of occupation.¹⁸⁵ The first one overlapped the construction and prosperity of the city, in accordance with the first and the beginning of the second horizon of the settlement, dated to the middle of the 2nd to the beginning of the 4th Centuries CE. The last one, equivalent to period three of the settlement, saw the decline and fall of the city by the middle of the 4th Century CE, in parallel with the rise of Afrighids. Pottery from the High Palace, in general, is of higher quality than those found in the settlement, although the general decline of quality is inevitable from the first to the last phases.

In general, pottery from Toprak-kala settlement and the palace has close relations with Bactria and the Syr-darya region.¹⁸⁶ Within the territory of Chorasmia, analogies of the pottery from the early layers of Toprak-kala can be found in the “Top Horizon” of Koi-Krylgan-kala, Akchakhan-kala Stages IIIA/B and IV, Ayaz-kala 3 and Kunya-uaz. Nevertheless, ceramics reported in Antique III period are not as rich as that of Antique I and II, partially due to the lack of thorough excavations on relevant sites—in fact, only Toprak-kala has undergone extensive excavation and full publication, whereas information on Kunya-uaz and Ayaz-kala 3 is just briefly reported in *TKhAEE*. Previous studies of pottery of Antique III lack a comprehensive understanding and integration of materials, since the most thorough research on Chorasmian antique pottery by M.G. Vorob’eva was published in the 1950s, before the excavation of Toprak-kala. In this regard, more recent materials from the KAE’s excavations of Akchakhan-kala will certainly broaden our vision and knowledge of the typology of Antique III period.

2.3 The Periphery of Ancient Chorasmia

Beyond the heartland of ancient Chorasmia, from as far north as the Syr-darya region to its southmost boundary, several important archaeological sites should be noted here. Unlike the grand fortifications previously mentioned, these sites are usually smaller in scale and in lack of thorough, systematic excavations and publications. Thus, further clarification on these sites is necessary to address here, for a comprehensive understanding of the environment in which the material culture was formed.

One of the major lands that housed multiple sites lay at the southern gateway through which the Amu-darya meandered, where the narrow entrance to the south was almost encircled by the two arid deserts—Kara-Kum and Kizil-Kum, from the south-west and north-east (Map 4). In terms of the relatively isolated geographic position, the land of southern Chorasmia, despite being remote

¹⁸⁵ Rapoport and Nerazik 1984: 247.

¹⁸⁶ For instance, two-handled red slipped jars and cups with zoomorphic handle, Nerazik and Rapoport 1981:89.

from the power of the centre, was situated on an important frontier to the oasis states of southern Central Asia, namely Bactria, Margiana and Sogdiana, possibly from which new material culture, techniques and ideas were imported into Chorasmia throughout the whole Antique period.¹⁸⁷ It is no wonder that on this land was found the biggest industrial and pottery production centre, Khumbuz-tepe.¹⁸⁸ a long-lasting site that functioned from the beginning¹⁸⁹ till the end of the Antique period. The settlement is located on the left bank of the Amu-darya, 17 km east of Khazarasp. It was initially explored by M. Mambetullaev in 1973.¹⁹⁰ and then underwent extensive excavations from 1996 to 1997. Unfortunately, the more recent excavations have no publication known to us.¹⁹¹ The excavation of 1973 disclosed a small settlement of 4.6 hectares, most of which badly eroded and washed away by the water channel of the Amu-darya. The entire settlement was covered with rich finds of pottery sherds, and a massive pottery production centre—a total of 9 furnaces have been found. The excavation of a stratified pit that comprised multiple cultural layers testified to successive production activities from the beginning of the Antique period to approximately the 1st Century BCE.¹⁹² The earliest layers (level V-IV) attested to some Archaic forms, i.e., truncated cups (Mambetullaev 1984: fig.3:3); shallow bowls with a sharp carination at the lower body (*ib.*: fig.3:4), in parallel with specimens from Kyuzeli-gyr and Dingildzhe. The middle horizon (Level IV-III) witnessed the industrial life of the site in full flourish. Pottery products of this period, in general, presented a leading high level of manufacture and craftsmanship, exemplified by various finds of zoomorphic/anthropomorphic *protomai* and appliques.¹⁹³ for fine table wares, pilgrim flasks with decorative images on one side.¹⁹⁴, etc. The top horizon presented in the pit (Level II-I) was ascribed to the 3rd -1st Centuries BCE by the author, with merely four specimens presented in the publication. It is most noteworthy that the finds are indicative of trading within Chorasmia, and although the data regarding this remain scarce, it appeared that Khumbuz-

¹⁸⁷ In Antique I, the Yaz-related materials attested at many Chorasmian sites; in Antique II, the presence of Hellenistic influence from the south; and then in the last antique period, needless to say, the Kushan elements imported from Bactrian region in specific.

¹⁸⁸ Mambetullaev 1984; Bolelov 1999.

¹⁸⁹ The earliest pottery complex finds analogies from the “Lower Horizon” of Kyuzeli-gyr, Yaz-depe II and Archaic Dakhistan, while its resemblance to Yaz materials has been seen from both morphology and manufacture techniques, see Bolelov 1999.

¹⁹⁰ Results published in Mambetullaev 1984.

¹⁹¹ According to Bolelov, the excavation reports were kept in the archives of the Institute (ИА АН РҮЗ).

¹⁹² Mambetullaev 1984: fig.3.

¹⁹³ Various zoomorphic *protomai*, mainly in shape of a lion’s head, see Mambetullaev 1984: fig.5; a rare form of a jar with applique in shape of human head, see *ib.*: fig.4; moreover, a specimen with applique resembles the bull’s head, noted by the author as associated with cultic figure, *ib.*: fig.8.

¹⁹⁴ For instance, a specimen depicting an armored horse on which ride a warrior holding a spear, *ib.*: fig.7:2.

tepe probably had sold pottery to other remote settlements in Chorasmia.¹⁹⁵ For example, at the fortress of Toprak-kala Shavatskaya¹⁹⁶, on the left bank of the Amu-darya, 120 km east of Khumbuz-tepe, the excavators found 50 different marks on excavated sherds, 27 of which coincide with the potters' marks from Khumbuz-tepe.¹⁹⁷

In the proximity of Khumbuz-tepe, there was another important site of the area, Elkharas, now sealed under reservoirs following the project of the Tuyamuyun Dam, along with the former fortress Kaparas.¹⁹⁸ The main construction of Elkharas was composed of the outer wall and a monumental complex divided into two sections, the “western building” and the “eastern building” (general plan see Levina 2001: fig.6). While the eastern part was poorly preserved and almost washed away even before the initial excavation, the “western building” presented a rectangular layout comprising two rows of rooms symmetrically distributed along a central passage. There are two facts worth noting here: first is the traces of wall paintings widely spread in most of the rooms; secondly, the earliest find of unbaked-clay sculptures in Chorasmia, from the niches—both attested as well at the “ceremonial complex” (Area 10) of Akchakhan-kala¹⁹⁹. As already stated by Minardi, the presence of unbaked-clay decorative reliefs in the southern Chorasmian site, derived from a western cultural background (specifically, a Hellenistic legacy from which various local adaptations were created, e.g., specimens from Ai-Khanoum²⁰⁰, Toprak-kala), marks the early cultural exchange between Chorasmia and the Hellenised external world. As the earliest and southernmost site in Chorasmia attested to the unbaked-clay modelling techniques, it is needless to stress the important role of Elkharas in the process of cultural assimilation. It corresponds with a time span from late Antique II to the early Antique III (ca. mid 1st Century BCE) when two important Chorasmian sites—Akchakhan-kala and Toprak-kala, were built successively and each saw the further development of unbaked clay modelling up to the 2nd Century CE.

Lacking stratigraphic evidence, the chronology of Elkharas was primarily based on the

¹⁹⁵ Although sufficient data of the pottery trade in Chorasmia is still lacking, it may be assumed that these specific groups of imported pottery from a remote site should be served for some specific purposes or for a certain class of people, e.g., local elites or aristocrats.

¹⁹⁶ Toprak-kala Shavatskaya is a fortress located in the Shavat district, possessing a peculiar round layout, it was divided into two building horizons—the first consists of pottery analogous to the lower horizon of Koi-Krylgan-kala, e.g., jugs with animal *protomai* handles, Mambetullaev 1986: fig.7:5,7,10; the second horizon roughly corresponds with early Antique III, in parallel with the top horizon of Koi-Krylgan-kala, Toprak-kala and Kunya-uaz. For more detailed information of the site, see Mambetullaev 1986.

¹⁹⁷ Mambetullaev 1984:37; 1986: 45-46.

¹⁹⁸ The excavations carried out between 1972-1975 in this area aimed to rescue and retrieve archaeological and historical information of the regarding sites before replaced by the development of infrastructure, which also means all the data presented in the publications are the final results.

¹⁹⁹ For more information of the “ceremonial complex”, see *infra* Section III, Betts et al. 2012; Minardi et al. 2018; see also Minardi 2020.

²⁰⁰ Bernard 1973.

typological study of excavated pottery, of which 4 chronological groups were sorted as follows²⁰¹: the first group bears the features of “Archaic”/ “Early Kangyui” pottery (5th -4th/4th -3rd Centuries BCE); the second is comprised mainly of hand-modelled wares, dated to the 3rd -4th Centuries CE; the third group is characteristic of early Afrighid pottery of the 5th -6th Centuries CE; and the last group belongs to the period following the abandonment of the site in the 10th-11th Centuries CE. As already pointed out by many scholars²⁰², Levina’s dating of the first group/ earliest stage of the site in the 5th-4th Centuries BCE is quite debatable. From a relatively small sample of group 1, the *khoums* (large storage jars) with red paint were arbitrarily ascribed to an early stage of “Kangyui”, following the distribution of two “older” rim forms (Levina 2001: fig.70:1,2) into the “Archaic” group. To stick to a rather early dating of 5th -4th Centuries BCE, Levina has compared the painted *khoums* of Elkharas with that of the manor of Dingildzhe and the “Upper Horizon” of Kyuzeli-gyr, while ignoring the evident distinctions on rim forms and decorative patterns²⁰³. Notwithstanding the two single “Archaic” sherds, the division of “Early Kangyui” is also disputable as lacking solid “Early Kangyui” features of relevant pottery types, e.g., overpainted geometric incisions, specific painting motifs, and characteristic rim forms (*cf.* Fig.19/left) etc. In my opinion, the three specimens of Elkharas (Levina 2001: fig.70: 8-10) may be closer to the pottery from Koi-Krylgan-kala “middle and top horizons” (Fig.25/1, 17). Differing from painted wares of early horizons, those from “middle and top horizons”, even though still painted, tend to show coarse and messy brush techniques. For example, there are traces of slip dripping from the casual strokes, as well as a less clear distribution of patterns which could cover half or all of the rim. Another feature suggesting a later dating is the disappearance of ridges/ledges under the neck that used to separate decorative zones on the body²⁰⁴. Nevertheless, in the table wares of group 1, some possible parallels could be found in materials of “Early Kangyui”, e.g., the cup (Levina 2001: fig.71:13) comparable with specimens near Koi-Krylgan-kala (Fig.23/34-36) and Kalaly-gyr 2 (Fig.22/type 1 variant 1), another cup with a ridge on the upper body with specimens from Kalaly-gyr 2 (Fig.22/type 3: 20, 23), and the bowl slightly narrowed at the mouth (Levina 2001: fig.71:10) with that of Kalaly-gyr 2 (Fig.23/10). Considering the emergence of advanced coroplastic techniques and wall paintings, the foundation of the site could be further narrowed to around the late Antique II, earlier than the initial stage of Akchakhan-kala.

²⁰¹ Levina 2001: 29 ff.

²⁰² Bongard-Levin and Košelenko in 2005 have argued about the Hellenistic influence manifested on pottery of Elkharas, and accordingly proposed a late dating of the foundation of the site at ca. 300 BCE; Cf. Minardi’s argument in light of the earliest specimens of unbaked-clay models from the site, which he placed no earlier than the 2nd Century BCE, Minardi 2015: 104-106.

²⁰³ *Cf.* Vorob’eva 1973: fig.36 of the painted wares from Dingildzhe.

²⁰⁴ Levina 2001: fig.70:9. The rim form is even closer to some specimens of “Kushan” period, *cf.* Vorob’eva 1959: fig.32: 24,31.

Another important area with regard to cultural exchange north beyond Chorasmia, is located at the lower reaches of the Syr-darya, where the eastern Aral Sea *Saka* tribes had been based since the Bronze Age (Map 5). In parallel with the Antique period of Chorasmia, a unique material culture was recognised in the fortified site Chirik-rabat and numerous smaller sites around the area, known as the “Chirik-rabat culture”²⁰⁵. While deeply rooted in the traditional *Saka* environment (represented by the burial grounds of South Tagisken²⁰⁶ and Uigarak), the material culture also has close ties with several southern polities in Central Asia, such as Margiana, Sogdiana, Bactria and Chorasmia. The homonymous site is located on the border of the Kyzyl-Kum, first explored in 1946, and then excavated in 1957 and 1958, under the direction of Yu. A. Rapoport and S.A. Trudnovskaya. Possessing a peculiar layout in the shape of an oval, the fortified site of Chirik-rabat covered an area of ca. 42.16 hectares composed of double outer walls, a rectangular citadel and several “funerary” structures—of particular peculiarity among them is a “Round Building” in which four separated squared chambers were joined by a corridor spread from the entrance (Vainberg and Levina 1993: fig.6 for a general plan of the site, here Fig.9; *ib.*: fig.42 for the layout of the “Round Building”). The building itself was interpreted as a funerary structure, dated back to the turn of 4th /3rd Century BCE²⁰⁷, belonging to the initial stage of the site.²⁰⁸ Even though looted in antiquity, the building still provides sufficient findings indicative of a rich inventory in the past. Important finds include various iron items (e.g., arrowheads, a small knife, a dagger, buckles etc.), several gold and silver jewelry items, remains of iron plate armor and a chalcedony stamp seal associated with the Achaemenids.²⁰⁹

In light of the information acquired from several “Chirik-rabat Culture” sites in the area, Vainberg and Levina have divided the relative chronology into three stages.²¹⁰ The first stage corresponds to the “lower horizon” of the fortification of Chirik-rabat, the “Round Building”, as well as the “lower horizon” of the “Big House” of Babish-mulla 1—of which the construction remained unfinished, and thus was interpreted as a ripple effect from the fall of the Achaemenids in 330 BCE.²¹¹ The second stage is mainly dated by the Hellenistic imports attested in relevant sites, i.e., Balandy 1 & 2 and Babish-mulla 2, in the mid-3rd Century BCE. The last stage overlaps the “upper horizons” of Chirik-rabat and Babish-mulla 1, as well as the “Square Building” of Chirik-rabat, corresponding to a rather thin cultural layer dated by the excavators before the early 2nd

²⁰⁵ Tolstov 1962: 139 ff. Vainberg and Levina 1993.

²⁰⁶ Itina and Yablonskii 1997; Tolstov and Itina 1966.

²⁰⁷ Tolstov 1962: 148.

²⁰⁸ Vainberg and Levina 1993: 57.

²⁰⁹ Tolstov 1962: 148-149; Bonora 2019.

²¹⁰ Vainberg and Levina 1993: 106-108.

²¹¹ Vainberg and Levina 1993: 107. However, the Achaemenid presence in this area is highly speculative as the materials and other archaeological evidence are rather scarce.

Century BCE.

The material culture of the Chirik-rabat complex, according to Vainberg and Levina, testifies to the position in which the southern Syr-darya area lay as a centre of cultural exchange and trans-regional interactions, between the steppe tribes and southern polities. On one hand, the hand-modelled pottery wares, except for the derivation from the Saka tribes between the Zhany-darya and Inkar-darya, saw a remote link with the south Ural region.²¹² On the other hand, the pottery made on a potter's wheel appeared to have direct connections with the southern polities (Sogdiana and Parthia in particular), from which new styles and advanced craftsmanship were imported, possibly via the exchange of materials or even artisans.²¹³ For instance, there is a prevailing jar type with a wide flattened rim ("T-shaped" in cross-section, Vainberg and Levina 1993: fig.75,1-16), of which the closest analogies were widespread in southern Turkmenia and Sogdiana.²¹⁴ A fact of particular interest is that no close analogy of this rim form was attested in archaeological sites of Chorasmia, suggesting that the constant cultural exchange between Chirik-rabat and southern Central Asia might not pass through a third party in Chorasmia. In fact, it is not until the last stage of the "Chirik-rabat Culture" that the cultural influence from Chorasmian "Kangyui" materials.²¹⁵ began to show. Even though many characteristic ceramic types concerning the "Kangyui" period, i.e., rhyton, goblets²¹⁶, handles with animal *protomai* etc., are absent in the Chirik-rabat assemblage, there are still similarities visible to materials of the "lower horizon" of Koi-Krylgan-kala and Kalaly-gyr 2.²¹⁷ Although in general, pottery comparable to Chorasmian materials is not as much as that bearing resemblance to productions from southern Turkmenia and Sogdiana.

2.4 Summary

The Antique period of Chorasmia overlaps a significant timespan of its early history from the ca. 6th BCE to the 4th Centuries CE which witnessed the entire process of the generation of Chorasmia as a new polity, and how the local material culture blossomed within the context of self-development in addition to several external stimuli.

²¹² Levina 1979: 187; Vainberg and Levina 1993.

²¹³ As inferred by Vainberg and levina, the construction of some fortifications in this area might have the participation of artisans from the southern area, *ib.*: 33-37.

²¹⁴ Vainberg and Levina 1993: 63-65. Comparable specimens from Afrasiab, see Terenozhkin 1950: fig.69: III, 8,9; IV, 7,8; Shishkina 1969: fig.7: 83-85,146; Kabanov 1973: fig.12: 26,27; fig.13:44.

²¹⁵ Vainberg and Levina 1993: 83-85.

²¹⁶ The only specimen came from a burial, hand-modelled, covered with gray slip, Vainberg and Levina 1993: 77.

²¹⁷ E.g., large bowls (*миски*), Vainberg and Levina 1993: fig.74 g, type 1 compared with Tolstov and Vainberg 1967: tab.III, 10-16 from Koi-Krylgan-kala and Kalaly-gyr 2 ones (Vainberg 2004: fig.3/18); bowls with everted flattened rims from Chirik-rabat (Vainberg and Levina 1993: *миски* type II A3) and Kalay-gyr 2 ones (Vainberg 2004: fig.3/19, 4,6); the shallow pan from Chirik-rabat group 1 (Vainberg and Levina 1993: fig.71, 92, 96) with Kalaly-gyr 2 one (Vainberg 2004: fig. 3/2, 4).

The initiation of Antique I (ca. 6th Century BCE) was coincident with the involvement of the Achaemenid Empire in this area which brought about not only the change of administration, but also new techniques and material culture, exemplified by the earliest fortification Kyuzeli-gyr of the left bank and the manor near Dingildzhe on the right bank. As the earliest stage of the Antique period, this specific time range was referred to as the “Archaic” period in most Russian literatures. The material culture testified both to the strong influence from the south (i.e., the Yaz-related materials) and the continuation of local Bronze Age traditions (e.g., the Amirabad Culture of East Chorasmia), as well as remote connections with the northern steppe.

Following a period of local development, Chorasmia experienced major prosperity in the second Antique period, characterised by rising number of fortifications and the emergence of a highly homogeneous local material culture from both the right and left banks, remarking the extent to which a new level of unification was generating throughout the territory of Chorasmia. However, the identification of Antique II, overlapping some of the so-called “Kangyui” period, has undertaken several important revisions in terms of recent works by the KAE which recognised the imported Hellenistic elements in Chorasmia. In contrast to the traditional interpretation of the “Kangyui” period which attributes all new features of material culture to mere interior development within Chorasmia, in fact, the radiation of Hellenistic culture had already reached Chorasmia by the 3rd Century BCE, most likely through the southern water course of the Amu-darya, in proximity to which were located the important sites Khumbuz-tepe and Elkharas that probably attest to the early transmission of Hellenistic culture to the north. In the heartland of Chorasmia, different manifestations of Hellenistic influence can be found at several major sites pertaining to the *facies*, e.g., Hellenistic inspired ceramic forms from Koi-Krylgan-kala, Kalaly-gyr 1 and 2, the Hellenistic *keto* of Akchakhan-kala etc.

The last Antique period, mainly represented by the excavation of the *gorodishche* Toprak-kala whose construction ensued following the abandonment of Akchakhan-kala (in the ca. 2nd Century CE), possibly as a signal of power shifting and more centralized control over the whole territory. It is particularly represented by the emergence of a new Chorasmian calendar, i.e., the Chorasmian era²¹⁸, and systematic distribution of the Palatial Complex which required a high-level control of the labour and also manipulation of new advanced building techniques. It is also interesting to note that no other equivalent urban centre ever existed throughout the territory contemporaneous with the presence of Toprak-kala, differing from the situation of Antique II when numerous fortified centres of equal scale sprung up. The aforementioned new phenomena, in parallel with the change of material culture, seemed more motivated by the interior development of the Chorasmian

²¹⁸ See discussions in Minardi 2015, also *infra*.

“kingdom”²¹⁹, rather than stimulated by the rise of Kushan Empire in the south (as the theory of a local “Kushan” period initially indicated). However, with scanty historical texts and archaeological evidence, it is still far from clear to what extent the Kushan Empire had ever influenced or controlled Chorasmia, despite hints in material culture, in specific pottery, which finds analogies in Northern Bactria, Sogdiana, Termez and Begram during the reign of the Kushan Empire.

In general, the material culture of Antique Chorasmia demonstrates very few regional distinctions—only seen at the early stage of Antique I, when western and eastern Chorasmia respectively were influenced by their local prehistoric cultural traditions, i.e., the Kuyusai and the Amirabad Cultures. In light of this, we may be able to answer the assumption with regard to kingship in Chorasmia²²⁰, purely based on readings of historical texts which speculates the possibility of a certain “dual sovereignty” that divided the “sacral-legal and military-administrative” power between two Chorasmian kings—further suggested by others²²¹ to the concept of two kings ruling the right and left banks respectively. According to the material culture, there is no sign of a distinct “right or left bank” sovereignty, at least during Antique period II and III. As for the variety of material culture displayed in the early Antique period, apparently no concrete evidence supports the presence of an early established kingship in Chorasmia.

²¹⁹ Early manifestation of the presence of a Chorasmian King found in Akchakhan-kala, *infra* Section III.

²²⁰ Tolstov 1946; Rapoport 1994:182

²²¹ Rtveladze 2016.

Chapter 3. Pottery Chronology of Ancient Chorasmia

As described in Chapter 1, the systematic study of Chorasmian pottery was initiated by the fourth volume of TKhAEE, published in 1959 by S.P. Tolstov and M.G. Vorob'eva. The latter scholar in particular was fully dedicated to the research of pottery of the antique period, of which three successive chronological phases— “Archaic”, “Kangyui” and “Kushan” were recognised in terms of historical interpretations of ancient Chorasmia. Notwithstanding the accumulation of archaeological materials in over a half century, the chronological and typological studies of Chorasmian pottery are almost set in stone thenceforth, not to mention the critical deficiency of stratigraphy and reliable dating in early archaeological works of the Chorasmian expedition. Moreover, the problematic nomenclature of “Kangyui” and “Kushan” needs a revision in the light of recent archaeological works and chronological studies. Therefore, it is necessary here to revisit the Chorasmian pottery of the Antique period, especially in terms of a more recent interpretation of Antique II period (roughly equivalent to the former “Early Kangyui” period, see Table 2) and Antique III period (partially overlapping the former “Late Kangyui” and “Kushan” period, see Table 2).

The chronological framework of the Antique period, i.e., the time frame on which the thesis focuses, that covering from the mid 6th BCE to 4th Centuries CE, has relatively secured termini confined by recorded historical events and ample archaeological data. Nevertheless, the division of the middle phase (the formerly “Kangyui” phase) remains disputable, due to the confusion of transitional material culture and the absence of historical records. The Soviet interpretation of the so called “Kangyui” phase depicts a rather isolated period of Chorasmia with a lack of cultural interactions with the external world (especially Hellenised Central Asia), in terms of the delusion of a powerful *Kangju* Kingdom (the name of which was mentioned in the Chinese chronicle *Shiji*) holding sway over Chorasmia. As a recent study by Minardi has pointed out, there is not an absolute hiatus of communication between Chorasmia and the outer world, as testified by the Hellenistic inspired local productions and the introduction of a series of new techniques triggered by interactions with the Hellenised outer world²²². In view of this interpretation, we can thus identify the Antique II phase in accordance with the appearance of several new features in local material culture, beginning in approximately the late 4th to early 3rd Centuries BCE. The *terminus post quem* given here has considered a certain time for Hellenism to spread properly in Central Asia, from

²²² Minardi 2015.

which Hellenistic elements were gradually transmitted into Chorasamia.²²³ Likewise, the transition from Antique II to III periods is another tricky issue requiring further clarification. First of all, the confusing assignment of an alleged “Late Kangyui” phase spanning from the 2nd BCE to early 1st Centuries CE, was mainly based on arbitrary reading of pottery typology bearing transitional features from the typical “Kangyui” to “Kushan” materials. In fact, many inconsistencies of material culture can be observed during the so called “Late Kangyui” period, and some specimens could be mistakenly ascribed to the “Kangyui” period simply because they are supposed to be earlier than the rise of Kushan Empire (in the 1st Century CE).

Excavations at Akchakhan-kala have produced pottery comparable to that of the earliest levels of Toprak-kala, yet earlier than the latter, casting new light on the chronology of the late antique period. It has led to an earlier chronology for the beginning of Antique III in ca. mid 1st BCE/early 1st Century CE, roughly corresponding with the “Great Siege” and the beginning of Stage IIIA of Akchakhan-kala (*infra* III.4). A major shift of socio-political status of Chorasamia presumably happening at the turning of Antique II and III is further suggested by the advent of the Chorasamian Era by then, as argued by Minardi (2015). This new chronology has become even more plausible as the earliest presence of “kingship” in Chorasamia was testified at Akchakhan-kala, a presumably royal seat prior to the construction of Toprak-kala—which explains why the latter should not be set as the beginning of the last Antique phase (as the former chronology indicated in the 1st Century CE), since the real turning point took place earlier as evidenced at Akchakhan-kala (Stage IIIA/B?).

3.1 Brief Review of Chorasamian Prehistoric Traditions

The earliest traceable Neolithic human activity in the region of Chorasamia were found in the ancient Akcha-darya delta of the Amu-darya and sporadically in the north-eastern Aral Sea region near the Syr-darya, namely the Kel'teminar Culture.²²⁴ This material culture predominated on the right bank of Chorasamia from the end of the 4th millennium BCE until replaced by the local Bronze Age culture around the mid 2nd millennium BCE, named by the excavators as the Tazabag'yab Culture. The new Bronze Age culture was widely spread across most of the territory of the Akcha-darya delta and Inkar-darya, divided into three main areas: the Dzhanbas-Kokcha, Angka-Bazar and Kavay areas.²²⁵ Pottery ascribed to the local Bronze Age *facies* is characteristic of the typical

²²³ A later chronology is more convincing, especially considering the new chronological hypothesis by Lyonnet that placed the foundation of Ai-Khanoum and phase Afrasiab IIA under the reign of Antiochus I, at the early 3rd Century BCE, *ib.* 2012.

²²⁴ Tolstov 1948a: 59-66; 1948b:73-80; 1962:23-47; Vinogradov 1963:91 ff.

²²⁵ Key sites surveyed and excavated include Kokcha 15, the burial ground Kokcha 3, Angka 5 and Kavay 3 etc., see Itina 1977: 44 ff., table 1.

Eurasian ICW (incised coarse wares)²²⁶. Although a mixture of Timber-grave and Andronovo traits has been witnessed in materials of the Tazabag'yab culture²²⁷, in contrast to the more mobile northern nomads, the Tazabag'yab population developed a semi-sedentary lifestyle²²⁸ characterised by building semi-dugout houses, cattle-breeding and very simple flood water agriculture.

In the early Iron Age, the Akcha-darya delta was dominated by a new material culture, the Amirabad Culture, named after the homonymous canal. Compared to settlements of the previous Tazabag'yab Culture, the Amirabad sites²²⁹ saw evolutions in multiple aspects, i.e., semi-dugout houses of large size suitable for long-term dwelling in family units, the development of small-scale canalization for the purpose of irrigation, as well as several important new improvements in pottery making. One of the most significant new features of the pottery is the preliminary division into "kitchen" and "table" wares. While all specimens remain hand-modelled, improvements in paste and firing techniques already appeared in local productions (Fig. 10/a, b, c), especially in "table wares" which were carefully tempered with fewer impurities and fired at higher temperatures to acquire a red/brown colour on the surface²³⁰. A few specimens were even covered with red slip with traces of burnishing. Notably, resemblances between Amirabad table wares and the burnished wares from the North Tagisken burial ground²³¹, as had already been noticed by Itina²³² in 1977, suggest some interactions between the Akcha-darya inhabitants and the remote Syr-darya tribal groups (presumably, tribal aristocracy, as the nature of the North Tagisken burial ground indicates²³³) in the early 1st millennium BCE. Manifestations of this connection are largely represented by slipped and burnished table wares, especially slipped jars with short necks and well-defined shoulders (Itina 1977: fig. 75, 76; 82: 22-25), as well as decorative motifs characteristic of the North Tagisken pottery, i.e., geometric patterns and ribbons (Fig. 11/a, b, examples from Yakke-

²²⁶ Pottery related to the Bronze Age nomads over a vast region of the Eurasia, brought by mobile groups to the Murghab Delta at the end of the Bronze Age. See detailed discussions in Cerasetti 1998, Salvatori 2008: 64; Cattani and Salvatori 2008: 15. For the Tazabag'yab type pottery, see in particular Itina's study in 1959, fig.10, 11.

²²⁷ Another view is that the Bronze Age cultures of Amu-darya represented a local variant of the Andronovo Culture, Masson and Sarianidi 1972: 147-149. See also discussions in Kuzmina 2007: 238 ff. on this issue.

²²⁸ The evidence for wheeled transportation and the temporary nature of the dwellings suggest a subsistence strategy based on primary agriculture and mobile cattle-breeding, see Kuzmina 2007: 238.

²²⁹ Sites of Amirabad Culture that have been thoroughly excavated and published include Kavati 2, Yakke-Parsan 2. On the excavation of the Amirabad site Kavati 2, Tolstov and Vinogradov 1963: 130-140; on the information of Yakke-Parsan 2, see Itina 1977: 147-168.

²³⁰ While the core remains black or dark gray, due to the lack of temperature, presenting multiple layers at the fracture.

²³¹ Tolstov 1962: 77-88; 1962b; Tolstov, Zhdanko and Itina 1963: 36-47; Itina and Yablonskii 2001.

²³² Itina 1977: 164-167.

²³³ North Tagisken was recognized as a necropolis for tribal leaders, while South Tagisken tends to small scale burials, see Itina and Yablonskii 1997.

Parsan 2, see Itina 1977: fig. 82; on North Tagisken pottery, see Tolstov 1962b: fig. 9; Tolstov, Zhdanko and Itina 1963: fig.19).

Kitchen wares of Amirabad sites are more reminiscent of the local Bronze Age cultures, represented by the tradition of the Tazabag'yab Culture mixed with some decorative motifs from the Suyargan Culture.²³⁴ Pottery forms of the Amirabad culture largely followed the old Tazabag'yab ones, with analogies in several relevant sites.²³⁵ whereas the decoration and some techniques were characteristic of the alien Suyargan Culture, i.e., incisions of horizontal “herring bones”, zigzags and lattices (Itina 1977: fig.73, 74).

A further development of the Amirabad material culture, also the late Iron Age development of the Yakke-Parsan complex, was attested at the settlement Yakke-Parsan 14, located only 1.5-2 km to the early Amirabad site Yakke-Parsan 2. The excavation at Yakke-Parsan 14 was only briefly reported with very limited data on the pottery. As with the early Amirabad pottery, all specimens from Yakke-Parsan 14 are hand-modelled, most of them have a red/brown surface, yet decorative incisions are almost absent. Diagnostic sherds can be roughly divided into 5 types, two of which (type 4 and 5) following the old Amirabad forms, while the other two (type 2 and 3) were recognized as being new in this area. According to Itina, type 2—small jars with a wide mouth and a ledge/ridge on the shoulder (Fig.10/d, 5-7) —is comparable to some specimens from north Tagisken, notwithstanding the disappearance of incised patterns, while generally in parallel with the Yaz-I materials of southern Turkmenia.²³⁶ She also indicated a link of the site with the nomads of the lower Volga region, represented by another new type, the elongated jars (type 3, Fig.10/d, 8-10), and thus dated the site accordingly to around 8th/7th -6th Centuries BCE (*ib.*:170). Nevertheless, resemblance of the above Yakke-Parsan 14 specimens to the two indicated sources (Yaz culture and the lower Volga region) is hardly evident, likewise the chronological framework built upon it. Given the very small proportion of pottery published, it is only safe to posit the material culture of Yakke-Parsan 14 as subsequent to Yakke-Parsan 2, as old forms of the latter yet with fewer/no incised decorations were attested at the former site. Furthermore, type 2 could be even comparable to some hand-modelled jars from the later site of Dingildzhe.²³⁷ (ca. 5th Century BCE). Given the fact that the Yakke-Parsan sites and the manor of Dingildzhe are all located along the same branch of the Amu-darya, the resemblance could possibly be a continuation of the hand-modelling tradition of the region.

In the meanwhile, the left bank of the Amu-darya followed a different track of development during the first half of the 1st millennium BCE, as a previously unknown late Iron Age material

²³⁴ Tolstov and Vinogradov 1963: 134-135; Tolstov and Itina 1960b; Itina 1977: 147.

²³⁵ Tolstov and Vinogradov 1963: 134-135; Itina 1977: 154-155.

²³⁶ Itina 1977: 170.

²³⁷ E.g., Vorob'eva 1973: fig. 42, 20 with the type 2 jars of Yakke-Parsan 14.

culture, the Kuyusai culture, suddenly appeared and dominated the land of the pre-Sarykamysch Delta, prior to the commencement of the Antique Horizon. Ceramics of Kuyusai type were found in the settlement Kuyusai 2 and the burial grounds of Tarym-kaya and Tumek-kichidzhik, from the latter two mixed with some Chorasmian types of the early Antique period. As a rule, all the locally produced wares were made without a potter's wheel, except for the upper part of some large storage jars (khoums) which seemed to be manufactured on a rotating stand²³⁸. Most of the specimens, from the rim to the middle of the body, are covered with slips, colours of which vary due to different status of firing (from light pink to purple). The bare surfaces of both sides always have a red colour while the core on fracture usually remains grey. Except for a few specimens which have simple marks/incisions at the shoulder²³⁹, pottery of Kuyusai type is always absent of decorations. At the settlement of Kuyusai 2, three distinct ware groups were divided according to their functions, as storage jars, kitchen and table wares. Storage jars²⁴⁰ consist of two main forms: one is the cylindrical form; another form is more closed, with a slightly narrowed neck, sloping shoulder, spherical body and a flat base²⁴¹. Kitchen wares are always covered with red slip, including several forms widespread in other agricultural civilizations of Central Asia, i.e., cylindrical jars, spouted jars and bowls, two-handled jars and braziers²⁴². Table wares are all covered with slips, including deep bowls, jugs with a loop handle and a deep cylindrical cup/bowl which saw several variants in Tarym-kaya I, represented by a more rounded body, and an appearance probably in transition to some forms of goblet/cup²⁴³.

Apart from the locally produced hand-made ware, a variety of wheel-turned wares are attested at sites of the Kuyusai Culture. They are distinct from the local hand-made wares in their higher quality, unusual forms and very low occurrence, apparently imported from other agricultural civilisations of Central Asia. Among them a most significant source is Yaz-depe²⁴⁴ in the Murghab Delta (in Margiana of the classical period, nowadays south-eastern Turkmenistan), from which the so called "Yaz I/II/III" materials were initially identified and then broadly spread in many regions of Central Asia, thus applied by the Soviet archaeologists as a major Iron Age sequence for a wide territory of Central Asia²⁴⁵. According to our present state of knowledge, except for Yaz-I materials

²³⁸ Vainberg 1979a: 13, tab. IV, 3-7.

²³⁹ *Ib.* tab. IV, 1.

²⁴⁰ *Ib.* tab. IV, V.

²⁴¹ *Ib.* tab. V.

²⁴² *Ib.* tab. VI, VII.

²⁴³ *Ib.*:40, tab. XXIII, 14.

²⁴⁴ Masson 1959.

²⁴⁵ The chronology initially given by Masson in 1959 based on excavations of the sole site Yaz-Depe, i.e., Yaz-I: 900-650 BCE, Yaz-II: 650-450 BCE, Yaz-III: 450-350 BCE (*ib.*: 48), has undergone several critical revisions in the light of more recent excavations of concerning sites and the calibrated C 14 dating, which testify to a much lower chronology of ca. 1400-900 BCE for Yaz-I, 900-550? BCE for Yaz-II and 550? -300 BCE for Yaz-III (Cattani and

that yet lack solid evidence of presence in Chorasmia, Yaz-II/III materials first appeared in the pre-Aral area in the ca. 7th Century BCE, at sites of the Kuyusai Culture (Itina 1979: tab. IX, 1-8, here Fig.12/a, 1-8) on the left bank and the Uigarak burial ground (Vishnevskaya 1973: tab. XXII, 26-29, here Fig.12/b, 1-4) of the Syr-darya region, and further at the early Antique sites of Kyuzeli-gyr and Dingildzhe. The Yaz II/III pottery, hardly distinguishable from each other in appearance, is characterised by wheel made vessels with typical truncated-cylindrical shape, and sometimes a sharp carination at the lower body. Yaz forms attested in Chorasmia include the “hourglass” beakers (Fig.12/a, 1-3; b, 1-2), carinated bowls (Fig.12/a, 4) and cylindrical jars (Fig.12/a, 5,6). Except for the typical Yaz imported forms, there are other imported forms, such as tripods (only the upper part remains, Fig. 12/a, 10,11), a small globular jar with long narrow neck and a loop handle (Fig.12/a,16, a possible analogy to which was found in the Uigarak assemblage, with grey clay, burnished, Fig.12/b,5), that indicate another foreign origin, most likely Archaic Dakhistan²⁴⁶ on the southern shore of the Caspian Sea. It is interesting to note that the same mixture of Yaz-II and Archaic Dakhistan features was witnessed in the earliest horizon of the southern Chorasmia site Khumbuz-depe²⁴⁷, suggesting again the possible route for material cultures of southern Central Asia entering Chorasmia— via the southern gateway of the Amu-darya.

To summarise, during the prehistoric period, different regions of Chorasmia each saw its unique local development, represented by distinct material culture derived from different cultural origins. The southern region of the Akcha-darya definitely plays the leading role in the prehistory of west Chorasmia, following a rather consistent tradition of hand-made incised coarse wares (Andronovo type), while the Amirabad culture (the Yakke-Parsan sites) gradually developed a set of burnished table wares with red slip, assimilated from the material culture of the north Tagisken tribal population. The assemblage of Yakke-Parsan 14, known as the latest Amirabad site prior to the local Antique period, witnessed the decline of incisions or any kind of decorations, in addition to the emergence of transitional forms to the new era (the beginning of Antique period), especially followed by material culture of the manor near Dingildzhe. East Chorasmia, however, lacking a proper local prehistoric material culture, only saw its late prosperity by the eve of the Antique period, with the sudden appearance of the Kuyusai Culture, closely associated with southern Central Asia, namely the Yaz material culture of ancient Margiana. Pottery forms attested at Kuyusai sites consist of hand-made cylindrical jars partially covered with red slip; imported wheel-made wares, such as the “hourglass” cups, carinated bowls and cylindrical jars, many of which saw a continuation in the assemblages of Kyuzeli-gyr and Dingildzhe.

Genito 1998:75). Cf. Chronology adopted by Wright, who ascribed Yaz-I to 1500-1000 BCE, Yaz-II to 1000-600 BCE and Yaz-III to 600-300 BCE, *ib.* 2008: tab.4.1.

²⁴⁶ For excavation reports of the site, see Muradova 1991; see also, Masson 1956.

²⁴⁷ Bolelov 1999.

Moreover, despite the relatively separate environments in which each region of Chorasmia developed during the prehistoric period, there was always a certain connection with the remote southern Syr-darya areas, from which pottery finds parallels in both Chorasmia and other southern areas of Central Asia, indicating the possible intermediary role ancient Chorasmia could have played between southern polities and the northern nomads. Especially noteworthy is the presence of two wheel-made *khoums* in the assemblage of the North Tagisken burial ground, resembling some “Archaic” forms of ancient Chorasmia.²⁴⁸, which stressed this early connection before the advent of the Antique period.

3.2 The Pottery of Antique I Period

The Antique I *facies* of ancient Chorasmia is best represented by the assemblages of Kyuzeli-gyr, the ancient manor near Dingildzhe and other scattered finds on right bank Chorasmia. Pottery production took a great leap from the previous small-scale homemade pattern to the overwhelming predominance of locally produced wheel-made wares totally unprecedented within the territory. Small vessels were usually made on a fast wheel to create thinner and more even walls, while larger vessels (*khoums*, basins) were made separately with slower rotation, sometimes leaving pronounced ribbing on the body—for large storage jars, the body was usually made separately and later added to the wheel thrown upper part. The quality of clay also showed considerable improvements; finely grounded tempers such as crushed gypsum and sand were added to the paste. Most potsherds have red/orange or yellow fabrics with very few impurities visible at the fracture; only some handmade kitchen wares retain the coarse, dark grey fabrics, porous with large inclusions. A majority of the wares are covered with slip, often in whitish/yellowish colours, as frequently seen on the Yaz pottery, except a few red slipped wares.

In continuation of the “Yaz” elements that were already witnessed in Kuyusai imported wares, pottery of Antique I period typically resembles the Yaz appearance, i.e., the cylindrical shape of body, sharp carination near the bottom and the convex base, which is broadly comparable with pottery from Margiana (Yaz-depe), Sogdiana (Afrasiab I), Bactria (Kobadian I) and Parthia (Anau IV) (Fig.13).

Typical wheel-made wares of this *facies* include cylindrical *khoums*, carinated basins and cylindrical cups. Evolved from old forms of the Kuyusai culture, they present several new features. For instance, cylindrical *khoums* have several important changes on rim form, upper body and base, as well as the emergence of painted decorations. One of the most common rim forms is thickened

²⁴⁸ Tolstov, Zhdanko and Itina 1963:46.

folded, with a triangular cross-section. Another variant is defined by a slightly everted/out-curved rim, not thickened, with short narrowed neck, well-defined shoulder and barrel shaped body. At the manor near Dingildzhe, more such specimens were found, with a variety of rim forms previously absent in Chorasmia, such as everted, overhanging, horizontally flattened ones etc. Near the bottom of the khoum, there is usually a sharp carination/ridge above a convex base. However, on many of the Dingildzhe specimens, the obliquity of bases considerably declined; some were nearly flat, while the carination or ridge near the bottom became less pronounced. The vast majority of large and medium sized jars (*khoum/khoumchi*) have light yellow/white slip covering the body, and a few with red paint on top of the light coloured slip (Vorob'eva 1959: fig.2, 2,8,20,24)—this is especially observed in the Dingildzhe assemblage, some specimens of which are already very close to the typical painted jars of the Antique II period (Fig.14,15).

For large carinated basins, the basic form has minor differences from the Kuyusai 2 specimens, despite the same new features witnessed on the khoums, i.e., the appearance of folded rims and red paints. As for the “hourglass” cylindrical cups, the old form was replaced by a cup of truncated shape, with a small flat base, concave lower body and a rather thin, slightly pointed rim (Vorob'eva 1958a: fig.5; *ib.* 1959: fig.4, 9), analogies of which can be found in the Yaz III assemblage (Fig.13). Moreover, a new form relevant to the “hourglass” cups appeared, with squat body, equally wide rim and base, thick walls, and coarse fabric (Vorob'eva 1959: fig.4,10). The only comparable specimen to this rare form was found beyond Chorasmia in the lower level of Afrasiab I.

Apart from the Yaz-related pottery previously known to us, some new forms bearing typical indigenous fashion appeared, the red slipped bowls.²⁴⁹ being the best examples. Parallels were absent from the “lower horizon” of Kyuzeli-gyr.²⁵⁰ whereas they were attested in great numbers at the manor of Dingildzhe. Distinct from the preference of whitish slip for Yaz pottery, bowls of Dingildzhe were typically covered with red slip on both interior and exterior. There are in total 7 types of red slipped bowls attested at the manor of Dingildzhe (Fig.16,17). Type I as the most common form numbered 178 specimens, characterized by a truncated conical shape with a large rim diameter ranging from 12 to 27 cm, and a relatively small base.²⁵¹ The second popular form, with 94 specimens, ascribed as Type II, consists of deep bowls, with a rather straight upper body extending from the upright rim; in some cases, the neck is slightly recessed and decorated with a groove. The base is usually small and flat.²⁵² The Type III bowls with only 8 specimens, resemble the appearance of beakers, with a straight elongated body without carination, which in my opinion,

²⁴⁹ The term “bowl” here generally refers to open forms in the shape of a bowl, without intentions of their exact purposes.

²⁵⁰ According to Vorob'eva though, red slipped bowls typologically identical to the Dingildzhe wares were also found in the unpublished materials from the “upper horizon” of Kyuzeli-gyr, *ib.* 1973:148.

²⁵¹ Fig.16, 1-25,28,31,32; Fig.17, 54,58,72-84.

²⁵² Fig.17,1-31.

instead of retaining an “Archaic” form as Vorob’eva suggested²⁵³, could be closer to the cups from the “lower horizon” of Koi-Krylgan-kala²⁵⁴, judging from the specific angle between the body and base.²⁵⁵ distinct from the Kyuzeli-gyr and Yaz ones. Type IV with 60 specimens also belongs to deep bowls, differing from Type II mainly in the larger size and the slightly out-curved rim²⁵⁶. Bowls with similar rim forms appear to be common throughout the Antique period²⁵⁷. Type V²⁵⁸ (70 specimens) are globular bowls characterised by a ridge in the middle of the body which marks the point of maximum expansion, comparable to some Yaz III pottery of the Murghab Delta.²⁵⁹ The remaining two types are particularly noteworthy, being reminiscent of some metalwork and ceramics of Achaemenid Iran, i.e., everted rim bowls and the Achaemenid tulip bowls. Type VI consists of 38 specimens with wide, everted rims (some are horizontally flattened), with or without carination on the body, comparable to many specimens in the Achaemenid world.²⁶⁰, while Type VII apparently emulates the “Achaemenid tulip bowl”²⁶¹ with typical flaring rim and a well-defined transition—perhaps a ledge or fluting under the rim— from the rim to the hemispherical body. Despite the Achaemenid inspired shape, both types were locally produced, using the typical Chorasmian red fabric rather than the common buff fabrics for pottery from southern Central Asia and Iran. The Type VI everted rim bowls continued to appear in Antique II, as testified at Kalalygyr 2 (Vainberg 2004: fig.3/19, 4,6), whereas Type VII, the “Achaemenid Bowl”, declined in Antique II, only finding a close analogy in an unstratified rim sherd from the Ceremonial Complex (Area 10) of Akchakhan-kala (*infra*), and possible analogies from the “lower horizon” of Koi-Krylgan-kala (Fig.20/a, 56,62).

Moreover, echoing the transitional attributes of the Dingildzhe assemblage, there are some rare forms attested at the manor of Dingildzhe resembling the prototype/earliest appearance of some later forms of the Antique II period— for instance, the presence of the earliest pilgrim flask (Fig.14) and single handled jug (Fig.18: 22,23,25). The former already seems morphologically quite close to its later counterparts in the Antique II period (e.g., specimens from Koi-Krylgan-kala, Fig.19,

²⁵³ *Ib.*:129.

²⁵⁴ E.g., Fig.20/a: 69,73.

²⁵⁵ Fig.17, 33, also 32,34.

²⁵⁶ Fig.17, 43-45, 47,48,50-53; Fig.16, 26,30,33.

²⁵⁷ E.g., Fig.23/10; Fig.20/a, 36,38,40; Vorob’eva 1959: fig.30/5; fig.34/4 etc.

²⁵⁸ Fig.17, 35-42, 46,49.

²⁵⁹ Vidale, Battistella and Guida 2008: fig.12.34, buff wares.

²⁶⁰ For instance, Persepolis, Pasargadae, Susa and Sardis, Schmidt 1957: plate 89,7; Miroschedji 1981: fig.63,2; Miroschedji et al. 1987: fig.7,12; Sumner 1986: fig.III.1, 1-o, etc.

²⁶¹ A common drinking vessel of the Achaemenid time, initially made of precious metals, also exists in media of ceramic and glass. Ceramic forms broadly distributed in and beyond Achaemenid Iran, such as the Mediterranean, Anatolian, Caucasus and Central Asian areas, e.g., Schmidt 1957: plate 72,1; plate 89,8; Stronach 1978: fig. 107, 7; Sumner 1986: fig.III.2, i; Miroschedji 1987: fig.7,7; Dyson 1999: fig.2, d,e; For more reference on ceramic bowls imitating the metal prototypes, see Dusinberre 1999, Miller 1993:109-146; 1997: 135-152; 2010: 862 ff.

right: 3,4), despite the absence of imagery relief decorations. Only the body of the pilgrim flask is preserved, with one side flat, another convex on which concentric incisions were placed in the middle, with double-ringed incisions decorating the edge. Although the upper part above the neck is missing, the two lug handles at the shoulder, the distribution of decorations and the shape of the body are already quite similar to the Antique II examples. The single handled jug, a form that later flourished in the Antique II period, is only represented by very fragmented sherds, most of which are handles, except one with the upper part (Fig.18: 25) consisting of a well-defined shoulder, long neck decorated with two ridges, and rim resembling the shape of a spout.²⁶² (the spout part is missing though), reminding us of the appearance of a vessel with a very similar function, the *oenochoe*, a single handled jug typical of Greek material culture.

Hand-made coarse wares, unlike wheel-turned pottery, made up just a small proportion of the published ceramics, with a distinctive decline in quality. All hand-made coarse wares belong to kitchen utensils, which are made of poorer quality clay tempered with many impurities, such as grits, chamotte and burnt stalks. The firing condition is usually poor, leaving the sherd fracture a dark grey core or surface. In a few cases, some kitchen wares are coated with whitish slip on the exterior. The forms of kitchen wares are very simple, many retaining the shapes of the previous stage, despite the disappearance of some local prehistoric features, i.e., the incised decorations typical of the Andronovo related pottery (of the right bank in Chorasmia), the hand-made table wares with a ridge at the shoulder with an influence from North Tagisken etc. Common forms include squat cylindrical urns, everted jars, neckless globular jars, deep bowls and braziers, among which the squat cylindrical urns are only found in Antique I period.

3.3 The Pottery of Antique II Period

Because of the absence at one single site of a successive archaeological facies throughout the antique period, since many relevant sites in Chorasmia were usually occupied for a relatively short term and abandoned (most Antique I sites had already vanished prior to the commencement of Antique II period), it is difficult to observe the course of transition from Antique I to II periods. Given the lack of calibrated radiocarbon dating for most of the key sites, it is even harder to posit the turning point with accuracy. However, an abrupt shift of material culture can be observed between Antique I sites Kyuzeli-gyr, Dingildzhe and a series of later sites, e.g., Kalay-gyr 1 and Koi-Krylgan-kala, material cultures of which are characteristic of the Antique II Period. Moreover, in terms of new interpretations of Antique II, which is a post-Achaemenid phase characterized by

²⁶² Interestingly, similar forms with a drain are usually found in the “Kushan” facies.

novelty and prosperity in multiple aspects, including material culture and building techniques, in association with important cultural imports from the Hellenised Central Asia, we can possibly set the beginning of Antique II at the turn of the 4th /3rd Century BCE (or the 3rd Century BCE, given the time for the spread of Hellenism in Central Asia and the time of its transmission afterwards into Chorasmia).

Pottery of Antique II is represented by assemblages from the “lower horizon” of Koi-Krylgankala, Kalaly-gyr 1 and 2, early stages of Akchakhan-kala (Stage I/IIA, B? See *infra* section IV), as well as sporadic finds of related *facies* from other sites. As in the previous Antique I period, wheel-made pottery made up the majority of the repertoire, and furthermore, standard pottery manufacture was established, represented by the high quality of paste, skilled forming and firing techniques, and the emergence of decorative motifs. Common fabrics include different shades of red or yellow paste, tempered by tiny to small white inclusions; as a rule, fabric for fine table wares is usually darker red or light yellow without visible impurities. Compared to the previous Antique I period, the use of red slip remarkably increased, so did red painted decorations on white slipped or bare surfaces. Common painted motifs include vertical or horizontal stripes, symmetrically distributed circles or spirals, “comma-like” or “dripping” and filled geometric patterns etc. In many cases, these painted designs are distributed deliberately in horizontal zones separated by ridges or grooves.

In terms of typology, the former Yaz shape completely disappeared, replaced by a surge of characteristic local productions and some new forms presumably inspired by foreign material culture, namely Hellenistic one. Wares most characteristic of Antique II period, as pointed out by Vorob’eva (*ib.* 1959: 137), include rhyta decorated with zoomorphic or anthropomorphic *protomai*, pitchers with animal head handles, pilgrim flasks decorated with imagery bas-reliefs, and jars with overpainted geometric incisions and specific painted motifs, i.e., “comma”, “dripping”, cross, vertical stripes, dots etc.

The clay rhyta is a very elaborate type of drinking vessel with a pierced lower end in the shape of the *protome* of an animal or human, from which the liquid is poured. Its toreutic prototype originated in Achaemenid Persia, from which the Greeks borrowed the material culture along with the drinking habit, creating a Hellenistic adaptation of the vessel assimilated with the Greek myths—productions bearing Hellenistic elements became popular during Hellenistic time within the northern and eastern Greek territories, e.g., the hoard of Thrace, ceramic imitations of the metalworks among the Attic black wares.²⁶³

In terms of fabrics, decorations and modelling techniques, clay rhyta so far attested in Chorasmia—the forms remain very rare, can be divided into two distinct groups of local productions and imports. Local productions, as the more common finds, have the traditional Chorasmian fabrics,

²⁶³ Miller 1993,1997.

i.e., red clay and red slip, with rather modest decorations on the upper body (usually two ridges under the rim), and a sketchy coroplastic *protome* that roughly outlined the animal's profile without many details, exemplified by specimens from Kalaly-gyr 1.²⁶⁴, Kalaly-gyr 2.²⁶⁵ and fragmented *protomai* from Koi-Krylgan-kala.²⁶⁶ Meanwhile, the imported rhyta attested at Kalaly-gyr 2.²⁶⁷ are characterised by rare grey clay, black slip polished on the exterior, with elaborate geometric incised decorations applied on the “bell” shaped upper body and elongated stem. Two surviving *protomai*—one is a bridled horse, another one is a bearded figure with horns, recognised as a *satyr*, each reveal an unprecedented high level of modelling and artistic depiction of vivid details that are completely absent from other Chorasmian rhyta. While the imported rhyta with their uniform shapes, decorative motifs and specific *protomai* (the *satyr*, and the horse *protome* comparable to an Ai-Khanoum example.²⁶⁸) indicate a Hellenistic background, the question emerges as to whether the locally made ones could be inspired by the same background.

If one regards the occurrence of several technical innovations as a critical chronological milestone, some important factors should be underlined. First of all, the art of coroplastics, not attested at any sites of the previous stage, appeared in Chorasmia almost contemporaneously with the emergence of new pottery forms, i.e., rhyta, pitchers with lion's head handle, the use of applique decorations on jars etc. In other words, if the occurrence of rhyta in Chorasmia truly reflects a natural self-development process inspired by the Persian legacy, as the Soviet scholars suggest.²⁶⁹ then there should be traces of prototypes or early stages of the modelling techniques attested in previous chronological stages—the absence of such vessels in Antique I indicates quite the opposite. In fact, we can see the coexistence of *protomai* with sketchy sculpture and typical Chorasmian fabrics and black slipped imported ones at Kalaly-gyr 2. It is more logical to assume that the former may be local productions inspired by the introduction of the latter. Secondly, from the stylistic analysis of the animal *protomai*, the Chorasmian rhyton with winged horse *protome* is closer to the Hellenised production of Iran rather than Achaemenid Iran.²⁷⁰ Finally, contemporary to the local manufacture of rhyta in Chorasmia, there are other new forms with techniques and artistic style implying a Hellenistic influence, for instance, the figurative reliefs on pilgrim flasks depicting figures of Hellenistic culture.²⁷¹ In summary, the production of rhyta in Chorasmia is most likely related to

²⁶⁴ Tolstov 1958a: 159, fig.62.

²⁶⁵ Vainberg 2004: 164, fig.5/1, plate 12,22.

²⁶⁶ Tolstov and Vainberg 1963: 111, fig.46,8-10.

²⁶⁷ Vainberg 2004: 167, plate 10,11,20.

²⁶⁸ Minardi 2015: 91.

²⁶⁹ E.g., Tolstov and Vainberg 1963: 111.

²⁷⁰ Minardi 2015: 90-91 with lit.

²⁷¹ *Ib.*: 89-90.

cultural communication with the Hellenistic world (especially southern regions of Central Asia), rather than inherited from the Achaemenid Persian material culture.

Along with the appearance of clay rhyta, important enhancements of decorations appeared on pilgrim flasks, namely examples with bas-relief decoration, which is closely associated with the introduction of model casting techniques into Chorasmia. The shape of these bas-relief flasks is not so distinct from their prototypes attested at Dingildzhe. Similar specimens with red slip were found along with the bas-relief ones in the same chronological context.²⁷² In addition to the plain red slipped ones, white slipped pilgrim flasks painted on the rim and body are attested at Kalaly-gyr 2.²⁷³ All three types (bas-relief, plain red slipped, painted wares) seem to be produced locally; the latter two continue to spread in early Antique III, while the bas-relief ones with higher artistic values, in association with the imported Hellenistic elements ceased to exist in the next period.

The pitcher, or jug, usually consists of an elongated body, with a loop or strap handle, narrowed neck, well-defined shoulder under the neck and a flat base, known as a container for liquid. This type of vessel is extremely rare in the Antique I period, only found with minimal diagnostic sherds at the manor of Dingildzhe. In the following Antique II, pitchers of various kinds suddenly became popular, represented by a relatively high quality of manufacture with carefully mixed clay, well fired red or yellow paste coated with thick red slip, sometimes vertically burnished or polished. A variety of forms can be identified in terms of rim morphology. Particularly noteworthy is a rare new form with lion's head handle, a thorough research of which on its manufacture techniques, typology and possible origins was done by Vorob'eva (*ib.* 1958b). According to her, the lion *protomai* were made separately and cast with moulds—fragments of which are attested at Koi-Krylgan-kala—and attached to the handle with liquid clay, or sometimes fixed with a small wooden pin (*ib.*). Like clay rhyta, pitchers with lion's head handles also found metal prototypes in Hellenistic culture.²⁷⁴, possibly from which the local potters borrowed the new typology and made their own imitations to serve the rising demands from the new elite class pursuing exotic fine wares.

Apart from the one-handed pitchers, another similar vessel that represents a large proportion of this class is defined by an elongated shaped body, narrowed neck and small mouth without attachment of a handle. This vessel, although ascribed to the “jug” class in the Russian literature, differs from the latter in shape, size and fabrics. The “jug-like” vessel without handle is an elongated closed jar form with flaring narrowed neck, sloping or rounded shoulder and a flat base. Unlike the fine red fabrics typical of traditional jugs, the elongated shaped jar is usually covered with either

²⁷² At the “lower horizon” of Koi-Krylgan-kala, Tolstov and Vainberg 1967: tab. II, 3,4 with 1,2.

²⁷³ Vainberg 2004: fig.3/14, plate 13,18.

²⁷⁴ See the arguments on the Hellenistic element in Minardi 2015: 88-89 with lit. Moreover, it is hard to agree with the “Egyptian influence” suggested by Vorob'eva (*ib.*1958b) who made the assumption merely by comparing the appearance of Chorasmian lions with the Egyptian counterparts. As far as I know, there is no evidence with regard to any Egyptian presence in ancient Chorasmia.

thin red (less often) or whitish slips, usually painted (with the patterns of “spirals” symmetrically distributed on the body, or horizontal/vertical stripes applied on the rim), without burnishing or polishing. The size of this vessel, judging from preserved whole wares, is usually larger, with a height ranged from 34-45 cm, clearly not suitable to be placed on a table but instead more intended for household purposes. The earliest presence in Chorasmia of such vessels could be traced back to the manor of Dingildzhe.²⁷⁵, where the excavators found three examples, all plain without decorations.

Compared to their antecedents at the manor of Dingildzhe, painted jars of Antique II period are characterised by standardized manufacture and various decoration motifs. First of all, storage jars of large volumes can be sorted into two subgroups according to the size: *хум-khoun*, here referred to as “large storage jar”, with a rim diameter usually larger than 30 cm, height from 65 to 115 cm; and *хумча-khouncha*, storage jars smaller than the *khoun*, referred to as “medium storage jar” here, with a rim diameter range from 26-44 cm, height from 30 to 70 cm. Vessels of such large size, as difficult as it might be to make as a whole, were always made separately. In most cases, the upper part was formed on a rapid potter’s wheel, while other parts of the body were built up with wide clay strips on the basis of a concave clay disc as the bottom.²⁷⁶, and attached to the upper part later. This method of shaping khouns usually left pronounced ribbing on the exterior surface. The half-finished production was then dipped into white slip (rarely in red slip or without) to acquire a light coloured surface, on top of which red paint appears more conspicuous. Both large and medium sized storage jars have two different shapes, namely the “pear-shaped” (elongated) and squat types. As a rule, geometric incisions with red overpaint only appear on the shoulder, i.e., the area above the largest diameter of the body, and distributed within several horizontal friezes marked by ridges, while the lower part of the body, as a separate zone, is either plain or decorated with red paint in the shape of “spirals”.²⁷⁷. Notably, if a large or medium storage jar does not have geometric incisions on the shoulder, it is usually decorated with red paint of “spiral” or “circle” instead, likewise neatly distributed in horizontal belts separated by ridges.

As for smaller jars, in general, they are all squat in shape, with a short neck and relatively wide base (larger than the rim diameter). Like the storage jars, small jars are usually coated with white slip and decorated with red paint and geometric incisions, or less frequently red slipped. On many specimens, there are 4 pre-firing holes distributed symmetrically under the neck, probably for the use of string handles. The rim forms vary, including everted, flattened, bevelled and collared. It is interesting to note a holemouth jar with a slightly inverted rim, a well-defined ridge or ledge under the rim (presumably suitable for placing a lid) and either cylindrical or rounded body. This rare new

²⁷⁵ Vorob’eva 1973: fig.39, 26-28.

²⁷⁶ Vainberg 2004: 105.

²⁷⁷ E.g., Fig.19: left, 10-13,21,22.

form is only attested at a few sites in Chorasmia, e.g., Koi-Krylgan-kala “lower horizon” (Fig.19: right, 20, 22, 23), Kalaly-gyr 2.²⁷⁸ and Akchakhan-kala (Genre 7, *infra*), most of which can be ascribed to Antique II period. No close analogy was found beyond Chorasmia, although the shape in general was thought to be inspired by Greek vessels, i.e., *pyxis*, *lekanis* (Vainberg 2004: 113-116).

It is also interesting to note the diversity of small drinking vessels of Antique II. Earlier in Antique I period, cups with a uniform truncated conical shape, identified as a Yaz-related style already appeared at the sites of Kyuzeli-gyr and Dingildzhe, were replaced by goblet of various kinds. Three basic forms were attested in Antique II period. One of the most common forms is defined by an out-curved rim and conical body built on a small flat or slightly concave base (Fig.22, type 1; Fig.23: 33-36,39). Another common form is goblets on pedestal bases, examples of which are mainly attested at Kalaly-gyr 2 (Fig.22, type 3), Koi-Krylgan-kala (Fig.20/right) and also Akchakhan-kala (*infra* IV.6). There is a rare variant with a relatively high stem only attested at Koi-Krylgan-kala (Fig. 20/b: 22,35). Examples are smaller in size, thus were sorted into to the miniature vessels by the excavators.²⁷⁹ The third form is less frequent, only attested at Kalaly-gyr 2 (Fig.22/13-18, type 2). It is characterised by an upright rim, carinated body sharply bending inward and a disc or pedestal base. Without comparable specimen found in Chorasmia, the form finds the closest analogies in Ai-Khanoum (Gardin 1973: pl.132/o3-2; Lyonnet 2013: fig.120/10-16) and Afrasiab (Lyonnet 2018: fig.1).

Yet more indications of the possible influence of Ai-Khanoum material culture can be seen from the introduction of the crater—a jar or bowl-shaped vessel on a moulded pedestal or ring foot base. Regarded as one of the symbolic vessels associated with the diffusion of Hellenistic material culture, craters find abundant parallels in southern Central Asia, and regions as far south as Begram and Taxila.²⁸⁰ With the complete or restorable wares recovered from Kalaly-gyr 2 (Fig. 24:1-3), we could finally identify the vessel from the very fragmented pedestal bases found at the “lower horizon” of Koi-Krylgan-kala (Fig.20/a: 49) and Akchakhan-kala (Fig. 71/0426). The craters, despite their seemingly large volumes, are far from the average quality of typical storage vessels, made of very fine red clay covered with glossy red slip—the fabric is commonly seen on fine table wares. One specimen has an anthropomorphic applique attached to the shoulder, probably originally in a pair, as another specimen from Khumbuz-tepe shows. With the pedestal bases and rim sherds published

²⁷⁸ Vainberg 2004: fig.3/11.

²⁷⁹ In fact, judging from the size of preserved base sherds, some specimens from the “middle and upper horizons” could possibly belong to full-sized goblets, e.g., Fig. 20/b: 28,29,33,36. The form’s earliest presence in Sogdiana was dated to the end of Achaemenid sovereign, though with buff fabric, polished without slip, distinct from the later red-slipped ones popular in Afrasiab period III, see Lyonnet 2018 with lit.

²⁸⁰ Gardin 1973: 145-147; Rapin 1992: 155.

from Kalaly-gyr 2, we can now be more confident of their resemblance to the Ai-Khanoum ones.²⁸¹ in morphology, and the Hellenistic models the local potters must had followed to produce them. Moreover, the connection of Kalaly-gyr 2 and Hellenised Central Asia can be reaffirmed by the presence of imported black wares comparable in morphology to Ai-Khanoum specimens (Vainberg 2004: fig.3/25).

To summarise, pottery production of Antique II period experienced a prosperity characterised by a greater extent of standardisation in production, enhancement of techniques and a variety of new forms. In parallel with the general Hellenistic environment of Central Asia, several new forms flourished, following a series of important innovations in pottery production, such as mould casting and applique, exemplified by the emergence of clay rhyta, pilgrim flasks with bas-relief, lion's head handles etc. Specifically, at the site Kalaly-gyr 2, cultural exchange and assimilation with the Hellenised Central Asia are testified by wares directly imported from or inspired by the latter. Moreover, the diversity of fine table wares, i.e., goblets, jugs, small bowls and craters, testifies to the rise of local elite class, who may potentially trigger the demand for creating more fine wares in pursuit of an elegant lifestyle.

3.4 The Pottery of Antique III Period

When it comes to the last antique phase, a transition process of material culture has been witnessed in the “middle and top horizons” of Koi-Krylgan-kala and Akchakhan-kala Stage IIIA/B.²⁸², particularly in the latter where the presence of a Chorasmian king was first attested by painted texts. The turning point most likely occurred in the mid-1st Century BCE, corresponding with the mid-desolation of Koi-Krylgan-kala²⁸³ and the siege of Akchakhan-kala at approximately 50 BCE.²⁸⁴, when Chorasmia might have been involved in warfare that led to the breakdown of several standing fortifications. Following the abandonment of the above two fortifications, the new material culture demonstrated itself to the greatest extent at the newly erected capital city of Toprak-kala. Pottery productions of the last Antique phase saw the fading out of painted wares and fine wares inspired by Hellenistic Culture, replaced by a new typology echoing the contemporary environment of Central Asia subject to the hegemonic Kushan Empire.

²⁸¹ E.g., Garidin 1973: fig.20; Rapin 1992: pl.71.

²⁸² The transitional feature possibly appeared earlier in the Fortifications, in Stage IIA.4 (related to the “siege”), *infra* IV.6.18, also IV.7.

²⁸³ The end of the “Lower Horizon”, i.e., Antique II, or formerly “early Kangyui” period. The chronology was recently revised by Minardi, and set more than a century later than the Soviet dating, i.e., ca. the 1st Century BCE, *ib.* 2015: 96-97.

²⁸⁴ Betts et al. 2009.

The quality of paste and slip, in general, saw a decline from Antique II, as pastes tend to be more heavily tempered. Red slipped wares tend to be darker, or nearly brown, and some have vertical burnishing on the exterior. Decoration became more conservative and simpler. Complex bas-relief patterns and zoomorphic *protomai* disappeared, while painted decoration became simple and relatively rare— only the pattern of spirals/circles survived in early Antique III, in addition to simple horizontal bands applied on the rim (Fig. 25). Examples can be found in the “middle and top horizons” of Koi-Krylgan-kala, Akchakhan-kala Stage IIIA/B, and sporadically the earliest phase of Toprak-kala.

In light of the pottery typology from the relevant sites, ceramics from the “middle and top horizons” of Koi-Krylgan-kala, Akchakhan-kala Stage IIIA/B, and the earliest level of Toprak-kala are much more comparable than those from the later horizons of Toprak-kala, which separated the early and late phases of Antique III.

Pottery of early Antique III still bears some transitional features; for instance, many old forms of storage jars survived with only minor changes on decorations and rim profiles. The ridges used to apply on the shoulder disappear or are replaced by a less pronounced ledge or a groove. The use of red paints decreased greatly, and even if there are painted decorations, they are no longer distributed neatly in separate friezes, but rather casually placed all over the vessel (Fig. 25: 1,15,16,17). The rounded collared rims attested in the “lower horizon” of Koi-Krylgan-kala declined, whereas flattened rims with a rectangular cross section prevailed. Smaller jars have less variants, the holemouth jars with in-curved rims and cylindrical or rounded body mostly disappeared, while a similar preference for flattened rims can be observed on many small jars. From the lower level of Toprak-kala, there is a tendency towards a new type, exemplified by spherical jars, neckless or short-necked, with simple rounded rim which began to replace collared rim jars (Fig.27/a), once a prevailing form in the previous Antique period.

Jugs or elongated jars became more popular than ever— the former is usually coated with red slip and vertically burnished on the exterior, while the latter always has whitish slip, with or without red paint. The rim profile occurs in three basic forms. A variant prevailing in this period is flattened rim, with either rounded or squared lip (sub-triangular or sub-rectangular in cross-section). Another widely spread variant is collared rim, already existing in the previous Antique II period. The last variant is relatively rare²⁸⁵, as defined by a bevelled rim previously unknown in Chorasmia.

The tradition of Chorasmian red slipped bowls continued in Antique III, yet the quantity considerably fell. As a rule, almost all small bowls are covered with red slip on both inner and outer surfaces. The rim forms basically remain the same as their antecedents in Antique II, whereas disc

²⁸⁵ Especially in early sites, such as Koi-Krylgan-kala. More examples can be found at Kunya-uaz and Toprak-kala.

or ring bases became more common than in the previous period when flat bases were the most common.

Particularly noteworthy is a set of ceramics attested in the “middle and top horizons” of Koi-Krylgan-kala (Fig.26). They were made without a potter’s wheel, but were carefully modelled by hand or shaped on a stand, and thus are of good quality, differing from other hand-made coarse wares. Distinct from the common red or buff wares, fabrics for these vessels are typically of pale grey or purple, lightly tempered paste, and covered with white slip on the exterior. Wares of this fabric group were widely spread in Chorasmia, as attested in many contemporary sites, such as Akchakhan-kala, Ayaz-kala 3 and the first horizon of Toprak-kala (Fig. 27/a:1-3,6-8). Pottery belonging to the fabric group includes various simple forms, such as short-necked jars and bowls of different sizes, jugs, plates and lids etc. The production of these vessels is considered by Nerazik as a reflection of a newly arisen rustic fashion, an innovation in compliment to the traditional pottery industry.

A very common jar form from the fabric group is defined by a simple everted or upright rim, globular body with zigzag incisions on the shoulder. Some have four pre-firing holes symmetrically distributed around the neck (Fig.26). They are attested in the “middle and top horizons” of Koi-Krylgan-kala in large quantity, and also at Akchakhan-kala, the estates of Ayaz-kala settlement, Dzhanbas-kala settlement and Kurganshin-kala²⁸⁶.

On some open forms with flattened rims, incised/indented decorations were applied on the flat wide platform of the rim (e.g., see examples from Koi-Krylgan-kala, Fig. 26:31; and Toprak-kala, Fig.27/b: 42,61), probably in imitation of some metalworks. Examples from Koi-Krylgan-kala belong to the same pale grey/purple fabric group.

The material culture of the earliest layer of Toprak-kala attests to connections with many southern areas, i.e., Termez, Begram, North Parthia and Bactria.²⁸⁷, which were then under the sway of the Kushan Empire. It is hard to say absolutely to what extent the new imperial power exerted influence on Chorasmia, but the material culture of Toprak-kala definitely proves close links with Kushan Bactria, especially in the later horizons. Even though in the earliest level of Toprak-kala, some elements of the Kushan cycle began to show, e.g., the appearance of triple foot wares (Fig. 27/b:31), so far very rare in Chorasmia, yet widespread in southern Central Asia during the Kushan period²⁸⁸.

Most artefacts from the second horizon of Toprak-kala can be ascribed to late Antique III period, approximately from the 3rd to 4th Centuries CE.

²⁸⁶ Nerazik and Rapoport 1981: 81.

²⁸⁷ *Ib.*:77.

²⁸⁸ Nerazik and Rapoport 1981: 79-80. For example, Dal’verzin-tepe, Pugachenkova and Rtveladze: fig.6; Zar-tepe, Pugachenkova 1966: fig.13; Khalchayan, *ib.*

Pottery from the second horizon of Toprak-kala is characterized by the disappearance of transitional features and remarkably, the emergence of several important new forms with regard to elements from different regional material cultures in Central Asia during the Kushan period. On one hand, the red painted decoration finally disappeared, so did modelled pottery with pale grey and purple fabrics. On the other hand, some features already witnessed in the early Antique III have further developments, some of which find rich parallels beyond Chorasmia.

For example, the emergence of jars with two handles, previously attested in the “top horizon” of Koi-Krylgan-kala (Fig.26), now saw an increase in the assemblage of Toprak-kala horizon II (Fig. 28). The shape of handles varies, from loop handle to nipple shaped protrusion. Moreover, a specific form of two-handled jug is noteworthy. Differing from traditional amphora which usually have the top of handles attached to the rim, specimens of this type (two whole or almost whole wares attested in Toprak-kala) have handles at a much lower place around the shoulder (Fig.28, right: 29,44), with a few parallels found in Begram.²⁸⁹ and Northern Bactria.²⁹⁰ Another noticeable find is the emergence of the *oenochoe* pitcher (Fig.28, right:38), the rim of which resembles the shape of a spout, just like the Greek pitcher *oenochoe*. Beyond Chorasmia, the form was attested in many areas of Central Asia during the Kushan period, such as Afrasiab.²⁹¹, Begram.²⁹² and Khalchayan.²⁹³ The Chorasmian specimen in morphology is close to examples of Afrasiab period III.²⁹⁴, just with the addition of a handle.

Connections with the Bactrian region also consist in the shallow bowl/plate with two moulded handles attached to the edge of the rim (Fig. 29:17,18,20). The shape of the handles varies; some might be purely decorative rather than functional, e.g., the horn-shaped, nipple-shaped handles etc. Judging from the high quality and rich ornamentation, this new form belongs to fine table wares. Unfortunately, all sherds found in Toprak-kala are quite fragmented with only rim parts preserved, yet we can still find their parallels in the assemblage of northern Bactria.²⁹⁵, from which specimens appear to be much more opulently decorated, with concentric circles, wavy lines and impressions being the most common decorative motifs on the inner side of the bowl. In light of the distinct decorative styles of Toprak-kala and northern Bactrian ones, the former, much simpler and less in

²⁸⁹ Ghirshman 1946: pl. XLI, B.G.356.

²⁹⁰ Turgunov 1976: fig.2,4.

²⁹¹ The *oenochoe* pitchers first appeared in Afrasiab period II, although most in black slip and polished with a metallic sheen. According to Shishkina, similar wares found are very rare until Afrasiab period III, when the form became more popular with red slip while black slipped wares were also produced at the same time, see *ib.* 1974: 35, fig.4.

²⁹² Ghirshman 1946: pl. XL, Begram II (ca. 2nd -3rd Centuries CE)

²⁹³ Pugachenkova 1966: fig.55, ca. 3rd -4th Centuries CE.

²⁹⁴ Shishkina 1974: fig.4, 1,2.

²⁹⁵ Pidaev 1978: 65-66, tab. XI.

quantity, might be another attempt of local potters to create new forms with the examples of foreign artefacts.

Another rare new form relates to the application of plastic zoomorphic handles. Yet different from *protomai* of the Antique II period, the animal feature of the late Antique III handle was usually represented with very sketchy, even coarse sculpture without many details. Vessels were attested in the second horizon of Toprak-kala, referred to as “mugs” in Russian literature. They are typically of squat rounded shape, with a wide mouth and a “C” shaped handle attached to the upper half or middle of the body (Fig. 29:4,13). Such roughly made zoomorphic handles, as well as the typology of the vessel, point to elements from the burials of Western Fergana, where numerous “mugs” with similar zoomorphic handles were excavated.²⁹⁶ In addition, Toprak-kala specimens also find close analogies in material culture of the remote Syr-darya region, i.e., Ak-tobe 2.²⁹⁷, Kauchin-tepe.²⁹⁸, known as sites of the Kauchin culture, which could possibly be the origin of the Toprak-kala zoomorphic handles.

Apart from new forms representing foreign material culture, the further development of some existing forms is also noticeable. First of all, jars changed a lot from their appearances in early Antique III. Spherical jars, neckless with a straight rounded or squared rim, sometimes four holes on the shoulder, became more common. A new variant of the T-shaped rim appeared at the end of the period. Secondly, red slipped bowls kept reducing in number, accounting for only 10% of the total diagnostic sherds from Horizon II of Toprak-kala. The variant with slightly inverted rim became a basic form. Thirdly, a rim form characteristic of a rilled surface with multiple horizontal grooves occurs on various types of vessels, including jars, pitchers and basins. Rims with multiple grooves/ledges are not innovations of Antique III, as they already occurred in some jugs or elongated jars from the “lower horizon” of Koi-Krylgan-kala and Kalaly-gyr 2. Yet it is not until the beginning of Antique III that the specific rim became popular and broadly used in various types of vessels other than jugs. Among all the new changes on existing forms, the preference for inverted and rilled rims are mutual features also witnessed in the contemporary assemblages of Northern Bactria.

To summarise, pottery of Toprak-kala Horizon II echoes some mutual features of Bactrian ceramic complexes.²⁹⁹ during the Kushan period, i.e., two-handled vessels, *oenochoe* jugs, the use of coroplastic and new rim forms etc. Although published pottery materials of this period only consist of a relatively small sample size, it at least confirms, to some extent, the presence of Bactrian

²⁹⁶ For a detailed typological study of the vessel, see Litvinskii 1973: 16-24.

²⁹⁷ Levina 1971: 132-133, fig.44.

²⁹⁸ The specimen is decorated with a zoomorphic handle resembling the figure of ram, with detailed sculpture of the horns, see *ib.* fig.26,23.

²⁹⁹ Nerazik and Rapoport 1981:89.

cultural influence in Chorasmia around the 3rd Century CE. On the other hand, some specific materials clearly point to a different material culture, distributed in the northern Syr-darya region, and also widespread among the nomads of western Fergana. Analogies from these sites agree with the chronology from the 3rd up to 4th Centuries CE.

3.5 Further Considerations on the Horizon III of Toprak-kala, and the So-called “Kushan-Afrighid” Period

At some point between the Horizon II and III, the palaces and corresponding facilities of Toprak-kala were abandoned, although the city still remained inhabited for a long time until the 6th Century CE. Material culture concerned with this time frame, i.e., ca. 4th -6th Centuries CE, differs from the antique period with a major decline in the quality of productions, exemplified by the deterioration of clay and slip, coarse finishing and trimming processes. The frequency of handmade wares increased considerably, accounting for about 30% of the diagnostic sherds from the concerned *facies* of Toprak-kala.³⁰⁰ While wheel made pottery and red slipped wares sharply decreased, pottery covered with poor white/yellow slip, sometimes with a greenish hue, predominated in the assemblage, coexisting with some old forms of red slipped wares, which also tend to be coarser covered with poor dark red or brown slip. In general, the quality of paste dropped sharply, i.e., typical inclusions such as gravel, gypsum, lime and chamotte are roughly ground and added to the paste, leaving many visible impurities on the surface.

Apart from the latest levels of Toprak-kala, pottery belonging to the “Kushan-Afrighid” *facies* is widely distributed in the surface layers of many antique sites in Chorasmia, especially in the temporary re-occupation of abandoned archaeological sites, for instance, the *donjon* (Area 11) of Akchakhan-kala, the upper layers of Kunya-uaz etc. Pottery of this time span is usually easy to identify, for the distinct coarse fabrics, decoration motifs characteristic of Afrighid style and the common green hue for most of the white slipped wares. Since specimens generally bear transitional features to the Afrighid materials, while still maintaining some old forms of the antique period, the material culture is recognized by many scholars.³⁰¹ as a separate phase representing the transitional period of “Kushan-Afrighid”.

While neckless spherical jars continued to be produced, another type of jar stood out in the new phase. Since most of the preserved sherds are rims, we can thereby reconstruct the upper part of this vessel which is characterised by a long neck, and slightly thickened everted rim decorated

³⁰⁰ In comparison with the 3% of them in Horizon I.

³⁰¹ Tolstov 1948a; Nerazik 1959: 225 ff.

with horizontal impressions of fingerprints or notches³⁰². The decoration motif of simplified impressions around the edge, previously unknown in the Kushan Period, flourishes in the following Afrighid Period, as a major decoration motif in addition to incised wavy lines. The latter motif, although only attested in Chorasmian sites contemporaneous with Horizon III of Toprak-kala, had already spread widely in Central Asia early in Antique III.

As one of the most popular types of wheel made ware in this period, jugs are represented by a series of new forms that are very close to the Afrighid pottery in appearance. The most common form among them is rilled rim jugs, sub-triangular in cross section, with or without a handle³⁰³. The upper body of the jug is usually decorated with several ridges that separate some horizontal zones in which incised wavy lines constitute the main decoration motif. Both double handled and one-handed jugs were found in the Horizon III of Toprak-kala, although compared to the late Antique period, double handled ones considerably declined, whereas one-handed jugs become more common. Moreover, among numerous handles found in the upper layers, there is a specific type with three grooves on the surface and flat in cross section, previously unknown in antique period. As far as I know, jugs with the similar type of handle are characteristic of the Afrighid era in Chorasmia (7th -8th Centuries CE).

Hand modelled wares of this *facies* are typically porous and very coarse, sometimes with the addition of poor greenish white/yellow slip on the surface. The surface of the vessels, usually without any smoothing or burnishing, is very uneven and rough. Jars with one handle prevailed over two handled forms that were once popular in the late antique period. On top of some handles, there are noticeable protrusions probably retaining the shape of zoomorphic handles of the late Antique III period, although considerably simplified. According to Nerazik, some of the one-handed jars could be developed from the “mugs” with zoomorphic handles of “Horizon II”³⁰⁴.

³⁰² Nerazik and Rapoport 1981: fig.47.

³⁰³ *Ib.*: fig.47, 8,9,19.

³⁰⁴ Nerazik and Rapoport 1981: 97.

SECTION III: Excavations in the Tash-K'irman Oasis

The Tash-K'irman Oasis is located in the irrigated land on the east bank of Amu-darya, in the south-eastern vicinity of Sultan-uiz-dag. Early investigations of this area in 1956.³⁰⁵ have discovered and recorded ancient canals, irrigation systems and several scattered monuments with findings referring to the antique period. However, due to the massive sand dunes that covered most of the monuments, the expedition did not make further attempt to remove the sand and dig deep. It is until 1980s, further surveys on the preserved ruins, with reconnaissance photographs, firstly acquired preliminary data on two of the main monuments of the area, Akchakhan-kala and the nearby Tash-K'irman-tepe, both have been noticed and recorded during the early expedition of Soviet era yet remained untouched, the former was dated by Tolstov to the early Medieval, and the latter was assigned to some kind of rural manor.

Following the collapse of the Soviet Union, opportunities for international collaboration in Central Asian studies keep rising ever since 1990s, in which circumstance extensive excavations and explorations of the Tash-K'irman Oasis have been carried out by the joint Karakalpak-Australian Archaeological Expedition (KAE) since 1995. Over 25 seasons of excavations and surveys, rich information with regards to material cultures, religions and history of the east Chorasmia is largely disclosed and under study of multiple scholars. Works of KAE have been focused on three main monuments in the Tash-K'irman Oasis: the Kara-tepe.³⁰⁶, a small fortified site to the north-west of Akchakhan-kala; the large fortified enclosure Akchakhan-kala, a Royal Seat of Chorasmia before the construction of Toprak-kala; and the regional cult complex Tash-K'irman-tepe.³⁰⁷, associated with rituals and worships of fire. The following chapters will be dedicated to the chronology and stratigraphy of the site Akchakhan-kala.

Chapter 4. Excavations at Akchakhan-kala, from 1995 to Present

As the major project of KAE, official excavations and studies of Akchakhan-kala (formerly Kazakl'i-yatkan) began in the 1995 field season and have lasted till present, yielding opulent materials and information on the nature of the site, as a major royal ceremonial centre of ancient

³⁰⁵ Andrianov 1969: 135.

³⁰⁶ The site was surveyed and excavated by the KAE. With evidence of ceramics and radiocarbon results, the site was dated to the Late Antique period (ca. 2nd -4th Centuries CE, phase I); and then early Medieval periods (4th -5th Centuries CE) for phase II; then late post abandonment activities for phase III, see Helms et al. 2002:7; Brite et al. 2017.

³⁰⁷ Betts and Yagodin 2007, 2008; Betts et al. 2018.

Chorasmia, spanned the Antique II and III periods (up to the early 2nd Century CE) followed by a post-abandonment re-occupation on limited part of the ruins around the late 4th -5th Centuries CE. The reason for the final abandonment of the site is not determined, but it is roughly coincident with the construction of Toprak-kala, a magnificent royal seat of late antique period, twenty kilometres north east to Akchakhan-kala.

Like other typical Chorasmian fortresses, Akchakhan-kala is a large fortified enclosure, consisting of outer defensive works, several main monuments along with auxiliary facilities and vast open areas with no specific use. The main fortification comprised two main parts: the Upper and Lower Enclosures (general plan in Fig. 30). To the north of the main fortification, it is found the ruin of a three-metres wide *pakhsa* wall, with traces of loopholes (Area 04). Further north beyond the *pakhsa* wall, about 600 metres northeast of Akchakhan-kala, several scattered farmstead mounds were found, among which the largest one has been excavated and designated Area 08. However, the scarcity of recovered materials and occupation layers from the area made it extremely difficult to date it properly or determine its relation to the nearby Akchakhan-kala. In terms of limited information, the pottery from the ancient canal to which Area 08 directly adjacent, the excavator suggested a contemporary date to the site Akchakhan-kala, although their assumed connection remains superficial inference and lacks of solid proof.

Excavations within the fortification initially focused on the eastern walls of Upper Enclosure, including the north-eastern corner tower (Area 06), one of the towers on the eastern flank (Area 01), and the complex gateway on the eastern flank of Upper Enclosure with the long ramps extended from its platforms (Area 09), all together have revealed a sequence of the construction of the fortification, which turns out to be the most promising stratigraphical and chronological basis for the study of Akchakhan-kala. Considering the heavy sand dunes on the field burying most of the fortress which require massive works removing, and also the scale of fieldworks, only tentative excavations and soundings were arranged in open areas of the Upper and Lower enclosures (Area 02, 05) where no specific structures or traces of habitation were found. Exploration on the vast open area then came to a halt, and the territory of Lower Enclosure remains largely unexcavated, except the area (Area 03) next to the north-eastern wall, where preliminary soundings in 1997 were followed by another trench (A03 05) in 2007.³⁰⁸ to discover the occupation activities at the interior side of the north-eastern wall. Compared to the largely undetermined Lower Enclosure, the Upper Enclosure with several discrete areas, of which traces were then visible above the top sand, has been the focus of KAE's work since 2004, disclosing three separate areas: the ceremonial complex at the north western corner (Area 10), the central monument at the exact centre of Upper Enclosure (Area 07), and the *donjon* built in later "Kushan-Afrighid" period (ca. 4th -5th Centuries CE) among other

³⁰⁸ Excavation of the trench in 2007 was directed by Elizabeth Brite.

remained ruins at the south-western corner (Area 11). The most impressive structure of Akchakhan-kala stands at the north-western corner of the Upper Enclosure (Area 10), as an elaborate monumental complex characterised by a square columned hall, courtyard, an altar area and various chambers and walkways surrounded by a corridor with several round corner towers. Massive works done and ongoing in this area have unveiled magnificent wall paintings in the western corridor, depicting a procession scene consists of more than forty figures with unique headdresses and jewellerys, various animals. Along with wall paintings at the same corridor, painted texts in ancient Chorasmian language and in Aramaic script were retrieved, and preliminarily read by Vladimir A. Livshits, who has identified several names along with the mention of “king” and “son”. Further excavations on the main hypostyle hall found more wall paintings with colossal figures directly associated with Zoroastrian deities.³⁰⁹ The ceremonial complex as a sacred space belonging to the royal family that associated with the rituals and practices of Zoroastrianism, is echoing with another important structure located at the exact centre of Upper Enclosure, designated Area 07. Excavations on this area were conducted in 2014 and 2015, led by Michele Minardi, who has published the reports of the two field seasons in 2015 and 2016.³¹⁰ According to reconstruction of the central monument, the main structure is constituted by two massive plinths on which formed an open terrace accessible through a ramp (see reconstruction in Minardi 2016: fig.10). Built on an artificial height, the non-privacy nature of the monument ensures its visibility even beyond the fortified enclosure, which makes it a perfect display of public ceremonies. The public Central Monument, integrated with the hypostyle ceremonial complex regarding royal religious space forms the whole ceremonial function of Akchakhan-kala as an important royal seat of ancient Chorasmia polity between the 1st BCE to early 2nd Centuries CE.

4.1 Chronology and Phasing

Thanks to the extensive processed radiocarbon samples gleaned from different areas of the site, as well as more recent excavation of the “Long Trench” of Area 09, we are now closer to a clear sequence of the construction of Akchakhan-kala. First of all, two separate systems without a clear correlation have been recognised at the site: one for the Fortifications-related contexts (Area 01, 06,09 and a small part of Area 10), another mainly for the Ceremonial Complex (Area 10).

The fortifications of Akchakhan-kala were not built simultaneously. The Upper Enclosure fortification was founded first, with curtain walls, barbicans, corner towers and single ditch built almost at the same time. Inside the barbican, there was the raised gate with brick paved platform

³⁰⁹ Betts et al. 2015, 2016.

³¹⁰ Minardi and Khozhaniyazov 2015, Minardi 2016c.

reached by a brick paved ramp from the interior of the gate. A *proteichisma* was built shortly after, in front of the initial outer wall with brick paved covered way, cover wall, double ditch and berm system (Fig. 31). The above process can be recognised as the first construction phase of the Fortifications (**Stage IA**), while a sub-phasing can be noted that the construction of the covered way, cover wall and the double ditch system can be assigned to the second phase of Stage IA, i.e., Stage IA.2. The Lower Enclosure was later added to the original fortification following the reinforcement of the Upper Enclosure fortification, also heavily defended with curtained galleries, towers and a *proteichisma*—this is identified as the second construction phase of the Fortifications (**Stage IIA**). Several sub-phases are identified here, although the last one is of special note, known as the “siege-related” phase (Stage IIA.4).

At some point postdates the construction of Lower Enclosure and the *proteichisma*, the site was under military attack, testified by the clear signs of battering and conflagration on the outworks of Upper Enclosure, and fallen timber roof beams in the galleries and towers that obviously caught in fire by then. This important event in Akchakhan-kala possibly took place around the mid-1st Century BCE.³¹¹, referred to as the “Great Siege”, marking the end of Stage II of the fortification. Along with the badly damaged ruins was squatter occupation found in the covered way of Upper Enclosure (restricted to the eastern flank) and the corridor of the Lower Enclosure curtain wall which are recognised as Stage IIA.4. Since most of the evidence regarding the “siege” was obtained from the eastern flank of the Upper Enclosure, it is only logical to deduce that the invaders, no matter who they were, must have gained the access to the Lower Enclosure, and reached the Upper Enclosure. The proof regarding the final result of the military attack is scarce, although traces of post-siege activities are visible on sections of the fortification, indicating a quick recovery from the attack. Brick cladding was added against the tower face and flanks of the Upper Enclosure, sealing off lower tier of loopholes, and same construction of cladding is visible from the inner part of the east curtain of barbican, inside and out. Shortly afterwards, brick paving covered the upper trace of corridors, towers and the barbican, and a second ramp with brick paving was built, superposed on the foundation layers and thin floor above the lower ramp. The “post-siege” reconstruction of the fortification, the construction of the upper ramp and traces of occupation related to these activities are within the **Stage IIIA** of the Fortifications in which two sub-phases can be divided.

The recovered and rebuilt structures of the fortification were in use by the early 2nd Century CE, and thereafter abandoned peacefully without any evident signs of destruction. All the post-abandonment collapse, wash and topsoil levels are ascribed to **Stage IV**—a universal stage generally witnessed across the whole site, although minor differences of ceramic types can be

³¹¹ Betts et al. 2009.

observed among areas (*infra* IV.6). Two sub-phases can be divided here, referring to the initial abandonment (Stage IV.1) and secondary post-abandonment phases (Stage IV.2).

The phasing of the Fortifications (Stage IA-III A) applies to areas directly relate to the construction of the fortifications, including mainly Area 01 (one of the towers on the eastern flank of the Upper Enclosure), Area 06 (the north-eastern corner tower of the Upper Enclosure), Area 09 (the barbican of the eastern flank of the Upper Enclosure and ramps extending from it) and a trench from Area 10 reaching out to the northern wall (A10 13.16). Unfortunately, as far as the current stage of excavation, we have no approach to securely link other excavated areas with the phasing of the Fortifications. In other words, each area apart from the fortification must be separately considered within its own context.

Recent years excavations at the Ceremonial Complex (Area 10) have obtained sufficient data on the construction, rebuilt and abandonment of the Central Building (A10 04), a roughly square monumental building surrounded by a double wall with a corridor and towers. Three stages of construction and use can be identified in the Central Building (Stage IB-III B), followed by the same abandonment and post-abandonment stages of the site (**Stage IV**). The first stage saw the construction of a single wall and some exterior surfaces of the Central Building (**Stage IB**). Shortly after, there was another outer wall added, creating a corridor, towers and formal gates, as well as the establishment of several facilities, such as the drain, and possibly columned hall in Area 10 06—the whole process can be recognised as **Stage IIB**. And then at some point when the first inner wall demolished, a new wall was built instead, together with the addition of wall paintings, in addition to the construction of the main hypostyle hall in the south-western corner of the Central Building, as well as more columned rooms, renovations and creations of fire altars—which is **Stage IIIB**. In the final stage of use, the Central Building was composed of a double outer wall with two towers on each flank and four in the corners, as well as gateways on the western and southern sides (Fig.32). Following the final abandonment of the site, this area experienced organised looting which removed all recyclable materials, especially reusable architecture materials, such as timber and worked stone.³¹² and presumably any materials of value—partly explained the scarcity of objects excavated from the area, except for paintings and architecture components. Even during the lifetime of its use, the area had already been kept remarkably clean, attested by the scarcity of artefacts from early stages (Stages I-IIB).

There is so far no approach to link the phasing of the Ceremonial Complex with the Fortifications. Attempts have been made to open sondages on the sides adjacent to the fortification but have yet failed to find firm connection with the stratigraphy of the fortification (with the exception of one layer from the A10 13 trench, i.e., A10 13.16). This is to say, even though the shift

³¹² Betts et al. 2016.

of phases in the two areas may potentially be close in time, it is so far impossible to prove it archaeologically, since the phasing for each area attests to different construction activities. However, as suggested by the preliminary dating of the “siege” and Stage III of the two areas, the start of Stage III, i.e., renovations or repairs of old constructions, in both areas could be very close in time, although this remains highly speculative.

4.2 Radiocarbon Dating

A large number of samples for radiocarbon dating have been retrieved, especially from the Fortifications and the Central Building of the Ceremonial Complex, and have been successfully processed in different laboratories, yielding many absolute dates regarding several key events of the construction, use, reconstruction and abandonment of Akchakhan-kala (Table 4). Most samples were retrieved from the Fortifications (Area 01, 06, 09) and Ceremonial Complex (Area 10), and another few from the Central Monument (Area 07). Although the calibration of C14 dates is more or less subject to individual judgement, a series of consistent dates can lessen the impact and show the primary patterns to some extent.

As the calibration curve has shown (Fig.33), despite a few outstandingly early dates (e.g., OZE939, OZR365) which can be explained as a certain heirloom or traded old stuffs, most of the curves fall within the late 3rd/early 2nd BCE to 2nd Centuries CE, corresponding with the lifetime of use of Akchakhan-kala. Notably, two dates obtained from Area 10 and 07 (Wk17333 and OZD243) may indicate the establishment date of the monumental architectures of the site—although their earliest calibrated dates can be traced back to the 4th Century BCE, the main part of the curve is restricted within a timespan from the early 2nd -mid 1st Centuries BCE. Several calibrated dates belonging to the same time range reaffirm the initial stage of the site (*infra*), from around the turn of 3rd /2nd to mid 1st Centuries BCE. OZE844 (cal. 204-38 BCE) and Wk20222 (cal. 204 BCE-26 CE)—the former was found under the brick pavement of the Lower Enclosure gallery and the latter from the occupation levels of Stage IB in the Central Building, attest to a similar time range which may suggest a relatively short interval between the construction of the Lower Enclosure (Stage IIA) and the early stage of the Central Building (Stage IB), and probably the construction of the Upper Enclosure (Stage IA). OZE846 and OZE847 were obtained from fallen timber roof beams of the fortification burned during the “siege”. The earliest date for both samples around the turn of the 3rd/2nd Centuries BCE dates the wood to the same time of the earliest construction of the site, i.e., the early 2nd Century BCE, although the date of wood selected for building should be earlier than the construction activity. Wk31989 despite with a relatively early calibrated date (cal.177-38 BCE) initially came from a burnt timber beam in the gatehouse of the south gate of the Central Building,

which should be ascribed to Stage IIIB³¹³. However, the early date may be explained by the use of old or recycled wood.

Several dates from Area 10 are directly associated with Stage IIB. Wk31986 (cal. 112 BCE-76 CE) and Wk31987 (cal.173 BCE-8 CE) are associated with a Stage IIB pit in the Central Building, while Wk23065 (cal. 157 BCE-31 CE) came from a hearth sealed below the first floor of Stage IIIB in the west corridor. Wk31985 (cal.107 BCE-62 CE) was found under the mudbrick base of a Stage IIB wall. Moreover, two relatively late dates from the corridor of the Central Building— Wk23064 (cal. 55 BCE-121 CE) and Wk17404 (cal.45 BCE-121 CE), may indicate the end of Stage IIB and the transition to Stage IIIB.

A series of dates with regard to the “siege” event or activities immediately after are noteworthy. D-AMS 034964 offers a relatively early date (cal.176 BCE-22 CE) came from the fill placed below the floor for the upper ramp (Stage IIIA) in the interior of the Upper Enclosure Fortification east gate. It may be assumed that the preparation for building the upper ramp corresponds with the repairs after the destruction caused by the “siege”, which could roughly date the event, although the early calibrated date may indicate involvement of rubbles drawn from early constructions. OZE843 (cal. 55 BCE-85 CE) was recovered from brick repair of the *proteichisma* preceding the “siege”. D-AMS 034962 (cal. 61 BCE-66 CE) and D-AMS 034967 (cal. 55 BCE-69 CE) are associated with occupation deposits beside the ramp inside the east gate, and can generally date the Stage IIA. Notably, this time range is generally in parallel with the end of Stage IIB of the Ceremonial Complex. In addition, several samples are directly related to the “post-siege” repairs of the Fortifications, i.e., OZE940, OZD244, OZD246. In general, according to calibrated dates presented here, we can posit the “siege” event at ca. 50 BCE-50 CE.

The Stage IIIA can be dated by three samples came from the upper ramp, i.e., D-AMS 034965 (cal. 45 BCE-80 CE), D-AMS 034966 (cal. 59-206 CE), D-AMS 034963 (cal. 66-212 CE). As for the Stage IIIB of the Ceremonial Complex, there are three samples—Wk20221, Wk31988 and NZA15967, indicating a broad time range around the 1st BCE to late 2nd Centuries CE. Even though there is no solid evidence to prove the link between the “siege” and the start of Stage IIIB, chronologically the two events appear to be close, so does Stage IIIA.

To summarise, the earliest construction of key monuments, the Fortifications and first occupation in interior of the Upper Enclosure (Stages IA & IB) should be dated to the early 2nd-mid 1st Centuries BCE, followed by Stages IIA and IIB dated generally within the 1st Century BCE. The end of the former is clearly associated with the “siege” event (Stage IIA.4), and the end of the latter could hypothetically be close to the event in time. While the “siege” itself can be dated at ca.50

³¹³ Another possibility is that the building was constructed together with other “ring walls” of the Central Building, which should belong to Stage IIB.

BCE-50 CE, the post-siege Stages IIIA & IIIB are most likely confined within the end of 1st BCE to late 2nd Centuries CE.

Table 4 C14 samples from Akchakhan-kala (in chronological order)

<i>Lab. code</i>	<i>Area</i>	<i>Material</i>	<i>Uncal. BP</i>	<i>Oxcal 4.4.4</i>	<i>Phase</i>	<i>Description of location</i>
<i>OZE939</i>	KY 10	charcoal	3110 +/- 33	1147 -1276 BCE		in floor deposit
<i>OZR365</i>	KY 10	ivory	2900 +/- 25	1132 - 1008 BCE		ivory
<i>OZS402</i>	KY 10		2250+/- 30	315 - 204 BCE		black paint from northern corridor, Central Building
<i>Wk17333</i>	KY 10	charcoal	2131 +/- 36	210-46 BCE	IB	clay layer below first wall.
<i>OZD243</i>	KY 07	charcoal	2110 +/- 67	236 BCE - 27 CE	I/IIIB	occupation layers above footings
<i>OZE844</i>	KY 06	charcoal	2104 +/- 38	204 - 38 BCE	IIA.1	corner tower under brick pavement in lower enclosure gallery
<i>Wk20222</i>	KY 10	charcoal	2084 +/- 47	204 BCE - 26 CE	IB	interior of central building, in pit below basin
<i>OZE846</i>	KY 06	charcoal	2096 +/- 36	201 -36 BCE		corner tower in burnt debris in loophole, fallen timber roof beam
<i>OZE847</i>	KY 01	charcoal	2084 +/- 33	196 - 31 BCE		wall tower in burnt debris above floor of gallery, fallen timber roof beam
<i>Wk31989</i>	KY 10	charcoal	2089 +/- 29	177 - 38 BCE	IIIB	in destruction layer above hearth in outer gatehouse
<i>Wk31987</i>	KY 10	charcoal	2075 +/- 31	173 BCE - 8 CE	IIB	Stage IIB pit in section cut across columned hall
<i>D-AMS 034964</i>	KY 09	charcoal	2071 +/- 36	176 BCE - 22 CE	IIA	fill below floor for upper pavement
<i>Wk23065</i>	KY 10	charcoal	2044 +/- 35	157 BCE - 31 CE	IIB	hearth sealed below first floor of stage IIIB in corridor west
<i>OZD245</i>	KY 07	charcoal	2038 +/- 49	171 BCE - 82 CE		clay below pure sand beneath footings
<i>Wk31985</i>	KY 10	charcoal	2036 +/- 28	107 BCE - 62 CE	IIB	under mudbrick base of wall above first constructive floor
<i>Wk31986</i>	KY 10	charcoal	2029 +/- 33	112 BCE -76 CE	IIB	charcoal in Stage IIB pit with black burnished sherd
<i>D-AMS 034962</i>	KY 09	charcoal	2029 +/- 27	61 BCE - 66 CE	IIA	A09.50 D4
<i>D-AMS 034967</i>	KY 09	charcoal	2018 +/- 25	55 BCE - 69 CE	IIA	A09.68 D4
<i>OZE843</i>	KY 06	charcoal	2007 +/- 33	55 BCE - 85 CE	IIA	brick repair of <i>proteichisma</i> covered way

<i>Wk20221</i>	KY 10	charcoal	2005 +/- 47	117 BCE - 125 CE	IIIB	fire altar
<i>OZE940</i>	KY 09	organic	2004 +/- 35	55 BCE - 87 CE	IIIA	barbican of upper enclosure, <i>pakhsa</i> in interior cladding
<i>Wk31988</i>	KY 10	burnt reeds	2002 +/- 29	51 BCE - 83 CE	IIIB	burnt reeds set into mudbrick on top of wall in outer gatehouse
<i>Wk23064</i>	KY 10	charcoal	2001 +/- 38	55 BCE - 121 CE	IIB	stage IIB in corridor west
<i>D-AMS 034965</i>	KY 09	charcoal	1994 +/- 23	45 BCE - 80 CE	IIIA	A09.65 D4
<i>OZD246</i>	KY 06	charcoal	1989 +/- 52	106 BCE - 204 CE	IIIA	hearth on brick pavement in gallery of lower enclosure curtain wall
<i>OZD244</i>	KY 06	charcoal	1983 +/- 54	60 BCE - 207 CE	IIIA	corner tower under cladding
<i>Wk17404</i>	KY 10	charcoal	1983 +/- 34	45 BCE - 121 CE	IIB	hearth of Stage IIB in south corridor
<i>NZA15967</i>	KY 10	charcoal	1965 +/- 50	49 BCE - 207 CE	IIIB	interior of corner tower c. 50 - 80 cm above the floor level
<i>OZE845</i>	KY 01	charcoal	1941 +/- 38	7 - 206 CE	IIIA	under upper brick pavement of upper enclosure gallery
<i>D-AMS 034966</i>	KY 09	charcoal	1922 +/- 24	59 - 206 CE	IIIA	A09.67 D4
<i>D-AMS 034963</i>	KY 09	charcoal	1907 +/- 24	66 - 212 CE	IIIA	A09.59 D4

4.3 Stratigraphy: The Upper Enclosure

As a series of absolute dates suggest, the fortification of the Upper Enclosure and key monumental structures inside (Area 07, Area 10) were probably founded in the very beginning of the construction of Akchakhan-kala (Stage IA, IB). In the final stage of use (Stage IIIA, IIIB), the Upper Enclosure covered a land of ca. 15 hectares, encircled by heavily defended outer walls and double ditches. A section cut through the northern walls and outworks has shown clearly the structure of the defensive systems of Akchakhan-kala (Fig.31). Two traces of outer walls were built on massive *pakhsa* socles, on which mudbricks were used to fill the inner space up to a higher level to form the pavement on the first level of the inner gallery. In the space between walls, a two-storeyed internal gallery were constructed using massive timber beams inserted into the walls. Two rows of arrow slits typical of Chorasmian fortifications were opened on the exterior. On every flank

of the wall, square two-storied towers, with loopholes on the upper level, were set every 22 metres, with the four corner towers in larger size. In addition, brick paved covered way, cover wall, a double ditch system with berm and revetment were built in the outer circle of the defensive walls. However, according to our refined reconstruction of the fortification, the design of Akchakhan-kala outworks (especially the *proteichisma*), presumably a Chorasmian local invention, appears to be tactically flawed and cannot function efficiently to fight against invaders.³¹⁴ Considering the ceremonial aspect of the site that differs from typical strongholds, and the extent to which the site was exposed to attacks during the “siege”—so far radical destruction was only restricted to the fortification, there is no such trace attested at the key monumental structures inside the wall, the purpose and identity of the presumed invaders remain enigmatic.³¹⁵

Apart from the two main areas of monumental architecture (Area 07 and 10) and the fortification-related contexts (Area 01, 06, 09), there is another area postdating the final abandonment of the site, the *donjon*, situated in the south-western corner of the Upper Enclosure. It was built to take advantage of the remaining interior walls of the Upper Enclosure, in addition to the northern wall, encircling a rectangular space of ca. 90 x 37 metres. In the upper layers of the area, numerous ceramic sherds typical of the transitional stage of “Kushan-Afrighid” were found, as well as fragments of alabaster ossuaries, suggesting the possible main function of this area as an ossuary necropolis after the abandonment of the site. A trench (01) was opened from south to north from the main gate of the *donjon* to the northern wall. Most of the ceramics excavated from the trench were assigned to Stage IV.2, and in terms of their appearances close to the typical “Kushan-Afrighid” materials, pottery from Area 11 can be casually dated to ca. 4th -5th Centuries CE.

4.31 The Fortifications (Area 01, 06 and 09)

Excavations at the Fortifications began very early since 1995. The eastern tower (Area 01) and north-eastern corner tower (Area 06) were investigated first between 1995 and 1998, and then the eastern barbican (Area 09) had become the focus of excavations from 1999 to 2003. In 1995, a 46-metres long trench was set out north to one of the eastern towers (later designated as Area 01), from the interior of Upper Enclosure across the wall to the exterior (see the plan in Helms and Yagodin 1997: fig.10, also fig.4, sondage I; and sections, *ib.*: fig.5-9). In the following 1996 field season, clearance continued in the long trench of Area 01 (general plan in Fig. 34), while two new trenches were opened to investigate the north and north-eastern areas of Area 01 (later designated as Area

³¹⁴ Betts et al. 2009.

³¹⁵ See discussions on the possible origins of the invaders in Betts et al. 2009.

06 and 03 respectively, *infra*). They cut through the north-eastern wall of the Upper Enclosure and the eastern wall of the Lower Enclosure. In the 1998 season, two new trenches were set around the corner tower (Area 06, see the general plan in Fig. 35). One from west to east cut through the tower to the exterior of the Upper Enclosure. Another was set a certain distance from the first trench north-south and cut through the *proteichisma* of the Lower Enclosure (Helms et al. 2001: fig.6). In 1999 and 2000, a long trench (A09 01) was opened east-west across the barbican (Area 09, general plans in Helms et al. 2001: fig.12; 2002: fig.6,7; Here Fig. 36). The structural sequence of the trench was arranged in a specific rule with numbers counting from one hundred (the top soil) while every one-hundred number representing a section of the trench from east to west. For example, “100-199” represents the fill of the inner fortification ditch outside *proteichisma*; “200-299” represents the covered way between *proteichisma* and the outer barbican wall; “300-399” represents the corridor between two barbican walls; “400-499” for the interior space of barbican; and “500-509” is the interior east against barbican wall. Further excavations at the barbican continued in seasons 2001 and 2003, opening several trenches in this area (general plan in Fig. 36).

Due to technical limitations and reasons regarding the complexity of involved team members, many reports and original records from the early years (especially ones from 1990s) are ambiguous and inconsistent, some excavated materials were poorly recorded with very limited information (if there is any) on their contexts—some are even false. The integration of data from the early excavations has been the trickiest work for the author. For example, in the several early seasons of excavation, no specific locus or layer was recorded with the sherds—it is only noted from which area the sherd was excavated. Although published sections from these areas show clear stratigraphy³¹⁶, it is not securely linked with the pottery materials since the latter were apparently registered with distinct systems in different numbers. Notwithstanding confusions caused by different excavation methodologies and flawed on-field registration, excavations in the three key areas have successfully uncovered the plan of the eastern side of the Upper Enclosure fortification. A reconstruction of the barbican (Area 09) has revealed how this eastern gateway, as one of the main entrances³¹⁷ to the interior of the Upper Enclosure functioned in the past.

The barbican was set in the centre of the eastern wall, flanked by a large two chambered rectangular tower on the southern side (Betts et al. 2009: fig.6). On the northern and eastern flanks, galleried walls with loopholes formed the defensive lines of the barbican, leaving only a narrow entrance on the southern side. Within the barbican, the design of the gate is especially noteworthy. Built on a brick paved platform of 2 metres height, the main gate requires ascending by ramps from both exterior and interior of the gate.

³¹⁶ For example, see Helms and Yagodin 1997: fig.5-8 for sections of Area 01, fig.9 for Area 03.

³¹⁷ Other two are on the southern and western sides, not fully exposed though.

Most recent excavations in 2018 and 2019 have opened a “long trench” (Area 09) east-west from the east gate to the interior of the Upper Enclosure to investigate to which the ramps extended from the gate leads and the possible relationship with the Central Monument.³¹⁸ The trench of season 2018 excavation started from the east gate, dividing into ten three-metres squares numbered from “A” to “J” with the stratigraphy fully exposed on the north section (Figs. 38, 39), and on the south section from “A” to “E” (Fig. 37), in addition to several separate small sections cut through the south section. In the following 2019 season, the trench extended further west with a total of 29 squares numbered from “L” to “Z” and then “AA-NN”. Further plans on extension of the “long trench” are impeded by the worldwide pandemic issue.

The “long trench” so far has revealed clear and successive stratigraphy from the initial construction on virgin soil to the post-abandonment collapse and wash, corresponding with four stages of the Fortifications. On the north section in specific, the division of stages is clearly attested by the superposition of two different ramps as well as foundation and occupation layers related to them. The Lower Ramp (017), originally built in Stage IA.1, is the continuation of the ramp in interior of the gateway. Only a few thin floor surfaces were found on top of the Lower ramp, assigned to Stage IA.2. On top of the Stage IA floor, late reworking of floor sealed by thin clay can be observed—these layers were ascribed to Stage IIA. The Upper Ramp (018), abutting the mudbrick basal layer of the gate, was built as part of the post-siege reconstruction in Stage IIIA. Levels over the Upper Ramp predominantly belong to post-abandonment collapse, wash and wind-blown deposition, which are Stage IV.

4.32 The Ceremonial Complex (Are 10)

Excavations at the Ceremonial Complex began in 2000, when the first trench (A10 01.³¹⁹) was opened near the lower western wall of the Central Building, reaching the floor surface on which clay plasters, wall plaster with paints and two stone column bases were found. One of these stone column bases was found *in situ* inside the building, some four metres from the wall and in line with it. The base consists of a square three-stepped base, surmounted by a bowl-shaped torus—appearance typical of Chorasmian stone column bases.³²⁰, with parallels at Kalaly-gyr 1.³²¹, Gyaur-

³¹⁸ The plan for further extending of the trench west has been postponed though, due to the pandemic issue.

³¹⁹ Excavated by Fiona Kidd.

³²⁰ For the typology of Akchakhan-kala column bases and more of their parallels and possible origins, see Minardi, Betts and Khozhaniyazov 2017.

³²¹ Tolstov 1962: 113, fig. 54; Rapoport and Lapirov-Skoblo 1963.

kala³²² and Toprak-kala³²³, the latter two were founded later than the abandonment of Akchakhan-kala. In the following 2001 and 2003 seasons, a new area, including the rounded south-west corner tower and a gallery (A10 03.³²⁴), of the Central Building was excavated.

Since 2004, extensive excavations in the Ceremonial Complex has begun, and two separate sections in this area became the focus of that field season: a trench set to investigate the interior of the Central Building (A10 04.³²⁵), and a northern cut from the north-western corner to further north (A10 05.³²⁶). Excavations in the interior space of the Central Building found more stone bases *in situ* and floor surfaces covered by fallen wall plasters, many of which with coloured paintings. The northern trench has reached out to the *proteichisma* beyond the wall to obtain a better understanding of the relationship of the Ceremonial Complex and the fortification. In 2005, two new trenches were opened up in the surrounding of the Central Building to investigate the exterior structures and outer walls. These include a slit trench from the western trace of the fortification to the western wall of the Central Building (A10 06.³²⁷), and another slit trench running from the south of the Central Building (A10 07.³²⁸). Excavation in the Central Building expanded within the south-western section and found numerous small and circular pits cut down below floor levels. A number of special finds have been recovered from the Central Building, including a bone pin with an anthropomorphic head.³²⁹, fragments of figurines and some metal fragments. In the area to the west of the outer wall of Central Building, more traces of column bases suggest the presence of another columned hall between the western flank of the fortification and the Central Building. In the new excavation season of 2006, a new trench was opened westward from the western gate of Central Building across the fortification to the ditch beyond (A10 08.³³⁰). As excavations in the Central Building furthered, in the following 2007 season, the south-western quadrant of the building was gradually uncovered. The columned hall in the south-western corner is confined by a newly recovered wall in the east, roughly posits in the middle of the southern wall, leaving only the northern side of the hall open. Beyond the columned hall, in the open court, several fire features associated with the practice of rituals were found, including fire altars of peculiar bi-concave shape.³³¹ set into floor. To the east

³²² Rapoport and Trudnovskaya 1958: fig.6,7.

³²³ Nerazik and Rapoport 1981; Rapoport and Nerazik 1984: 47, fig.21.

³²⁴ Excavated by Fiona Kidd.

³²⁵ Lately, the trench expanded to overlap most of the Central Building and some exterior structures. Excavations in 2004 and following seasons of the sector were directed by Alison Betts.

³²⁶ Excavation directed and recorded by G. Khozhaniyazov, in KAE 2004 field report. The trench was initially three metres wide and approximately 90 metres long in season 2004.

³²⁷ Excavated and recorded by G. Khozhaniyazov, in KAE 2005 field report.

³²⁸ Excavated and recorded by Shamil Amirov, in KAE 2005 and 2006 field reports.

³²⁹ Kidd 2007.

³³⁰ Excavated and recorded by G. Khozhaniyazov, in KAE 2006, 2007 and 2011 field reports.

³³¹ Betts et al. 2018; Sinisi, Betts and Khozhaniyazov 2018.

of the columned hall, another rectangular fire altar³³² was identified, next to which was found a heavily burnt ivory³³³. In the west of the Central Building, the sector between two existing trenches (A10 06 and A10 08) was excavated, revealing a building complex consisting of several walls, passages, halls and chambers (A10 09). For the convenience of description, this area has been divided into small sectors numbered by areas W1-W13 (general plan in Minardi et al.2017: fig.3).

In the meantime, investigations of other surrounding areas of the Central Building apart from the western area have been carried out in the eastern, southern and northern sides, gradually opening up four new trenches respectively: trench from the eastern wall of the Central Building (A10 10³³⁴), the south gate (A10 11), from northern wall of the Central Building to the fortification (A10 12) and lately the trench to investigate northern wall of the fortification (A10 13³³⁵).

So far, after many seasons of excavations, a plan of the Central Building and limited areas in the exterior can be made, overlapping mainly the south-western quadrant of the interior space, the western, southern eastern gates, the northern and western corridors and the complex array of structures between western wall of the Central Building and the fortification (Fig. 32). The Central Building is roughly 60 by 60 metres square encircled by galleried double wall with rounded corner towers and a pair of rounded towers on each side. Three sides, except for the northern side, each has a gateway in the middle of the wall, while the southern one is probably the main gateway. Of all three construction stages identified in the Central Building, the last stage (Stage IIIB) is the best preserved, while Stages IB and IIB are merely visible as very thin layers visible in the corridors (Fig. 40). The original inner wall built in Stage IB was rebuilt in Stage IIIB, leaving only the lowest clay surface visible within the corridor. Above it is the Stage IIB floor abuts the footing of the second exterior wall built in the same period. Overlying a thin layer of occupation, the floor of Stage IIIB sealed up the traces of early activities. Simultaneously, the rebuilt inner wall was covered with paintings, which somehow at one point later were all over-painted with white plasters. Radiocarbon dates obtained from the area consist of four from the western corridor (Wk23065, Wk23064, Wk17404, Wk17333), one from the northern corridor (OZS402³³⁶) and one from the south-western corner tower (NZA15967). The former three from the western corridor all roughly fit in a time range from the 1st BCE to the 1st Centuries CE, which could date the Stage IIB within, while the last date Wk17333 dates the very first construction stage of the Central Building as coming from the clay layer underlying the first wall of Stage IB. Although it seems as a broad time range has been covered

³³² Betts et al. 2018; Sinisi, Betts and Khozhaniyazov 2018.

³³³ Kidd 2011; Betts and Dodson et al. 2016.

³³⁴ Excavated and recorded by Shamil Amirov, in KAE 2009 field report.

³³⁵ The trench cut across the northern wall of the fortification and has confirmed the structure of the northern flank of the fortification and the absence of the previously conjectured “northern gate”.

³³⁶ The date returned (392 BCE-204 BCE) is anomalously early and can only be explained by trading from old wood.

by the calibrated date (210 BCE-46 BCE), the calibration curve has shown the peak within the timespan of 2nd to mid 1st Centuries BCE, to which the founding of the Central Building is most likely dated. The date of the corner tower was from the upper fill and is somewhat later (49 BCE-207 CE), which could possibly coincide with the late use of Stage IIIB constructions or even later occupation in Stage IV.

Two gates out of three were fully excavated and have attested to two very different plans. The western gate was accompanied with two towers flanking the gateway leads to the exterior passages and chambers. The western sector between the fortification and western wall of the Central Building consists of a series of walls, passageways and chambers, some of which supported by columns. Among them, there is a potentially large columned hall (W10), with only a line of column bases exposed.³³⁷ Apart from the west gate itself that must have been built in Stage IIB, the exterior complex of chambers, walls and passageways were added gradually in a period probably coincides with the Stage IIIB of the Central Building. During the whole lifetime of use, the western area had experienced several renovations and restructuring. Due to the inconsistency of stratigraphy and also the scarcity of occupation layers and artefacts, it is difficult to establish the chronology of this area, and matching up with the phasing of the Central Building has been tricky too. Nevertheless, it is still possible to reasonably link the process of in-filling the western space and restructuring with the major construction works happened in Stage IIIB of the Central Building. The only radiocarbon date (Wk31985) obtained from this area comes from the first clay floor (W13) underlying the footings of the outer wall of the Central Building, indicating the construction date for the outer wall in Stage IIB from 107 BCE-62 CE, or furthermore from 75 BCE to the turning of the era as the calibration graph suggests.

The southern gate is distinguished by a greater sense of monumentality, with the two flanking towers set back from the gate and an extra gatehouse guarding the way leads directly into the building. Notably, on the way into the entrance, there is the setting of a “burning doorway”³³⁸, a unique feature so far only witnessed in Akchakhan-kala and the nearby cultic architecture Tashk’irman-tepe. Once passed the “burning doorway”, visitors will see a half-opened chamber on the left, in which a fire was set near the wall, with a large khoum put upside down beside it. The gatehouse and the southern gate are most likely dated to Stage IIIB. The radiocarbon date (Wk31988: 51 BCE-83 CE) from the burnt reed forming the “burning doorway” reflects the late use of structure. Another radiocarbon date obtained from the gatehouse (Wk31989) returned a somewhat early date ranged from 177 BCE - 38 CE. Given the fact that the sample came from the destruction layer, the result may indicate a fallen older timber beam.

³³⁷ Minardi et al. 2017, fig.3.

³³⁸ Sinisi, Betts and Khozhaniyazov 2018.

For the exploration of the interior of the Central Building, although only the south-western quadrant was fully excavated, the richness and complexity revealed by the excavation have already overwhelmed our expectations. The exposed area reveals a large hypostyle hall and some open courtyards in the north and east of the hall, where several cultic features were found. In the northern courtyard directly facing the opening of the columned hall, there are clay altars in peculiar bi-concave shape, and there is the main altar area in the east of the hall, composed of two mudbrick plinths and walls that form a small complex. Another two “burning entrances” were found through the entrance of the complex.³³⁹.

The building that takes up the most space of the excavated area is a hypostyle hall, formed by the western and southern inner walls of the Central Building and a separate wall in the east, leaving the northern side open. Within the hall, three rows of four column bases were placed *in situ*, while the attached wooden columns that used to support the roof are missing now.³⁴⁰ In Stage IIIB, the hypostyle hall was elaborately decorated with wall paintings, covering the walls, columns and the ceilings.

It is now clarified that all the wall paintings present in the Ceremonial Complex were created in the final construction stage. Conservation and restoration of the painted plasters have been carried out on field, and outcomes so far have been published.³⁴¹ Most of the paintings were found fallen in debris over the floor in the corridors and within the hypostyle hall. In the fully excavated western corridor, the southern part was decorated with a “procession” of animals led by humans on foot, including mainly horses and possibly camels.³⁴² In the northern sector of the corridor, the contents of painting shift to a series of figures wearing elaborate headdresses, jewellery and costumes, and thus were referred to as the “portrait gallery”.³⁴³ Moreover, the find of painted texts in Chorasman Aramaic scripts in this area has suggested the presence of Chorasman kingship, with the mention of a “king” and a “son”, which leads to a conclusion that this fascinating architecture might be built to serve the royal family. Yet the most exciting finds were paintings recovered from the hypostyle hall in the south-western corner. Not only the wooden columns and ceilings were painted, on the walls of the hall, especially the southern side that directly exposed to visitors from the northern opening, there were three colossal figures depicted, representing three Zoroastrian deities.³⁴⁴ Furthermore, the nature of the Ceremonial Complex as a Zoroastrian cultic centre seems to be

³³⁹ Sinisi, Betts and Khozhaniyazov 2018.

³⁴⁰ They could have been deliberately removed and recycled after the abandonment of the site.

³⁴¹ Kidd et al. 2008; Yagodin et al. 2009; Kidd and Betts 2010; Kidd 2011; 2012; Kidd, Negus Cleary and Brite 2012; Kidd and Brite 2015; Betts and Bonnat et al. 2015; Betts et al. 2016; Minardi et al. 2018; Minardi, Betts and Khozhaniyazov 2020; Minardi 2020b.

³⁴² Only the lower frieze has been preserved.

³⁴³ Yagodin et al. 2009; on the analysis of dressing elements, see Kidd 2011, also Kidd and Brite 2015.

³⁴⁴ Among them, the left and best-preserved figure can be securely identified as the Zoroastrian god Sraosha, with the depiction of pairs of bird priests on the tunic of the god, see Grenet and Minardi 2021.

reinforced by the find of another fragment of painting in W1 of the western area. The relevant painting depicts a recumbent ibex with black horns.³⁴⁵, which according to the Zoroastrian sacred book *Avestan*, may indicate one of the manifestations of the Verethragna (also known as Bahram or Waraham), the Avestan god of victory.

Radiocarbon dates from the interior of the Central Building have been abundant. Except for one outstandingly early date (OZE939, probably an heirloom) and one for the ivory artefact that also early (OZR365), four other dates have been recovered from the interior. One was from the Stage IB pit sealed below the clay basin built in Stage IIIB (Wk20222), reflecting the use during Stage IB and thus can be dated within the same time range of Wk17333 but slightly later, i.e., the 2nd to mid 1st Centuries BCE—also agree with the calibration graph. From the pits below Stage IIIB floor within the hypostyle hall, two more dates (Wk31987, Wk31986) have returned slightly later date which probably associated with Stage IIB use of the structure, respectively spanned the 2nd to 1st Centuries BCE, and the late 2nd BCE to early 1st Centuries CE. The last radiocarbon date (Wk20221) was collected from the ash of the bi-concave “altar” in the courtyard dated to Stage IIIB. As the calibration graph has shown, the date is most likely within a time range from the mid 1st BCE to 1st Centuries CE.

The chronology established so far is confined within the Central Building and limited sondages relate to it. As radiocarbon dates suggest, the Central Building was founded around the 2nd Century BCE (Stage IB), followed by short term use and construction in Stage IIB. In the final stage of use (Stage IIIB), the area saw a major reconstruction and renovation, including the coverage of wall paintings, several fire altars, and probably addition of the surrounding facilities (e.g. the exterior western area). These most likely took place from the mid 1st Century BCE till the abandonment of the site in the early 2nd Century CE. Shortly after the final abandonment, there is a short term of looting and deliberately recycling of the architecture components assigned as Stage IV.1 in the Ceremonial Complex, and then there is the post-abandonment time, Stage IV.2 that associated with late collapse, wash, silting and wind-blown deposits.

In terms of excavations at present stage, the correlation between the phasing of the Ceremonial Complex and the fortification cannot be perfectly solved, yet reasoning based on radiocarbon determinations can still obtain a relative comparison of phasing of the two areas. The stage IB of the Central Building was dated around ca. 2nd to early 1st Centuries BCE, probably close in time to the founding of the Fortifications (Stage IA). Stage IIB of the Ceremonial Complex among other stages are more elusive, since it is identified exclusively within limited area of the Central Building, and most likely refers to a short term between Stage IB and IIIB—according to several radiocarbon dates related to Stage IIB, the time range is most likely confined within the early to mid 1st Century

³⁴⁵ Minardi et al. 2018.

BCE. While Stage IIIA of the fortification is directly associated with the major reconstruction post-siege, this military attack hardly left any trace in the Ceremonial Complex, which makes the comparison almost impossible. Nevertheless, thanks to radiocarbon dating and the calibration graph, a mutual turning point appears to occur in both areas around the mid 1st Century BCE—by which, the fortification experienced attacks and a series of reconstructions afterwards (Stage IIIA), in the meantime, a major reconstruction and renovation began within the Ceremonial Complex, i.e., the Stage IIIB renovation and reconstruction including the addition of wall paintings, restructuring of the western external area and the southern gate complex etc. However, we should always bear in mind that the time range offered by radiocarbon dates tends to be broad and thus cannot be used to firmly prove the above hypotheses.

4.33 The Central Monument (Are 07)

The Central Monument, as its name suggests, is a monumental architecture located at the geometric centre of the Upper Enclosure. It was initially investigated in partial clearance carried out in 1996.³⁴⁶, when a preliminary reconstruction led to an interpretation of the monument as a mausoleum, or *naus*—a specific funerary structure observed in Central Asia. This reading of the Central Monument has been refuted by more recent excavations carried out in 2014.³⁴⁷ and 2015.³⁴⁸ with a better understanding of the structure and purpose of the monument. It has been clarified that the main part of the monument is an elevated terrace rising high over the fortification and other structures within the enclosure. It comprises two massive mudbrick plinths (Western and Eastern) reachable by a long ramp on the southern side of the western plinth, a main vaulted chamber in the midst, two auxiliary vaulted room on the northern façade and a gathering room in the northernmost corner, characterised by remains of steps inside (see general plan of the Central Monument in Minardi 2016: fig.4, and reconstruction fig.10). The “room with steps” is walled from three sides except the open east side, to the opposite of which is another chamber (the “E chamber”) mirroring the “room with steps” with the west side open. The chamber is partially excavated due to massive sand silting. In contrary to other chambers and vaulted room, it seems not had been built on an elevated platform. In the main vaulted room, along the partially exposed eastern side, there found two rows of mudbrick “bench/platform”, to the southern side of which found traces of fire use.³⁴⁹.

³⁴⁶ Helms et al. 2001.

³⁴⁷ Minardi and Khozhaniyazov 2015.

³⁴⁸ Minardi 2016.

³⁴⁹ Minardi 2016.

As one of the organic components of Akchakhan-kala, also considering the non-private nature of the architecture, the main purpose of Central Monument is most likely related to performance of certain rituals or display of the royal fire, probably the “regnal fire” kept in sacred chamber of the Ceremonial Complex, as one part of the propaganda of the Chorasmian royal family (while another important part is the wall painting presented in the Central Building).

Two stages of post-abandonment squatter occupation have been identified in the Central Monument, including one in the late Antiquity/Afrighid period, and a later one in the Medieval period. The main part of the monument was probably reused as a natural guard post contemporary with the reconstruction of the *donjon* in Area 11. Moreover, during late Antiquity, the Central Monument could have been thoroughly looted of its decorative furnishing, as suggested by a thick context filled with debris of clay tiles, pottery drainage, worked stone and potsherds etc. overlying the sand silting³⁵⁰.

Two charcoal samples for radiocarbon dating have been recovered from the 1996 excavation. The date OZD243 comes from occupation layers abutting the footings, suggesting a relative early time range from 236 BCE to 27 CE, with the peak falls within the 2nd to mid 1st Centuries BCE. While another date OZD245, obtained from the lowest clay surface below pure sand beneath footings³⁵¹ returned a later date (171 BCE- 82 CE), with a median date within the 1st Century BCE. The deviancy of the two dates could have been a result of different wood ages: the date OZD243 could have been from an old wood, and the calibration curve for OZD245 seems more rational, in that case leading to a later dating of the foundation of the Central Monument probably corresponding with Stage IIA.

4.4 The Lower Enclosure and Other Areas

The Lower Enclosure of Akchakhan-kala was built subsequent to the added *proteichisma* of Upper Enclosure, with a similar scheme consisting of a galleried curtain wall and a *proteichisma*. The fortification covers an area of ca. 42.6 ha, although much of it has been buried under a dense layer of sand. Early investigation in the north-eastern corner of the Lower Enclosure has begun since 1995, revealing traces of domestic installations abutting the outworks³⁵². In 2007, excavation led by Elizabeth Brite opened a new trench (A03 05) next to the 1997 trench running from east to west by the interior of the fortification, with the hope of finding potential habitation areas within the Lower Enclosure. Abundant potsherds have been excavated ever since the clearance and shovel

³⁵⁰ *Ib.*

³⁵¹ See the section in Helms et al. 2001: fig.14.

³⁵² Helms et al. 2001.

scraping began, and diagnostic sherds were designated locus “US” (upper sand, as collected from sand clearance) and “UF” (upper fill, recovered from scrapings) respectively. Two hearth features were encountered after the “upper fill” scraping, with ceramic lining. No clear floor surface has been encountered throughout the excavation, although cultural materials, e.g., diagnostic potsherds, spindle whorls, fragments of terracotta figurines, were excavated from some lower layers. It appears that, at an early stage, this area may be used for domestic waste disposal, suggested by the abundance of very fragmented potsherds, and lately the area may also experience certain limited domestic activities which saw a spike of coarse kitchen wares (*infra*).

In the vicinity of Akchakhan-kala, there are a number of small farmsteads/mounds with scattered cultural materials located near the ancient canal to the northeast of Akchakhan-kala. One of the largest farmsteads was investigated in 1997, uncovering several rooms and structures of unknown purposes in that area, designated as Area 08. In season 2007, this area was re-examined to further confirm the chronology and its relationship to Akchakhan-kala. Unfortunately, this goal has failed due to the limitation of excavated cultural materials and reliable dating materials.

SECTION IV: The Pottery of Akchakhan-kala

Although twenty-seven years have passed since Akchakhan-kala was first excavated, the ceramic assemblage of the site has yet to be thoroughly studied. Only a small selection of ceramics was published in early field reports.³⁵³, in which ceramics were still considered under the old typology and chronology system established by M.G. Vorob'eva and S.P. Tolstov (see *supra* II.3) in 1950s. In this section, a thorough study of the Akchakhan-kala corpus based on scientific excavations by KAE will be presented, with reference to chronological sequence, hopefully to cast new light on the now out-dated chronology and typology of Chorasmian pottery.

The following chapters will centre on several aspects of the Akchakhan-kala assemblage, comprising the methodology and terminology used in the thesis, analysis of fabrics and the classification of pottery forms. The first chapter outlines the methodology used in gathering data in the field and post-excavation processing, the designation of fabric codes and a general description of the whole assemblage. The following chapter focuses on morphological analysis and classification based on it. Considering the fact that it is so far impossible to establish a consistent phasing for the whole site, it is crucial to set the further discussions on chronology primarily within the context with the most secure stratigraphy, phasing and dating materials, i.e., firstly, the Upper Enclosure fortification related contexts of Akchakhan-kala (Area 01, 06, 09), and then the Ceremonial Complex (Area 10). Pottery of other areas will be studied separately on the basis of previous genre analyses.

Chapter 5. The Akchakhan-kala Pottery Assemblage

The corpus of material at Akchakhan-kala roughly represents material cultures of the local Antique period, specifically the Antique II and III phases, corresponding with the time span between the 2nd BCE and early 2nd Centuries CE, i.e., Stage I-II-III A/B. Apart from the Antique corpus, there is a small collection of the late Kushan-Afrighid period attested at a limited area of the Upper Enclosure (Area 11) as well as surface scraping in general. Given the small proportion of these materials and their nature belonging to later reoccupation postdating the final abandonment of the original site, they will only be briefly discussed in the thesis.

The main body of the study is the Antique assemblage. From the preliminary typological works done in the field and our current knowledge of Chorasmian pottery typology of the Antique period, the Akchakhan-kala assemblage is essentially a homogeneous and indigenous one, with abundant parallels from other contemporary Chorasmian sites, such as Koi-Krylgan-kala, Kalaly-gyr 2 and Toprak-kala. It thus offers a good chance to compare with assemblages from the other sites, with

³⁵³ Helms and Yagodin 1997.

secure chronological sequences. Nevertheless, ceramics recovered from well stratified contexts tend to be minimal or fragmented sherds—including a large number of body sherds belonging to khoums (large storage jars, sherds of which were sometimes used in paving)—which usually bear very limited information with regard to typology. The analysis of typology has to rely mainly on the rim morphology rather than the whole shape, although the latter is also considered when close parallel with a complete shape is available.

5.1 Methodology and Terminology

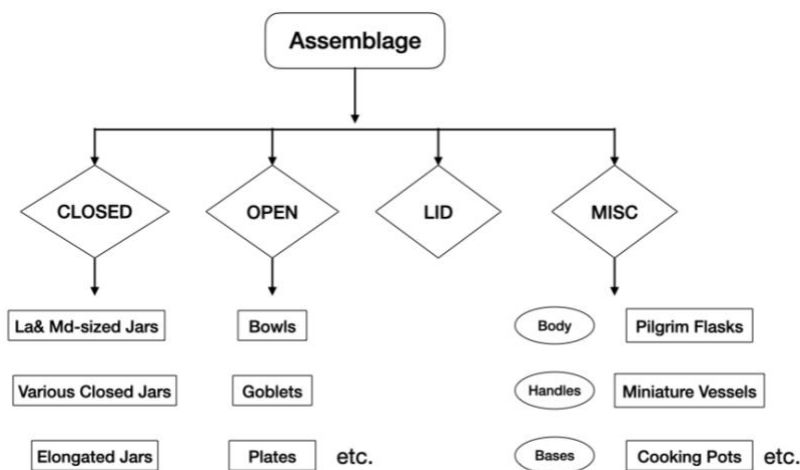
As has been stressed *supra*, the assemblage of Akchakhan-kala pottery is a homogeneous and relatively simple one, yet to a certain extent, it is technically tricky to deal with, especially from the perspective of data integration. Its complexity lies partly in the fact that all diagnostic sherds were originally selected, recorded and processed by different people using quite different methodologies with the absence of a consistent pottery catalogue—in fact, the original in-field database for diagnostic sherds is completely absent in most of the field seasons. In the meantime, as drawings for most of the diagnostic sherds have been done early without a catalogue corresponding to them, some key information about the sherd, i.e., fabrics, colour and surface treatment etc., is missing, especially when the physical sherd is missing or unavailable. One reason for this is that Yagodin wished the pottery to be studied by one of his own students, but this did not eventuate. The result has been that no consistent record was kept over the early years of the excavations.

In the 2019 season when I first participated in the KAE, I completed some drawings and records for diagnostic sherds from excavations of 2014, 2018, 2019, and some of the early years between 1995 and 1997, 2007, while pottery of the other years was expected to be studied and drawn in the future field seasons. This was halted by the global COVID-19 pandemic. Fortunately, with the cooperation of local colleagues in Nukus, Uzbekistan, I was supplied with photographs showing the interior, exterior and profile of requested diagnostic sherds, as the supplementary information for the establishment of the pottery catalogue. During the work, a small proportion of photographs could not be matched up with the existing drawings and thus were redrawn by the local colleagues and later digitised by the author. Diagnostic sherds are comprised mainly of rims, bases, handles, and body sherds with paint or other significant decorations (e.g., incised patterns, marks and ridges). All selected sherds were re-registered by the author with key information including: 1. Provenance (arranged in the form of “Area Trench. Layers”, e.g., A01 01.01); 2. Original sherd ID (designated in the field and presented on the original drawing); 3. Sherd type and basic form; 4. Manufacture (wheel-made/hand-made/undetermined); 5. Fabrics; 6. Surface treatment (e.g., slip, burnishing); 7.

Decorations; and 8. Diameter (rim/base/body sherd). Every registered sherd is illustrated with either drawings.³⁵⁴ or photographs.

In the post-excavation processing, all diagnostic sherds were sorted according to fabric codes, basic form, shape and decoration. The typological analysis is mostly confined to diagnostic rim sherds and a small proportion of identifiable body sherds, bases and handles which clearly linked with specific forms. Each registered sherd was classified based on the fundamental form, which in most cases is represented by the morphology, and secondarily by significant features, such as fabrics and decorations. The pottery assemblage was sorted into four basic classes as follows (Table 5): 1. Closed forms; 2. Open forms; 3. Lids; 4. Miscellaneous, while divisions within the class are made primarily in the first two. The first class comprises jars of various types.³⁵⁵ with three main subdivisions: storage jars (A), short-necked/holemouth jars (B), and elongated shaped jars (C). Class 2 is divided into bowls of various kinds (D), goblets (E), plates and trays etc. The “miscellaneous” class is composed of cooking pots of various kinds and rare forms, such as pilgrim flasks and miniature vessels, as well as a small collection of unclassified rim sherds. The rest of the diagnostic sherds, i.e., bases (“X”), handles (“Y”) and body sherds (“Z”), most of which do not fit clearly into a specific class, will be discussed in brief with reference to the pottery catalogue.

Table 5 Schema of the Pottery Classification



It is necessary to explain the different methodologies used in analysing pottery assemblages from the Fortifications (*infra* V.6.1) and Ceremonial Complex (*infra* V.6.2), as it may seem to cause potential inconsistency. The two assemblages, as addressed above, have been studied separately,

³⁵⁴ Drawings presented in the thesis are made up of the early drawings by David Hopkins, drawings by the author in the field in 2019, and draft drawings by Azizkhan Toreniyazov (traced and digitalized by the author).

³⁵⁵ The definition of “jars” in the following analysis is a broad one, including closed jars, jugs/bottles and jug-like elongated jars without handles—the latter two are usually hard to distinguish in many cases, especially from mere rim profiles.

each with its own sequence, as the stratigraphic sequences for each cannot be directly linked with one another. The Fortification assemblage (*infra* V.6.1) was studied under a genre system, following the example used in analysing the Old Kandahar assemblage³⁵⁶. Each diagnostic sherd was designated with a genre number—under a genre cluster (A, B, C...) as presented in the schema (Table 5)—based on attributes regarding forms, decoration and stylistic elements etc. (see Table 8). On the other hand, the Ceremonial Complex assemblage, represented by a much smaller sample size and less diversity of vessel types, is difficult to classify using the same system as the Fortification assemblage. I tried to combine the “genres” and “types” classification here by sorting types under genre clusters³⁵⁷ (A, B, C..., see Table 18). By producing “genre clusters”, I managed to hinge the different systems used for the two assemblages. Despite the difference in methodology, the analysis of all diagnostic sherds was under the basic classification as shown in Table 5. A thorough comparison of the two assemblages and cross-reference will be presented in the following Section VI.7.1, to hopefully mitigate the discrepancies caused by different methodologies. Further combination of the two assemblages will be made in future publications.

After the typological analysis, all diagnostic sherds were then sorted accordingly and given a new catalogue number which directly refers to the illustration presented in the thesis. A pottery catalogue based on previous lists of registered diagnostic sherds is presented with illustrations (as the example in Table 6).

Table 6 Pottery Catalogue

CATN.	Provenance	Stage	Genre/Type	Fabric	Description

5.2 Fabric Analysis

As one of the major impacts from the lasting COVID issue, all ceramic sherds from the site have become inaccessible, held in storage at the Institute of Humanities in Nukus, Uzbekistan. Hence the fabric analysis here will not present analyses at the microscopic level and is limited to naked eye observation mostly on the photographs of sherds. In some cases when a photograph is

³⁵⁶ The excavation report of Old Kandahar (Helms 1997) presents an excellent model of studying pottery assemblages of southern Central Asia by organising sherds under a genre classification system, which, compared to traditional methodologies based strictly on types, focuses more on stylistic qualities and underlying exotic elements.

³⁵⁷ A similar methodology was used in analysing the pottery assemblage at Jawa, see Betts and Helms 1991.

missing, the description of fabrics was made according to notes and comments included beside the original pencil drawings.³⁵⁸ In addition, some examples, without photographs or any information on the fabric, were given the “X” code as unknown fabrics. Hopefully, future studies in the area can revisit the materials and deepen the analysis to another level.

Despite the negative impacts and limitations listed above, the author managed to maintain the same standard throughout the analysis to mitigate discrepancies. To avoid over-classification and the potentially biased view caused by the remote working mode, the present division of fabrics tends to cover a broad range, rather than stressing minor differences, which could easily be biased by the quality of photographs or personal judgements of the photographer and drawers. For instance, fabric codes were grouped according to a broad colour range.³⁵⁹ “red” fabrics may refer to different shades of red, from red, light red, orange to yellowish red; “buff coloured” wares comprise buff, cream, light brown and white slipped wares, etc. These slight differences were owing to various firing conditions, and thus will not be listed separately.

Fabric codes identified at Akchakhan-kala are numbered below from “A” to “O” in the order of recording (Table 7). The frequency of each fabric code is presented as “frequent” (>10%), “moderate” (between 1% and 10%) and “rare” (<1%). In general, fabrics tend to be simple and homogeneous, representing a high density of indigenous production exemplified by the ubiquity of red or whitish slip finishing and the common use of red paint. Three main aspects as well as an additional factor are considered here: 1. the colour of paste (surfaces and core); 2. tempers/inclusions; 3. surface treatment, including the use of slip, burnishing and polishing etc.; and also, the use of painted decorations.³⁶⁰ There are two main coloured wares— “red” and “buff”, representing two major fabric groups in the assemblage— the red or red slipped wares and buff or whitish slipped wares. Each can be sub-divided into several fabric codes according to relative coarseness (medium or coarse) and the use of painted decorations.

Red fabric wares comprise two sub-divisions: plain red and red slipped wares. The former consists of three fabric codes selected by the size of inclusions and relative coarseness (*H, I, O* in Table 7) and another one with painted decorations (*J*). Red slipped wares in general were of high quality, without medium or coarse wares. The category can be divided into plain red slipped and fine red slipped ware; the latter is singled out for extra fine paste without visible inclusions, and good surface treatment, i.e., burnishing or polishing (*D, F* in Table 7). The “buff” group is another broad range composed of mainly whitish slipped wares and a few “buff” wares without slip or any

³⁵⁸ Drawn and noted by David Hopkins between 2000 and 2010.

³⁵⁹ I initially requested for a Munsell Colour Chart present beside each sherd. However, as the photographs returned, most did not have this addition. To avoid further discrepancies, the fabric descriptions in the thesis were made without reference to the Munsell Colour Chart.

³⁶⁰ Painted decorations appear to be very common on pottery of early Antique II, and to some extent are typical of certain genres.

finish (*K* in Table 7). In terms of relative coarseness and the presence of painted decorations, there are several sub-groups within the white slipped range: cream/white slipped with red paint (*A*), plain white slipped wares with fabrics of different coarseness (*G*, *C*), and a rare type of white slip with greenish hues (*N*). There is no sub-division of fine ware or wares bearing polished or burnished treatment within the group.

Apart from the common fabrics mentioned above, a few examples with rare black fabrics are noteworthy. Two sub-groups can be divided by surface treatment either with or without polishing (*L* and *M* in Table 7). Pottery with black fabric is very rare in Chorasmia.³⁶¹ Most of the examples are associated with foreign material cultures.

Certain fabric codes are often linked with hand-made wares, including all coarse fabrics (coarse grey, coarse red; *B* and *O* in Table 7), and a unique fabric (*E*) typical of a paste colour of light grey to lilac with very light tempering and good finish, sometimes coated with white slip. It was first identified in the “middle horizon” of Koi-Krylgan-kala and is considered to be related to the well manufactured hand-modelled wares that emerged in the Early Antique III period of Chorasmia (*supra* II.3).

Table 7 Fabric codes

Fb.	Name	Description	Frequency
<i>A</i>	White Slipped Painted	Light red, orange or yellow paste with or without fine sandy inclusions. Exterior surface is coated with cream, light brown or white slips and red, brown or dark red paintings. The paste for large-sized vessels tends to contain more inclusions.	Frequent (12.66%)
<i>B</i>	Coarse Grey	Dark grey or dark brown paste with abundant large grit inclusions. Fabrics are often porous. Sometimes the interior or exterior surface is a different colour (light red or pink) due to various firing conditions. Some are white slipped externally with traces of scorching.	Moderate (4.38%)
<i>C</i>	Medium White Slipped	Light red, orange or yellow paste with sparse medium grit inclusions. Exterior surface is white slipped with medium to coarse finish.	Moderate (2.64%)

³⁶¹ Black wares were attested at the “Middle Horizon” of Koi-Krylgan-kala, Tolstov and Vainberg 1967: 126-127, tab. XII. Imported rhyta with fine black fabrics and miniature vessels of black clay were also found at Kalaly-gyr 2, Vainberg 2004: 140-143; Figure 3: b, c.

<i>D</i>	Red Slipped	Fabrics are fine with or without sandy inclusions. Paste colours range in red, orange and yellow, due to different firing. The ware is coated with red slip.	Frequent (30.04%)
<i>E</i>	Purple Grey	Purple to light grey paste with or without sparse small inclusions. Some are more porous, and have different colours (red, brown) on the outside and inside surfaces. Exterior surface is often coated with white slip with medium finish.	Moderate (1.53%)
<i>F</i>	Fine Red Slipped	Fine dense fabrics without visible inclusions. Colours range from red, orange to light yellow. The ware is coated with glossy red slip, usually burnished or polished.	Moderate (5.22%)
<i>G</i>	White Slipped	White slipped wares with paste colours vary from light red, orange to yellow. Tempers are fine sandy inclusions or small grits. Fine to medium finish on the exterior surface.	Frequent (10.71%)
<i>H</i>	Red	Red, light red or orange paste with or without fine sandy inclusions.	Frequent (10.57%)
<i>I</i>	Medium Red	Red, light red or orange paste with sparse small to medium grit inclusions. Some are coated with red slips and medium to coarse finish on the exterior side.	Moderate (2.02%)
<i>J</i>	Red Painted	Red or orange paste with or without fine sandy inclusions. Painted decorations are applied directly on the paste.	Moderate (8.21%)
<i>K</i>	Buff	Buff or light brown paste with or without fine sandy inclusions. Some are more porous with darkened core. Exterior surface is sometimes coated with cream slip.	Moderate (3.93%)
<i>L</i>	Black	Black fine fabrics with or without fine inclusions. Fine to medium finish.	Rare (0.42%)
<i>M</i>	Black Polished	Black or dark grey fine fabrics with or without fine inclusions. Exterior surface is coated with glossy black slip, polished.	Rare (0.14%)
<i>N</i>	Greenish White Slipped	Light red, red or orange paste with sparse small to medium inclusions. Exterior surface is coated with white slip with a greenish hue.	Rare (0.76%)
<i>O</i>	Coarse Red	Coarse red fabrics with abundant medium to large grit inclusions.	Moderate (2.64%)

X	Miscellaneous	Unknown fabrics due to lack of information	Moderate (4.10%)
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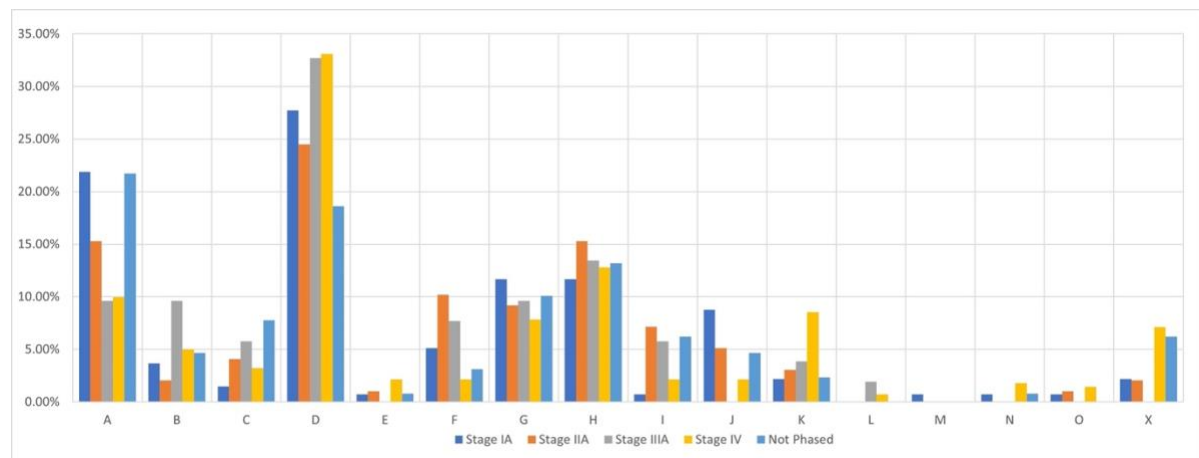
5.21 Fabrics attested at the Fortifications (Areas 01, 06, 09)

The assemblage of the fortification is predominantly represented by lightly tempered wares (Fb. A, D, G, H, J, K, L, N), accounting for 80.12% of the identified fabrics (n=664, exclude 33 with unknown fabrics), and secondly by medium wares (Fb. C, E, I) for 9.34%. The frequencies of coarse (Fb. B, O) and fine wares (Fb. F, M) are both rare, accounting for 5.72% and 4.82% of the assemblage.

The relative frequencies for each fabric code in Stages IA, IIA, IIIA, IV respectively are plotted in Graph 1. Through Stage IA to IV, the frequency of fine wares saw a drop from 5.84% (in Stage IA) to 2.14% (in Stage IV), in contrast with the slight increase of coarse and medium wares. The frequency of painted wares (Fb. A, J) reduced by more than half from Stage IA to IV. There is also a gradual increase of buff wares (Fb. K) from 2.19% in Stage IA to 8.54% in the last stage. In general, red slipped wares (Fb. D, F) are the most frequent in all stages (>30%), and in the second place there are white slipped painted (Fb. A), white slipped (Fb. G) and plain red wares (Fb. H).

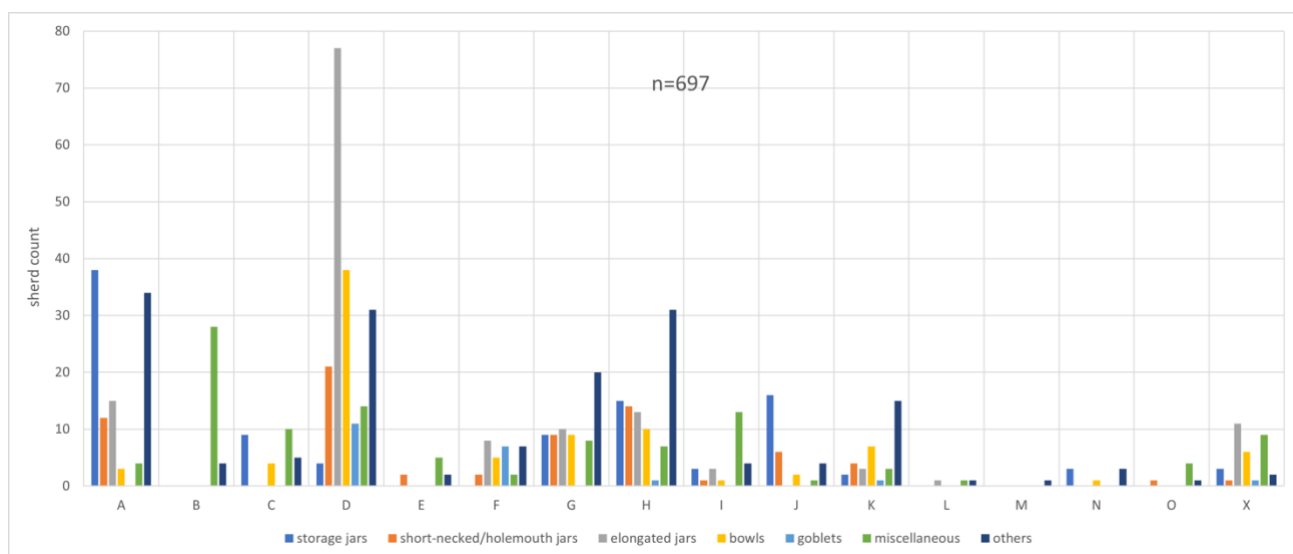
The correlation between fabric codes and genre clusters³⁶² is plotted in Graph 2. Red slipped fabric (Fb. D) is the most preferred for elongated jars, bowls, short-necked/holemouth jars and goblets. Painted decorations (Fb. A, J) are most common on jar forms, especially storage jars. Coarse fabrics (Fb. B, O) are mostly associated with cooking pots (represented by “miscellaneous” in Graph 2).

Graph 1 Relative frequency of fabric codes in each stage at the Fortifications



³⁶² On detailed discussions of genres and genre clusters, see *infra* IV. 6.1.

Graph 2 Fabric codes and pottery typology: the Fortifications



5.22 Fabrics attested in the Ceremonial Complex (Area 10)

The fabrics attested in the Ceremonial Complex show less diversity, with a scarcity of medium wares (Fb. C, E, I, accounting for only 1.34% of the total number), while the relative frequencies for coarse wares (Fb. B, O, 8.27%) and fine wares (Fb. F, M, 6.67%) stay low. The rest are lightly tempered wares, accounting for 82.93% of the analyzed fabrics (with the exemption of 0.8% with unknown fabrics). In general, red slipped wares (Fb. D, F) are the most common, accounting for 36.99% of the total number, while painted wares (Fb. A, J) ranked second (22.25%). Lightly tempered white slipped wares (Fb. G, N) have a moderate frequency of occurrence at 16%.

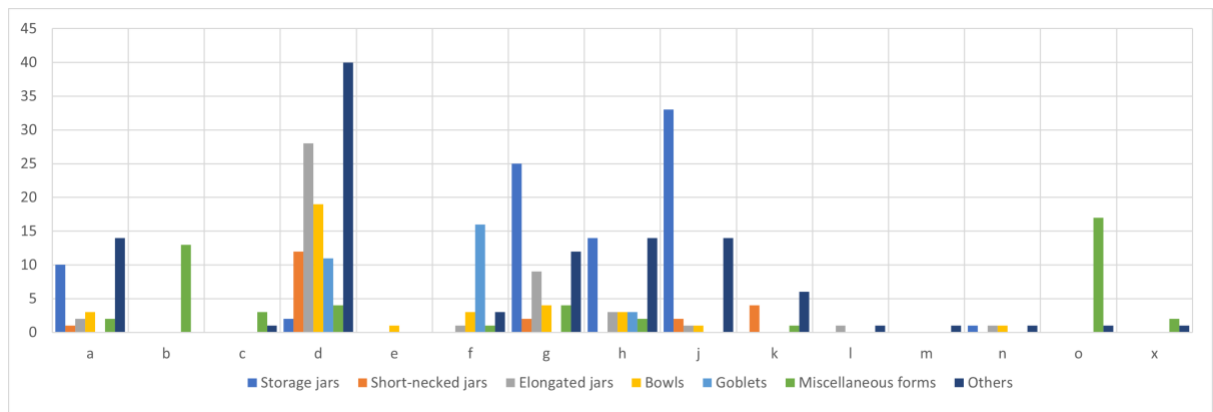
The relationship between fabrics and pottery typology is plotted in Graph 3. Storage jars are most typical with painted decorations (Fb. A, J), while “white slipped” fabrics take second place. Fabrics of “medium to coarse” categories (Fb. B, C, O) are predominantly seen on cooking pots (assigned to the “Miscellaneous forms” in Graph 3). “Red slipped” (F. D) remain the most common fabrics for elongated jars, bowls and short-necked jars, while “fine red slipped” fabrics mostly occur on goblets or small bowls.

Graph 4 demonstrates the relative frequencies for each fabric code in every stage. Notwithstanding the extremely uneven distribution of diagnostics according to stages (most sherds were recovered from late stages, i.e., Stages IIIB and IV, see *infra* 6.2), some key points of the fabric groups are noteworthy. A similar pattern to the Fortification assemblage has been observed here: “red slipped” wares (Fb. D) prevailed in all stages, followed by “white slipped” wares (Fb. G) and “red painted” wares (Fb. J), although the latter two are comparatively less frequent in Stage IB. However, the frequencies for painted wares (Fb. A, J) experience a seemingly reverse pattern, in comparison with that of the Fortifications. This is partly due to the scanty sherd number recovered

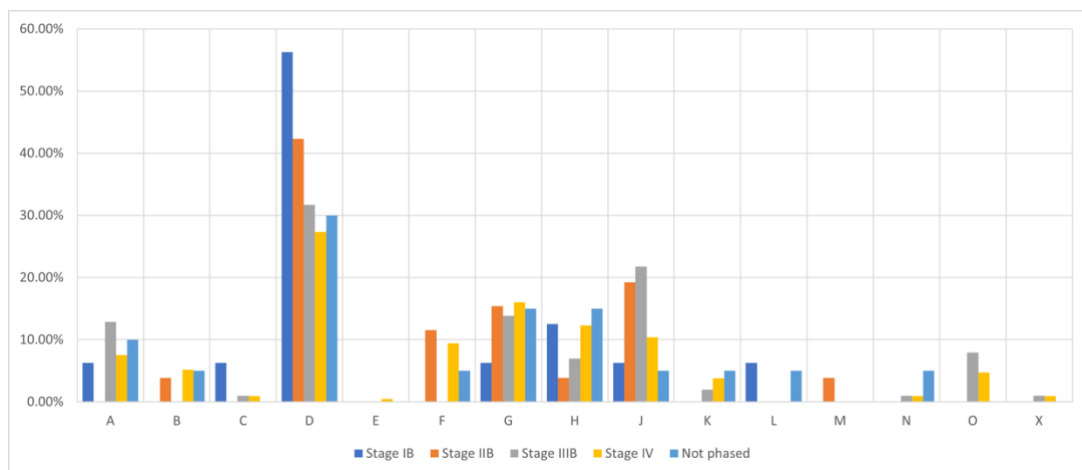
from the context of early stages, but also importantly it is the fact that storage jars, as the main body bearing painted decorations, were found in large number among the post-abandonment collapse and wash while early layers were kept almost clean. The distribution of “medium and coarse wares” (Fb. B, C, E, O) is mostly confined to Stages IIIB and IV. This could be explained by the increase of cooking pots from squatter occupations of the late stages. In contrast, rare black fabrics (Fb. L, M) only occurred in early stages.

In general, Stage IB with the smallest sample size is dominated by “red slipped” and “red” (Fb. D, H) fabrics. Some variations, such as “red painted” (Fb. J), “fine red slipped” (Fb. F) and “white slipped” (Fb. G) became popular in the following Stage IIB while red slipped wares continued to be the most common variation. Stages IIIB and IV are represented by the greatest diversity of fabrics, exemplified by the emergence of “buff” (Fb. K), “greenish white slipped” (Fb. N) and “coarse red” wares (Fb. O).

Graph 3 Fabric codes and pottery typology: the Ceremonial Complex



Graph 4 Relative frequency of fabric codes in each stage: the Ceremonial Complex



5.23 Fabrics and pottery typology

While the classification of genres/types of the Akchakhan-kala assemblage is to be discussed in detail in the following chapter, some notes on the relationship between fabric groups and the six major vessel classes, i.e., Large & medium sized storage jars, various short-necked/holemouth jars, elongated jars, bowls, goblets and miscellaneous forms (Graph 5), will be presented here.

Large/medium sized storage jars are predominantly characterized by “red painted” and “white slipped painted” fabrics (>20%), and secondly by plain “white slipped” and “red” fabrics (>15%). The rest all have a comparatively low frequency of occurrence (each <5%). In general, storage jars are most frequently seen with lightly tempered red/orange/yellow paste, with or without red paint on bare or whitish slipped surfaces (>85%).

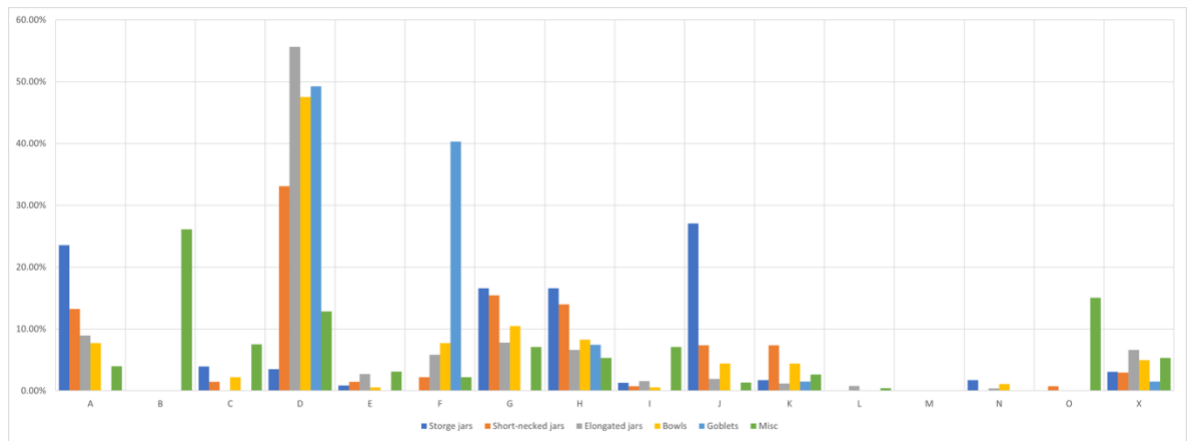
Other jar forms see a predominance of “red slipped” fabric (>30%), followed by “white slipped painted”, “white slipped” and “red” ones (each >10%). In addition, “red painted” and “buff” fabrics both have a moderate frequency between 5% and 10%.

Elongated jars are dominated by “red slipped” fabric with more than a half coated with red slip (Fb. D and F together >60%). Vessels with whitish slip either with or without red paint (Fb. A, G) ranked second, accounting for 16.73% of the total number. The other variations are relatively rare (each <3%), except for plain “red” fabric representing 6.61% of the total diagnostics.

Bowls are similar to elongated jars with the majority falling into the “red slipped” categories (Fb. D and F together >50%), while presenting a greater diversity of fabric groups, including “white slipped”, “white slipped painted”, “red painted”, “red” and “buff” (each has a moderate frequency between 4% and 11%).

Goblets are represented by comparatively small samples dominated by “red slipped” and “fine red slipped” fabrics, reflecting a high level of manufacture for elaborate drinking vessels. Miscellaneous forms see the dominance in the “coarse to medium” fabric groups (Fb. B, O, C, E, D), as comprising a large number of cooking pots. The “coarse grey” fabric (Fb. B) is exclusively attested on cooking vessels.

Graph 5 Relative frequencies of fabric codes for each vessel class



Chapter 6. The Classification of Genres and Types

In the following chapter, analyses of pottery assemblages at Akchakhan-kala will be presented based on rim morphology, sizes, fabrics and significant decorative features. Prior to examination of genres and types, it should be borne in mind that the ceramic corpus attested at Akchakhan-kala is essentially a rather small one, represented by only 1438 diagnostic sherds, among which 342 belong to body sherds, bases and handles bearing very limited information of typology³⁶³. Besides, due to the separate phasing systems adopted by the Fortifications and the Ceremonial Complex (*supra* III.4.1), the main body of diagnostic sherds has to be divided accordingly into three assemblages: the Fortification-related assemblage composed of ceramics from Areas 01, 06, 09³⁶⁴; the Ceremonial Complex (Area 10); and the assemblage from other areas which cannot fit into either phasing, including Areas 03, 05, 07 and 08, further shrinking the examined sample size to 532 vessels for the Fortifications, 266 for the Ceremonial Complex and 298 for other areas. Considering the limited sample sizes of the latter two, the designation of genres and analyses will only be applied in assemblage of the Fortifications, while typological studies under the system of six major vessel classes will be presented for the other two assemblages.

Before analyses of a specific area, some observations on the overall corpus are addressed first. The distribution of basic diagnostic types identified across the site is plotted in Graph 6. Apart from the five basic vessel classes (i.e., storage jars, bowls, goblets etc.), cooking pots, and sherds diagnostic of several rare forms, such as pilgrim flasks, lids and low-sided trays are presented separately. The “unclassified” category is defined by uncharacteristic rim sherds or vessels with merely one or two examples. Notably, the categories “bases”, “body sherds” and “handles” are not equivalent to the total number of the corresponding sherd types, as some of which could be identifiable and designated to a specific vessel type, e.g., painted body sherds diagnostic of large-sized storage jars, loop or strap handles diagnostic of elongated jars etc.

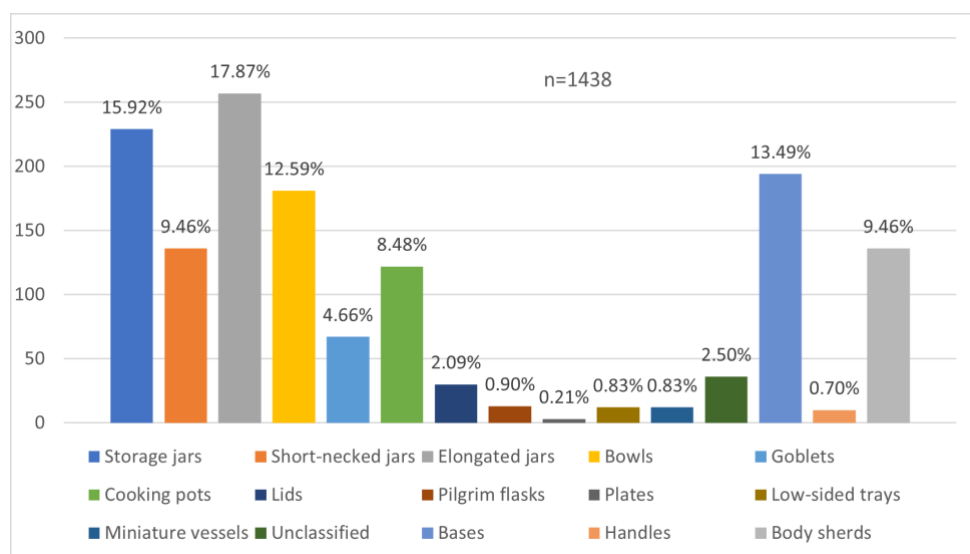
Closed jar forms composed of three basic jar types (“storage jars”, “short-necked jars” and “elongated jars”) dominate (43.18%), with elongated jars being the most common form, followed by storage jars and other short-necked jars—the distribution is similar in most areas, except for the Ceremonial Complex which saw the dominance of storage jars (*infra*). Open forms are mostly represented by various bowls and goblets, as well as a small collection of plates and low-sided trays which were only attested at limited areas and remain relatively rare. Cooking pots have a moderate

³⁶³ The analysis of genres and types is confined to basic diagnostic types, including all rim sherds, a small collection of decorative body sherds and bases related to storage jars, strap and loop handles belonging to elongated jars and several bases linked with deep bowls and goblets.

³⁶⁴ In addition, a small collection of ceramics from A10 13.16 (n=6) is also included here, as associated with the northern fortification wall.

frequency of occurrence across the site, especially from surface layers and late deposits representing the universal Stage IV.

Graph 6 The distribution of diagnostic types at Akchakhan-kala



6.1 The Analysis of Pottery Genres: the Fortifications (Area 01, 06 and 09)

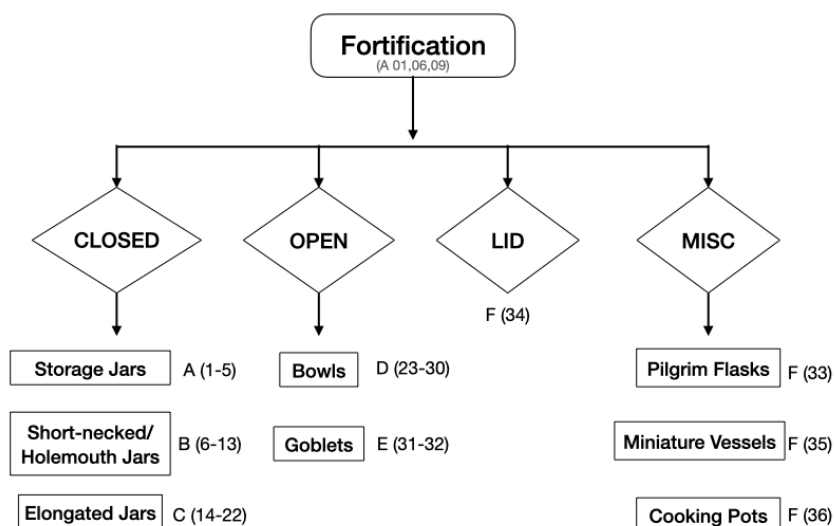
The assemblage of the Upper Enclosure Fortification comprises diagnostic sherds from excavations Area 01, 06 and 09—which possess the best stratified contexts with clear chronological sequences, representing the most important proportion of the Akchakhan-kala corpus. Still, one should always bear in mind the fact that the sample studied here is a relatively small one (only 697 vessels in total, including many bases and body sherds which are less typologically valuable), which could be insufficient to draw any definite conclusions. Although the genre analysis presented here is more of an observation based on limited sample size, it can still, to some extent, demonstrate certain patterns of Chorasmian pottery of the Antique Period.

Among the four consecutive stages identified at the Upper Enclosure Fortification, Stage IV comprises most of the diagnostic sherds, accounting for 40.32% of the total number (n=697). Stage IA and IIA account for 19.66% and 14.06% respectively, leaving only 7.46% for sherds from Stage IIIA. The rest of the sherds (18.51%) initially came from early unstratified excavations and may contain samples from all stages. Moreover, ceramics ascribed to Stage IV, unlike the other three stages, mainly came from post-abandonment collapse and wash which may potentially contain early and late artefacts, and thus could be more complex to be considered in the study of chronology.

With the exception of plain bases, body sherds and a few handles (165 in total) which are less valuable in morphological study, the main body of diagnostic sherds (532 in total) from the Upper Enclosure Fortification were sorted into thirty-six genres, in addition to an unclassified group.

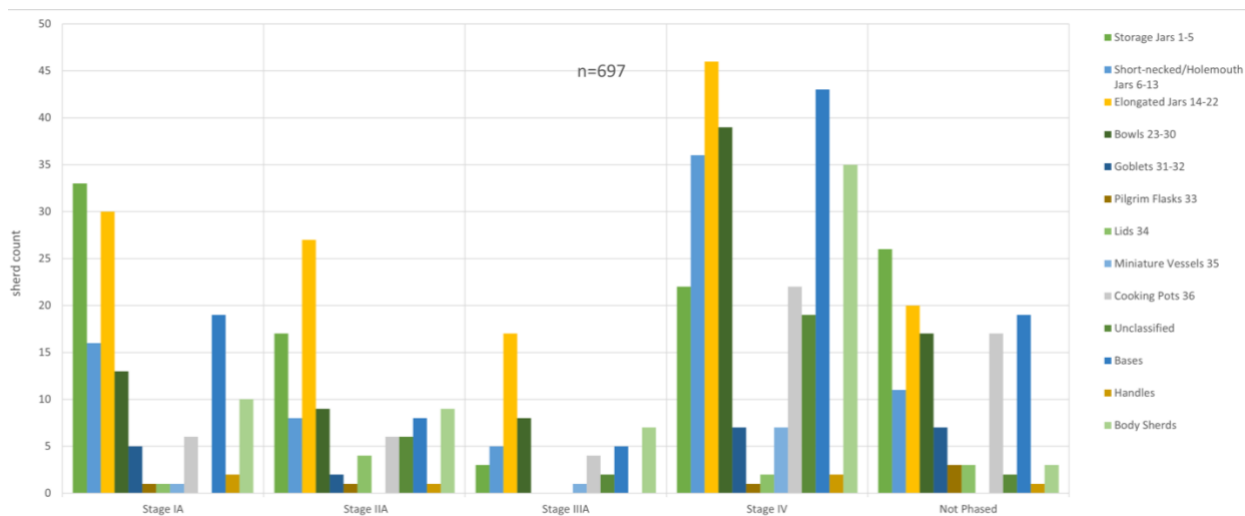
According to the fundamental shape, fabric code and the relative frequency of occurrence, six genre clusters can be sorted as follows (plotted in Table 8): A. large and medium-sized storage jars; B. short-necked/holemouth jars; C. elongated jars; D. bowls of various kinds; E. goblets; F. miscellaneous forms. Although there are potential sub-groups within some of the clusters, given the small sample size involved, it may only make very little difference to the overall pattern. Detailed descriptions of each genre will be presented below. Most of the examples are illustrated³⁶⁵ in Figures 41-82 with catalogue numbers ordered by genres. Reference is also to be made to the pottery catalogue with detailed description of each sherd. Other registered sherds, i.e., bases, body sherds and handles, are also presented at the end of the catalogue.

Table 8 Pottery Classes for the Fortifications with Reference to Genres



³⁶⁵ Most of the examples are presented here with drawings or photographs, except for a few small sherds or bases that are only listed in the catalogue.

Graph 7 Frequency of Genres/Types Per Stage



The distribution of genres and types per stage is presented in Graph 7 and Table 9. Elongated jars and storage jars are the most abundant vessel forms. The former appears to be popular through all stages, while the relative frequency of the latter drops sharply from 24.09% in Stage IA to 7.83% in Stage IV. Other jar forms—short-necked and holemouth jars are ranked next. Bowls are also common vessel forms in all four stages, and the frequency has a gradual increase through time. Other miscellaneous forms, except for cooking pots, are relatively rare in all stages. Miniature vessels and cooking pots have a slight increase through time.

Table 9 The Relative Frequencies of Genres and Types Per Stage

Genre/Type	Stage IA	Stage IIA	Stage IIIA	Stage IV	Not Phased
<i>Storage Jars 1-5</i>	24.09%	17.35%	5.77%	7.83%	20.16%
<i>Short-necked/ Holemouth Jars 6-13</i>	11.68%	8.16%	9.62%	12.81%	8.53%
<i>Elongated Jars 14-22</i>	21.90%	27.55%	32.69%	16.37%	15.50%
<i>Bowls 23-30</i>	9.49%	9.18%	15.38%	13.88%	13.18%
<i>Goblets 31-32</i>	3.65%	2.04%		2.49%	5.43%
<i>Pilgrim Flasks 33</i>	0.73%	1.02%		0.36%	2.33%
<i>Lids 34</i>	0.73%	4.08%		0.71%	2.33%
<i>Miniature Vessels 35</i>	0.73%		1.92%	2.49%	
<i>Cooking Pots 36</i>	4.38%	6.12%	7.69%	7.83%	13.18%
<i>Unclassified</i>		6.12%	3.85%	6.76%	1.55%
<i>Bases</i>	13.87%	8.16%	9.62%	15.30%	14.73%
<i>Handles</i>	1.46%	1.02%		0.71%	0.78%

<i>Body Sherds</i>	7.30%	9.18%	13.46%	12.46%	2.33%
<i>Total</i>	100.00%	100.00%	100.00%	100.00%	100.00%

6.11 Genre Cluster A: Large and Medium-sized Storage Jars

Cluster A (genres 1-5) consists of heavy storage jars defined by relatively large volumes and moderate manufacture. Even though no complete form was recovered from the Fortifications, we are able to understand the general form from restorable examples of Area 10 (*infra* 6.2) and abundant parallels from other contemporary sites in Chorasmia (*supra* II.3). Large sized storage jars are identifiable with a rim diameter ranging from 34 to 60 cm, and considerable wall thickness from 2 to 3 cm. The height of some examples could reach 1 metre (from restorable example of Area 10, *infra*). Medium sized jars are smaller with rim diameters ranging from 20 to 45 cm and wall thickness from 1 to 2 cm. The basic rim forms are predominantly collared, except for some examples of Genre 3 with inverted rims. In addition to rim sherds, some painted body sherds (n=24) can be securely linked with the cluster, specifically with Genre 1 and 4, for the outstanding wall thickness and specific decorative motifs typical of storage vessels, i.e., painting in the shape of spirals, zigzag incisions with painted infilling etc. The repertoire can be considered as purely indigenous, with abundant parallels attested at contemporary Chorasmian sites.³⁶⁶

Genre 1 (Figs. 41-42): Painted large-sized jar (khoun) with a collared rim, short neck and one or two ridges on the convex shoulder. Rim profiles range in rounded, upright elongated, and slightly in-turned forms. Some examples are slightly recessed on the interior.³⁶⁷ (0002, 0003, 0010) which could belong to a late form that appeared in the Antique III period, as attested at Kunya-uaz (Vorob'eva 1959: fig.35/8). Vessels of this genre are characterised by their exceptionally large volumes with rim diameters usually ranging from 40 to 60 cm, and flat or convex bases—the latter form is especially common on some large storage vessels with the bottom half of the vessel buried under the ground³⁶⁸. Fabrics are mostly red paste with or without the coating of whitish slips, and red painted decoration. Red paint is usually applied on the rim (in the pattern of horizontal or vertical bands) and the shoulder or lower body (in the pattern of “spirals”), either on cream/whitish slip or directly on the red paste. Although no restorable form has been recovered from the Fortifications, parallels with complete shapes were attested at the Ceremonial Complex (Area 10, *infra* 6.2) of the

³⁶⁶ Yet not all specimens can be linked with a direct analogy, as many merely retained minimal size.

³⁶⁷ The same rim form was found at Area 10 and other areas, e.g., 0615, 0618, 0619 and 0914, 0915, most of which belong to Stage IV, except for two belonging to Stage IIIB.

³⁶⁸ Examples found *in situ* were attested at the Ceremonial Complex of Akchakhan-kala.

site, as well as many other contemporary sites in Chorasmia, such as Kalaly-gyr 1 and 2, Koi-Krylgan-kala “lower horizon” and some specimens of the “middle horizon” (e.g., Vorob’eva 1959: fig.9,11/6; Fig.19/left; Vainberg 2004: fig.3/7: 1,2; Fig.25/1,15-17), Kaparas “lower horizon” (Itina ed. 1991: fig.71), Elkharas (Levina 2001: fig.70) and the pottery kiln at Khazarasp (Vorob’eva, Lapirova-Skoblo and Nerazik 1963: fig. 12/1, 2; fig.13).

Genre 2 (Figs. 43-44): Plain large-sized jar (khoul) with a collared in-turned rim, neckless or short-necked, and a sloping shoulder. These are distinct from Genre 1 mainly in the absence of painted decoration, or even any kind of decoration. Some still retain one or two slight ridges under the rim, although less pronounced. Rims are mostly collared, rounded and in-turned, and a few with smoother transitions from the lower edge of the rims to the lower body. Fabrics mostly fall into the “white slipped” group, varying in inclusions and finish treatment. Some examples of the “Medium” range are hand-shaped and finished with a slow wheel, leaving several nonparallel horizontal lines or ribbings on the surface (e.g., 0022, 0027). In some cases, the white slip on the exterior surface gives an extraordinary green hue. No complete form is restored at the site. Rims comparable to this genre can be found in the “middle & upper horizons” at Koi-Krylgan-kala (Fig.25/12,20; Vorob’eva 1959: fig.27/27,32) and the “horizon I” at Toprak-kala (Nerazik and Rapoport 1981: fig.39/37).

Genre 3 (Fig. 44): Plain large-sized jar (khoul) with an in-turned rounded or squared rim and sloping shoulder. The rim forms vary from rounded to squared, to slightly bevelled inward. Fabrics all belong to the “white-slipped” range, and the majority falls in the “medium white slipped” category with coarse finish. Vessels of this genre are especially characterised by an austere appearance without decoration of any kind. Some specimens are probably hand-shaped and finished with a slow wheel. Parallels for this genre can be found at Kunya-uaz (Vorob’eva 1959: fig.32/24,31), Toprak-kala “Horizons I & II” (*ib.*: fig. 35/29; Fig.27/left, 36; Fig.29/10; Rapoport and Nerazik 1984: fig.94/53), the “lower horizon” at Kaparas (Itina ed.1991: fig.71/21) and settlement near Dzhanbas-kala (Nerazik 1976: fig.11/14).

Genre 4 (Figs. 45-46): Painted medium-sized jar with a collared rim, globular body and a flat base (probably). Vessels of this genre are distinguished from Genre 1 mainly by their smaller size, with the rim diameters mostly falling into the range between twenty and forty centimetres. The rim profile varies from rounded to sub-triangular, to simply upright. Some have a ridge under the neck, resembling vessels of Genre 1 in smaller versions. Most examples have red fabrics characterised by red or light red paste, with red paints of simple horizontal or vertical stripes applied directly on the paste or whitish slip. Parallels in general can be found at Koi-Krylgan-kala “lower and upper

horizons” (Fig.19/right, 13-18; Vorob’eva 1959: fig.27/23).

Genre 5 (Fig. 47): Plain medium-sized jar with a collared rim. Vessels of this genre are free of painted decorations, although some examples may originally be sorted into Genre 4 as they could have been painted on the missing parts. Rim forms range through simple upright, rounded, sub-triangular and slightly flaring. Fabrics predominantly belong to the “red” group, except for a few white slipped wares. Some specimens are covered with red slip on the exterior surface (0065, 0066). Possible analogies can be found at Koi-Krylgan-kala “upper horizon” (Vorob’eva 1959: fig.27/13), Dzhanbas-kala, Kunya-uaz, Ayaz-kala 3 (*ib.*: fig. 27/14; fig. 32/23,29,30; fig.35/26,27), also Ayaz-kala settlement (Nerazik 1976: fig. 23/8).

In general, storage jars have a relatively moderate frequency of occurrence (18.98%) within the diagnostic sherds (in total 532) from the Fortifications. The frequencies of five genres in each stage are presented in Table 10. The numbers of Genre 1 and 4, as well as painted body sherds associated with them, saw a major decline from Stage IA to IV, while Genre 2 appears to be distributed evenly in all stages. In contrast, Genres 3 and 5 are almost wholly confined within Stage IV.

Table 10 Genre Cluster A: the Fortifications

GEN/TYP	Stage	Stage	Stage	Stage	Not	Total	%
	IA	IIA	IIIA	IV	Phased		
<i>1</i>	10	1		4	3	18	17.82%
<i>2</i>	3	3	2	3	4	15	14.85%
<i>3</i>				3	2	5	4.95%
<i>4</i>	12	6		4	8	30	29.70%
<i>5</i>	1			4	3	8	7.92%
<i>Body sherds</i>	7	7	1	4	6	25	24.75%
<i>Total</i>	33	17	3	22	26	101	100.00%

6.12 Genre Cluster B: Short-necked and Holemouth Jars

The cluster (Genres 6-13) comprises a broad range of short-necked jars with various rim shapes: collared, rilled, inverted, everted and flattened etc., and holemouth jars (only Genre 7), accounting for 13.91% of the total diagnostic sherds. Most of the examples are too fragmented to reconstruct the whole vessel, although the rim diameters may suggest a diversity of vessel sizes—most are

confined between 10 and 20 cm, except for some extraordinarily large vessels from Genre 6,7, 11 and 13. It is hard to define the large volumed vessels at the level of functionality though, since most of them are not comparable to storage jars of Cluster A in fabrics and forms. Detailed discussion of each genre is presented below.

Genre 6 (Fig. 47): Jar with a collared rilled rim. The rim form is defined by several grooves or ridges on the upright external surface. One extraordinary example is characterized by peculiar internal recession near the mouth, which is possibly designed for the placement of a lid (0070). Vessel sizes vary with rim diameters ranging from 44 to 18 cm. Fabrics all fall into the red range with or without red slip treatment.³⁶⁹ The closest parallel to this genre can be found at Toprak-kala “Horizon I” (Fig.27, left/19, 51), Dzhanbas-kala settlement (Nerazik 1976: fig.13/5), Kunya-uaz (Vorob’eva 1959: fig.32/27) and Ayaz-kala settlement (*ib.*: fig.23/7).

Genre 7 (Fig. 48): Holemouth jar with an inverted rim and spherical body, usually separated from the rim with a ledge or ridge at shoulder. A further split may be made according to the rim shape and possible extension of lower body. The first one (0074-0076) is characteristic of a rounded inverted rim, and a possibly cylindrical body shape, comparable to specimens at Koi-Krylgan-kala “lower horizon” (Fig.19, right/20, 22, 23) and Kalaly-gyr 2 (Vainberg 2004: fig.3/11). As pointed out by Bolelov (*ib.*:113,116; see also Bolelov 2005), the rim profile may suggest use with a lid, and the body shape in general is reminiscent of Greek pottery forms, i.e., *pyxis*, handleless *lekanis* (*cf.* Rotroff 1997: fig.77,78). However, one example (0074) is distinct from others for outstanding coarseness of the paste and the absence of any surface treatment. This specimen is also the only hand-made ware within the genre and could be closely associated with the local produced pottery of the Late Antiquity (i.e., “Afrigid period”). 0076 is also noteworthy with a plastic drilled protrusion under the rim (probably two in total), which finds the closest parallel at Kalaly-gyr 2 (Vainberg 2004: fig.3/11:2). The second variant is defined by a squared inverted rim, and possibly rounded body (0077.³⁷⁰-0079), finding possible analogies at Ayaz-kala 3 (Nerazik 1976: fig.23/1) and Toprak-kala “Horizon I” (Fig.27, left/44). Most examples are plain and typical of red fabrics. Some have red or whitish slip on the exterior.

Genre 8 (Fig. 48): Short-necked jar with a rolled slightly in-turned rim and spherical body. Three have red paint on the rim, including one (0085) with ridged shoulder which is close to the appearance of Genre 4 vessels, notwithstanding the more closed rim form. The plain wares, however,

³⁶⁹ One specimen (0069) has traces of red slip on the lip, but I am not sure if it was painted deliberately on the rim or it is the remains of a slip.

³⁷⁰ Yet 0077 could also be associated with crater forms, as examples attested at Kalaly-gyr 2 (Fig.24).

could be associated with a popular jar form of Antique III period. Parallels to this are abundant at Toprak-kala (Fig.27/left, 21,22; Fig.28/left, 16), Koi-Krylgan-kala “middle and upper horizons” (Fig. 26), Kunya-uaz and Ayaz-kala 3 (Vorob’eva 1959: fig.32/15,17). Fabrics are mostly classified into the buff range (with or without painted decorations), except for two red slipped wares.

Genre 9 (Fig. 49): Miscellaneous jars with collared rims, short neck. Vessels of this genre are smaller in size than other collared rim jars of Genre 1 to 5 with rim diameters usually smaller than 20 cm. A variety of rim profile is classified into the genre, including sub-triangular pointed, elongated upright, squared and slightly flaring. Some examples with smaller rim diameters may potentially belong to Genres 14 or 15 (jars with elongated narrowed neck). Most examples are of red paste, and are coated with either whitish or red slip on the exterior surface, including two fine table wares (e.g., 0092, 0099). It is interesting to note a few specimens with simple painted decorations on the rim. These examples were all from Stage IA contexts. In contrast, vessels coated with plain red (or whitish) slip are more common in later stages.

Genre 10 (Fig. 50): Miscellaneous everted rim jars, with a variety of rim forms. Several sub-types can be divided in terms of rim forms: pointed everted rim jars, rounded slightly everted jars and everted squared ones. Most specimens are too fragmented to reconstruct the complete shape, except for 0111, which is characterised by dark red painted decorations in the pattern of vertical ovals, and a slight ridge on the shoulder. This combination is also seen in vessels of Genre 13 (0127) and is typical for jars found at Kalaly-gyr 2 (Vainberg 2004: fig.3/9, 3/10) and the “lower horizon” at Koi-Krylgan-kala (Fig.19, right/24,29). Examples with squared everted rims (0113-0115) probably share parallels with specimens of Antique III period, e.g., from the “middle & upper horizons” at Koi-Krylgan-kala (Fig.26), Ayaz-kala settlement (Nerazik 1976: fig. 23/17, 18).

Genre 11 (Fig. 50): Red slipped jars with everted rims. Only minimal rim sherds have been recovered without any restorable specimen. Vessels of this genre can be distinguished from other everted rim jars for the “red slipped” fabrics. Some examples have grooves on the external surface of the rim. Possible parallels to this genre could be found at the “middle horizon” at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9/27, 43-46), Elkharas (Levina 2001: fig.71/20), Kunya-uaz (Vorob’eva 1959: fig.35/5) and Toprak-kala “Horizons I & II” (Nerazik and Rapoport 1981: fig.39/41; fig.42/23,24).

Genre 12 (Fig. 50): Zigzag incised jars with simple upright rims and squared lips, rounded shoulder and flat bases (probably). Although the rim morphology is comparable to many cooking pots of

Genre 36—simple upright rim with a squared lip - vessels are distinct from the latter with a higher quality of paste and manufacture—fabrics are typically of light grey to lilac paste, lightly tempered, usually coated with white slip externally (Fb. E). Abundant analogies to the genre can be found in the “Middle and Upper Horizons” at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.10), also Ayaz-kala 3 (Vorob’eva 1959: fig.32/20) Elkharas (Levina 2001: fig. 76/16) and Dzhanbas-kala settlement (Nerazik 1976: fig.9 and 14). Parallels from the same site were also found in excavation Area 03 (*infra*).

Genre 13 (Fig. 51): Everted flattened rim jar with a short neck. The major division of rim forms is between flanged and externally bevelled ones. In some cases, there is a ridge under the short neck, on which pre-firing holes were made (usually four placed symmetrically, e.g., Fig. 0127, 0128). Painted decorations are common on vessels of this genre, specifically the pattern of vertical stripes usually confined within a frieze around the neck and shoulder.³⁷¹ (0127). The motif is frequently seen on jars of Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.2) and Kalaly-gyr 2 (Vainberg 2004: fig.3/9). Apart from the aforementioned painted wares, the rim profile finds abundant analogies in Antique III period, e.g., examples from Dzhanbas-kala, Kunya-uaz (Vorob’eva 1959: fig.27/16-18), Koi-Krylgan-kala “middle and upper horizons” (Fig.25/19,21). Fabrics are mostly classified into “White slipped painted”, “red painted” and “red”, with a few white slipped wares. Some examples remarkably larger than the others, e.g., 0139-0141, which finds the closest analogy at Kunya-uaz (*ib.*: fig.32/28) and Dzhanbas-kala settlement (Nerazik 1976: fig.9/5).

Notwithstanding the small sample size, some patterns of the distribution of genres through time can still be outlined (Table 11). Four of the eight genres— Genres 8, 11, 12, 13 are predominantly preferred in Stage IV. Genres 6 and 7 see a gradual increase of frequencies through time. Genres 9 and 10 seem to exist through time, although their relative frequencies both slightly drop in Stage IV.

Table 11 Genre Cluster B: the Fortifications

GEN/TY	Stage	Stage	Stage				
P	IA	IIA	IIIA	Stage IV	Not Phased	Total	%
6		1	2	3	1	7	9.33%
7	2		1	3		6	8.00%
8				3	3	6	8.00%
9	10	4	2	7	2	25	33.33%
10	2	1		3	1	7	9.33%

³⁷¹ Vorob’eva 1959: fig.42.

11		1		5		6	8.00%
12				2		2	2.67%
13	2	1		10	3	16	21.33%
Total	16	8	5	36	10	75	100.00%

6.13 Genre Cluster C: Elongated Jars

Vessels from Genres 14 to 22 are amalgamated for their similar elongated shape, resembling jugs or bottles, though technically many are slightly different from typical jugs in lacking a handle. In this regard, as well as the difficulty of separating “jugs” and “jug-like” elongated vessels with merely minimal rim sherds, the class “elongated jar” is used here to represent all closed forms with a narrowed neck and elongated, “jug-like” shape. No restorable example was recovered from the excavation. Vessels of the cluster are defined by a small rim diameter predominantly ranging from 10 to 16 cm, and elongated narrowed neck. Further divisions in rim shapes and fabrics are discussed in the description of each genre.

In terms of different fabrics and the presence of handles, the functionality of vessels may diverge. For instance, some wares of Genre 14 were most likely used in the domestic arena rather than as table wares. Some genres (e.g., Genres 15, 19) could be classified into the category of “jug” or “juglet”, with either a loop or strap handle attached to the rim. In addition to rim sherds, some loop and strap handles (n=31), as well as a body sherd belonging to jug forms are also included in the cluster. Distinct from most of the plain handles, there is one noteworthy specimen from Stage IA context (0509) with a fine sculpture of a lion’s head, elaborately portraying the facial details and the mane. This extraordinary specimen represents a rare form of early Antique II period of Chorasmia, the jug with lion’s head handle, a profound study of which was done by M.G.Vorob’eva (1958b).³⁷² The one specimen here seems to be close to the appearance of the type 2 lion *protome* according to Vorob’eva.

Genre 14 (Fig. 52): Jar with a collared, rounded flaring rim, elongated narrowed and flaring neck, usually painted. The classification of Genre 14 and 15 has been tricky, when only fragmented rim sherds can be counted on whereas distinctions of rim shape (collared, flared) are very subtle. In that case, some key features of the fabric, such as the colour of the slip and the presence of painted

³⁷² See also previous Section II.3.

decorations.³⁷³ may be considered as key criteria differentiating these genres. The present genre consists of painted wares and white slipped wares. There are several variants of collared rims, including sub-triangular rims with pointed lips, more flaring rims with pointed lips, slightly flaring rims with rounded lips. Vessels of this genre were referred to as “jugs” in Russian literature notwithstanding the absence of handles. No restorable specimen has been recovered from the site, yet complete forms in parallel are abundant from sites Kalaly-gyr 1&2, Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.2,9; Vainberg 2004: fig.3/8). These vessels are characterised by narrowed neck, long-shaped body, flat bases and rich decorations, e.g., horizontal paints on the rim, paints in the pattern of spirals on the body and sometimes one or two ridges on the shoulder. Handles are usually absent in these vessels.

Genre 15 (Fig. 53): Red slipped jar with a collared pointed rim, elongated narrowed and flaring neck, and possibly one handle attached to the rim. Some examples are flaring to a greater extent. Most of the specimens are coated with red slip, sometimes polished, on both exterior and interior surfaces (the interior could be partly coated, with the lower body missing). One example was found with a strap handle attached to the rim (Fig. 0170). Complete vessels comparable to it can be found at Kalaly-gyr 2 (Vainberg 2004: fig.3/23). Some examples may be closely related to Genre 16 and 19.

Genre 16 (Fig. 53): Elongated jar with a collared squared rim and elongated flaring neck. Rim shapes differ from genre 14 with thicker and squared lips, flat or slightly bevelled. Some examples are internally recessed (e.g., 0177, 0180, 0183) and comparable to wares of Genre 17. Fabrics are mostly red with red slip, except for three with unknown fabrics and two without slip. Vessels of this genre are closely associated with the preceding Genre 15 and some examples of Genre 19. Possible analogies can be found at the settlement near Dzhanbas-kala (Nerazik 1976: fig.11/4), Ayaz-kala settlement (*ib.*: fig.23/12) and Kunya-uaz (Vorob’eva 1959: fig.32/2).

Genre 17 (Fig. 54): Red slipped jar with a collared internally recessed rim and elongated neck. All specimens are coated with red slip on both interior and exterior surfaces, and in a few cases, polished externally. Wares could have been joined by a handle, as suggested by the parallel from Kalaly-gyr 2 (Vainberg 2004: fig.3/23:12). The major division of rim morphology is between flaring pointed type and everted flanged type (e.g., 0192, 0195, 0197). The former finds close analogies in the “middle and upper horizons” at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9/35,36), while

³⁷³ For example, as far as my knowledge of Chorasmian pottery can tell, jugs with handles are usually coated with red slip, while those with white slip or painted decorations are usually without a handle, see more discussion in *supra* II.3.

the latter form is closely associated with some examples of Genre 19. One example is distinct from others with a decorative ridged neck (0197). In addition, a body sherd with red slip and ridges was also ascribed to the genre, but it could potentially belong to Genre 15, 16 or 19.

Genre 18 (Fig. 54): Overhanging pointed, externally bevelled rim jar with a narrowed elongated neck. Various fabrics are attested in the genre, including “red slipped”, “red”, “white slipped”, “white slipped painted” and one sherd bearing heavy scorching to black. Comparable specimens can be found at Kalaly-gyr 2 (Vainberg 2004: fig.3/8: A)

Genre 19 (Fig. 55): Everted flattened rim jar with elongated neck and strap handle. There are several variants of rim shapes: flanged with squared lip, slightly overhanging, everted rounded, and internally bevelled ones. One example is more decorative, with one groove on top of the rim and another near the lower end of the rim (0213). Some examples have strap handles attached to the rim at two different junctions, either the interior or the exterior of the rim. Fabrics are mostly classified into the “red slipped” range, including two externally polished. Vessels of this genre are very common in Chorasmia spanning Antique II and III periods, e.g., examples from Kalaly-gyr 2 (Vainberg 2004: fig.3/23,15; fig.3/24, 3,10), the pottery kiln near Khazarsasp (Vorob’eva, Lapirovs-Skoblo and Nerazik 1963: fig.13/31), Dzhanbas-kala settlement (Nerazik 1976: fig.11/2,8,11), Koi-Krylgan-kala “middle and upper horizons” and Kunya-uaz (Vorob’eva 1959: fig.27/1, 2; fig.32/5; Tolstov and Vainberg 1967: tab.9/8, 12, 16, 25, 26), also Toprak-kala “Horizons I & II” (Fig.27/right, 1, 2, 14; Fig.28/right, 1, 23).

Genre 20 (Fig. 55): Red slipped jar with an externally bevelled rim and elongated narrowed neck. The major variant of rim form is everted with squared lip, and one rare variant is flaring with squared lip (0225). Most of the examples are plain, while some have ribs/ridges on the neck. Vessels of this genre were also attested at Koi-Krylgan-kala “middle horizon” (Tolstov and Vainberg 1967: tab.9/9, 34) and Toprak-kala “Horizons I & II” (Fig.27/right, 6,7,10; Fig.28/right, 2,4,5,8).

Genre 21 (Fig. 56): Jar with an internally recessed rim and narrowed elongated neck. The most significant feature of the genre is the smooth curve between the rim and neck. In some cases, the rim is decorated with one or two grooves at the turning point to the neck, and one example has a groove on the neck. Possible analogies can be found at Elkharas (Levina 2001: fig. 71/14), Kunya-uaz (Vorob’eva 1959: fig.32/3) and Toprak-kala “Horizon II” (Fig.28/right, 13,25). A further development of the recessed rim form can be observed in upper layers of Toprak-kala (Nerazik and Rapoport 1981: fig.46/23,24; Rapoport and Nerazik 1984: fig.94/14).

Genre 22 (Fig. 56): Rilled flaring rim jars with a narrowed elongated neck. The fundamental criterion for the classification is the rilling on the external surface with several grooves or ridges. Fabrics mostly fall into the “red slipped” category with two polished examples. The rim form is paralleled with many examples spanning Antique II and III periods, at Kalaly-gyr 2 (black slipped wares, Vainberg 2004: fig.3/25,1,4), Koi-Krylgan-kala “lower and upper horizons” (Tolstov and Vainberg 1967: tab.2/37,40, tab.9/2,3), Elkharas (Levina 2001: fig.71/15,16), Toprak-kala (Rapoport and Nerazik 1984: fig.94/61), Dzhanbas-kala settlement (Nerazik 1976: fig.11/1), Ayaz-kala settlement (Nerazik 1976: fig. 23/9,10,13) and Kunya-uaz (Vorob’eva 1959: fig.32/1). There could be a handle attached to the rim, as seen on parallels (Kalaly-gyr 2).

In general, elongated jars have a relatively high frequency of occurrence (26.32%) in the Fortifications. From Stage IA to IV, the frequency of Genre 14 sharply declines. Genres 20 and 21 are both rare in early stages (Stage IA-IIA), the former increased gradually through time while the latter was only recovered from Stage IV. The relative frequencies of the other genres, 15, 17 and 19 all have a slight increase through time (Table 12).

Table 12 Genre Cluster C: the Fortifications

GEN/TYP	Stage	Stage	Stage	Stage IV	Not Phased	Total	%
	IA	IIA	IIIA				
14	9	2	2	3	7	23	16.43%
15	1	2	4	6		13	9.29%
16	3	4	2	4	2	15	10.71%
17	1	1	1	3	2	8	5.71%
18	2	1	2	1		6	4.29%
19	5	5	1	9		20	14.29%
20		1	2	4	3	10	7.14%
21				3	1	4	2.86%
22	2	4		3	1	10	7.14%
Handles	7	7	3	10	4	31	22.14%
Total	30	27	17	46	20	140	100.00%

6.14 Genre Cluster D: Bowls of Various Kinds

The cluster include a broad range of open bowls with various rim shapes and sizes, as well as

a small collection of bases (n=19) that are clearly linked with bowl forms, i.e., disc and ring bases. Genres 23 to 26 comprise mainly deep bowls with different rim shapes; Genres 27 and 28 are larger sized bowls (basins) with either externally bevelled or collared rim; and Genres 29 and 30 represent two rare shallow open forms.

Genre 23 (Fig. 57): Spherical bowls with everted squared or rounded rims. Most examples have squared lips, sometimes with a slight groove, except for two with rounded lips (0247, 0249). Some have one or two slight ridges/ledges under the rim, in parallel with one specimen from the settlement near Dzhanbas-kala (Nerazik 1976: fig.14/1). Comparable specimens in general can be found at Koi-Krylgan-kala “middle & upper horizons” (Tolstov and Vainberg 1967: tab.9/70, 80, 81; Vorob’eva 1959: fig.30/13), the “lower horizon” at Kaparas (Itina ed. 1991: fig.72/38) and Ayaz-kala settlement (Nerazik 1976: fig. 23/20). Wares have a variety of fabrics, many with medium inclusions are coated with whitish slips on the exterior surface, and only one belongs to red slipped ware (0252). In addition, there is one specimen (0249) with rare dense greenish white slip which appears to be associated with pottery from the upper layers of Toprak-kala.³⁷⁴ Rim diameters range from 18 to 26 cm.

Genre 24 (Fig. 58): Plain open bowl with a pointed, rounded or pinched rim. Some examples are decorated with a slight groove under the rim, e.g., 0266, cf. D1 from Area 10 assemblage (*infra*). Fabrics mostly fall into the “red slipped” range. This form was very popular in Chorasmia, e.g., at Koi-Krylgan-kala (Vorob’eva 1959: fig.30/19,24), Kalaly-gyr 2 (Fig.21/a,14), Elkharas (Levina 2001: fig.71/3,4) and Toprak-kala (Fig.27/left,23; right, 53,56) etc.

Genre 25 (Fig. 58): Red slipped deep bowl with a pointed or rounded vertical rim, globular body and a flat or disc base. Vessels of this genre are typical of the upright nearly vertical upper body. One example (0272) is internally bevelled. Two with a sinuous-sided body may be singled out (0269). Most of the specimens are coated with red slip on both interior and exterior surfaces, and some are polished externally. Parallels in general are abundant in Chorasmia, e.g. Koi-Krylgan-kala, Kalaly-gyr 2 and Kunya-uaz (Fig.20/left, 21, 71,72; Fig.23/30,37; Tolstov and Vainberg 1967: tab.9/72-76; Vorob’eva 1959: fig.30/6,7,11,16) etc.

Genre 26 (Fig. 59): Plain deep bowl with a pointed or rounded, slightly in-turned rim. Most examples are coated with red slip, including one with burnishing treatment on the exterior surface. Parallels in general can be found at many Chorasmian sites, e.g., Kalaly-gyr 2 (Fig.21/a, 15), Koi-

³⁷⁴ Nerazik and Rapoport 1981: 89.

Krylgan-kala (Fig.20/left, 54; Tolstov and Vainberg 1967: tab.9/56,91) and Toprak-kala “horizon II” (Fig.29/11,32) etc.

Genre 27 (Fig. 60): Large open bowl with an externally bevelled rim. Vessels of this genre usually have a large volume, with rim diameters ranging from 24 to 30 cm. Most of the rim shapes are plain except for one with rilling on the surface (0288). One (0290) is slightly in-turned and ledged, which could be paired up with a lid. Most of the examples are coated with white slip, including one with red paint. Possible parallels can be found at Koi-Krylgan-kala “middle and upper horizons” (Tolstov and Vainberg 1967: tab.9/83; Vorob’eva 1959: fig.27/34) and Toprak-kala “Horizon I” (Fig.27/right, 52). The painted one (0292) may be comparable to a specimen from the “lower horizon” of Koi-Krylgan-kala (Fig.19/right, 5)

Genre 28 (Fig. 60): Large bowl with a collared rounded or squared rim. Vessels are typically of large volumes with the mouth being the widest part. The largest example (0298) has a rim diameter of 76 cm (could be a mismeasurement?) and is most likely used as a large storage vessel. Bowls with rounded collared rims are usually painted horizontally on the rim. Fabrics are predominantly within the “white slipped” range. Some can be classified into the “medium” wares, as tempered by more visible medium-sized grits with coarse finish. Possible analogies are abundant from Chorasmian sites covering a broad time range from Antique II to III period, e.g. Koi-Krylgan-kala “lower horizon” (Fig.19/right, 7; Fig.20/left, 32) and “middle horizon” (Fig.25/2), settlement near Dzhanbas-kala (Nerazik 1976: fig.14/3), and the “lower horizon” at Kaparas (Itina ed. 1991: fig. 72/2).

Genre 29 (Fig. 61): Shallow bowls with slightly inverted rim and convex body decorated with several ridges. Only three vessels of this genre were recovered in the Fortifications. 0299 is distinct from the others with a rounded, slightly everted rim, possible analogies to which can be found at Toprak-kala “horizon II” (Fig.29/41) and Elkharas first group (Levina 2001: fig.71/5). The other two are defined by inverted squared rim and rounded body decorated by several ridges. 0301 could belong to a different form as it is remarkably larger than the other two with a rim diameter of 48 cm.

Genre 30 (Fig. 61): Shallow, open bowls with flattened wide rims and rounded body. Vessels of this genre are characterised by flattened rims with a wide surface usually decorated with several grooves or red painting. Vessels of this genre are very rare in the Fortifications, represented by only three specimens. Two of them are defined by slightly in-curving flattened rim with red paint, and a possibly conical shape (0303, 0304). 0302 may be singled out as being more decorative with several

grooves on the rim and body. The rim shape is also different in being slightly bevelled. Possible analogies can be found at Koi-Krylgan-kala “lower horizon” (Fig.20/left, 27), Kaparas “lower horizon” (Itina 1991 ed.: fig.73/24) and Khazarasp (Vorob’eva, Lapirov-Skoblo and Nerazik 1963: fig.13/37). Comparable specimens in general can be found at Koi-Krylgan-kala (Fig.20/left:12-16), Kalaly-gyr 2 (Vainberg 2004: fig.3/18:9) and Kunya-uaz (Vorob’eva 1959: fig.30/22).

The frequencies of genres per stage are presented in Table 13. Bowls in general have a moderate frequency of 16.17% as the third frequent vessel type attested in the Fortifications (after “elongated jars” and “storage jars”). Deep bowl forms (Genres 23-25) appear to be the major bowl type through all stages, and their frequencies keep rising through time. Vessels of Genre 26, despite lacking information on phasing, are confined to later stages. The other genres in general have relatively low frequencies in all stages. Genre 29 was only attested in Stage IIIA and IV.

Table 13 Genre Cluster D: the Fortifications

<i>GEN/TYP</i>	<i>Stage</i>		<i>Stage</i>		<i>Not Phased</i>	<i>Total</i>	<i>%</i>
	<i>IA</i>	<i>IIA</i>	<i>IIIA</i>	<i>Stage IV</i>			
23		2	1	6	2	11	12.79%
24	2	1		8	1	12	13.95%
25	4			9	2	15	17.44%
26			1	1	6	8	9.30%
27		2	1	2	2	7	8.14%
28	1	1	2	3	1	8	9.30%
29			1	2		3	3.49%
30	1			1	1	3	3.49%
<i>Bases</i>	5	3	2	7	2	19	22.09%
<i>Total</i>	13	9	8	39	17	86	100.00%

6.15 Genre Cluster E: Goblets

The cluster contains elaborately made drinking vessels, i.e., goblets, accounting for a very small proportion of the assemblage (3.95%). Vessels are characterised by fine red slipped fabrics and thin walls reflecting a relatively high quality of manufacture. Although no complete vessel was recovered from the site, with parallels from other contemporary sites, two separate genres can be divided according to the rim and base forms. Apart from rim and body sherds, bases belonging to the cluster are composed of pedestal, small flat and slightly concave forms (Fig. 62/0308-0317;

0323-0324), among which pedestal bases are directly associated with Genre 32.

Genre 31 (Fig. 62): Goblet with an out-curved rim, flaring wall and a small, slightly concave or flat base. One extraordinary example stands out with a “S-shaped” rim and a ridged body (0307). Even though no complete vessel was recovered, there are several small bases, most of which are slightly concave, with a few flat, that could be classified into this genre. One base (0312) may be singled out, as the turning from base to body is smooth without a sharp carination. All vessels are covered with red slip on both surfaces, and some are even polished. Comparable specimens can be found at Kalaly-gyr 1,2 and Koi-Krylgan-kala “lower and middle horizons” (Fig.23/33-36, 29; Fig.22, type 1; Tolstov and Vainberg 1967: tab.9/94,95), Kunya-uaz and Ayaz-kala 3 (Vorob’eva 1959: fig.30/15; fig.34/2-4), also Elkharas (Levina 2001: fig. 71/13) and the pottery kiln at Khazarasp (Vorob’eva, Lapirov-Skoblo and Nerazik 1963: fig.13/10-14, 19-21, 24, 25-28).

Genre 32 (Fig. 62): Goblets on pedestal bases, with pointed rims and thin-walled body usually decorated with a ridge. Several fragmented rims and bases can be sorted into the genre. Three examples have flaring upper bodies, while the other two are nearly vertical. Only two pedestal bases have been recovered. Both are quite simple—one is flat and slightly concave, another is footed, closest analogies to the former can be found at Koi-Krylgan-kala “lower horizon” (Fig.20/right: 15,16) and Kalaly-gyr 2 (Fig.22/15,16), while parallels to the latter were found at Koi-Krylgan-kala “upper horizon” (Fig.20/right: 33, 36), Kalaly-gyr 2 (Fig.22/21) and Dzhanbas-kala settlement (Nerazik 1976: fig.11/15). Fabrics all fall into the “red slipped” range, including a few fine polished ones. More complete forms of this genre can be found at Koi-Krylgan-kala, Kalaly-gyr 1 and 2 (Fig.20/right; Fig.22: type 3; Fig.23/13, 14, 18, 19, 28).

Despite the scarcity of recovered specimens, goblets appear to exist through time (except for Stage IIIA). It is hard to tell the change of relative frequencies through time (Table 14).

Table 14 Genre Cluster E: the Fortifications

<i>GEN/TYP</i>					<i>Not</i>		<i>%</i>
	<i>Stage IA</i>	<i>Stage IIA</i>	<i>Stage IIIA</i>	<i>Stage IV</i>	<i>Phased</i>	<i>Total</i>	
<i>31</i>	3			5	6	14	66.67%
<i>32</i>	2	2		2	1	7	33.33%
<i>Total</i>	5	2		7	7	21	100.00%

6.16 Genre Cluster F: Miscellaneous Forms

The cluster comprises several rare forms (frequency of occurrence < 2%), i.e., pilgrim flasks (1.13%), lids (1.88%) and miniature vessels (1.69%), and a large number of cooking pots (10.34%). In addition, a small quantity of unclassified forms (5.64%), which may not represent new genres, nor fit into any existing genres, were sorted into the unclassified group. The description of each genre is presented below.

Genre 33 (Figs. 63-64): Pilgrim flasks, with collared flaring rims, narrowed short neck and body with one flat side and another bulging (probably). Only one restorable example was recovered in the Fortifications and only the flat body side remains. There is an incision mark on the flat body near the neck. Four rim sherds are also classed into the genre for their rim profiles and especially the unusual thickness of wall at the neck. One is extraordinarily decorative with bas-relief on the body. Most of the examples are plain and are typical of red fabrics with or without red slips.

Genre 34 (Fig. 65): Lids. Most of the examples are flat with thickened squared rims, and two have conical shapes. Some examples are painted at the edge or on the exterior surface in the pattern of crossed stripes. Fabrics mostly fall into the ranges of “red slipped” or “white slipped painted”, with red or whitish slips respectively.

Genre 35 (Fig. 65): Various miniature vessels, including miniature jars, plates and jugs. Some examples are misfired and were made by unskilled hand-shaping. Many have fabrics within the “coarse” and “medium” range.

Genre 36 (Figs. 66-69): Miscellaneous cooking pots. The primary criterion for selection is the fabric; and secondarily the basic form. Vessels are typically of medium to coarse fabrics with or without coarse finish, often hand-made. Many examples bear traces of scorching on the body. Most of the jar forms are quite simple, characterized by everted or upright rims, rounded or squared lips, globular body and flat bases. Some examples can be classified into elongated jars with a narrowed neck and sloping shoulder. One example has handles at the rim. Open forms are less common, including inverted rim bowls and large upright open bowls.

Unclassified forms (UC, Figs. 70-71):

A small collection of diagnostic sherds (n=29), either unidentifiable or with a minimal sample size, cannot be grouped easily into any existing genre and thus will be discussed separately here.

Some of the rare forms have only one or two examples attested in the Fortifications, such as plate (0414, 0416), low-sided tray (0418, 0420) and crater (0426, only one example with a hollow pedestal base was recovered). 0407 and 0409 are both jar forms characterized by very thin collared pointed rims and medium fabrics with abundant grog inclusions. A close parallel to this can be found at Toprak-kala “Horizon I” (Fig.27/left, 38). 0421 and 0422 are associated with red slipped deep bowls with slightly everted rims and globular body, in parallel with some examples from Koi-Krylgan-kala (Fig.20/left, 36-38, 40, 41) and Kalaly-gyr 2 (Fig.21/b, 5).

There is also a fine black ware (0405) defined by a straight squared rim joined by a massive loop handle. Both the shape and fabric are different from the local production and must have been imported. Also noteworthy is an extraordinary specimen (0427) from the context directly associated with the “siege” (Stage IIA.4), with a wide flat base (probably the widest point of the vessel) and sharply incurving body. It is in parallel with a rare form—identified as an incense burner by the excavators, attested in the “middle horizon” at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9/40,41). Although no complete vessel or restorable specimen has been recovered in Chorasmia, a complete example of the vessel can be found in ancient Taxila.³⁷⁵

From the frequencies of genres through time presented in Table 15, Genre 35 has a significant increase in Stage IV, so does Genre 36. Genre 33 and 34, despite being rare in all stages, both slightly decline in Stage IV.

Table 15 Genre Cluster F: the Fortifications

<i>GEN/TYP</i>	<i>Stage</i>	<i>Stage</i>	<i>Stage</i>	<i>Stage IV</i>	<i>Not Phased</i>	<i>Total</i>	<i>%</i>
	<i>IA</i>	<i>IIA</i>	<i>IIIA</i>				
33	1	1		1	3	6	5.50%
34	1	4		2	3	10	9.17%
35	1		1	7		9	8.26%
36	6	6	4	22	17	55	50.46%
<i>Unclassified</i>		6	2	19	2	29	26.61%
<i>Total</i>	9	17	7	51	25	109	100.00%

6.17 Other Diagnostic Sherds

Apart from diagnostic rim sherds listed above, there is a large quantity of other diagnostic sherds, i.e., bases, handles, decorated body sherds, most of which are simple and lack features

³⁷⁵ Marshall 1951: plate 127, 203.

securely matched to a certain genre or genre cluster. Brief descriptions of these sherds are presented below, with reference to detailed information in the pottery catalogue.

Various bases (Figs. 78-82):

Apart from a small collection of bases related to Genre Clusters D and E, most of the bases recovered from the Fortifications are simply flat (n=70) or convex (n=20) forms and thus can hardly be matched up with specific genres. In some cases, incised marks are found near the bottom of flat bases (e.g., 0600).

Handles of various types (Fig. 77):

Most of the handles, mainly strap and loop ones, can be classified into Genre Cluster C (elongated jars with narrowed neck). One (0515) with medium fabrics may be related to cooking pots. 0511 may also be singled out with a flute in the middle of the handle. The rest are all lug handles, usually appearing in pairs on the shoulder or the widest point of the body.

Decorated body sherds (Figs. 72-76):

The criteria for selection are significant decorative features, e.g., painted patterns, incised decorations (mainly “zigzag” patterns), marks and ridges. Paints are often prepared with red or brown pigment and are applied on cream or white slipped surfaces, less commonly on bare red paste. Painted decoration is a very common decorative feature of the assemblage, especially on jars and basins. 19.37% of the total diagnostic sherds are painted, although the majority of them are simple, homogeneous patterns such as horizontal band and unrecognisable or free-style (Table 16). Painted patterns attested in the Fortifications can be arranged into five major types as follows. It needs to be noted, although some motifs may appear with the other, every sherd will only be counted once according to the most significant painted motif (ranking from left to right as presented in Table 16, i.e., filled geometric patterns—free-style paints).

Table 16 The distribution of painted decorations according to stages

Phasing	Filled geometric pattern	Vertical band/dripping/comma	Spiral/curved band	Horizontal band on the rim	Free-style pattern	Total
<i>Stage IA</i>	2	5	7	18	10	42
<i>Stage IIA</i>	2	2	5	1	10	20
<i>Stage IIIA</i>			3		2	5
<i>Stage IV</i>	1		8	7	9	25

<i>Not Phased</i>		9	9	14	11	43
<i>Total</i>	5	16	32	40	42	135

1. Filled geometric patterns: In some cases, painting is used to fill in the incised geometric patterns, e.g., the triangle area created by “zigzag” incisions and grooves/ridges, rectangular area created by grooves, ridges and vertical incised lines (Fig. 75). Parallels for the decoration are abundant from Antique II Chorasmian site, e.g., Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.1), Kalaly-gyr 2 (Vainberg 2004: fig.3/7). Most examples fall into the range of the first two stages in the Fortifications.
2. “Elongated oval (dripping)”, “comma-like” patterns or vertical bands: The “dripping/comma-like” pattern is usually confined within one or several friezes on the shoulder or the lower body. The clearest example is 0444. 0111 and 0127 are examples of the pattern on the shoulder of jars. Parallels for this pattern can be found at Antique II Chorasmian sites, e.g., Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.2), and Kalaly-gyr 2 (Vainberg 2004: fig.3/9:5, fig.3/10). Short vertical bands are usually applied on the rim or around the neck in a circle (e.g., 0011, 0042). This motif is exclusively attested in the first two stages in the Fortifications.
3. “Spiral” or curved band: Numerous examples of this pattern were found in the Fortifications. A full version of the pattern can be found on one of the complete examples from the Ceremonial Complex (*infra*, Fig. 88). “Spiral” patterns often appear symmetrically on the body or shoulder of jar forms, especially storage jars and some elongated jars. Examples of the patterns can be found in Figures 73-74. According to Table 16, the pattern seems to last for a long time through all stages of the site.
4. Horizontal band on the rim: horizontal bands are usually applied on rims. Examples of a horizontal band applied about the rim are ubiquitous, and in many cases, there are often traces of red slip dripping randomly from the painted area. As a very common decoration motif, it also appeared in most of the chronological stages in the Fortifications.
5. Free-style pattern: including random splashes of paints and other unrecognizable paints, found in all stages.

The first two ranks appear to be of some chronological values as both are mostly seen in early stages of the Fortifications. In contrast, “zigzag” incisions (without red paints) appear to become more favoured in Stage IV.

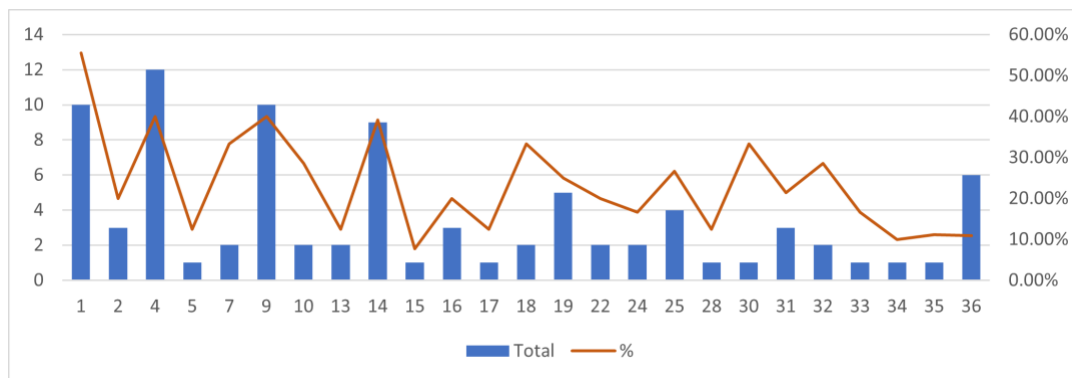
In addition to body sherds with significant decorative features, a few plain body sherds were also selected having rare black fabrics. For instance, 0481 from a Stage IA layer has been singled out for its rare black paste and highly polished surface coated with black slip. Another example with the same fabric was found at Area 10 Stage IIB (0883). Both are too fragmented to reconstruct the whole shape. It is only certain that these should belong to imported wares.

6.18 Summary

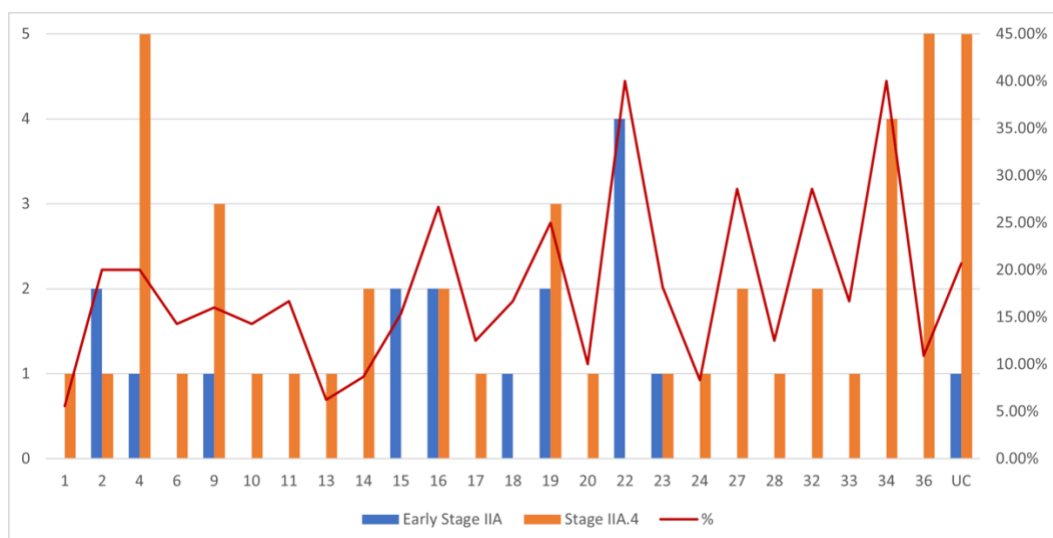
To further elucidate the distribution of genres according to stages, the following graphs (Graph 8-11) give a brief look at genres occurring in each stage and the percentage of the specific stage in the total count of each genre (%).

The assemblage of Stage IA in general implies a great diversity of genres, represented by twenty-six of the total thirty-six genres (Graph 8). Eleven genres are completely missing in Stage IA: including Genres 3, 6, 8, 11, 12, 20, 21, 23, 26, 27 and 29, while several genres (Genres 5, 15, 17, 26, 28, 30, 33, 34 and 35) stay at the lowest rate (each has only one vessel) in Stage IA. Genres 1, 4, 9 and 14 are most common in this stage (with a relative frequency >39%), and second comes Genres 7, 18 and 32.

Graph 8 The Stage IA Assemblage



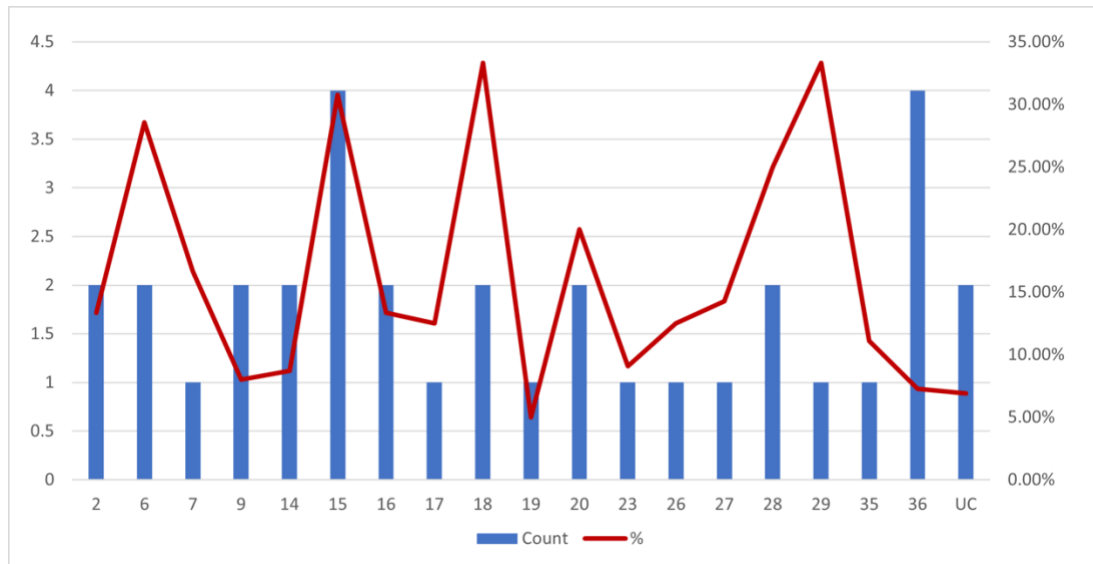
Graph 9 The Stage IIA Assemblage



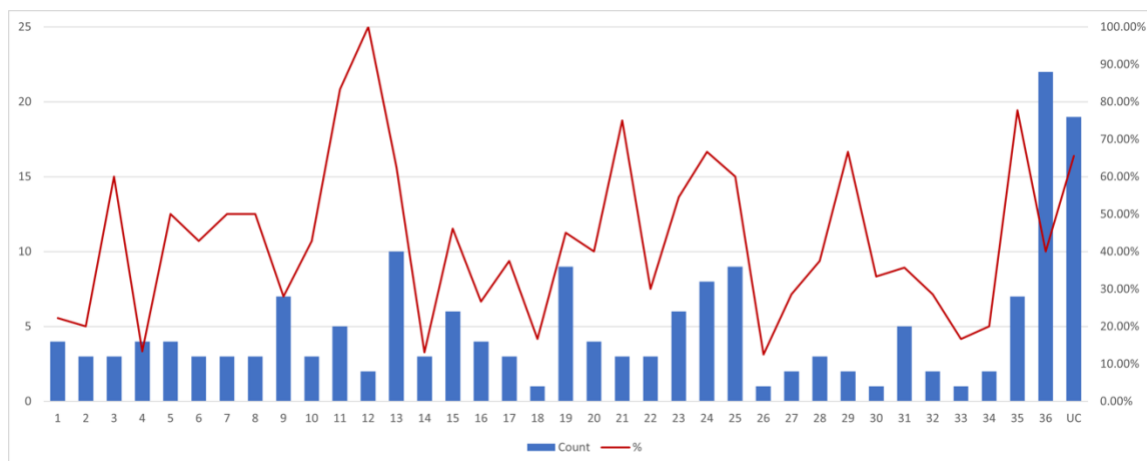
The Stage IIA and IIIA assemblages are both relatively small, in which each genre is represented by a small number of examples. From the comparative frequencies presented in Graph 9, most of the genres of Stage IA lasted in the subsequent stage, although the relative frequencies

have a slight decrease in most cases, except for Genre 22 which saw a slight increase. In the meantime, some new forms emerged from the last phase of Stage IIA (specifically Stage IIA.4), i.e., Genres 6, 11, 20, 23, 27. The shift of distribution pattern became more obvious in Stage IIIA (Graph 10), in which once popular Genres 1, 4, 9, 14 further declined, while new forms continued to grow.

Graph 10 The Stage IIIA Assemblage



Graph 11 The Stage IV Assemblage



The Stage IV assemblage is regarded as the most complex one, as defined by the greatest diversity of genres comprising all thirty-six genres identified in the Fortifications (Graph 11). Two genres - 11 and 12 (red slipped everted rim jars and zigzag incised jars) - occur predominantly in this stage, as do Genres 3, 8, 21 with the exception of sherds from unstratified contexts. It is interesting to note the predominant genres in Stage IV: 5, 7, 23, 24, 25, 29 and 35 which are apparently complementary to that of Stage IA-IIA. A remarkable rise in bowl forms (Genre 23, 24,

25) and miniature vessels (Genre 35) through time can be observed. Moreover, there is a sharp increase of unclassified sherds, either too shattered or distinctive, which clearly attest to the nature of Stage IV contexts with a mixture of post-abandonment collapse, waste and debris. A few genres appear to be common in both Stage IIA and IV, including everted rim jars (Genre 10), flattened rim elongated jars (Genre 19) and rilled rim elongated jars (Genre 22).

To summarise, notwithstanding the relatively small sample size, some patterns with regard to chronology may be outlined here.

Stage IA saw a domination of painted collared rim jars of various kinds (Genre 1, 4, 9, 14) of which the comparative frequencies clearly declined through time. The same pattern can be observed at Koi-Krylgan-kala from the “lower horizon” to the “middle and top horizons”. The transition from Stage IA to IIA seems to be smooth without many significant changes, although if we could consider the “siege-related” phase (Stage IIA.4) separately, then some transitional features appear to show from this earliest “post-siege” stage (Stage IIA.4), exemplified by the emergence of several new genres, i.e., Genre 6, 11, 20, 23, 27 and 28.

A major shift of predominant genres can be observed in Stages IIIA-IV, when several new forms appeared and some replaced the previously popular ones in early stages. Along with the decline of Genres 1, 4, 14, 18, 33 and 34, there are several new genres emerging, i.e., Genres 3, 8, 11, 12 and 21, among which Genre 3 (storage jars with inverted rims) found the closest parallels in Kunya-uaz (Vorob'eva 1959: fig.32/24, ascribed to the early “Kushan” period by the author; also *ib.* fig. 35/7,8 from the late “Kushan” period) and Toprak-kala (Nerazik and Rapoport 1981: fig. 39/36, 37 from the “Horizon I”; *ib.* fig.44/10 from the “Horizon II”; also Rapoport and Nerazik 1984: fig. 94/53 from the first horizon). Genre 12 (jars with zigzag incised patterns) is analogous to wares from the “middle horizon” at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.10). The assemblage of Stage IV in general makes a complement to that of Stages IA and IIA. Some rare forms of the early stages became relatively common in Stage IV, i.e., Genres 5, 6, 20 and 35. Notably, Genre 6 and 20.³⁷⁶ both found analogies from the “Horizon I” at Toprak-kala (Nerazik and Rapoport 1981: fig.39, 40). Vessels of these genres represent the new trend observed in early Antique III period assemblages. In the meanwhile, several forms remain common through time, including everted rim jars (Genre 10), flattened rim elongated jars (Genre 19) and rilled rim elongated jars (Genre 22).

Ceramics from Stage IA and early Stage IIA in the Fortifications (before the “siege”), i.e., painted jars, lion's head handle, pilgrim flasks, can be ascribed to the Antique II period of Chorasmia, in parallel with Koi-Krylgan-kala “lower horizon”. The subsequent “siege-related” phase (Stage

³⁷⁶ A comparable specimen to the externally bevelled rim form was also attested in the “Middle Horizon” of Koi-Krylgan-kala, Tolstov and Vainberg 1967: tab.9/9.

IIA.4), despite representing a short event, has already shown transitional features with the emergence of several new genres, among which the appearance of the “incense burner” in particular seems to be contemporaneous with Koi-Krylgan-kala “middle horizon”. If we consider the “siege” as a turning point from which the assemblage gradually slid into a new phase, then Stage IIIA can be dated to the early Antique III period.

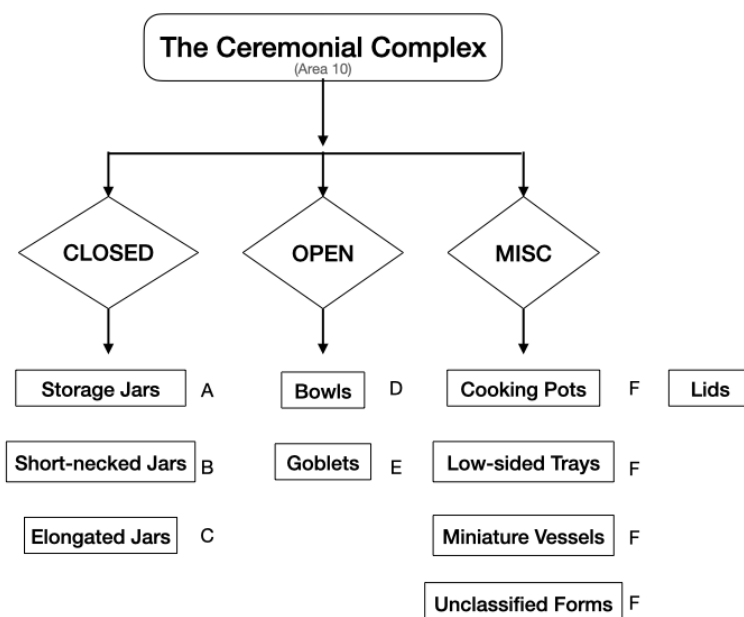
6.2 The Ceremonial Complex (Area 10)

The assemblage of Area 10 comprises a relatively small collection of ceramics recovered from the Central Building (A10 04) and exterior constructions of the Ceremonial Complex. Compared to the assemblage attested in the Fortifications (*supra*), it is an essentially more homogeneous one characterised by the predominant frequency of storage jars (*khoul/khoumchi*, Table 17). Given the limited sample size, each diagnostic sherd has been analysed under the system of main clusters (A to F, as illustrated in Table 18) without further division of genres.

Table 17 Frequency of occurrence: Area 10 Assemblage

Form/Type	Count	%
<i>Storage jars</i>	85	22.67%
<i>Short-necked jars</i>	22	5.87%
<i>Elongated jars</i>	46	12.27%
<i>Bowls</i>	34	9.07%
<i>Goblets</i>	30	8.00%
<i>Low-sided Trays</i>	10	2.67%
<i>Cooking pots</i>	27	7.20%
<i>Unclassified Forms</i>	12	3.20%
<i>Bases</i>	66	17.60%
<i>Handles</i>	2	0.53%
<i>Body Sherds</i>	41	10.93%
<i>Total</i>	375	100.00%

Table 18 Classification of the Area 10 assemblage



Although three construction stages (Stage IB-III B), as well as a mutual post-abandonment stage (Stage IV) were identified in this area, the distribution of artefacts is extremely uneven, as presented in Table 19. The majority of diagnostic sherds was found in the post-abandonment stage, while the early construction stages (Stage IB & IIB) saw a scarcity of ceramics. Moreover, it is interesting to note a considerable quantity of potentially early pottery from the post-abandonment stage of this area, especially from the Central Building (10 04) which had undergone looting and disturbance immediately after the final abandonment of the site, creating a mixture of artefacts from several chronological phases. Consequently, Stage IV of the Ceremonial Complex needs to be studied separately here.

Table 19 The distribution of pottery forms according to stages (Area 10)

Form/Type	Stage IB	Stage IIB	Stage III B	Stage IV	Not Phased	Total	Note
<i>Storage jars</i>	2	4	28	47	4	85	II/III B*2. ³⁷⁷
<i>Short-necked jars</i>			5	16	1	22	
<i>Elongated jars</i>	4	3	11	27	1	46	I/IIB*1
<i>Bowls</i>	2	3	5	22	2	34	I/IIB*1
<i>Goblets</i>	1	3	3	21	2	30	I/IIB*1
<i>Low-sided Trays</i>	1	1	3	5		10	

³⁷⁷ Examples potentially belonging to two different phases have been ascribed to the later one here, e.g., Stage I/IIB to Stage IIB, Stage II/III B to Stage III B.

<i>Cooking pots</i>			9	17	1	27	
<i>Unclassified</i>		2	4	5	1	12	II/IIIB*1;
<i>Forms</i>							I/IIIB*1
<i>Bases</i>	4	5	21	30	6	66	I/IIIB*3
<i>Handles</i>				2		2	
<i>Decorated Body</i>	2	5	12	20	2	41	I/IIIB*2;
<i>Sherds</i>							II/IIIB*2
<i>Total</i>	16	26	101	212	20	375	

6.21 A. Storage Jars

Corresponding to Genre Cluster A in the Fortifications, the generic class consists of large/medium sized storage jars of four major types—A1, A2, A3, A4—in which further subdivisions in term of rim morphology may be made. Three complete vessels have been recovered from this area (Fig. 87), representing the large-sized painted jars with collared rims. Two of them are characterised by collared rims, short neck, one or two ridges under the neck and convex bases—0678 is a more closed form with a pear-shaped body; 0677 is relatively open with a conical shaped body. The other one (0676), although painted on the body in the pattern of “spirals”, appears to be closer to the appearance of plain large storage jars characterised by a squared collared rim, short neck without ridges and a flat base.

A1. Large painted storage jars (Fig. 83): Vessels are defined by rounded collared rims, short neck, rounded shoulder decorated with a ridge or ledge and convex bases. Rim forms range in rounded upright, rounded slightly in-curved, slightly out-curved and squared ones. Some are internally recessed (e.g., 0615, 0618, 0619), possibly in parallel with an example from Kunya-uaz (Vorob’eva 1959: fig.35/8). Most examples have painted decorations on the rim, in the pattern of vertical (in one or several belts around the rim) or horizontal (on top of the rim) bands, accompanied with red painting of a “spiral” pattern on the shoulder or lower body (e.g., 0621, 0622 and 0678). Rim diameters range from 32 to 67.5 cm. Fabrics predominantly fall into the red painted (Fb. J) and white slipped painted (Fb. A) categories, and a few into white slipped, red and red slipped. Vessels of this genre roughly correspond to Genre 1 of the Fortifications.

A2. Large plain storage jars (Fig. 84): The generic class is distinguished from A1 mainly by its austere appearance without painted decoration (or with paint limited to the lower body which is missing in most cases) or pronounced ridges/ledges on the shoulder. Most examples have rounded

or squared collared, slightly in-curved rims, while a few may be singled out as being a more open form defined by a straight upright rim, sloping shoulder and conical shaped body (0676, also 0644, 0647). Vessels of this genre are typically of light red or yellow fabrics coated with whitish slips (Fb. G, H). Only one complete vessel with painted decoration was found (Fig. 88), although the patterns are already much simpler compared with A1 and are confined only to the lower body. Rim diameters range from 30 to 70 cm.

A3. Large plain storage jars with inverted rims (Fig. 85): Vessels are defined by rounded inverted rim and sloping shoulder, austere without any kind of decoration. Fabrics predominantly fall into the “white slipped” category, with medium to coarse finish—many have pronounced ribbing on the exterior surface. One noteworthy example is 0660 which bears an incised mark under the rim (0660).

A4. Medium-sized storage jars with collared rims (Fig. 86): The category consists of medium-sized jars of various kinds. Rim diameters are mostly confined within the range between 20 and 30 cm, except for 0675 which has an exceptionally large rim diameter around 60 cm (this specimen, with a nearly straight rim and a large rim diameter, could have belonged to large bowl forms, i.e., Genre 28, D6). Rim forms presented in the category vary a lot: including rounded slightly out-curved (0665, 0666), rounded upright (0667,0668,0670,0671,0675), pointed upright (0669,0672) and squared rims (0673). The rim profile of 0665 and 0666 is closely analogous to 0063, 0065 and 0067 of Genre 5. In addition to rim sherds, a body sherd (0674) identified as the body of a squat shaped storage jar is also included in the category. Fabrics either belong to the “white slipped” (Fb. G) or red fabrics groups (Fb. H, J). Most specimens can be compared with Genre 4 of the Fortifications, while a few may be linked with Genre 5 (0665,0666,0673).

In general, storage jars account for a large proportion of the diagnostic sherds (31.95% of the total 266 diagnostic vessels, with the exception of unclassified bases, handles and body sherds), although the distribution of forms according to stages is extremely uneven (as presented in Table 20) —Stage I and II B together have only six examples, while Stage III B and IV see the majority of samples. Notwithstanding the limited sample size of early stages, a certain pattern can still be witnessed here. Despite the rise through time of all four types, A2 and A3 are completely missing in Stage IB, while A3 is mostly restricted to Stage IV. The same pattern of distribution is observed in Genre 3 from the Fortifications. In contrast, painted storage jars see the reverse through time, although given the fact that many large pottery sherds were originally used in constructions, it is plausible to have some potentially early sherds among the post-abandonment collapse.

Table 20 Frequencies according to stages: storage jars

Form/Type	Stage IB	Stage IIB	Stage IIIB	Stage IV	Not Phased	Total	%	Note
<i>A1</i>	1	1	16	18		36	42.35%	II/IIIB*1
<i>A2</i>		3	4	8	1	16	18.82%	II/IIIB*1
<i>A3</i>			1	5	2	8	9.41%	
<i>A4</i>	1			9	1	11	12.94%	
<i>Bases</i>			3	2		5	5.88%	
<i>Body</i>			4	5		9	10.59%	
<i>Sherds</i>								
<i>Total</i>	2	4	28	47	4	85	100.00%	

6.22 B. Miscellaneous Short-necked Jars

The category comprises jars of various kinds represented by four basic rim forms (B1-B4) as follows.

B1. Collared rim jars (Fig.89): Only two specimens have been recovered in this area. Both are defined by sub-triangular collared rims, short neck and globular body, and are coated with red slip on the exterior surfaces.

B2. Short-necked jars (Fig.89): Vessels are characterised by short-necked straight or slightly in-turned rims and globular body. Fabrics vary from “buff” (Fb. K), “red slipped” (Fb. D) with or without painted decorations. In general, examples are comparable to Genre 8 of the Fortifications. Buff wares in particular, although lacking a restorable specimen, seem to resemble the globular short-necked jars with two handles from the “top horizon” of Koi-Krylgan-kala (Fig.26/13, 120, 121). Possible analogies can also be found at Toprak-kala “horizons I and II” (Fig.27/left, 9, 21, 22; Fig.28/left, 12, 14, 16).

B3. Everted/flared rim jars (Fig.89): The category covers a small collection of jars (n=4) with everted or flared rims. As a broad generic class, the rim profile of each specimen slightly differs from the others—including squared, rounded and groove-decorated rims. Most examples have “red slipped” fabrics, except for one coated with whitish slip. The red slipped ones are comparable to Genre 11 of the Fortifications.

B4. Flattened/internally bevelled rim jars (Fig.89): Examples can be divided into several sub-types in terms of rim profiles. Some with rounded internally bevelled rims and pronounced shoulder decorated with one or several ridges (0700,0702,0703) find comparable specimens at Kalaly-gyr 2 (Vainberg 2004: fig.3/9,10). 0698 and 0699 are also characterised by ridged shoulder but with flattened rims, in parallel with examples from Dzhanbas-kala and Kunya-uaz (Vorob’eva 1959: fig.27/16,17). Fabrics mostly fall into the “red slipped” group. Some examples are comparable to Genre 13 of the Fortifications.

Jar forms other than storage jars are relatively rare in this area, represented by only 21 vessels, all confined to the last two chronological stages. Many examples find parallels in genres (e.g., Genres 8, 11) prevailing in the universal Stage IV of the site (Table 21).

Table 21 Frequencies according to stages: miscellaneous jar forms

Form/Type	Stage IB	Stage IIB	Stage IIIB	Stage IV	Not Phased	Total	%
<i>B1</i>			1	1		2	9.52%
<i>B2</i>			2	6	1	9	42.86%
<i>B3</i>				4		4	19.05%
<i>B4</i>			2	4		6	28.57%
<i>Total</i>			5	15	1	21	100.00%

6.23 C. Elongated Jars

The amalgamation comprises jars with a narrowed neck and elongated shape, with or without handles, corresponding to the Genre Cluster C of the Fortifications. In terms of preserved rim sherds, several sub-types are identified in this group (C1-6). Apart from rim sherds, a small collection (n=9) of diagnostic body sherds—shoulder decorated with ridges, and handles—loop or strap, are also included in the category.

C1. Collared rim elongated jars (Fig.90): Rim forms have several variants: pointed, rounded or squared. Some are slightly recessed on the interior (e.g., 0707-0710). 0707 with a squared, slightly internally recessed rim is closely associated with Genre 16 (0186). Fabrics predominantly fall into the “red slipped” (Fb. D) group, except for a few with white slip and painted decorations. Most specimens are comparable with Genre 15, and two painted wares can be compared with Genre 14.

C2. Elongated jars with flared overhanging rims (Fig.90): Only three preserved rim sherds were recognised, each with a different fabric. Examples are mostly comparable with Genre 18 of the Fortifications.

C3. Elongated jars with flared rilled rims (Fig.90): Most examples have a collared rounded/pointed rim with rilled surface. 0719 is slightly different, characterized by an oblique rounded rim (comparable with 0237), and 0727 can also be singled out with a squared externally bevelled rim. Fabrics mostly fall into either “red slipped” or “white slipped” groups, except for one belonging to “red painted” (Fb. J). Vessels find parallels in Genre 22 of the Fortifications, and Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.2,9).

C4. Elongated jars with externally bevelled rims (Fig.91): All specimens are red slipped wares. One has a loop handle attached under the rim. Vessels are roughly comparable with Genre 20 of the Fortifications, in parallel with ceramics of Toprak-kala (Fig.27/right, 28/right).

C5. Flattened rim elongated jars (Fig.91): Rim shapes vary from squared flattened, slightly bevelled, to rounded rolled ones. One example has a loop handle. All specimens are coated with red slip and some are burnished on the exterior. Many are analogous to Genre 19 of the Fortifications.

C6. Flared rim elongated jars (Fig.91): Rim shapes are simply rounded or squared. Two examples are red slipped wares while the other is coated with greenish white slip (Fb. N). Close analogies to the rim form can be found in the “middle & upper horizons” of Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9)

Elongated jars have a relatively moderate frequency in the assemblage of this area (46 vessels in total including body sherds and handles, accounting for 17.29% of the total number), while most samples fall into Stage IV (Table 22). Among all the rim variants, flared rilled and simple collared rims (C3, C1) rank first and second respectively. Other variants remain relatively rare in all stages, except for externally bevelled rim jars (C4) which were predominantly preferred in Stage IV (*cf.* Genre 18 of the Fortifications).

Table 22 Frequencies according to stages: elongated jars

Form/Type	Stage IB	Stage IIB	Stage IIIB	Stage IV	Not Phased	Total	%	Note
<i>C1</i>		1	3	6		10	21.74%	I/IIB*1

<i>C2</i>		1		2		3	6.52%
<i>C3</i>	1		4	6		11	23.91%
<i>C4</i>			1	4		5	10.87%
<i>C5</i>	2		2	1		5	10.87%
<i>C6</i>	1			2		3	6.52%
<i>Body sherds</i>				5		5	10.87%
<i>Handles</i>		1	1	1	1	4	8.70%
<i>Total</i>	4	3	11	27	1	46	100.00%

6.24 D. Various Bowls

The category consists of bowls of various kinds, breaking down into five sub-types by rim profile, basic form and size.

D1. Ring base small bowls (Fig.92): Vessels are defined by rounded/pointed rims usually decorated with one or two grooves, globular bodies and ring bases. Two specimens are slightly different from the others with in-curved rims (0749,0750) which are similar to 0299 and 0300 of Genre 29. Most examples belong to finely manufactured red slipped wares with good finish. Some are more decorative with several grooves on the body.

D2. Deep bowls with squared or rounded rims, oblique and thickened wall (Fig.92): The sub-type is an aggregation of loosely associated bowl forms with thickened oblique body. Two have grooves under the rim.

D3. Deep bowls with simple rounded rims (Fig.92): The sub-type is represented by a small collection of sherds. Rim shapes are simply rounded or slightly in-curved.

D4. Everted rim bowls (Fig.92): Vessels are similar to Genre 23 of the Fortifications with everted squared rims and globular body.

D5. Miscellaneous medium-sized bowls (Fig.93): Vessels are distinguished from the former sub-types mainly by larger rim diameters ranging from 19 to 36 cm and rounded shallow bodies. A variety of rim forms is presented in this group. 0768 is especially noteworthy with a thickened “T-shaped” rim and body decorated with several grooves. This form has a rare frequency in Chorasmian

pottery, although the rim profile may be loosely associated with specimens of Kalaly-gyr 2 (Vainberg 2004: fig.3/18:11). It may also belong to the same type as 0302 of Genre 30. 0770 has an in-curved slightly bevelled rim analogous to Genre 30.

D6. Large-sized bowls/basins (Fig.93): The category is defined by large-sized heavy bowls (basins) with a rounded or squared collared rim, ridged body and flat base, roughly corresponding to Genre 28 of the Fortifications. Rim diameters range from 38 to 78 cm. Some have simple painted decorations on the interior or exterior surfaces.

Bowls have a relatively moderate frequency of occurrence in the Area 10 assemblage (11.28%), and yet again, examples are mostly confined to the post-abandonment stage (Table 23). It is also worth noting the relatively high frequency of small decorative bowls with ring bases (D1), a rare form almost missing in the Fortifications.

Table 23 Frequencies according to stages: various bowls

Form/Type	Stage IB	Stage IIB	Stage IIIB	Stage IV	Not Phased	Total	%	Note
<i>D1</i>	2	1	1	8	1	13	37.14%	I/IIB*1
<i>D2</i>			1	3		4	11.43%	
<i>D3</i>		1	1	1		3	8.57%	
<i>D4</i>		1		3		4	11.43%	
<i>D5</i>			1	5		6	17.14%	
<i>D6</i>			1	3	1	5	14.29%	
<i>Total</i>	2	3	5	23	2	35	100.00%	

6.25 E. Goblets

The category contains rims, body sherds and bases belonging to elaborate drinking vessels, many of which were initially excavated from later fills at the Central Building and are preserved with minimal sherds. Examples typically have thin walls and above average manufacture. Most specimens are coated with red slip on both sides, while some are additionally polished. Two sub-types can be divided according to rim profiles as follows.

E1. Goblets on pedestal bases (Fig.94): Vessels are characterised by pointed or rounded thinned rims, thin wall, flaring bodies usually decorated with one or two grooves/ridges and short pedestal

bases (probably). The basic form is the same as Genre 32 in the Fortifications. Parallels are attested at Koi-Krylgan-kala “lower and middle horizons”, Kalaly-gyr 1 and 2.

E2. Goblets with an out-curved or S-shaped rim (Fig.94): The form is analogous to Genre 31 of the Fortifications defined by a slightly out-curved rim, flaring wall and small flat or slightly concave base (probably). Some are more decorative with several ridges on the body. Some examples with a large rim diameter could belong to bowl forms (e.g., 0797, 0805). Close parallels are attested at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.3,9), Kalaly-gyr 2 (Vainberg 2004: fig.3/15; 3/16:16; 3/17), and Elkharas (Levina 2001: fig.71/10,13).

Goblets have a relatively moderate frequency of occurrence in the assemblage. Forms with pedestal bases were more preferred than the other (see Table 24). Despite the aforementioned close analogies in early forms from Koi-Krylgan-kala and Kalaly-gyr 1 and 2, examples predominantly fall into the last chronological stage of the site, and thus should be considered with caution regarding the ceramic sequence and chronology of the site.

Table 24 Frequencies according to stages: goblets

Form/Type	Stage	Stage	Stage	Stage	Not	Total	%	Note
	IB	IIB	IIIB	IV	Phased			
<i>E1</i>	1	1	2	11	1	16	53.33%	
<i>E2</i>		2	1	7	1	11	36.67%	I/IIB*1
<i>Bases</i>				3		3	10.00%	
<i>Total</i>	1	3	3	21	2	30	100.00%	

6.26 F. Miscellaneous Forms

The category comprises a variety of pottery forms, i.e., low-sided trays, cooking pots, miniature vessels and lids etc. (Table 25), most of which have a relatively low frequency of occurrence, except for cooking pots with a moderate frequency in the diagnostic sherds (10.15%).

It is interesting to note the occurrence of low-sided trays— a rare form barely seen in other areas of the site, appearing in sets in the Central Building (A10 04). A set of four (Fig. 96/0828-0831) was found in the silt of the south-western tower, and are all severely blackened and fragile. Another set of three (Fig. 96/0834-0836) initially came from floor 2 of the interior building, remaining well-preserved with red slip covering the exterior surfaces. Apart from the sets of low-sided trays found in the Central Building, two specimens of larger size, apparently handmade with

coarse fabrics, were found in the exterior area of the Ceremonial Complex. The latter can be clearly differentiated from the former two sets in fabrics, basic forms and probably functions. The blackened trays could be used in certain fire cultic ceremonial procedures, although this remains highly speculative without further archaeological evidence.

Cooking pots (Fig.95), as always, remain simple forms, and are handmade with medium to coarse fabrics—the majority goes to “coarse red” and “coarse grey” (Fb. O, B). Most jar forms are characterized by simple everted rounded or squared rims and rounded body, while one specimen could have a handle attached to the rim (0820). Some examples have a thickened rounded rim and neck with fingerprint marks clearly left by hand-shaping (0814). A similar treatment was found on specimens from “Horizon I” at Toprak-kala (Nerazik and Rapoport 1981: fig.39/11,12). A few open forms are also included, with simple rounded or slightly everted rims.

Some rare forms (Fig.97), i.e., miniature vessels, lids, are represented by only two or three specimens and are briefly introduced here. A small miniature bowl (0837) is remarkable with incised decorations on the surface of the part extended from the rim (possibly handle). 0840 is a one-handed cup with pointed rim and thin wall, analogies to which can be found at Kalaly-gyr 2 (Vainberg 2004: fig.3/17: 9,10). 0843 is a distinctive specimen of a large storage jar, defined by a slightly flared collared rim and relatively long neck—a comparable specimen was found in the “Horizon I” at Toprak-kala (Fig.27/left, 31, 32).

Moreover, a remarkable specimen (0842) was found during surface clearance of Area 10, with the appearance resembling the classic “Achaemenid bowl”³⁷⁸. Comparable specimens were also attested at Ai-khanoum (Gardin 1973: pl.133/o3-5). Unfortunately, since the sherd was recovered in an early excavation year, key information on its fabric is missing, making it hard to tell its exact origin—whether imported or locally made imitating certain foreign forms. Another example worthy of remark is 0847 with a peculiar cylindrical body with a pronounced projection. A possible analogy can be found at Ai-khanoum, although the rim profile is slightly different (*ib.*: pl.139/117).

Table 25 Frequencies according to stages: miscellaneous forms

Form/Type	Stage	Stage	Stage	Stage	Not	Total	%	Note
	IB	IIB	IIIB	IV	Phased			
<i>Cooking pots</i>			9	17	1	27	55.10%	
<i>Low-sided trays</i>	1	1	3	5		10	20.41%	

³⁷⁸ A drinking vessel form characterized by a flared rim, a pronounced ridge/ledge around the neck and rounded body, see detailed discussions in *supra* II.3.

<i>Unclassified</i>	2	4	5	1	12	24.49%	I/IIB*1; II/IIIB*1
<i>Total</i>	1	3	16	27	2	49	100.00%

6.27 Other Diagnostic Sherds

Apart from the main body of diagnostic sherds, there is a large number of ungrouped sherds (n=109), i.e., bases, handles and decorative body sherds, accounting for 29.07% of the total number. The selection criteria for body sherds remain the same as that for the Fortifications: body sherds bearing significant decorative features, including painted, incised patterns, ridges, grooves, marks etc., and a few red slipped sherds with remarkable vertical burnishing pattern on the exterior surface. A few examples have uncommon decorations, such as nipple-like decoration (0886), and jar shoulders decorated with plastic protrusions drilled in the middle (0864). The latter type is only attested in Stage IV. In addition, a body sherd with rare black fabric, black slip highly polished on the exterior, the same as the one from the “long trench” of Area 09 (0481, Stage IA), was found in the Stage IIB context of the Central Building. Both seem to be imported in the early stage of the site (most likely prior to the “siege”) from the same origin.

Bases are mostly flat or convex without significant features, as partially illustrated in Figure 101.³⁷⁹ A few have vertical burnishing on the exterior (0902, 0904, 0908). One example (0905) has impressed decoration near the bottom. Notably, there is one pointed foot (0891), possibly belonging to a tripod, recovered from the Stage IV context. Parallels to this rare form can be found at the “High Palace” of Toprak-kala (Rapoport and Nerazik 1984: fig.94/48).

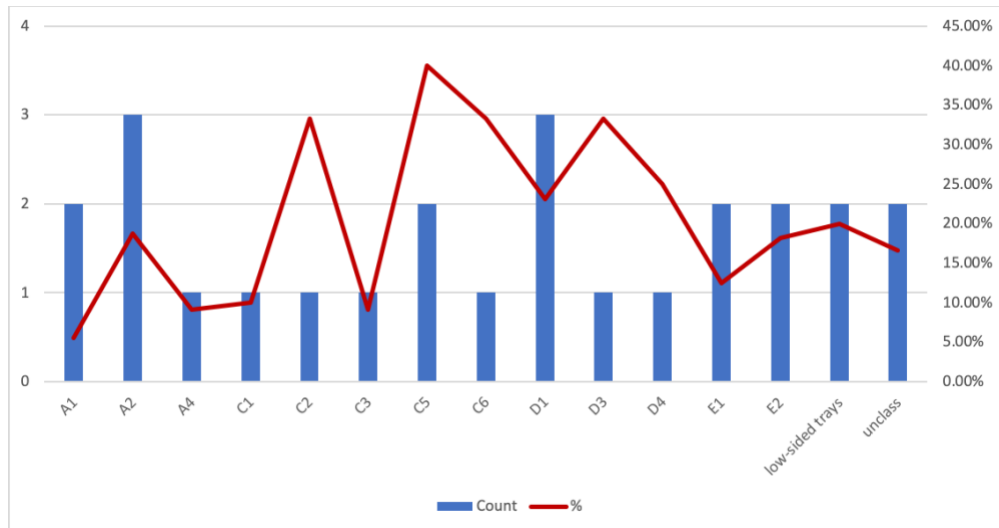
6.28 Summary

The pottery assemblage of the Ceremonial Complex (Area 10) is distinct from that of the Fortifications in the relatively limited ceramic forms, types and smaller sample size. The peculiarity of the assemblage lies also in the fact that examples predominantly fall into late stages, especially the post-abandonment Stage IV, which is the least valuable from a chronological perspective. Nevertheless, the assemblage consists of a rare collection of vessel types, such as the “Achaemenid-style tulip bowl” (Fig.97: 0842), a set of low-sided trays (Fig.96) and decorative small bowls (Fig.92: D1). Given the nature of the Ceremonial Complex as one of the key monumental clusters in which important ceremonies held by the hierarchy, religious and social elites took place, artefacts from this area were initially expected to represent a higher level of manufacture or specific features in

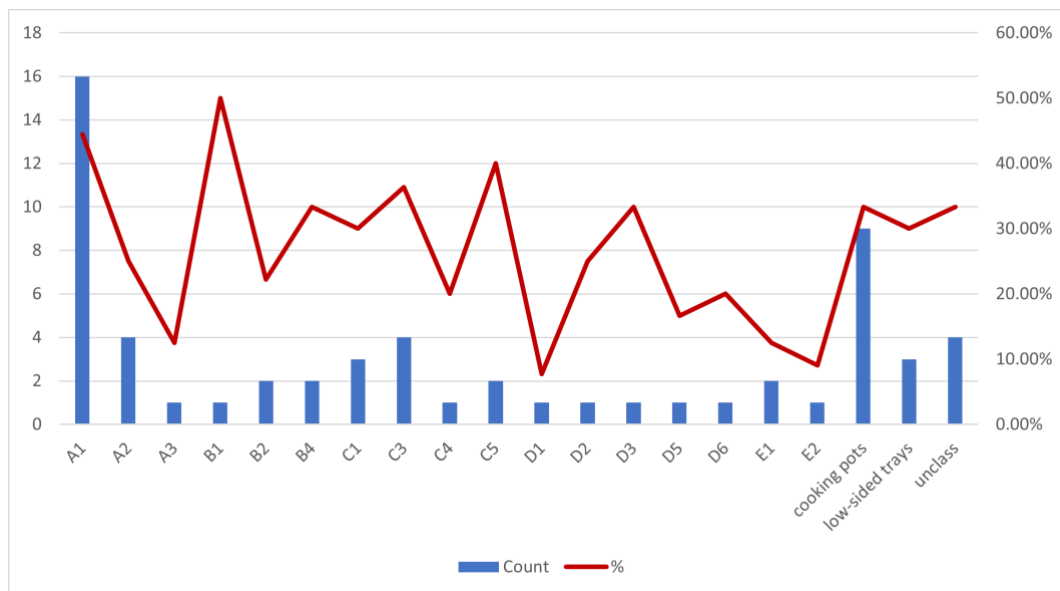
³⁷⁹ Many plain bases have not been drawn and thus are only listed in the pottery catalogue with brief information.

functionality. The former is partially testified by the evident decrease in cooking pots and coarse wares, and the slight increase in fine wares (e.g., D1 bowls, goblets). The latter, however, did not quite bear out, except for the set of heavily scorched low-sided trays which may suggest usage related to a fire cult³⁸⁰.

Graph 12 The Stage I & IIB assemblage

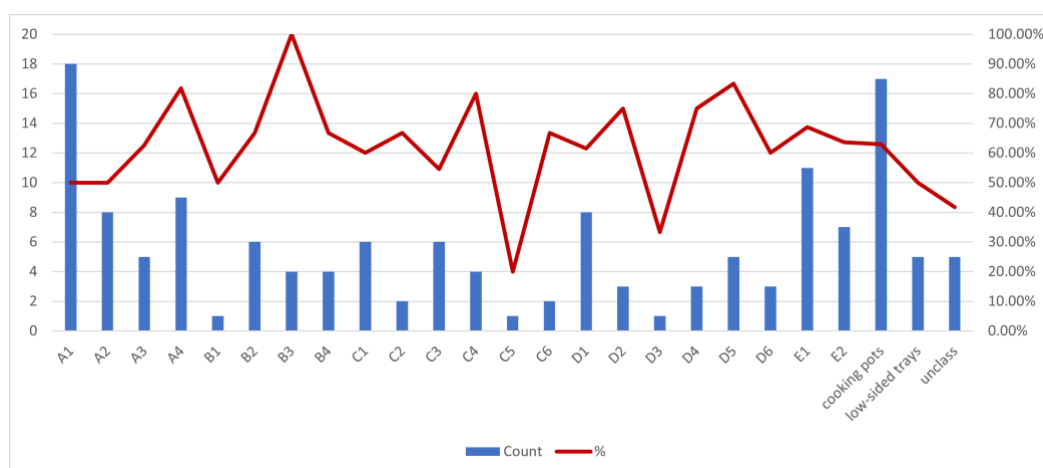


Graph 13 The Stage IIIB assemblage



³⁸⁰ This is highly speculative, since we do find a series of fire features near the Central Building and southern gateway, hinting at practices of a fire cult.

Graph 14 The Stage IV assemblage (Area 10)



As presented in Graph 12, only a small collection of sherds was recovered from early stages (I & IIB), and forms are also limited to fifteen among which many are merely represented by one or two sherds. When it comes to Stage IIIB (Graph 13), most of the existing forms have a slight increase, except for small decorative bowls (D1) which slightly declined. Apart from the emergence of several new forms, i.e., A3, B1, B2, B4, C4, D2, D5, D6, the relatively high frequencies of painted storage jars (A1), rilled rim elongated jars (C3) and cooking pots is noteworthy. Stage IV, as illustrated in Graph 14, comprises a full version of ceramic forms attested at this area, and most have a prevailing frequency of occurrence (>50%) than other earlier stages, with the exception of C5 and D3. The Stage IV assemblage not only accounts for the largest proportion of the total analysed diagnostics (56.53%), but also suggests a greater complexity regarding chronology and typology. Some examples find parallels in Stage I & IIA assemblage, e.g., A1 and A4, while some could be common in Stage IV across the site, e.g., A3, C4. Certainly, the Stage IV assemblage cannot be recognised as purely late antique or post-antique with the presence of potentially early forms. As for the Stage IV of Area 10, it needs to be considered separately as it is composed of complex contexts—including superimposed fills, early collapse etc. which may contain many early artefacts.

In general, the Area 10 assemblage is a peculiar one in regard to chronological consideration, since the majority of diagnostic sherds were recovered from the last chronological phase while early layers were almost kept clean. The uneven distribution of samples according to stages makes it barely possible to draw a line between phases, although in comparison with the assemblage of the Fortifications, some mutual pattern can still be observed. For instance, some specific forms only started to emerge from relatively late stages (Stage IIIA & B, Stage IV), i.e., large plain storage jars with inverted rims (Genre 3, A3), red slipped everted rim jars (Genre 11, B3, both occur exclusively in Stage IV) and elongated jars with externally bevelled rims (Genre 20, C4), in parallel with Kunyauz and the early layers of Toprak-kala. It is also interesting to note the presence of more fine wares

in the Area 10 assemblage, especially compared to the Fortification related assemblage, exemplified by small elaborate bowls (D1) and goblets (E1, E2)—the former is almost missing at the Fortifications. In contrast, cooking wares have a comparatively low frequency of occurrence (7.20%) and were only found in later stages (Stages IIIB and IV) in which ephemeral occupations could have occurred in this area.

6.3 Diagnostic sherds from other Areas (Areas 03, 05, 07, 08)

Apart from the Fortifications and Ceremonial Complex which can be examined with secure stratigraphy consistent with phasing, there are a large proportion of diagnostic sherds recovered from other areas, either unstratified or cannot be fitted into the existing phasing of the site. Moreover, absolute radiocarbon dates from these areas are also scant, making it almost impossible to date the ceramic materials. Therefore, diagnostics will be analysed here merely based on their morphology and in some cases, significant decorations. In the meantime, reference is to be made to previous analyses of ceramics from the Fortifications and Ceremonial Complex to process the correlation between areas.

The criteria for classification basically remain the same as previous analyses (in 7.1; 7.2). The major divisions of closed jar include: A. large & medium-sized storage jars (*khoun* and *khounchi*); B. various short-necked jars; C. elongated jars. Open forms are represented by two main divisions: D. bowls of various kinds and E. elaborate drinking vessels/goblets. Other diagnostic forms, i.e., pilgrim flasks, plates, lids, as being small in number, are included within the “Miscellaneous” category (F) in addition to cooking pots and a few unclassified examples.

6.31 A. Large & medium-sized storage jars (Figs.102-103)

The cluster comprises one of the most common jar types in Antique Chorasmia—storage jars, referred to as “*khoun*” or “*khounchi*” in Russian literature. This kind of vessel is most typical of large volume ideal for bulk storage. From finds *in situ*, large-sized storage jars were usually placed directly on the floor or partly set in the ground when with a convex base. Four major sub-types can be divided according to size and rim morphology. Large-sized storage jars (Types 1-3) usually have a rim diameter larger than 40 cm (except for a few inverted forms) and thick walls (180-300 mm), while medium-sized jars (Type 4) are smaller in rim diameters (usually between 20 and 40 cm) and have thinner walls (100-200 mm). In addition to rim sherds, some bases, mostly convex or flat, and painted body sherds are also diagnostic of large storage jars. The cluster accounts for 13.42% of the

total analysed sherds (n=298, with the exception of miscellaneous body sherds, bases and handles etc.). Frequencies of types are presented in Table 26.

Table 26 Frequency of types for storage jars

Type	Count	%
<i>Type 1</i>	13	32.50%
<i>Type 2</i>	5	12.50%
<i>Type 3</i>	5	12.50%
<i>Type 4</i>	6	15.00%
<i>Body sherds</i>	5	12.50%
<i>Bases</i>	6	15.00%
<i>Total</i>	40	100%

Types 1 and 2 are both common forms characterised by collared rounded rim, short neck and shoulder decorated with a ridge or ledge whether pronounced or not. The major distinction is with or without painted decorations. Moreover, most examples of Type 2 have slightly in-curved rims and the ridge under the neck is usually less pronounced. It needs to be noted though that the distinction between Types 1 and 2 can blur sometimes, as preserved sherds are usually small and might not have been painted originally. Rim profile of Type 1 jars range in upright, rounded slightly in-curved and upright internally recessed ones—the last variant is analogous to a Stage IV specimen of Genre 1 storage jar (0010), as well as 0615, 0618 and 0619 at Area 10 (Stage IIIB). The closest analogy to this rim form was attested at Kunya-uaz. 0916 may be singled out with a slightly inverted, internally bevelled rim, resembling the appearance of some holemouth jars (e.g., 0979).

Type 3 jars are characterised by rounded inverted rim and sloping shoulder, plain without any kind of decoration. One example (0932) is distinguished from the others for a rilled inverted rim—this could belong to a later form of “Afrigid” period (see Nerazik 1959: fig.5/1). The others in general belong to the same vessel type of Genre 3 and A3, in parallel with specimens from Toprak-kala “horizons I and II” and Kunya-uaz.

Type 4 jars are medium-sized jars with collared rims, comparable to Genres 4 and 5 of the Fortifications and A4 of the Ceremonial Complex. All preserved sherds are too minimal to reconstruct the whole shape, and therefore were sorted into this broad category, although some specific examples may require special notes here. 0939 finds the closest analogy in Genre 6 of the Fortification, with a wide rilled collared rim coated with red slip. Moreover, 0942 is distinct from the others with a thickened slightly bevelled rim and elongated neck.

6.32 B. Short-necked/holemouth jars (Figs.104-105)

The class consists of a great variety of jar forms mainly defined by rim morphology, accounting for 14.43% of the total analysed sherds (Table 27).

Table 27 Frequency of types for short-necked jars

Type	Count	%
<i>Type 1</i>	9	20.93%
<i>Type 2</i>	8	18.60%
<i>Type 3</i>	6	13.95%
<i>Type 4</i>	3	6.98%
<i>Type 5</i>	6	13.95%
<i>Type 6</i>	5	11.63%
<i>Type 7</i>	4	9.30%
<i>Type 8</i>	2	4.65%
<i>Total</i>	43	100%

The most common jar form appears to be jars with collared rounded rims and short neck (Type 1). Although it is to be noted that each individual vessel is represented by slightly different rim morphology: flared, pointed and upright, among which 0945 with a nearly vertical rounded rim is especially noteworthy resembling the short-necked jars of Genre 8. Rim diameters range from 9 to 20 cm. Fabrics varies from “red slipped”, “whitish slipped” to “painted wares”. One specimen recovered from upper sand clearance at Area 03 (0948) is distinguished from the others by a “red fine” fabric, vertically burnished on the exterior surface.

Type 2 jar is the second frequently occurring form defined by a squared flattened rim, distinct short neck and globular body. Vessels are typical of “white slipped” fabrics with medium to coarse finish. Some examples are decorated with a row of incised diagonal patterns around the shoulder similar to Genre 12 jars of the Fortifications, close analogies to which were abundant in the “middle and upper horizons” of Koi-Krylgan-kala and also Ayaz-kala 3. 0952 could belong to a different sub-type with a flanged heavy rim.

As the most decorative jar type, vessels of Type 3 were separated out for abundant painted decorations (mostly in “vertical stripes” or “spots”) applied on the rim and shoulder. Most examples are painted on either bare or whitish slipped surface, except for one from the “upper sand” clearance at Area 03 (0962). Jars are defined by squared everted or flattened rims, short neck and shoulder usually with a pronounced ridge or ledge. Jar sizes vary with rim diameters ranging from 13 to 30 cm. Pre-firing holes are seen on the neck of many smaller samples, probably for the use of auxiliary

handles (string handles). Analogies have been found in the Fortifications (Genre 13) and Ceremonial Complex (B4), and abundantly at Kalaly-gyr 1 and 2, Koi-Krylgan-kala etc.

Type 4 jar with simple upright rounded rim is only represented by three examples, one of which is characterised by a peculiar cylindrical body (or could be drainage?) with no direct analogy found in Chorasmia. Similar rim forms were attested at the Ceremonial Complex (B2). Vessels of this type are usually plain buff or red wares with medium finish. The rim morphology alone seems to resemble some simple cooking wares (e.g., 1159). Comparable specimens were attested at the “middle and upper horizons” of Koi-Krylgan-kala, Ayaz-kala 3 and Toprak-kala.

It is interesting to note the Type 5 jar with a flattened or slightly bevelled wide rim, neckless or short-necked. The rim form is similar to some of the Type 3 jars (with everted flattened rims) and thus has been sorted to the same sub-type in previous studies, e.g., 0137 and 0141 of Genre 13, 0698 and 0702 of B4. It turns out that examples with this rim form are usually plain without many painted decorations (or with very little red paint on the rim). Vessels of Type 5 predominantly fall into the “white slipped” and “buff” wares category. Sizes vary with rim diameters ranging from 11.3 to 38 cm. The closest analogy to the large-sized form can be found at Kunya-uaz (Vorob’eva 1959: fig.32/28), and smaller sized ones at Kuanya-uaz and Dzhanbas-kala (Vorob’eva 1959: fig.27/16-18). Some examples have pre-firing holes on the neck.

Type 6 jars are defined by rounded everted rims, usually coated with red slip, corresponding to Genre 11 of the Fortifications and some examples of B3 jars. Most examples came from the surface clearance at Area 03 which should belong to the universal post-abandonment stage of the site (Stage IV). No restorable specimen has been recovered, although the red slipped examples may be closely related to some squat-shaped jars with wide open mouth attested mainly at Chorasmian sites of Antique III period, e.g., the “middle and upper horizons” of Koi-Krylgan-kala, Kunya-uaz and Toprak-kala “horizons I and II”.

Type 7 and Type 8 both have comparatively low frequencies of occurrence. The former covers a broad range of jars with projected rims. Each individual is slightly different. Some could belong to large open forms (*cf.* 0771 from Area 10). Type 8 is only represented by two examples with rounded inverted rims. This form is analogous to Genre 7 of the Fortifications.

6.33 C. Elongated jars (Figs.106-107)

The elongated jar is one of the most common forms, accounting for 21.48% of the total analysed sherds. Six sub-types (Table 28) can be divided according to rim forms, in addition to strap handles and body sherds diagnostic of shoulders of elongated jars (characterised by several ridges).

Table 28 Frequency of types for elongated jars

Type	Count	%
<i>Type 1</i>	24	37.50%
<i>Type 2</i>	6	9.38%
<i>Type 3</i>	4	6.25%
<i>Type 4</i>	9	14.06%
<i>Type 5</i>	11	17.19%
<i>Type 6</i>	4	6.25%
<i>Handles</i>	4	6.25%
<i>Body Sherds</i>	2	3.13%
<i>Total</i>	64	100%

Collared rim elongated jars (Type 1) are the most preferred form, although it is hard to reconstruct the whole shape with merely minimal upper parts. Rim profile of each individual varies, from flared pointed, rounded to internally recessed. Fabrics mostly either belong to “red slipped” or “white slipped painted” categories. Notably, some red slipped wares have more decorative rim shapes with one or several grooves or ledges applied at the lower side of the rim, especially for specimens recovered from Area 08 the farmstead.

Type 2 and Type 3 jar both have a comparatively low frequencies of occurrence. The former is defined by pointed slightly overhanging rims, while the latter has a collared rilled rim. Both have direct analogies recovered from other areas (Genre 18, C2; Genre 22, C3). Fabrics predominantly fall into the “red slipped” category, except for a few painted wares and a specimen with “medium red” fabric.

Types 4, 5 and 6 could be closely related as one-handled elongated jars (i.e., jugs, pitchers) with different rim forms. Type 4 is characterised by flattened internally recessed rim, probably created for using with a lid. The closest parallel to them can be found at Kalaly-gyr 2 (Vainberg 2004: fig.3/23:14). Three examples (1014-1016) from the farmstead (Area 08) are particularly noteworthy with a mostly identical rim profile characterised by a pronounced flange on the turning point of the rim in transition to the inner surface and ridges on the neck—a parallel to this can be found in the Antique III assemblage of the Dzhanbas-kala settlement (Nerazik 1976: fig.13/18). In addition, 1021 could be closely related to 0738 (C6) from the Ceremonial Complex with similar rim profile. Type 5 is defined by simply squared or rounded flattened rim, corresponding to Genre 19 of the Fortifications. Type 6—elongated jars with flared or rolled rounded rims have a relatively low frequencies of occurrence, with limited parallels from the site (i.e., C6 of Area 10, 0206 and 0211 from the Fortifications). Some examples also have several ridges or ribs decorated on the neck.

Close parallels to this can be found in the “middle and upper horizons” of Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9/5-7). Fabrics for all three sub-types predominantly fall into the “red slipped” category, while some are externally burnished. Rim diameters range from 7 to 17 cm.

6.34 D. Bowls of various kinds (Figs.108-110)

The bowl form in general has a comparatively high frequency of occurrence (22.48%) of the total diagnostics. The class comprises a variety of bowl types which can be divided into six major types (Table 29) in terms of rim profile, body shape, size and fabrics. In addition, some disc, ring and small flat bases are also diagnostic of small bowl forms.

Table 29 Frequency of types for bowls

Type	Count	%
<i>Type 1</i>	10	14.93%
<i>Type 2</i>	19	28.36%
<i>Type 3</i>	6	8.96%
<i>Type 4</i>	2	2.99%
<i>Type 5</i>	8	11.94%
<i>Type 6</i>	10	14.93%
<i>Bases</i>	12	17.91%
<i>Total</i>	67	100%

First of all, bowls with everted rims are classified as Type 1, roughly corresponding to Genre 23 and D4 of previous classifications. Rim diameters range from 16 to 24 cm. Fabrics most commonly seen are “purple/grey” and “white slipped painted”—the former is usually with more visible impurities in the paste and with medium finish, though still cannot be ascribed to typical cooking wares.

Type 2 red slipped deep bowl is the most common bowl form, with abundant analogies found at the site (Genres 24 and 25 in specific, also D1 of Area 10). Rim profiles slightly differ from pointed, rounded to squared. Some are decorated with a groove under the rim and on the lower body. One restorable specimen has been found with ring base. Rim diameters range from 14 to 24 cm. All specimens are coated with red slip on both sides, while some are externally burnished.

Bowl Type 3 is characterized by slightly in-curved flattened rim, shallow body and flat base (probably). Vessels of this type are previously seen in the Fortifications (Genre 30) and the Ceremonial Complex (0773 of D5). Vessel sizes vary with rim diameters ranging from 17 to 30 cm. Fabrics belong to either “white slipped” or “red slipped” categories, while some white slipped wares

have red paints on the flattened rim. Complete vessels of this type can be found at Koi-Krylgan-kala (Fig.20/left, 12-16) and Kalaly-gyr 2 (Vainberg 2004: fig. 3/18).

Bowl Type 4 is a rare form represented by only two specimens, with simple rounded rim and conical body. The appearance seems to resemble the early “Archaic” form attested at Dingild’zhe (Fig. 16, 17). However, there is little evidence with regard to the presence of early deposits at the site. Another possibility is that the two specimens are conical shaped lids misdrawn.

Bowl Type 5 with simple rounded open or slightly inverted rim, despite resembling some specimens of Type 2, was separated out by the fabrics of “white slipped” and “purple/grey” unusual on traditional Chorasmian red slipped bowls. Some specimens, especially inverted rim bowls, are tempered with more impurities, although still of a much higher quality than cooking wares. Moreover, traces of wheel-made/trimming can be found on most of the specimens.

Large sized bowls, also known as basins, are classified into Type 6, roughly corresponding to Genre 28 and D6. Vessels are defined by collared rims of various kinds: rounded, heavy rounded and pointed, with rim diameters ranging from 32 to 74 cm. Many examples have red paints on the rim, while a few have red paints of wide vertical stripes on the interior surface. Comparable specimens can be found at the “lower horizon” of Koi-Krylgan-kala (Fig.19/right, 6-8).

Apart from diagnostic rim sherds, several bases can also be considered in the general class of “bowl”, including ring, disc and flat bases with diameters ranging from 5 to 7.8 cm, although some of them could belong to goblets. One specimen has pre-firing incised mark near the bottom (Fig.120/1229). In addition, three rounded bases of large size, painted with vertical stripe patterns on the interior surface can be assigned to Type 6 large-sized bowls (basins). The diameters of them are between 26 and 34 cm.

6.35 E. Goblets (Fig.111)

The class comprises small drinking vessels of various kinds, including one complete vessel with pointed upright rim, conical body and disc base (1086)—1085 and 1087 may belong to the same form³⁸¹. The two basic forms attested in the Fortifications (Genres 31, 32) and Ceremonial Complex (E1, E2) are also present here: 1084 with a slightly out-curved rim and globular body should be sorted into the same group as Genre 32; 1094-1096 can be compared to Genre 31. In addition, one example (1093) is closely analogous with 0269 from the Fortifications. All specimens are coated with fine red slip, while some bearing vertical burnishing. Rim diameters range from 10 to 16 cm. Five bases are diagnostic of goblets, either flat or slightly concave, with small diameters ranging from 2 to 4.5 cm.

³⁸¹ This form is comparable to some examples from Ai-khanoum, see Gardin 1977: pl.132/60, Lyonnet 2013: fig.120/1-6.

6.36 F. Miscellaneous forms

Miscellaneous forms, including lids, pilgrim flasks, plates and cooking pots, account for a considerable proportion of the total analyzed sherds (22.82%).

Lids (Fig.113) are predominantly represented by conical shaped ones, usually with simple rounded or thickened edge. Some examples have red painted decorations on the exterior surface, especially in the pattern of “crossed stripes” on the top centre of the vessel. Analogous patterns have been seen on many examples from Kalaly-gyr 1 & 2 (Vorob’eva 1959: fig.17; Vainberg 2004: fig.3/12) and Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.3,9). Apart from painted ones, many specimens are plain, coated with red or whitish slip. On one of the red slipped examples, there is a mark resembling the shape of “R” applied on the exterior surface.

Pilgrim flasks (Fig.112) remain a relatively low frequency of occurrence (2.35%), represented by seven examples, most of which are preserved with diagnostic body parts except for two rim sherds.³⁸² presumably diagnostic of flasks with collared rim, small mouth and irregular thickened lower body. Most specimens are coated with dense red slip, except for one with dark brown paints applied on whitish slipped surface (Fig.112/1111). One remarkable example is decorated with bas-relief patterns, probably being part of a scene, depicting two arrows and a branch of a certain plant (Fig. 112/1109). Pilgrim flasks with bas-relief decorations are rare forms mainly attested at the Antique II period layers in Chorasmia, i.e., Dzhanbas-kala (Tolstov 1948a: tab.82), Kalaly-gyr 2, the “lower horizon” of Koi-Krylgan-kala (Vorob’eva 1959: fig.15,16) and Akchakhan-kala (in the Fortifications and Area 03).

Plates and mortars are very scarce at the site. The former is represented by two different examples and the latter by only one. One of the plates is characterised by a collared rounded rim and heavy body shape—parallels in general can be found at Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.9/54,55).

Cooking pots (Figs. 114-115) were sorted mainly by the hand-made manufacture and fabrics ranging in “coarse” and “medium” categories, i.e., “coarse grey”, “coarse red”, “medium red” and “medium white slipped”. Some were misfired, bearing traces of sooting at the rim and lower body. The most commonly seen jar form appears to be simple everted or upright rim jars, with rounded body and flat bases. Some have a slight ledge under the neck. A few examples are with handles: including jars with one handle attached to the rim, and upright rim jars with two handles on the globular body. Moreover, a small collection of bowls with a diversity of forms are presented here: rounded rim open bowl, everted rim bowl, flared rim bowl with one handle (or two) and small bowl with thickened walls.

³⁸² 1108 could belong to a small juglet though.

6.37 Other diagnostics

Bases, handles and body sherds that cannot be securely linked with a certain type or form are discussed briefly here.

The majority of bases (82.35%) are plain flat without significant features—a few have traces of red paints or red slip splodges; one has a pre-firing hole near the bottom. Diameters range from 6 to 18 cm. Two examples with rounded bases (diameter=31 cm) could belong to large bowls or large storage jars. There are also one pedestal base recovered from “upper sand clearance” and one concave base probably belonging to a jar. The latter is characterised by several horizontal grooves on the lower body which is not frequently seen at contemporary Chorasmian sites. Comparable specimens can be found at Toprak-kala (Rapoport and Nerazik 1984: fig.94/28,29) and the “middle and upper horizons” of Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.5/17-19). Notably, two “foot” bases have been found in Area 03, similar to the one recovered from the Ceremonial Complex (*supra* 6.27). Both are covered with dense red slip. Vessels on feet are extremely rare in the Antique period of Chorasmia, and only find parallels in Toprak-kala (Nerazik and Rapoport 1981: fig.40/31; Rapoport and Nerazik 1984: fig.94/48). The appearance of triple footed vessels was thought as a reflection of the Kushan influence on Chorasmia during the late Antique III period.³⁸³

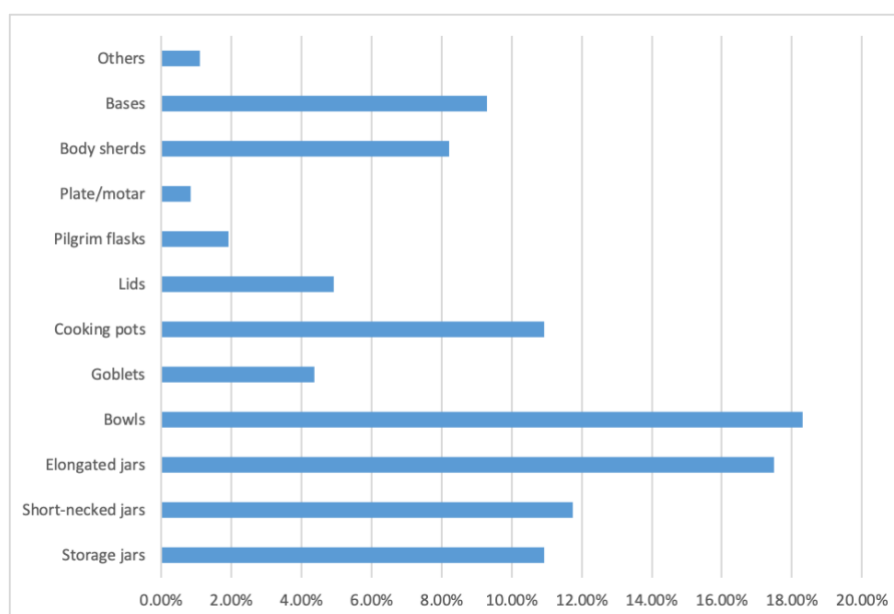
Body sherds are selected by significant features. e.g., painted decorations, incisions, vertical burnishing marks etc. Pottery with rare fabrics, i.e., black fabric, is also to be noted as presumably associated with imported wares. Most selected body sherds (22 of the total 30 sherds) have painted decorations, including 14 of mere painted patterns (“spiral”, “vertical bands” or “curved bands”, Figs. 116-117) and 8 in combination with incised geometric patterns (horizontal lines, triangles, rectangles, Fig. 118). The latter combination is frequently seen on vessels from the “lower horizon” of Koi-Krylgan-kala and Kalaly-gyr 2. Two examples are decorated with incised geometric patterns without traces of red paints (or could have been painted on missing parts). One specimen bearing a horizontal row of impressed notches on the body is noteworthy, as the decoration motif is rarely seen—it is more frequently applied on the rim of pottery of the “Kushan-Afrighid” period, e.g., from the upper layers of Toprak-kala (Nerazik and Rapoport 1981: fig. 47). In addition, two painted body sherds were reused as spindle whorls (Fig. 111/1104, 1105). There are also two body sherds with loop handle, probably belonging to two-handled jar forms which became popular in Chorasmia in the Antique III period, especially the later phase.

³⁸³ See discussions in *supra* II.3.4.

6.38 Summary

It is crucial to underline the fact that the examined sample is essentially an amalgamation of diagnostic sherds without stratigraphical sequence and chronological phasing. The classification presented here is therefore solely typological without regard to chronological sequence, although cross-references are made with assemblages of the site and other sites in Chorasmia. Moreover, while the sample from the Lower Enclosure (Area 03) forms the largest proportion, a small proportion of sherds recovered from the nearby farmstead (Area 08, n=28) are especially noteworthy. Comparable to pottery of the site in general, the Area 08 assemblage is especially characterised by elongated jars coated with dense red slip, and stylistically more decorative with extra ridges/ledges applied on the rim and neck, e.g., 1002, 1003 of Type 1; 1014-1016 of Type 4. The minor stylistic difference³⁸⁴ may imply different local workshops from which productions of Akchakhan-kala and the farmstead were made. For in-depth discussion on the manufacture, further examination at the microscopic level may be required in the future.

Graph 15 The distribution of vessel types



The distribution of vessel types presented in Graph 15 is primarily defined by diagnostic sherds excavated from the Lower Enclosure (Area 03, accounting for 83.61% of the total number), as well as from unstratified contexts across the site. Compared to the Fortifications and Ceremonial Complex assemblages, the percentage of open bowls clearly increased, while the frequencies of elongated jars and other jar forms remain similar, in contrast with the reduced number of large

³⁸⁴ I personally do not see the difference as a critical one that may concern alien elements, since the fabrics and morphology are both basically Chorasmian. It is most likely associated with the stylistic aspects of different pottery workshops.

storage jars. This to some extent corresponds with the lack in these areas of large facilities or buildings where whole shaped storage jars were usually kept and where fragmented sherds were used in paving and building structures. In the meanwhile, the percentage of cooking pots has a slight increase, especially in Area 03 (n=37, representing 12.09% of the total diagnostics).

Chapter 7. Discussions of the Akchakhan-kala Corpus

Previous analyses in sections IV.5 and IV.6 focus on the fabrics and typological features of the Akchakhan-kala pottery divided into three main assemblages according to different phasing systems (or without). The rationality of such division is based on two separate chronological sequences attested respectively in the Fortifications and the Ceremonial Complex, which cannot be directly correlated stratigraphically. This has inevitably led to limitations on the analysed sample and the lack of a consistent, comprehensive understanding of the whole Akchakhan-kala corpus. In the following chapter, comparison has been made between genres of the Fortifications and types under genre clusters of the Ceremonial Complex assemblage to present a better understanding of the relationship of the two assemblages. Pottery without a secured chronological sequence is also cross-referenced.

A comparative study of the Akchakhan-kala corpus with Chorasmian sites of the Antique period in terms of relative sequences and absolute dating so far achieved will make further attempts to posit Akchakhan-kala within the chronology of Antique Chorasmia and cast new light on the current chronology and typology.

Beyond Chorasmia, comparisons with pottery from other geographic regions will be briefly noted. As stressed before, the Akchakhan-kala corpus, as well as most of the contemporary Chorasmian sites, is essentially an indigenous one, although there are still a few examples indicative of foreign elements or imports which require further discussions to figure out the potential foreign relations of ancient Chorasmia. This is particularly significant for the interpretation of the Antique II and III periods.

7.1 The comparison between assemblages

Notwithstanding the different sequences for the two assemblages, all diagnostic sherds were sorted under the classification of six basic genre clusters: large & medium sized storage jars (A), short-necked/holemouth jars (B), elongated jars (C), bowls of various kinds (D), goblets/cups (E) and miscellaneous forms (F). Nevertheless, due to morphological analyses done respectively for the Fortifications and Ceremonial Complex assemblages, certain inconsistencies between assemblages inevitably occur. For instance, one example sorted into the “unclassified” group may be closely linked with a certain genre or class of other areas. Therefore, it is necessary to combine the two major assemblages (the Fortifications and the Ceremonial Complex), as well as the one containing

sherds from areas across the site without phasing, to further illuminate the pattern of the Akchakhan-kala corpus as a whole.

Table 30 The cross-reference of genres and types

Genre Clusters	The Fortifications	The Ceremonial Complex	Other Areas
(A) Large/medium sized storage jars	Genre 1	A1	Type 1
	Genre 2	A2	Type 2
	Genre 3	A3	Type 3 (0933-0936)
	Genre 4	A4 (0667-0672,0674,0675)	Type 4 (0941)
	Genre 5	A4 (0665, 0666,0673)	Type 4 (0937, 0938)
(B) Short-necked/holemouth jars	Genre 6		0939
	Genre 7		Type 8
	Genre 8	B2	Type 4
	Genre 9	B1	Type 1
	Genre 10	B3 (0697)	Type 6 (0974)
	Genre 11	B3 (0694-696)	Type 6 (0971-0973)
	Genre 12		Type 2 (0955-0956)
	Genre 13	B4	Types 3, 5
(C) Elongated jars	Genre 14	C1 (0706,0708)	Type 1 (0981, 0985, 0990, 0993, 0997-0999)
	Genre 15	C1 (0704,0705,0709-0713)	Type 1 (0982, 0987-0989, 0991, 0992, 0994, 1000-1003)
	Genre 16	C1 (0707)	Type 1 (0984, 0995, 0996)
	Genre 17	C6 (0738)	Type 4
	Genre 18	C2	Type 2
	Genre 19	C5	Type 5
	Genre 20	C4	
	Genre 21		Type 1 (0983, 0986)
	Genre 22	C3	Type 3
		C6 (0739,0740)	Type 6
	Genre 23	D4	Type 1

(D) Bowls/open forms	Genre 24	D3 (0761)	Type 2 (1056), Type 5 (1072-1074)
	Genre 24 (0263,0266)	D1 (0746-0748,0751)	Type 2 (1048, 1049, 1054, 1055, 1057, 1059)
	Genre 25		Type 2 (1050-1053)
	Genre 26	D3 (0762,0763)	Type 5 (1068-1071)
	Genre 27	D5 (0769,0770)	
	Genre 28	D5 (0772); D6	Type 6
	Genre 29	D1 (0749,0750)	
	Genre 30	D5 (0768,0771,0773)	Type 3
(E) Goblets/ cups	Genre 31	E2	1094-1096
	Genre 32	E1	1084
(F) Miscellaneo us forms	Genre 33		1106-1112
	Genre 34	Lids (0845,0846)	1113-1129
	Genre 35	Miniature vessels (0837- 0839)	
	Genre 36	Cooking pots (0809- 0827)	1130-1169

A comparison between the Fortifications and Area 10 assemblages was listed in Table 30. The vessel classes adopted for Area 10 assemblage tend to cover a broader range of forms as the presented sample size is rather limited, while the genre classification used in the Fortifications tends to further split up forms according to rim morphology and key features, such as the presence of painted decorations and slip treatment. Cross-references in detail are discussed as follows.

For large-sized storage jars, Genres 1-3 are roughly equivalent to A1-3 of Area 10, while vessels of A4 can be sorted into either Genre 4 (painted medium jars) or Genre 5 (plain medium jars). Other jar forms present a great diversity of variants in the Fortifications, attested by eight genres (Genres 6-13), four among which find parallels in the Area 10 assemblage (see Table 30). Elongated jars are comparatively less frequent at Area 10, attested by a small total number and less diversity of forms. Most specimens can find close analogies in the Fortifications assemblage, except for 0739 and 0740. Some new bowl forms were found at Area 10 without direct parallels in the Fortifications, e.g., D1 (0263,0266 of Genre 24 may be closely associated), D2. Goblets or cups are relatively more frequent at Area 10, divided into two basic sub-types as in the Fortifications.

Given the fact that more than a half of the Area 10 diagnostic sherds were recovered from the Stage IV contexts, it is crucial to compare the two assemblages and their relative distribution through stages to develop the chronological sequence of pottery corpus of Akchakhan-kala.

By comparing the two assemblages, we are able to recognise the mutual pattern of their chronological distribution. Several genres and their parallels at Area 10 are mostly confined within the last stage (IV), including Genres 3 (A3), 8 (B2), 11, 12, 21—vessels of these genres are almost missing in early stages (Stages IA/B, IIA/B). Some saw the earliest appearance in Stage IIIA/B: Genre 3 (A3) first appeared in Stage IIIB, so did Genre 8 (B2); Genre 11 first appeared in Stage IIA.4³⁸⁵ in the Fortifications and Stage IIIB at the Ceremonial Complex. Vessels of Genres 5³⁸⁶, 6, 20 (C4), 23 (D4), 26, 27, 29 also predominated in Stage IV with a few specimens descended from earlier stages (Stages II/IIIA, B). Besides, the Stage IV assemblage of Area 10 possibly comprises a large number of early sherds as indicated by their parallels prevailing in Stage IA, i.e., Genres 1, 4, 14 and 32—most of which have early parallels in Stage I/IIB (e.g., A1, A4, E1). Some genres appear to exist through all stages, namely Genres 2 (A2), 7, 9, 10, 13, 31 (E2), most elongated jars (Genres 15, 16, 17, 18, 19, 22) and bowls (Genres 24, 25, 28, 30). Their parallels in general cover a broad time range from early Antique II to Antique III period. Although it can be observed that the frequencies of Genres 13, 15, 17, 22 and their parallels at Area 10 considerably increase through time.

In summary, Stage IA/B and the subsequent early Stage IIA/B saw the predominance of painted vessels, represented by painted storage jars with collared rims and painted elongated jars with collared rims (Genres 1, 4, 14 and their counterparts). Small collared rim jars, elongated jars with overhanging rims and goblets on pedestal bases (Genres 9, 18 and 32) also occur frequently in early stages. The assemblage shares general analogies with the Chorasmian Antique II assemblage, specifically the “lower horizon” at Koi-Krylgan-kala, Kalaly-gyr 1 and 2. In addition, a few rare forms were exclusively attested in Stage IA, i.e., the lion *protome* handle and pilgrim flask with bas-relief decoration. It is noteworthy that, at the end of Stage IIA, specifically Stage IIA.4, a series of new forms saw their earliest appearance and further developed in the following Stage IIIA, e.g., Genres 6, 11, 20, 27 and an example of incense burner. These vessels typically find close parallels in early Antique III period, at Koi-Krylgan-kala “middle and upper horizons”, Toprak-kala

³⁸⁵ As mentioned before, the siege-related phase (Stage IIA.4) is more like a transitional point and it seems to be closer to Stage IIIA than early Stage IIA.

³⁸⁶ One example (0064) of Genre 5 came from an early context (Stage IA.2), although it is badly damaged on the exterior surface and could potentially go to Genre 4.

“Horizon I”, Kunya-uaz. At the Ceremonial Complex, this transition was first witnessed in Stage IIIB.³⁸⁷

The assemblages of Stage IIIA/B have witnessed evident changes from the previous stages, represented by the overall decline of painted wares and development of several new forms. Red slipped wares became more common, replacing the formerly popular painted wares, exemplified by the increase of red slipped elongated jars and small jars. Several new forms saw an early emergence in this stage, e.g., short-necked jars with upright or slightly inverted rims (Genre 8), elongated jars with externally bevelled rims (Genre 20), everted rim bowls (Genre 23). The assemblage finds analogies in the “middle & upper horizons” of Koi-Krylgan-kala. A few share parallels with the first horizon of Toprak-kala.

The Stage IV assemblage appears to be the largest, accounting for 39.46% of the total diagnostic sherds (n=1072) from the two areas. Defined by collapse, waste and wind-blown remains, the Stage IV of Akchakhan-kala naturally comprises pottery from complex contexts ranging from early to post-abandonment periods. This is attested by the full range of genres and types of diagnostic sherds recovered from Stage IV across the site, although some patterns still can be observed. First of all, the decline of painted decorations in general is evident, especially paints of specific patterns, i.e., “comma/dripping” patterns, filled geometric pattern etc. Some simple patterns, such as “spiral/curved band” and painted horizontal band on the rim last for a longer time until the post-abandonment period. In contrast, red slipped jars (especially small jars and elongated jars) saw a gradual increase through time and peaked in Stage IV. Some bear vertical burnishing on the exterior. Secondly, the mutual preference for specific rim forms, namely flattened, bevelled, slightly inverted and rilled rims, can be observed on both jar and some bowl forms, i.e., Genres 6, 8, 13, 20, 23, 26. It has to be noted though, some of the rim forms, specifically flattened and rilled rims, were not a novelty in this stage but had existed for a long time since Stage I. They just became comparatively frequent and applied for more vessel types in Stage IV. For instance, rilled rims are merely seen on elongated jars in early stages until appear on short-necked jars in Stage IV. The trend for specific rim forms corresponds with what have been witnessed in early Antique III period of Chorasmia, at Koi-Krylgan-kala “upper horizon”, Toprak-kala “Horizon I” and Ayaz-kala settlement (*supra* II.3.4). Moreover, several new forms reached the zenith in this stage, namely storage jars with inverted rims (Genre 3), short-necked jars with slightly inverted rims (Genre 8), red slipped everted rim jars (Genre 11), upright squared rim jars with “zigzag” incisions (Genre 12) and elongated jars with internally recessed rims (Genre 21). Parallels to these vessels can be found at many Chorasmian sites of Antique III period, such as Toprak-kala “Horizons I and II”, Kunya-

³⁸⁷ Since the Stage IIA.4 does not have a real counterpart at the Ceremonial Complex, it may be assumed that Stage IIA.4 and the start of Stage IIIB are close in time, although the scarcity of ceramics recovered from Stage IIIB is also to be considered.

uaz, the “middle and top horizons” of Koi-Krylgan-kala and sporadically at Ayaz-kala 3 and the settlement, Elkharas, Dzhanbas-kala settlement.

Some forms appear to be distributed evenly in all stages, namely plain large storage jars with collared rims (Genre 2/A2), holemouth jars in general (Genre 7), small collared rim jars (Genre 9), everted rim jars in general (Genre 10), most elongated jars (except for Genres 14, 20 and 21) and most bowls—although an overall increase of bowl forms through time has been observed. For broad classes, specifically Genre 7 and Genre 10, they originally comprise multiple variants of rim forms which could possibly create several sub-classes spanning a long timeframe from Antique II to III. Other vessels, i.e., plain collared rim jars, red slipped elongated jars and red slipped bowls of various kinds, are preferred for a long time without significant changes. Parallels in general are abundant in Chorasmia, from Antique II to early Antique III period, attested at most contemporary sites, such as Koi-Krylgan-kala, Kalaly-gyr 1 and 2, Toprak-kala “Horizons I and II” and Kunya-uaz etc.

7.2 The chronological sequence of Akchakhan-kala corpus in the context of the Antique Period of Chorasmia

In terms of available radiocarbon dates recovered from the site (*supra* III. 4.2), the chronological sequence of Akchakhan-kala pottery can be addressed as follows.

The foundation of the site, i.e., the start of Stage IA/B, can be dated to the early 2nd Century BCE. The assemblage of Stage IA/B is a relatively small one in which jar forms, especially collared rim jars with painted decorations, predominate, while flattened rim elongated jars, with one handle (probably) and red slip treatment rank second. Body sherds with specific decorations, such as paint in patterns such as “dripping”, “comma” or “oval-shaped bands”, and paint with geometric incised patterns, are most common in this stage. A handle decorated with a well sculptured lion *protome* is also attested in Stage IA. These vessels find overall parallels in Antique II period, e.g., at sites Kalaly-gyr 1 and 2, Koi-Krylgan-kala “lower horizon”.

The division between Stage IA/B and Stage IIA/B is not evident from the pottery perspective, although it might be limited by the even smaller sample size of the Stage IIA/B assemblage. Most popular forms of the previous stage continue to exist. The only possible turning point occurred at the end of Stage IIA, i.e., the phase (Stage IIA.4) related to the “siege” event, in which an upsurge of new forms can be observed, including rilled rim jars, red slipped everted rim jars, elongated jars with externally bevelled rims, large bowls with collared inclined rims and a rare form of incense burner. Notably, these vessels can find the closest parallels in early Antique III period at sites Koi-Krylgan-kala “middle and top horizons”, Kunya-uaz “lower horizon” and Toprak-kala “horizon I

or II". Given the small number of these new forms, it might be assumed that the Stage IIA.4 of Akchakhan-kala was roughly in parallel with the transition to or the early beginning of the Antique III period. As indicated by radiocarbon dates, the phase is most likely dated between 50 BCE and 50 CE.

The Stage IIIA assemblage is a relatively small one representing the further development of new forms appeared in Stage IIA.4 and the overall decline of painted jar forms. The Stage IIIB assemblage also comprises new forms, although with very low frequencies, such as large storage jars with inverted rims, short-necked jars with upright or inverted rims, bevelled rim elongated jars (the earliest appearance of which in the Fortifications was in Stage IIA.4). The former two vessel types are comparable to some examples from Kunya-uaz "lower horizon" and Toprak-kala "horizon I". In terms of radiocarbon dates, the start of Stage IIIB could be very close to the "siege" event, as is Stage IIIA. This could be dated to the late 1st BCE/early 1st Century CE.

The abandonment of the site, i.e., the start of Stage IV, probably happened in the mid 2nd Century CE. Pottery of Stage IV is characterized by a great diversity of forms, while dominated by certain vessel types, e.g., red slipped jar forms, flattened rim jars, red slipped elongated jars with flattened or bevelled rims. A few genres are mostly confined within the stage, such as red slipped everted rim jars, simple short-necked jars with red or whitish slips, upright or everted rim jars with "zigzag" incised patterns and elongated jars with internally recessed rims. Vessels share overall parallels with assemblages from sites of early Antique III period, i.e., Toprak-kala "horizon I", Kunya-uaz "lower horizon", Ayaz-kala 3, and sporadically the "top horizon" of Koi-Krylgan-kala.

Despite the modest size of the Akchakhan-kala corpus, it has provided precious evidence for the chronological sequence of Chorasmian pottery of Antique II and early Antique III periods and further reaffirmed the latest theory on the periodisation of the Antique period (*supra* I.1.3, Table 2). The assemblage of Stages IA/B, early IIA/B is in general analogous to the "lower horizon" of Koi-Krylgan-kala, Kalaly-gyr 1 and 2, also the pottery kiln at Khazarasp, which could be ascribed to Antique II period. In Stage IIA.4 and Stage IIIB, the assemblage was represented by evident transitional features and the early appearance of some new forms predominating in later phases—similar features have been observed in the "middle horizon" of Koi-Krylgan-kala, which might be assumed as broadly contemporary. This transitional process corresponds with the start of the Antique III period in ca. mid 1st BCE to early 1st Centuries CE. Stage IV of Akchakhan-kala roughly corresponds with the construction and early use of Toprak-kala and Kunya-uaz, also Ayaz-kala and Dzhanbas-kala settlements, from the mid 2nd to 3rd Centuries CE.

7.3 Comparative study of Akchakhan-kala pottery with material cultures of the external world

As indicated by fabric and typological analyses, the Akchakhan-kala corpus is basically an indigenous one representing the average level of local pottery manufacture in the Antique period, with scant evidence for interactions with the external world. It corresponds with Chorasmia's relatively closed geographical position and independent historical background since the Achaemenid era, although it has been clarified now that communication with the outer world had never been completely shut but existed through an indirect and slow process (*supra* II.2).

Notwithstanding the scarcity of relevant samples, the assemblage at Akchakhan-kala has manifested two layers of external cultural influence: productions made somewhere else and imported into Chorasmia; and locally made productions which might be inspired or influenced by foreign material culture. The former has scant evidence at the site, except for the appearance of rare black wares, either polished or not (Fb. L, M with a total frequency lower than 1%). The black polished fabric was attested exclusively in early stages (Stage IA, IIB). Black wares in general were rarely seen in the territory of Chorasmia and their tracks were rather unclear. Only a small quantity has been found at Kalaly-gyr 2.³⁸⁸ (Vainberg 2004: 140-147) and Koi-Krylgan-kala (Tolstov and Vainberg 1967: 126-127), and was basically identified as imported since no direct analogy was found in Chorasmia. It is difficult to trace the exact origin of black wares at Akchakhan-kala—which could originally have come from multiple sources, as suggested by different surface treatments, polished or not—although to a large extent the polished ones may be closely linked with the Hellenistic world, especially Hellenised Central Asia, e.g., Ai-Khanoum (Gardin 1977: 127-133), Begram (Ghirshman 1946: 44), Charsada (Wheeler 1962). A tradition for fine black polished wares (NBPW) was also to be noted in the northern Indian area during the 1st millennium BCE.³⁸⁹

On the other hand, a broad sense of connection with material cultures in other geographical regions can be recognized in some fine wares. For instance, holemouth jars, especially the variant with a rounded inverted rim and possibly cylindrical body (0075, 0076, 0980) are reminiscent of Hellenistic ceramic forms, i.e., *pyxis* or handleless *lekanis*. Close analogies are only attested in Koi-Krylgan-kala “lower horizon” (Fig.19/right, 20) and Kalaly-gyr 2 (Vainberg 2004: fig.3/11, 1, 2). The absence of a direct analogy beyond Chorasmia suggests that this form might be a local creation inspired by imported Hellenistic vessels, and it had never been widespread or mass-produced, while

³⁸⁸ The black wares from Kalaly-gyr 2 find possible parallels in Iran and Ai-Khanoum, although none of these parallels are with the same black fabric.

³⁸⁹ Wheeler 1962: 41-46; Allchin and Allchin 1982: 320-325; Kanungo et al. 2021.

its presence might be largely confined within the Antique II period. Potential Hellenistic influence is also suggested by the presence of a crater (0426, only a small sherd of the foot was preserved).

The clay incense burner with a wide flat base and circular opening in the centre could be another local creation inspired by foreign material culture. Examples of this form are very rare in Chorasmia, only attested in the “middle horizon” of Koi-Krylgan-kala, and Akchakhan-kala Stage IIA.4 (0427). A complete vessel was found in Taxila, from the late “Saka-Parthian” layer of Sirkap dated to ca. the 1st Century BCE (Marshall 1951: pl.127/203). Accordingly, it would be plausible to witness the Chorasmian version of the vessel at the beginning of Antique III period (ca. the end of 1st Century BCE-the early 1st Century CE).

Another important vessel type is the class of fine drinking wares, represented by goblets and some unclassified small open forms. The emergence of elegant drinking vessels in Chorasmia can be seen as an important indicator for the generation of local elite class and wine drinking habits. Goblets with a conical shape (1085-1087) share general parallels with specimens at Ai-Khanoum (Gardin 1977: pl.132/60; Lyonnet 2013: fig.120/1-6) and Afrasiab, period IIA (Lyonnet 1998: fig.2/21, 22). Meanwhile, goblets on short pedestal bases (Genre 32, E1) are comparable to some examples from Afrasiab, period III (*ib.*: fig.4/3,6), recently dated by Lyonnet from ca. the first third of the 1st Century BCE to the turn of the 2nd Century CE (*ib.* 2018: 433). The range roughly corresponds with the late Antique II to early Antique III period in Chorasmia, and at the site the main body from the end of Stage IIA to Stage IV.

It is also interesting to note the presence of an “Achaemenid tulip bowl” (0842), recovered from general clearance at the Ceremonial Complex. Examples are abundant in the heartland of the Achaemenid Empire, such as Persepolis (Schmidt 1957: pl.72/1;89/8), Pasargadae (Stronach 1978, pl.107.7) and Susa (Miroshedji et al 1987: fig. 7/7). Notwithstanding its Iranian ancestry, the form also lasted in Central Asia in post-Achaemenid period, e.g., at Ai-Khanoum (Gardin 1977: pl.133/o3-5), Charsada (Wheeler 1962: fig.21, 22, 29, 30).

7.4 Conclusion

In terms of radiocarbon dating and evidence of pottery chronology, the construction and major occupation of Akchakhan-kala (ca. early 2nd BCE-2nd Centuries CE) appeared to experience the transition from Antique II to early Antique III period. The elusive changes witnessed in material culture during the timespan have made it rather difficult to archaeologically define and posit the start of Antique III with precision. Fortunately, the two consecutive Antique phases were attested in two major archaeological sites in Chorasmia, namely Koi-Krylgan-kala and Akchakhan-kala. The latter in particular has chronological sequences secured by radiocarbon dates, which could, to

some extent, confine the transition period to a relatively short time span from the late 1st BCE to early 1st Centuries CE.

According to the analysis of pottery typology, transitional features first began to show at the end of Stage IIA, namely Stage IIA.4 directly related to the “siege” of the Fortifications, and then further developed in Stages IIIA and IIIB. The fact that the turning point appears to coincide with the “siege” is noteworthy. As mentioned in III.4, the military attack on Akchakhan-kala was only identified in the Fortifications, leading to serious destruction of the outworks and the subsequent repairs and rebuilding. However, since no such trace has been witnessed in the interior structures, i.e., the Ceremonial Complex (Area 10) and the Central Monument (Area 07), it has been long questioned that whether the “siege” was successful or not. The evidence of the reconstruction of the Upper Enclosure suggests a quick recovery from the attack, while in the meantime, a series of dramatic renovations and creations took place in the Ceremonial Complex (recognised as Stage IIIB), represented by the construction of new walls with paintings, new columned halls with wall paintings, several new chambers on the exterior and the creation of fire altars. The wall paintings further indicate the presence of a “Chorasmian king”, testified by painted texts with the mention of “king”. These changes, although largely based on existing structures, apparently indicate a new form of rule closely related to religious practice, namely a Zoroastrian one. The theme for the design of the Ceremonial Complex is then much clearer, as suggested by the “procession” scene wall painting and the depiction of colossal gods in the columned hall—reminiscent of the classic motif in Achaemenid art, that is to stress the link between kingship and the divine. The conception, as a completely new creation in Chorasmia, should be seen as heralding a new era of the Antique period, and was greatly magnified in the later royal capital Toprak-kala.

If we see the “siege” and the start of Stage IIIB (the two should be chronologically close and thus could be seen as roughly contemporary) as a turning point to the Antique III period, several events happening simultaneously in the late 1st Century BCE may be considered relevant to the commencement of the new era. Firstly, the creation of the Chorasmian calendar, initially identified in Toprak-kala, was argued to be dated to the late 1st Century BCE (ca. 50 BCE) by Minardi (*ib.* 2015). Secondly, the destruction of several Antique II sites in the same time range is noteworthy, represented by the “siege” in Akchakhan-kala (Stage IIA.4), and the temporary abandonment of Koi-Krylgan-kala following a conflagration (or a “siege”?) which terminated the “lower horizon” material culture. Could the destruction of Chorasmian sites³⁹⁰ be linked to the same power which attacked Akchakhan-kala in the late 1st Century BCE? Although evidence regarding the question has been scarce, a similar pattern can be witnessed in the further development of the two sites. Both

³⁹⁰ Unfortunately, most Antique II sites have very limited information on their destruction and cannot be dated, e.g., Kalaly-gyr 1 and 2.

survived and continued in use until probably the early Antique III period without an abrupt change of material culture. This may convincingly refute the hypothesis of invaders from a foreign culture. The continuity in material culture, along with a series of new rules witnessed in Akchakhan-kala, i.e., the early emergence of “kingship” and arts indicative of Zoroastrianism, portrayed the possible new ruler as a local person (or someone culturally very close to Chorasmia), who pursued a new level of domination in Chorasmia, yet could recognise and to some extent continued the local material culture. The resemblance of the pottery assemblages of Koi-Krylgan-kala and Akchakhan-kala after the destruction further testifies to a similar pattern followed at contemporary Chorasmian sites.

Moreover, the pottery typology saw a further development in Toprak-kala, a new royal capital following the abandonment of Akchakhan-kala. This is in accordance with the continuity of “kingship” and “divinity” representation, exemplified by the magnificent art and palatial building found in Toprak-kala. In the meantime, a new level of opening up to the southern regions, then under the sway of Kushan Empire, can be witnessed in the pottery assemblage, especially in the late Antique III period, shortly after the full flourishing of the Kushan Empire in the mid 2nd Century CE. The pottery typology was consistent throughout the lifetime of Toprak-kala, until the rise of the Afrighids who overthrew the old rule and brought an abrupt cultural shift to Chorasmia in the 4th Century CE.

ABBREVIATION

- AO : Arkheologicheskie Otkrytiya [Archaeological Discoveries]
- CRAI : Comptes Rendus de séances de l'Académie des Inscriptions et Belles-Lettres
- EO : Etnograficheskoe obozrenie [Ethnographic Review]
- KAE: The Karakalpak-Australian Archaeological Expedition
- KhAEE: Khorezmskoi Arkheologo-Etnograficheskoi Ekspeditsii [the Chorasman Archaeological and Ethnographical Expedition]
- MKhE: Materialy Khorezmskoi Ekspeditsii [Materials of the Chorasman Expedition]
- SE: Sovetskaya Etnografiya [The Soviet Ethnography]
- SA: Sovetskaya Arkheologiya [The Soviet Archaeology]
- TKhAEE: Trudy Khorezmskoi Arkheologo-Etnograficheskoi Ekspeditsii [Works of the Chorasman Archaeological and Ethnographical Expedition]
- TYuTAKE: Trudy Yuzhno-Turkmenistanskoi Arkheologicheskoi Kompleksnoi Ekspeditsii [Works of the South-Turkmenistan Archaeological Complex Expedition]
- VDI: Vestnik Drevnei Istorii [Ancient History Herald]

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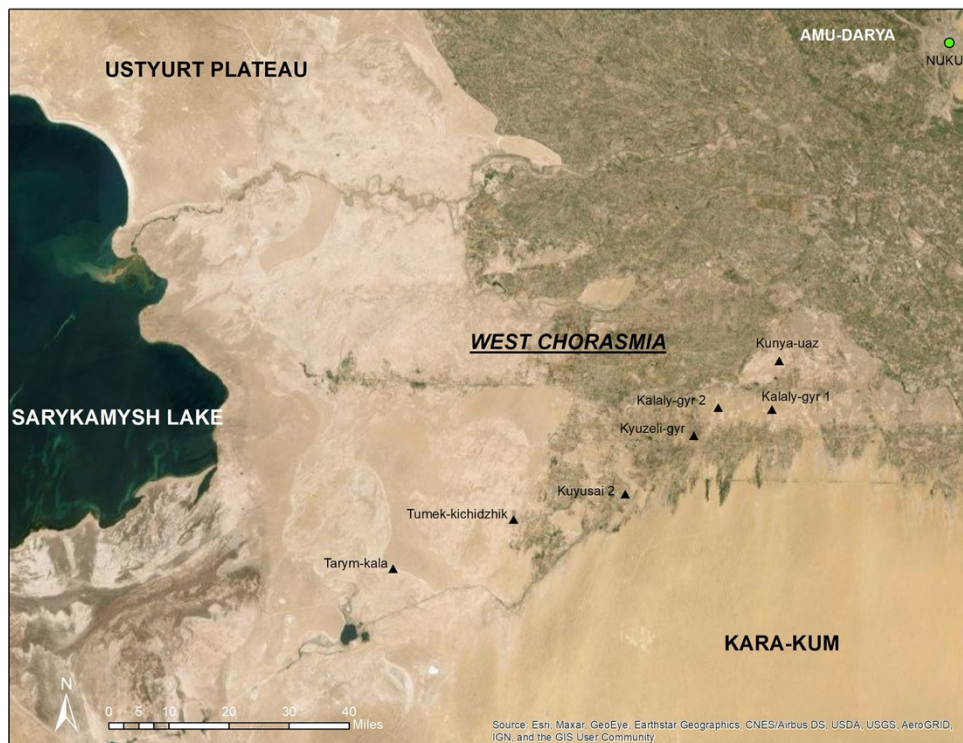
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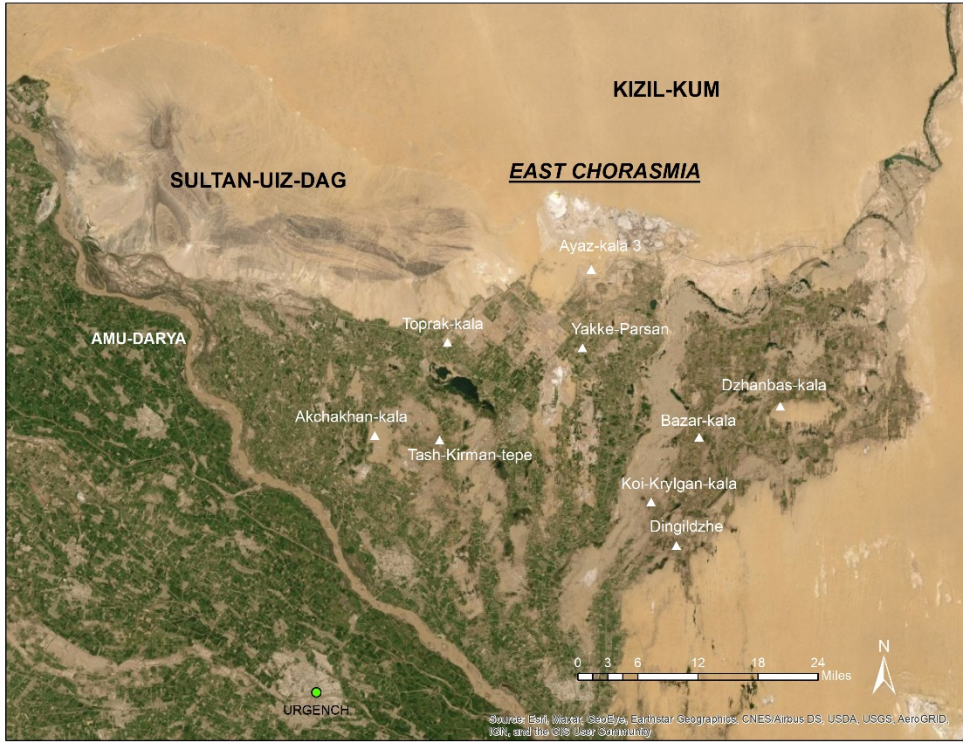
MAPS AND FIGURES



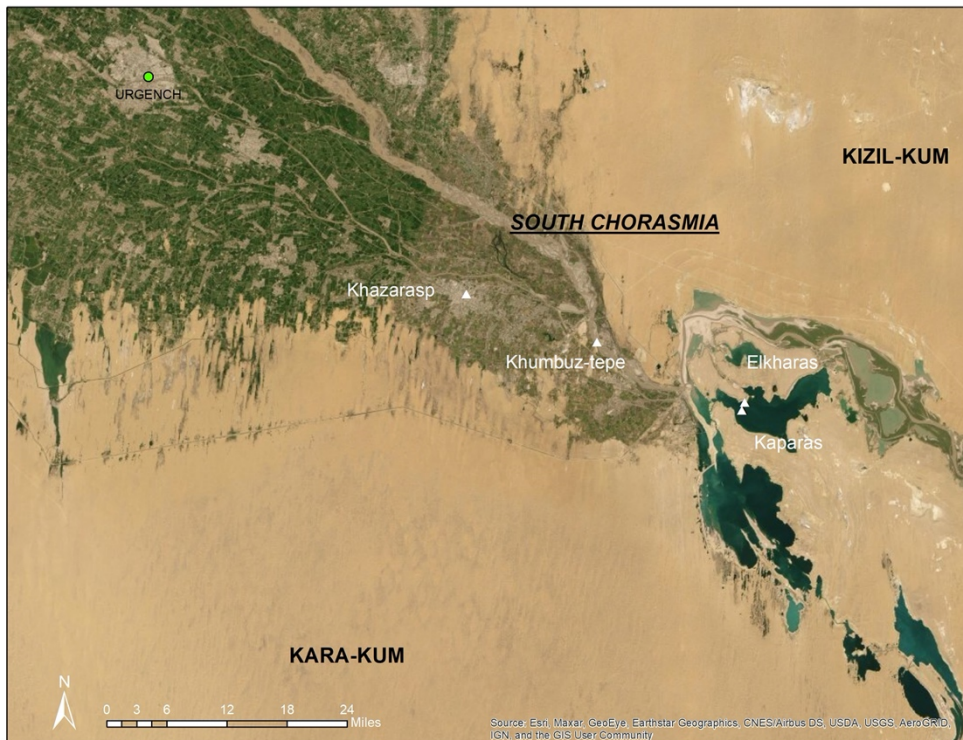
Map 1 Geographical Division of Ancient Chorasmia (by the author)



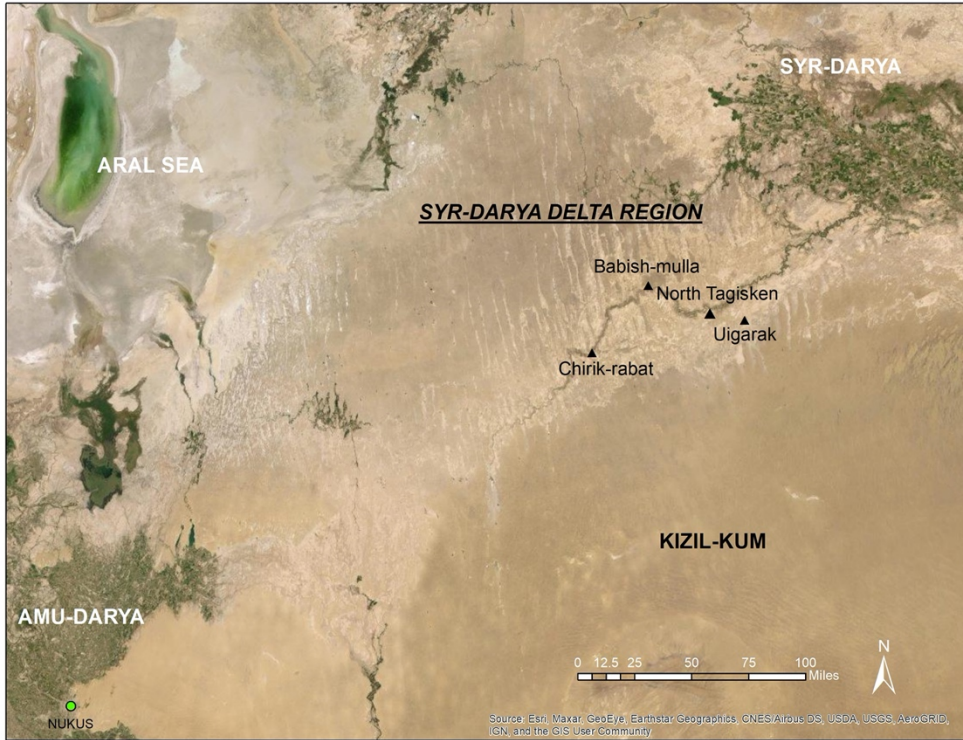
Map 2 Important Archaeological Sites of West Chorasmia (From the 1st Millennium BC to the 4th Century AD, by the author)



Map 3 Important Archaeological Sites of East Chorasmia (Antique Period, by the author)



Map 4 Important Archaeological Sites of South Chorasmia (Antique Period, by the author)



Map 5 Important Archaeological Sites of North-Eastern Chorasmia (by the author)

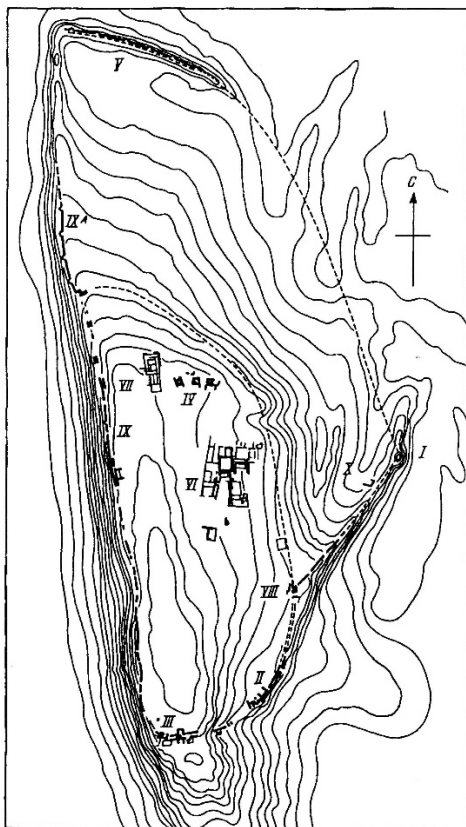
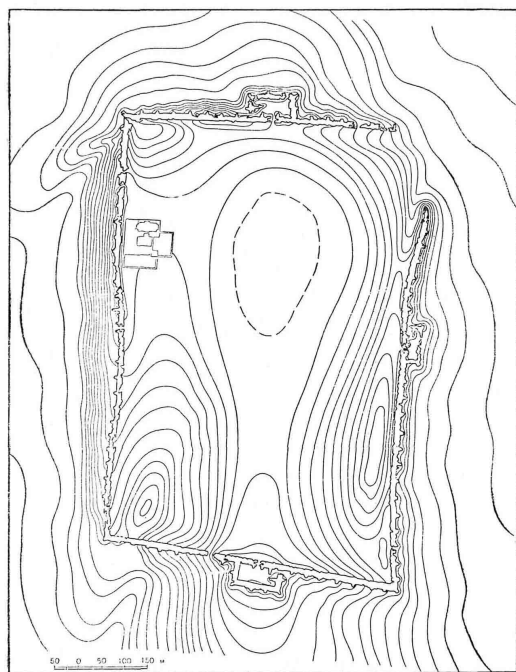
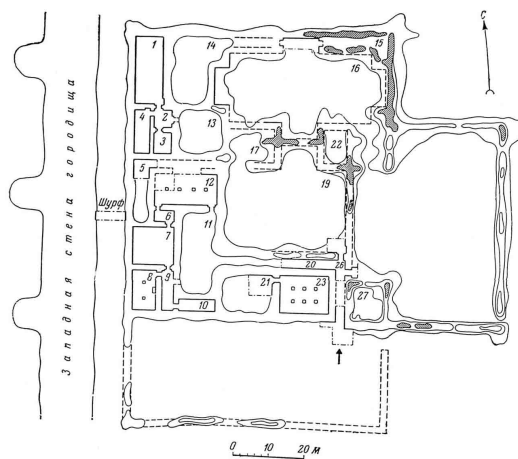


Figure 1 General plan of Kyuzeli-gyr (Vishnevskaya and Rapoport 1997: fig.1)



a



b

Figure 2 Kalaly-gyr 1

a: general plan (Rapoport and Lapiro-Skoblo 1963: fig.1)

b: layout of the palatial complex (Rapoport and Lapiro-Skoblo 1963: fig.2)

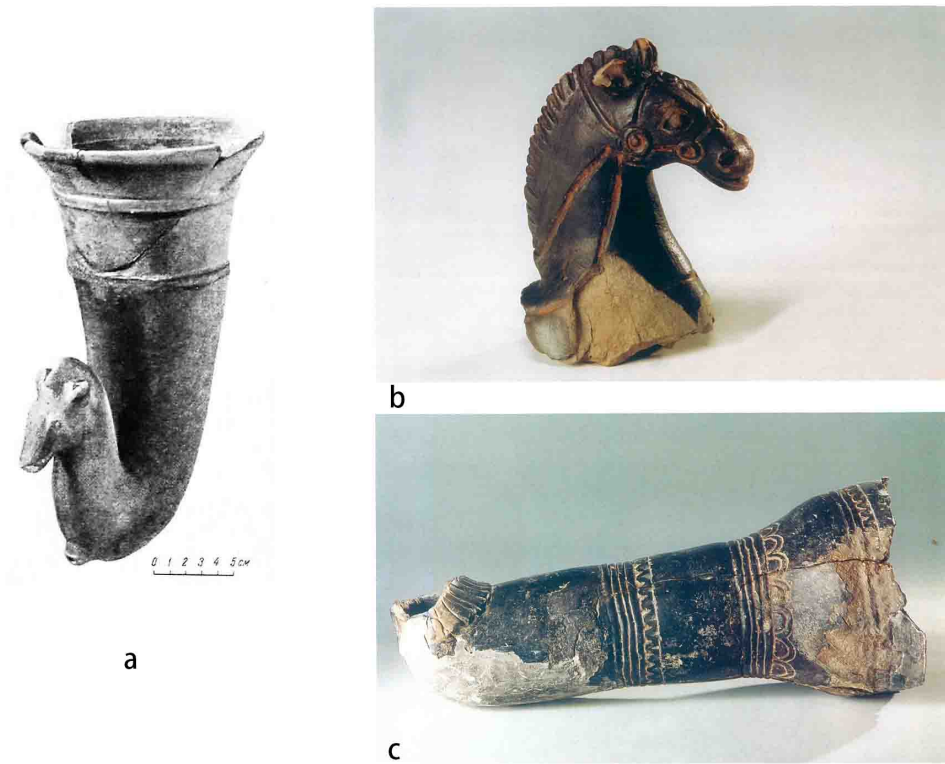


Figure 3 Clay Rhyta

a: from Kalaly-gyr 1 (Vorob'eva 1959: fig.18)
 b & c: from Kalaly-gyr 2 (Vainberg 2004: plate 10,11)

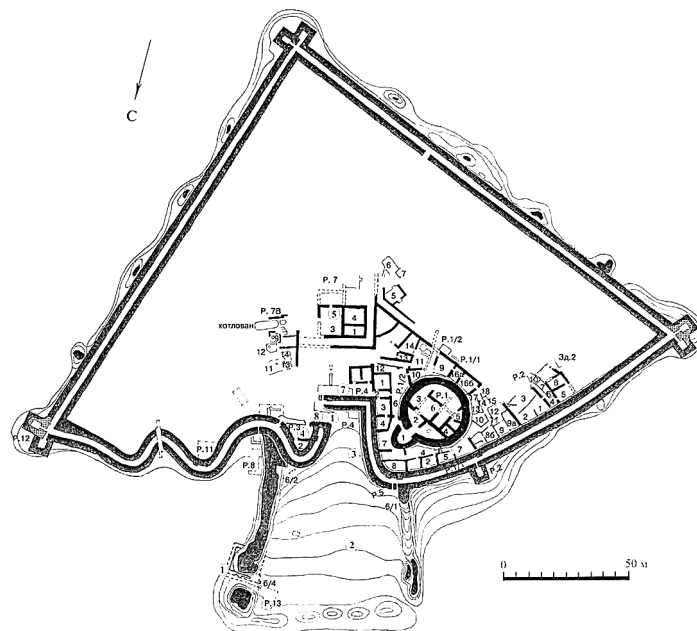


Figure 4 General plan of Kalaly-gyr 2 (Vainberg 2004: fig.2/4)

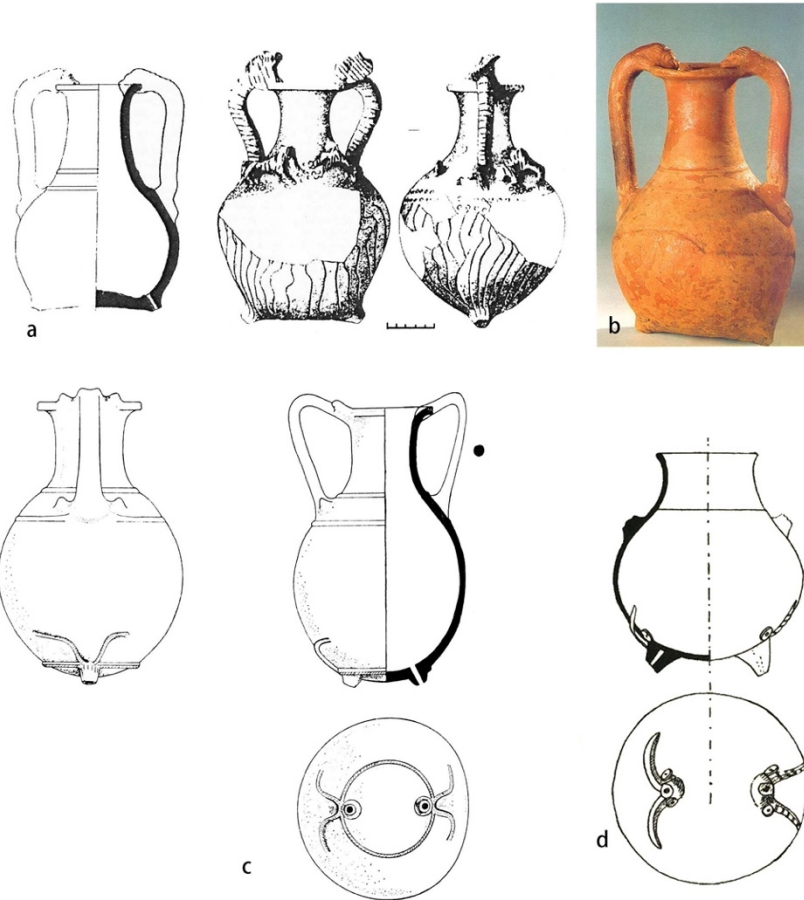


Figure 5 Amphora-Rhyta

- a & b: from Kalaly-gyr 2 (Vainberg 2004: fig.3/22; plate 21)
 c: the specimen from Pasargadae (Stronach 1978: Pls. 171 and 172)
 d: the specimen from Begram (Ghirshman 1946: pl. XLI, B.G.465)



a



b

Figure 6 Thracian metalworks of amphora-rhyta
a: Marazov and Fol 1977: 75 b: Marazov and Fol 1977: 74

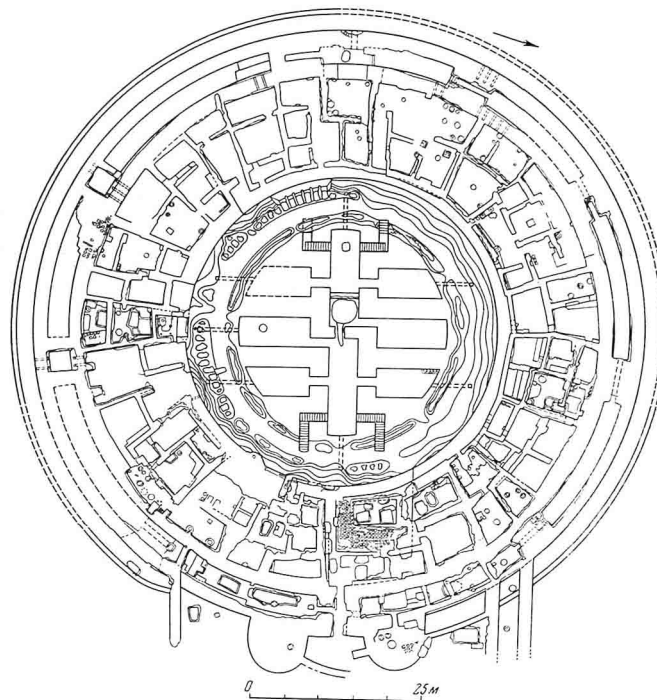


Figure 7 General plan of Koi-Krylgan-kala

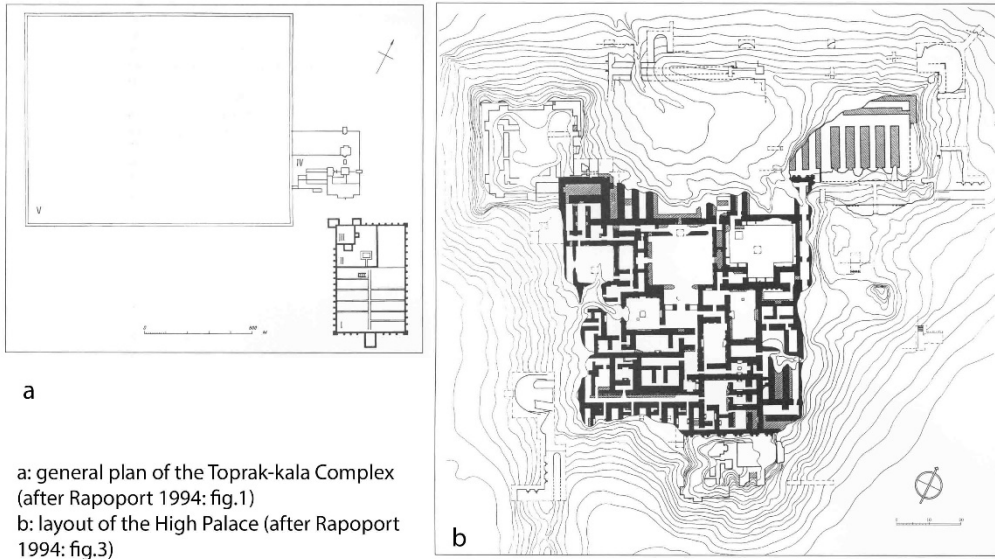


Figure 8 Toprak-kala



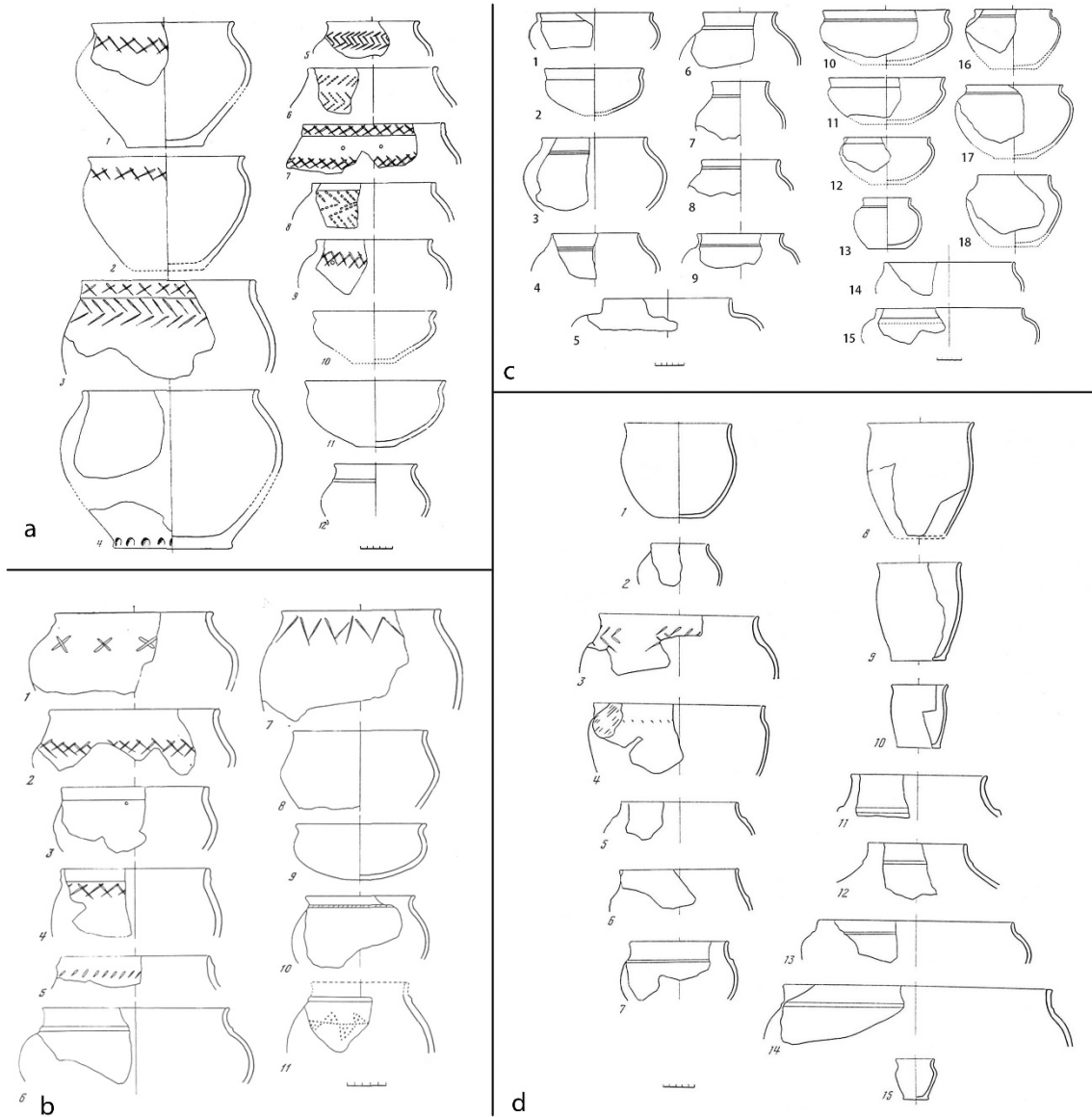


Figure 10 Pottery of the Yakke-Parsan sites

a: Yakke-Parsan 2 House 3 (Itina 1977: fig.73) b: Yakke-Parsan 2 House 5 (*ib.*: fig.74)

c: table wares of Yakke-Parsan 2 (*ib.*: fig.75,76) d: pottery of Yakke-Parsan 14 (*ib.*: fig.84)

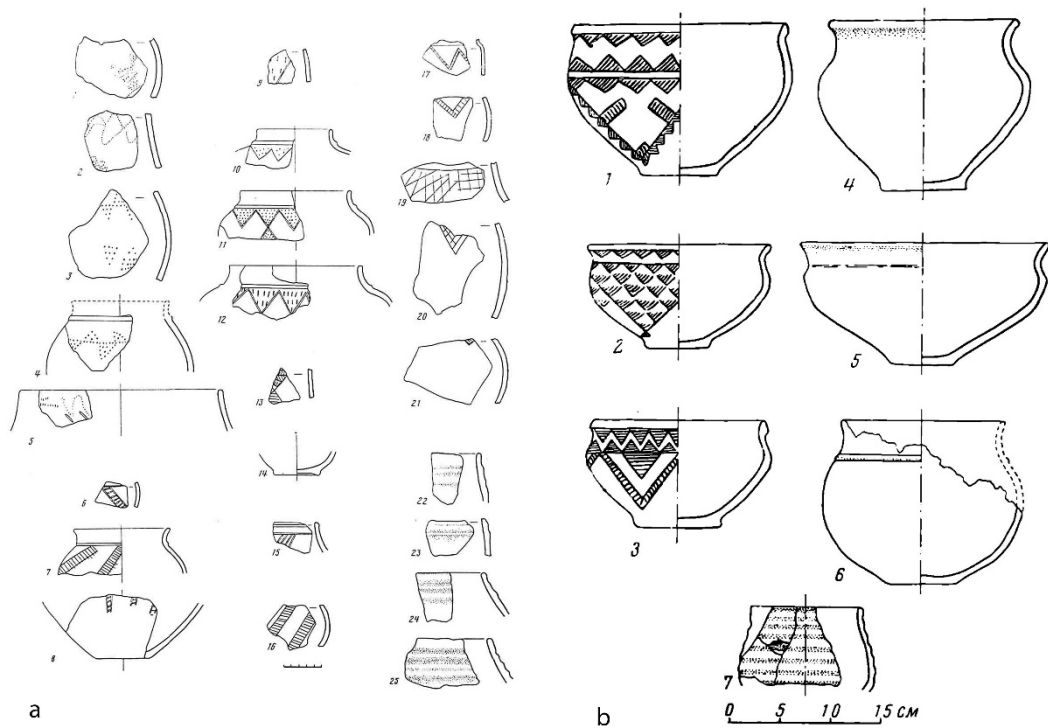


Figure 11 Pottery of Yakke-Parsan 2 and North Tagisken

a: pottery from Yakke-Parsan 2 with North Tagisken elements (Itina 1977: fig. 82)

b: pottery of North Tagisken (Tolstov 1962b: fig. 9)

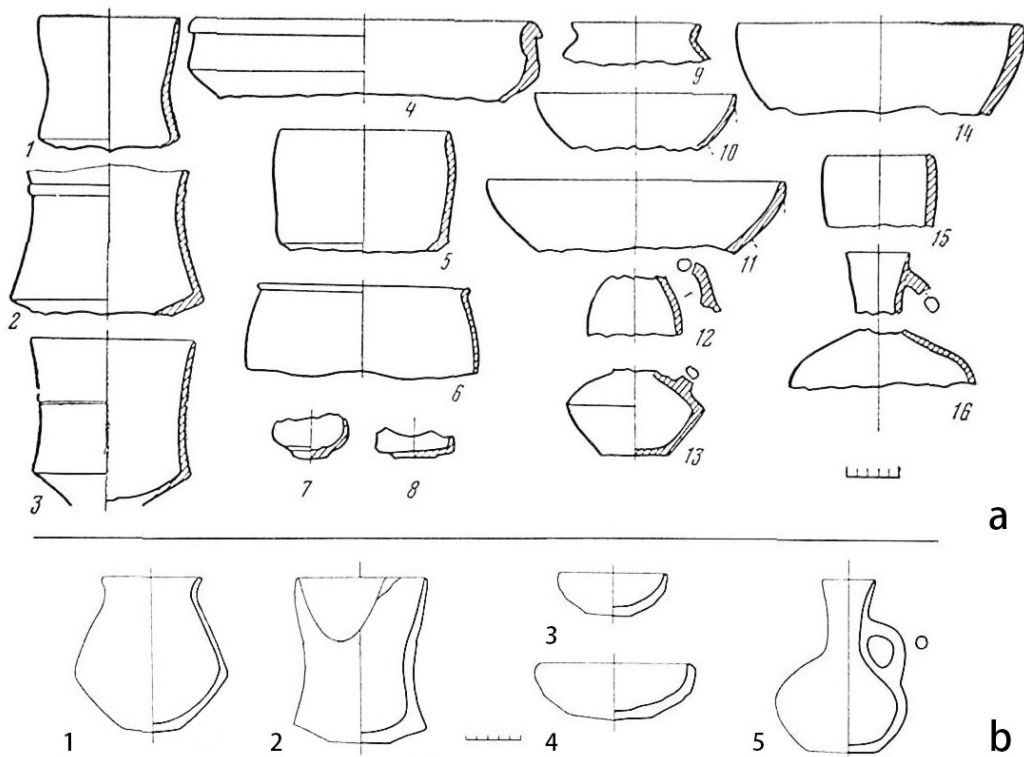


Figure 12 Imported pottery

a: Kuyusai 2 (Itina 1979: tab. IX) b: Uigarak burial ground (Vishnevskaya 1973: tab. XXII)

Anau IV	Gyaur-kala of Merv	Yaz-II	Yaz-III	Kyuzeli-gyr	Dingildzhe	Kobadian I	Afrasiab I	Balkh	Nad-i-Ali

Figure 13 Pottery typology of Antique I (after Vorob'eva 1959: tab.1, legends translated)

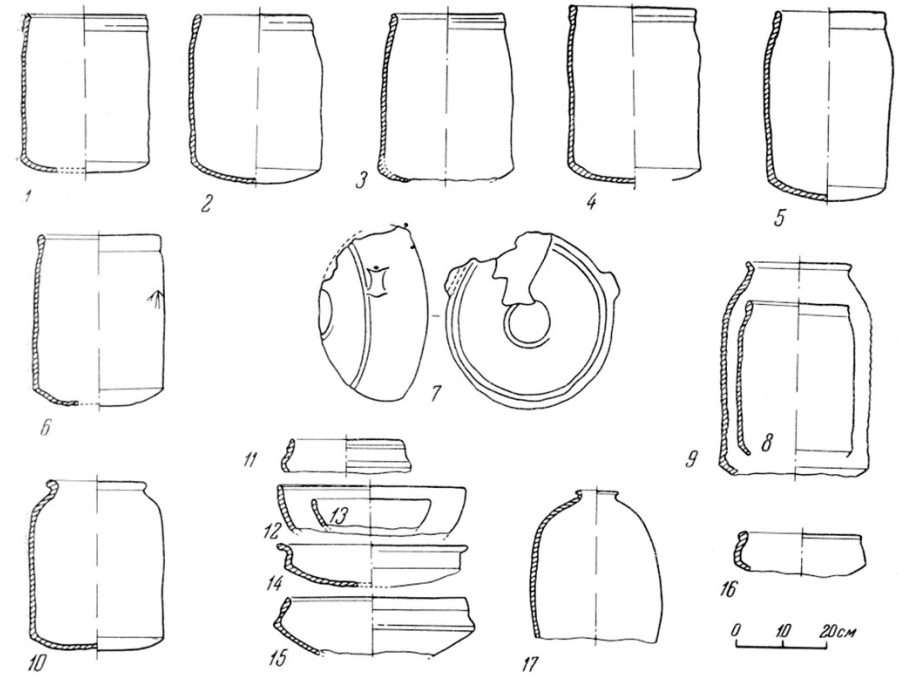
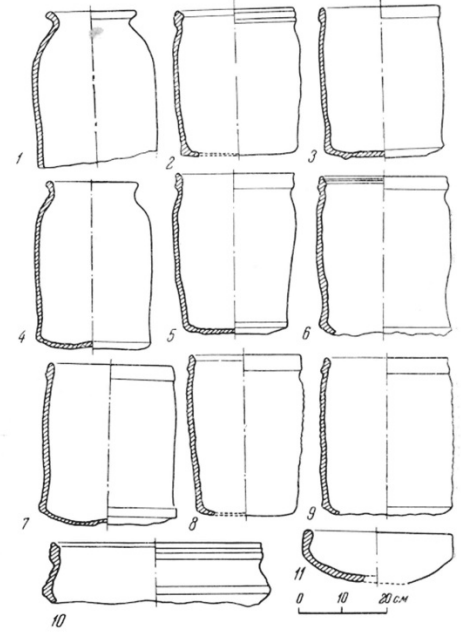
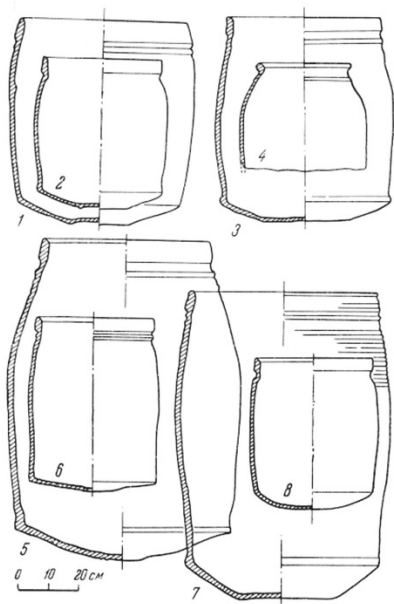


Figure 14 Pottery of Dingildzhe
 left: Vorob'eva 1973: fig.33,34 right: *ib.* fig.35

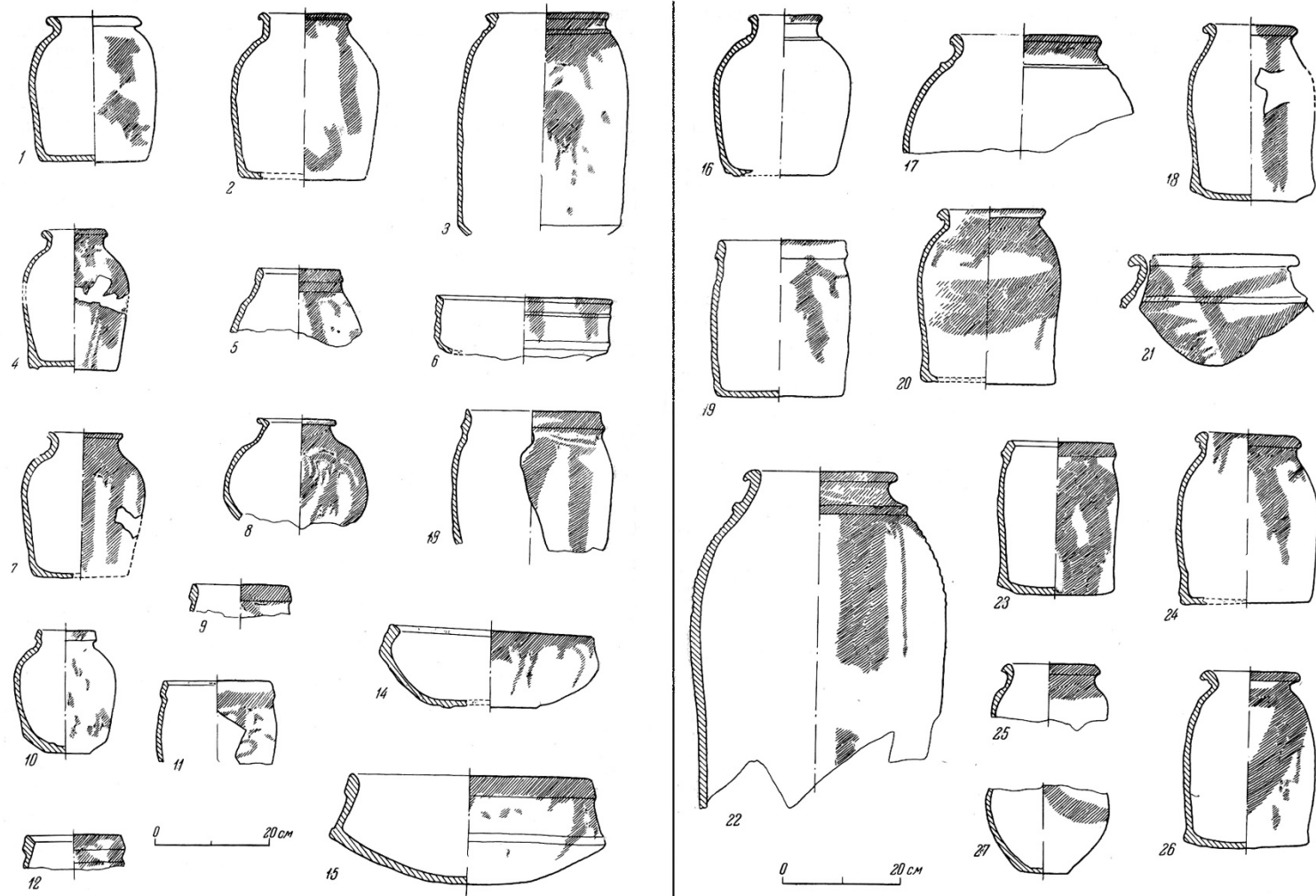


Figure 15 Painted wares of Dingildzhe (Vorob'eva 1973: fig.36)

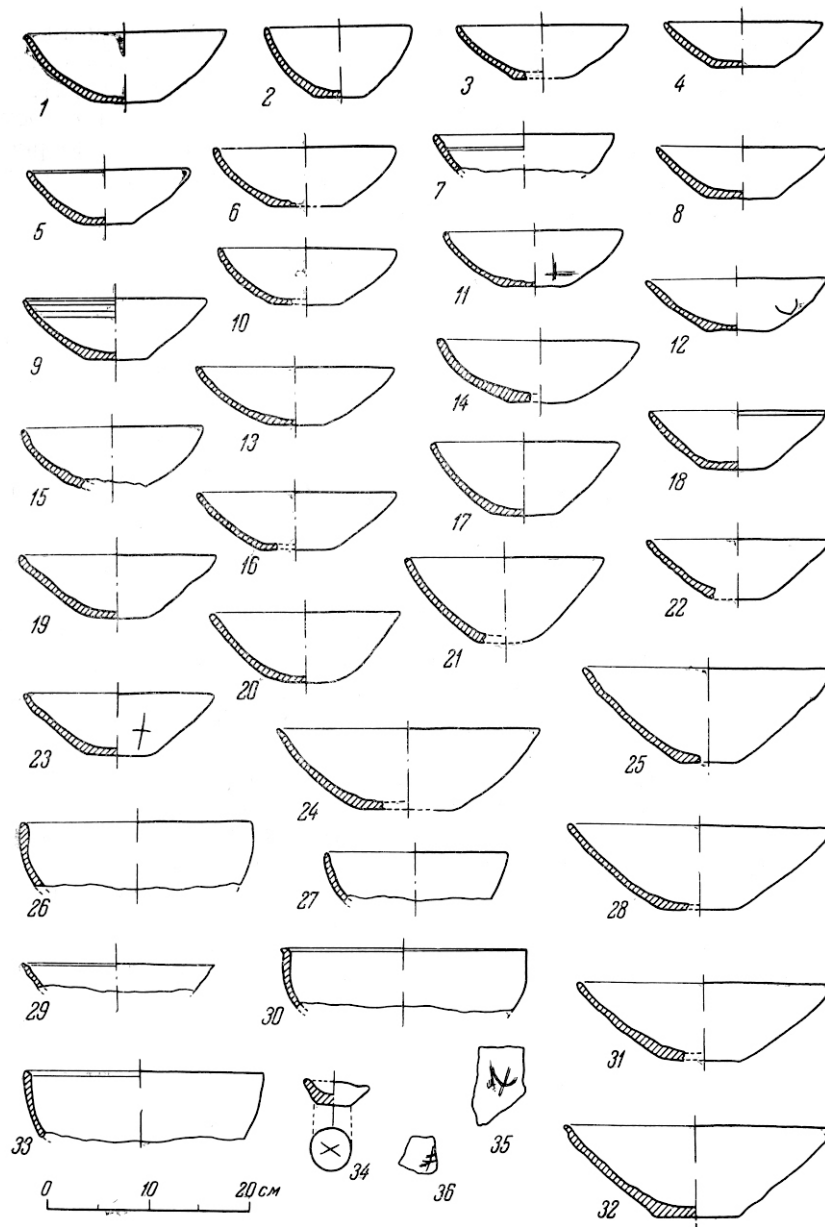


Figure 16 Red slipped bowls of Dingildzhe (Vorob'eva 1973: fig.37)

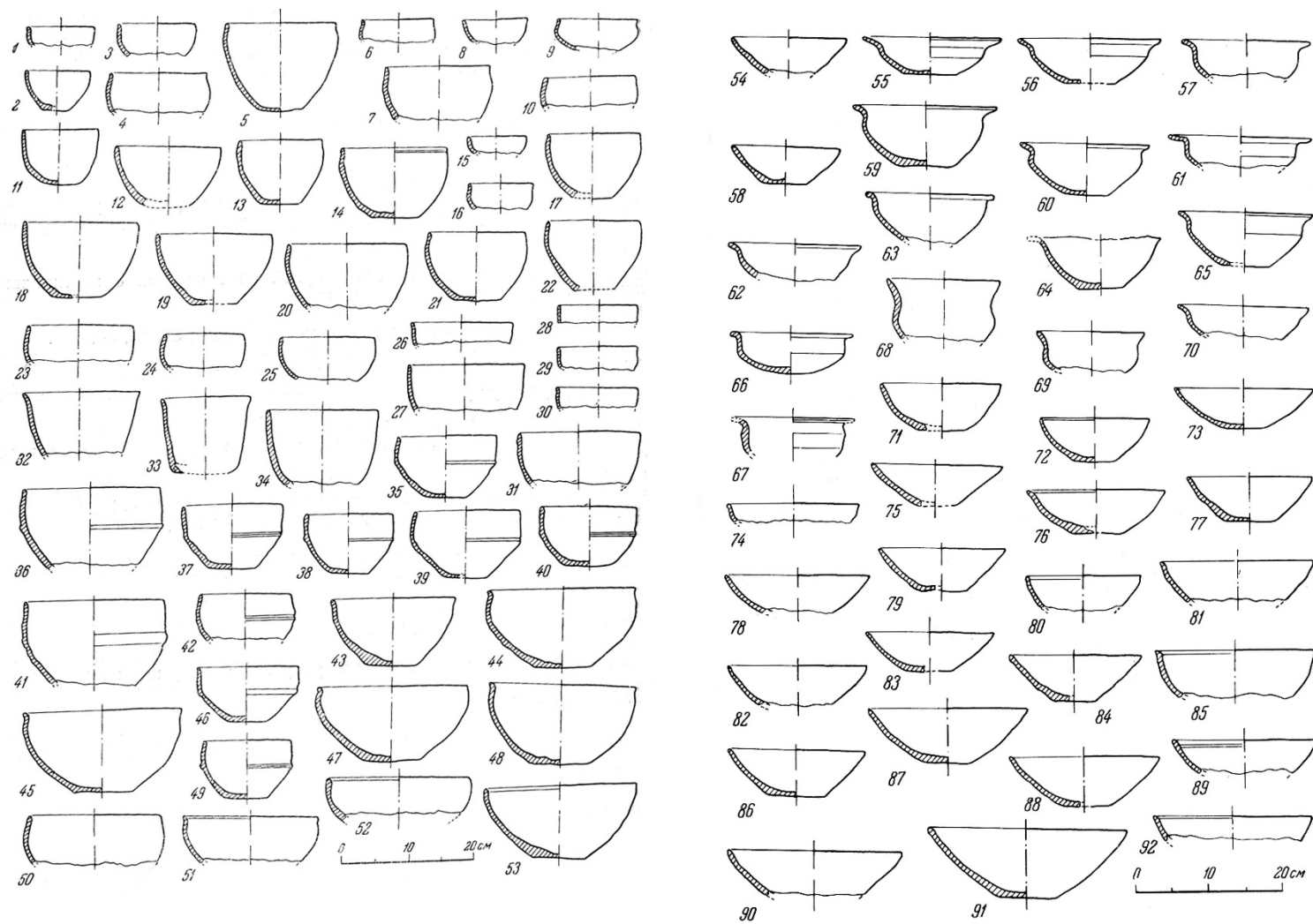


Figure 17 Red slipped bowls of Dingildzhe (Vorob'eva 1973: fig.38)

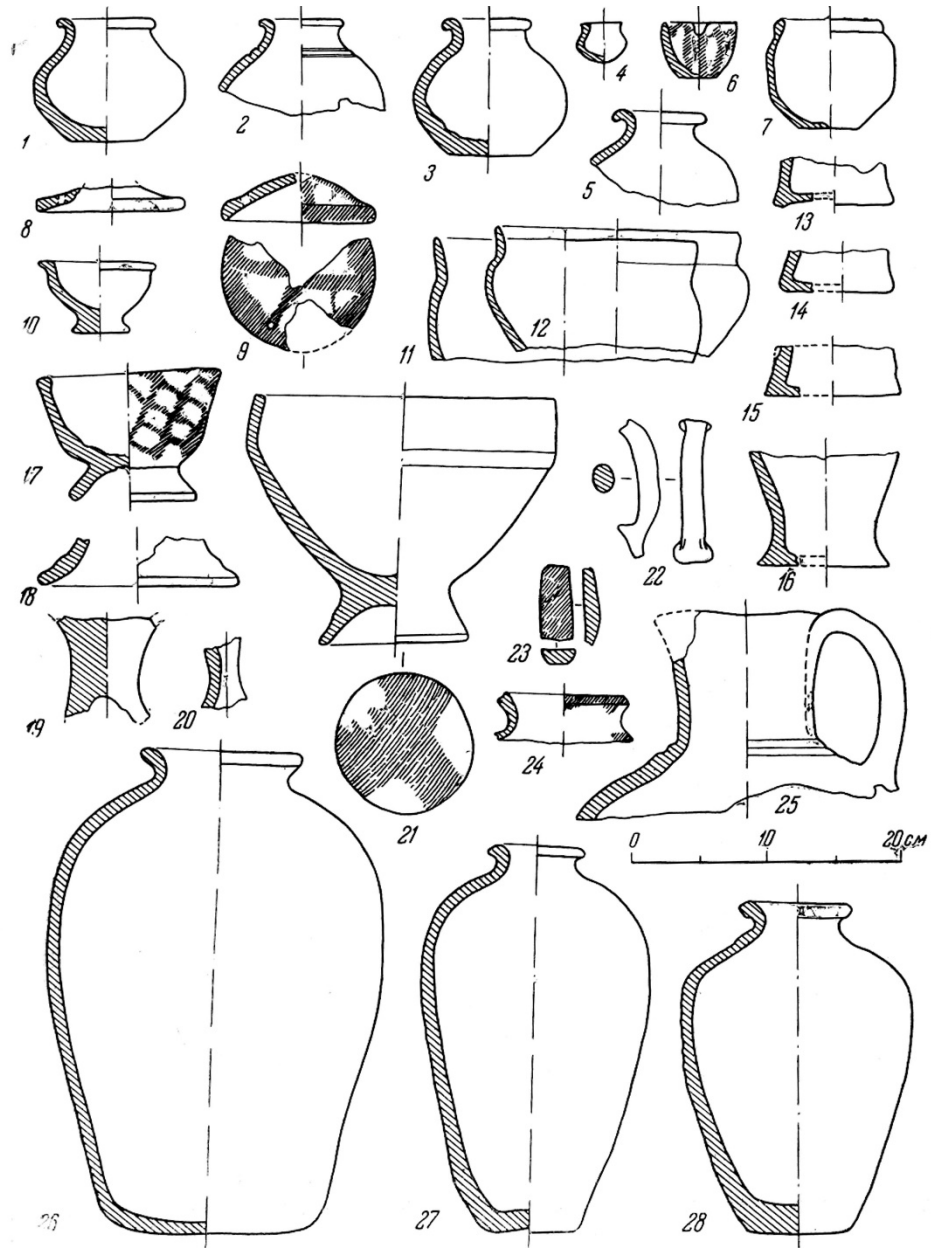


Figure 18 Pottery of Dingildzhe (Vorob'eva 1973: fig.39)

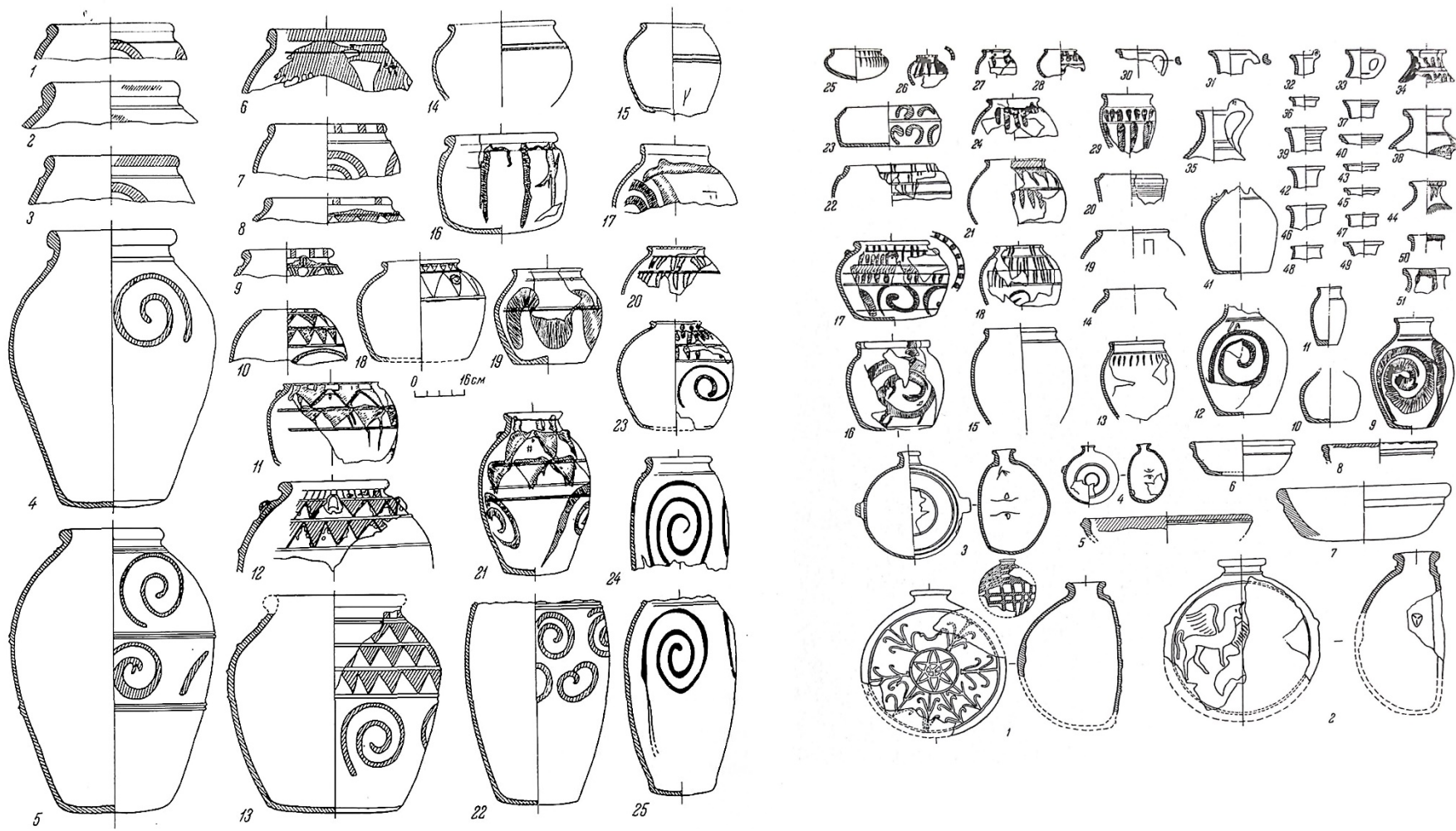


Figure 19 Pottery from Koi-Krylgan-kala "Lower Horizon" (left: Tolstov and Vainberg 1967: tab.I; right: *ib.* tab.II)

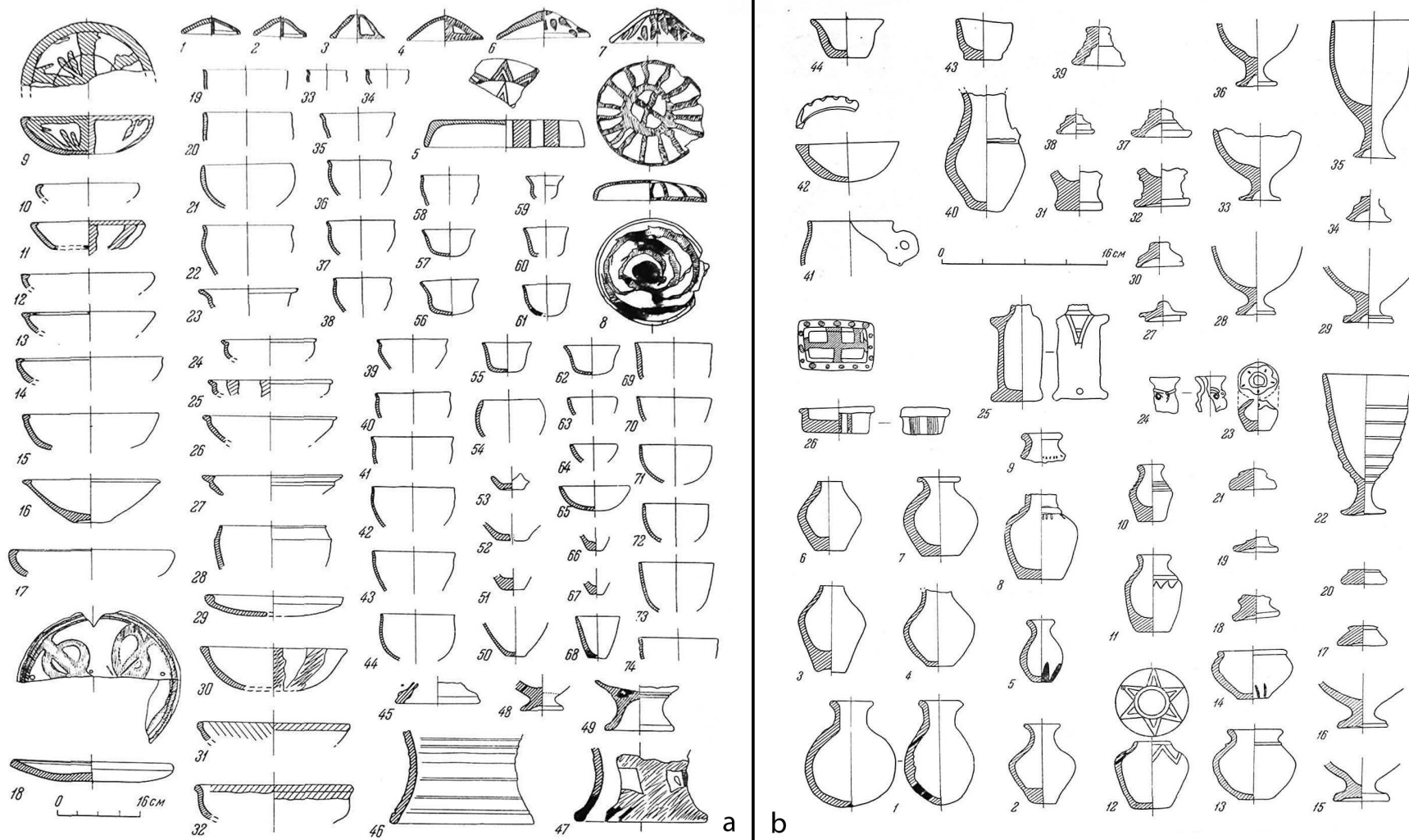
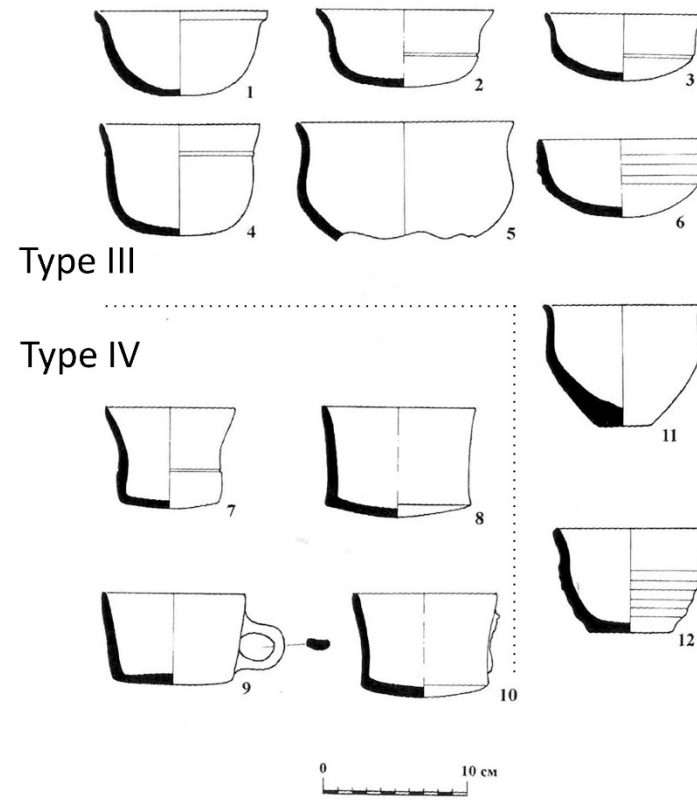
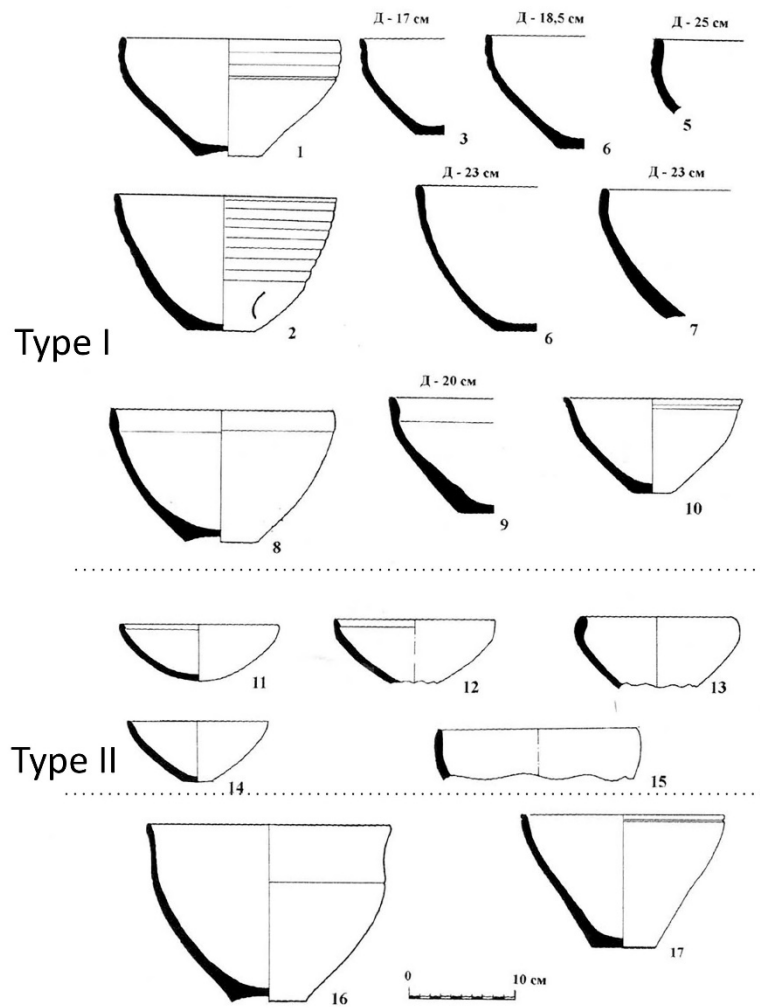


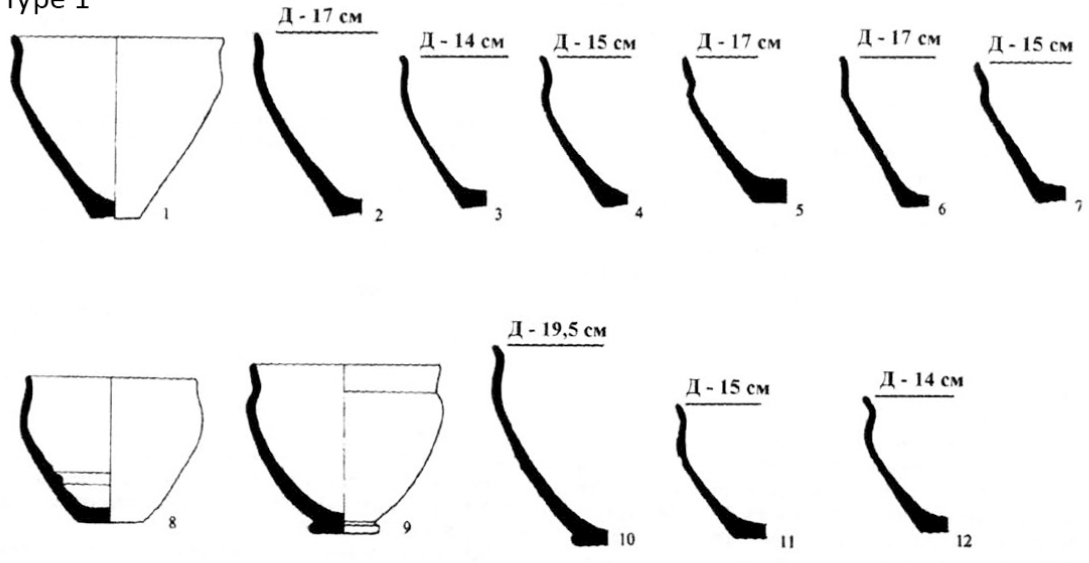
Figure 20 Pottery from Koi-Krylgan-kala "Lower Horizon" (a: Tolstov and Vainberg 1967: tab. III; b: *ib.* tab. IV)



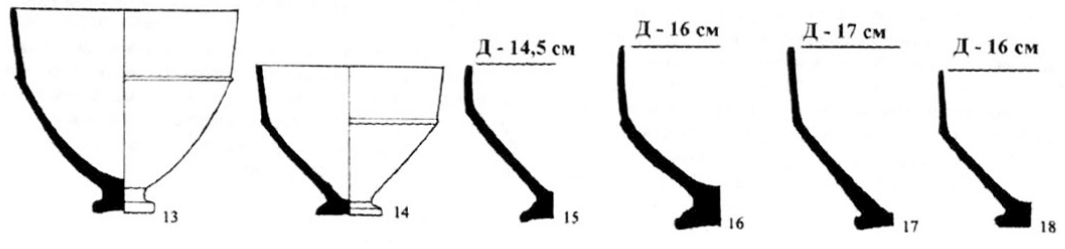
a b

Figure 21 Bowls, Kalaly-gyr 2 (a: Vainberg 2004: fig.3/16; b: *ib.*: fig.3/17, edited by the author)

Type 1



Type 2



Type 3

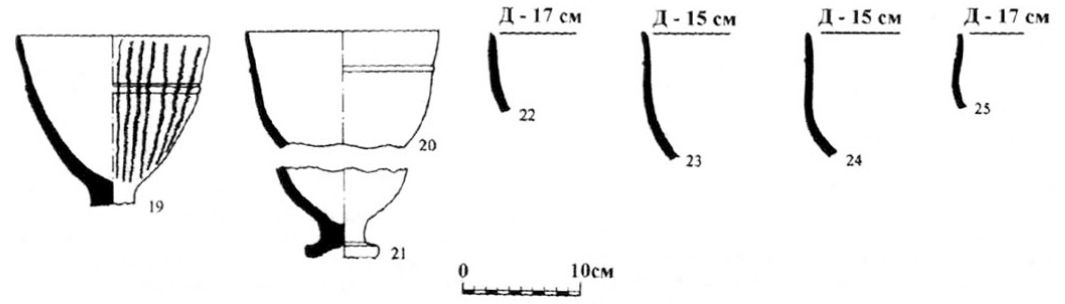


Figure 22 Goblets, Kalaly-gyr 2 (Vainberg 2004: fig.3/15)

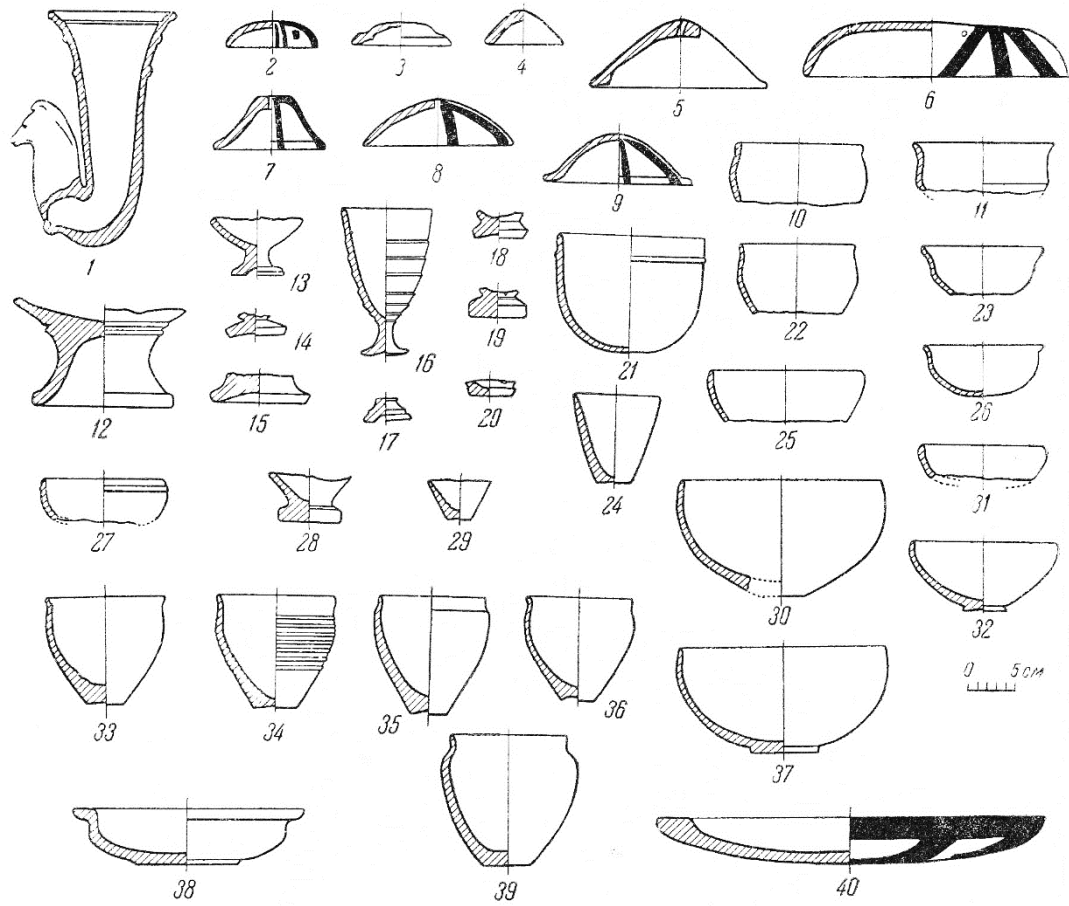


Figure 23 Pottery of Early "Kangyui" period (Vorob'eva 1959: fig.17)

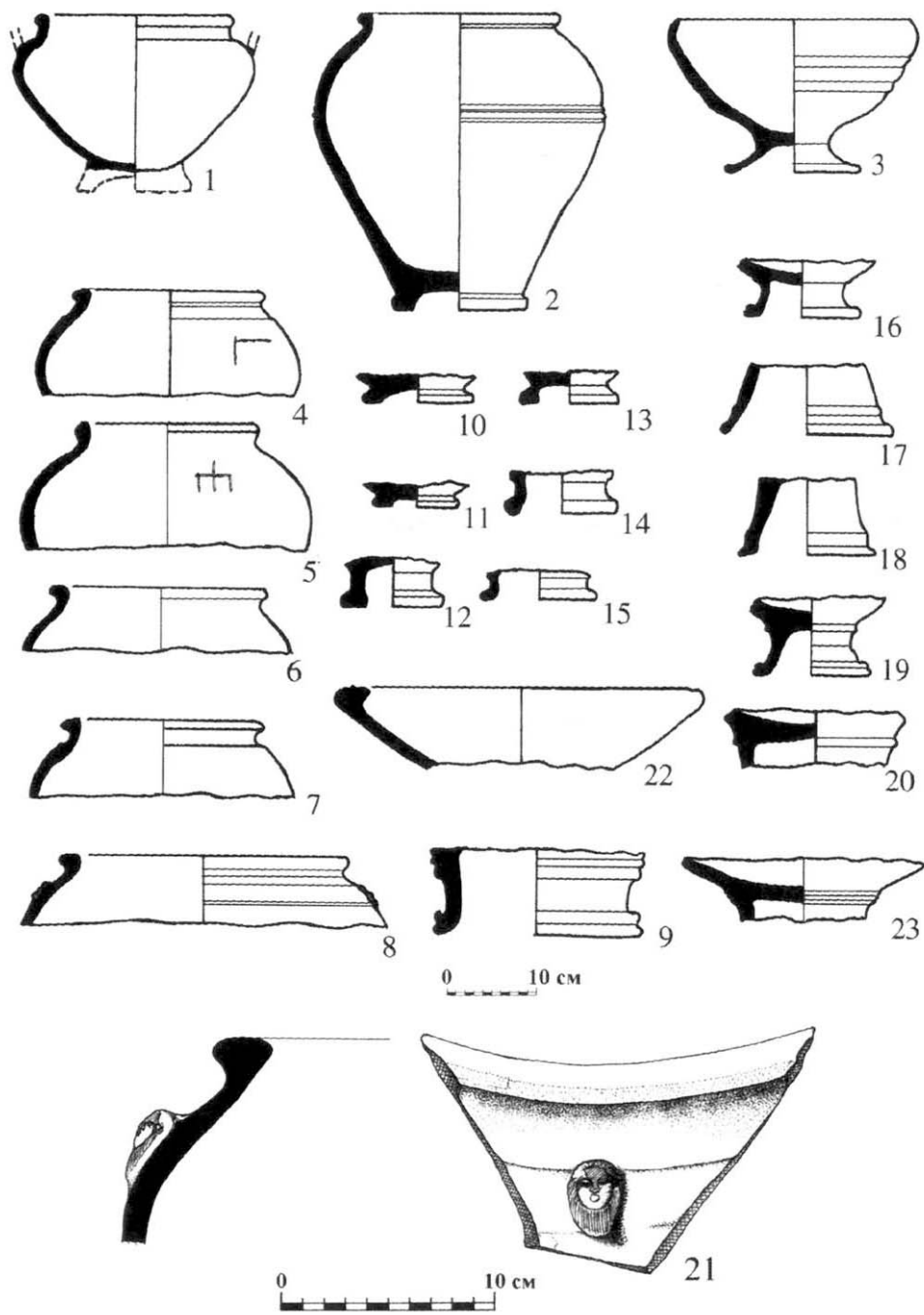


Figure 24 Craters, Kalaly-gyr 2 (Vainberg 2004: fig.3/20)

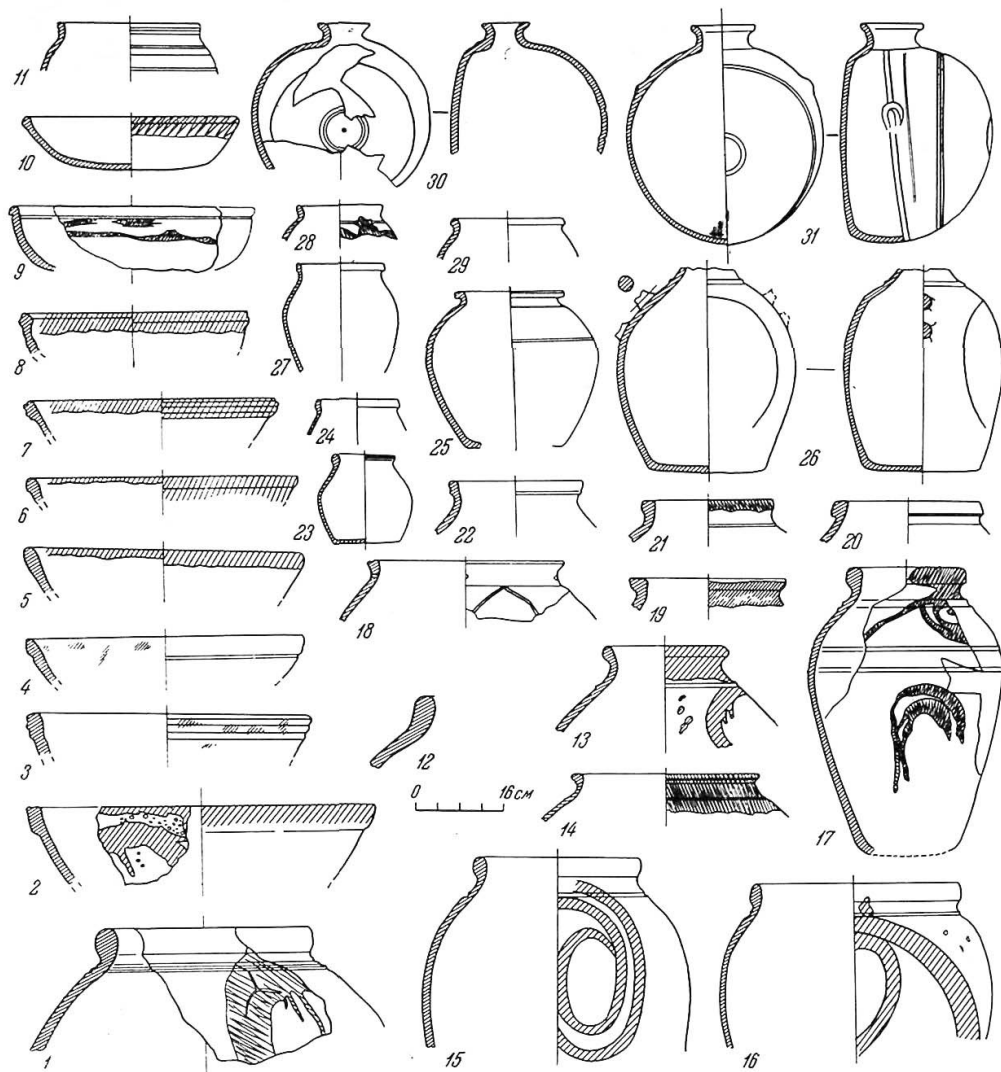


Figure 25 The "Middle & Top Horizons" of Koi-Krylgan-kala
 (Tolstov and Vainberg 1967: tab.VIII)

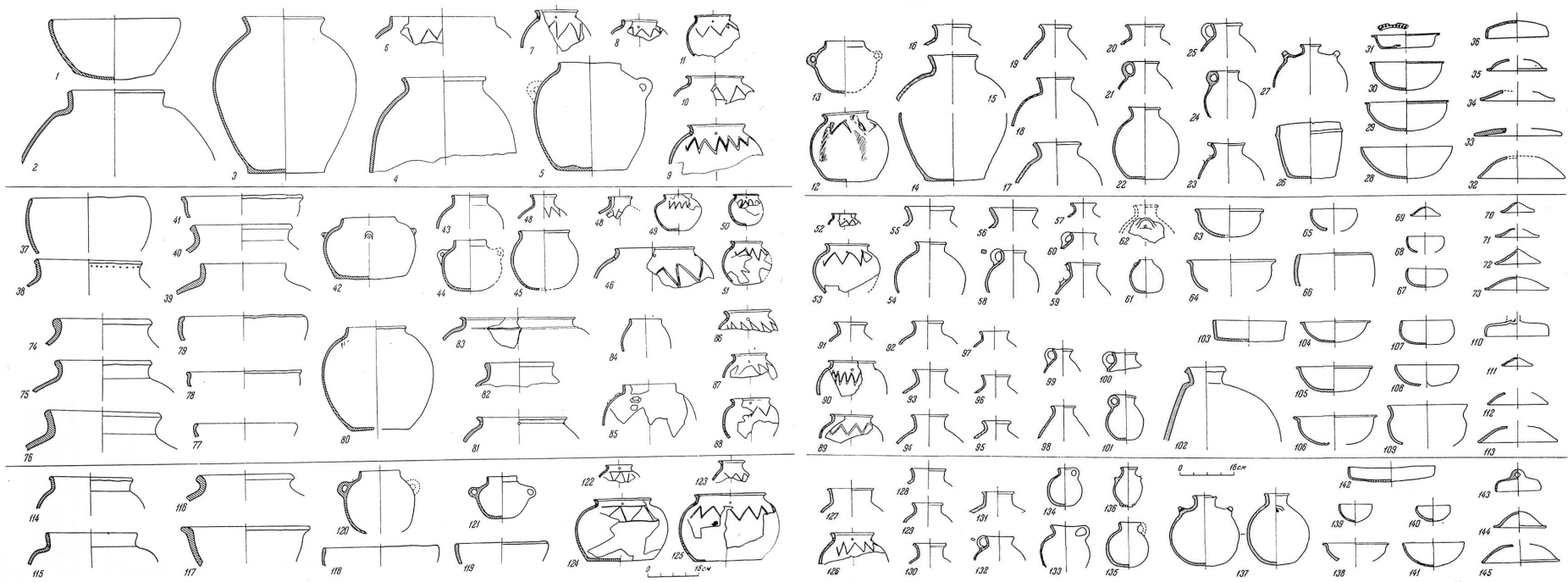


Figure 26 Modelled pottery, "Middle & Top Horizons" of Koi-Krylgan-kala (Tolstov and Vainberg 1967: tab.X)

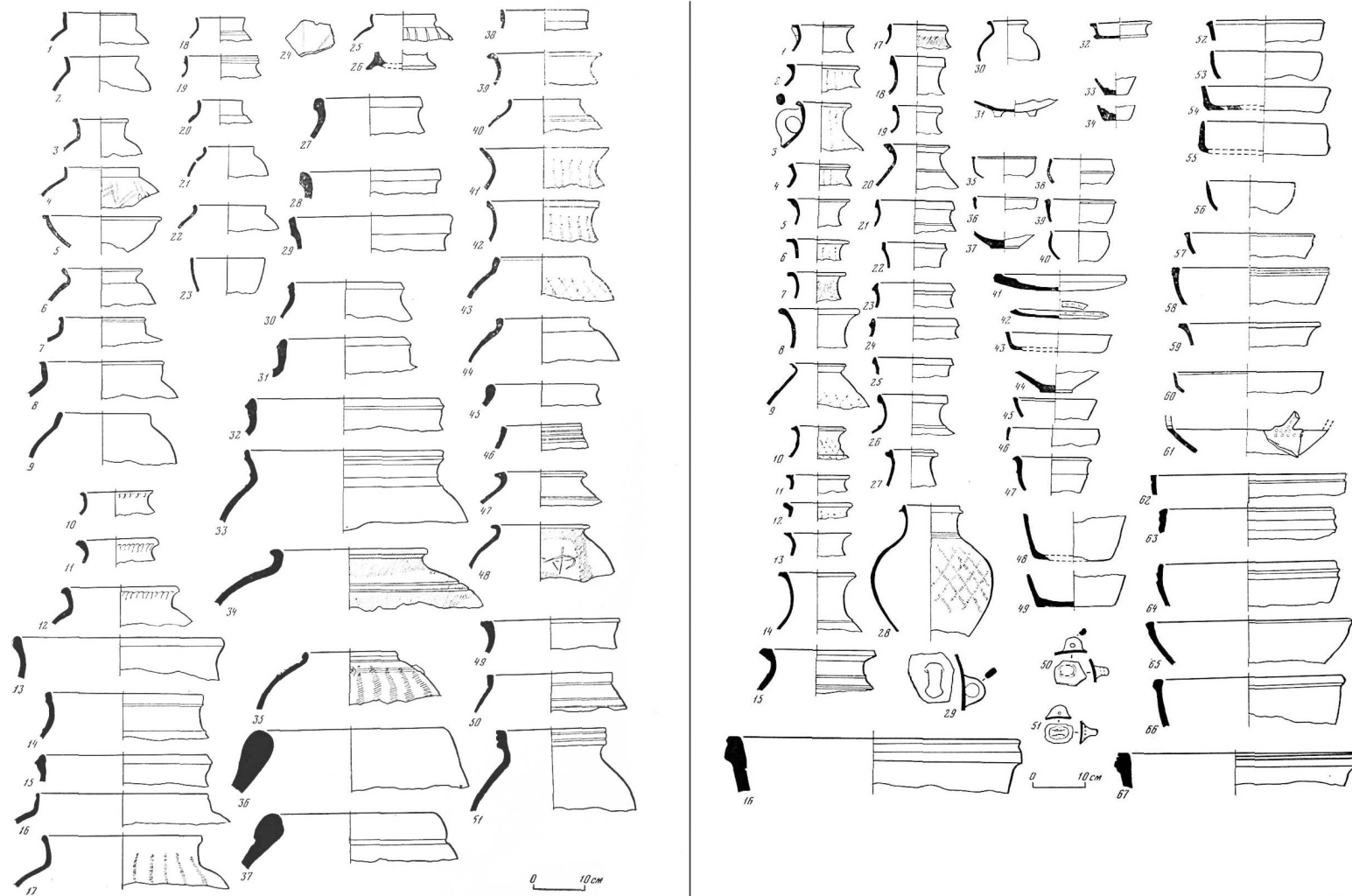


Figure 27 Pottery of Toprak-kala Horizon I (left: Nerazik and Rapoport 1981: fig.39; right: *ib.*: fig.40)

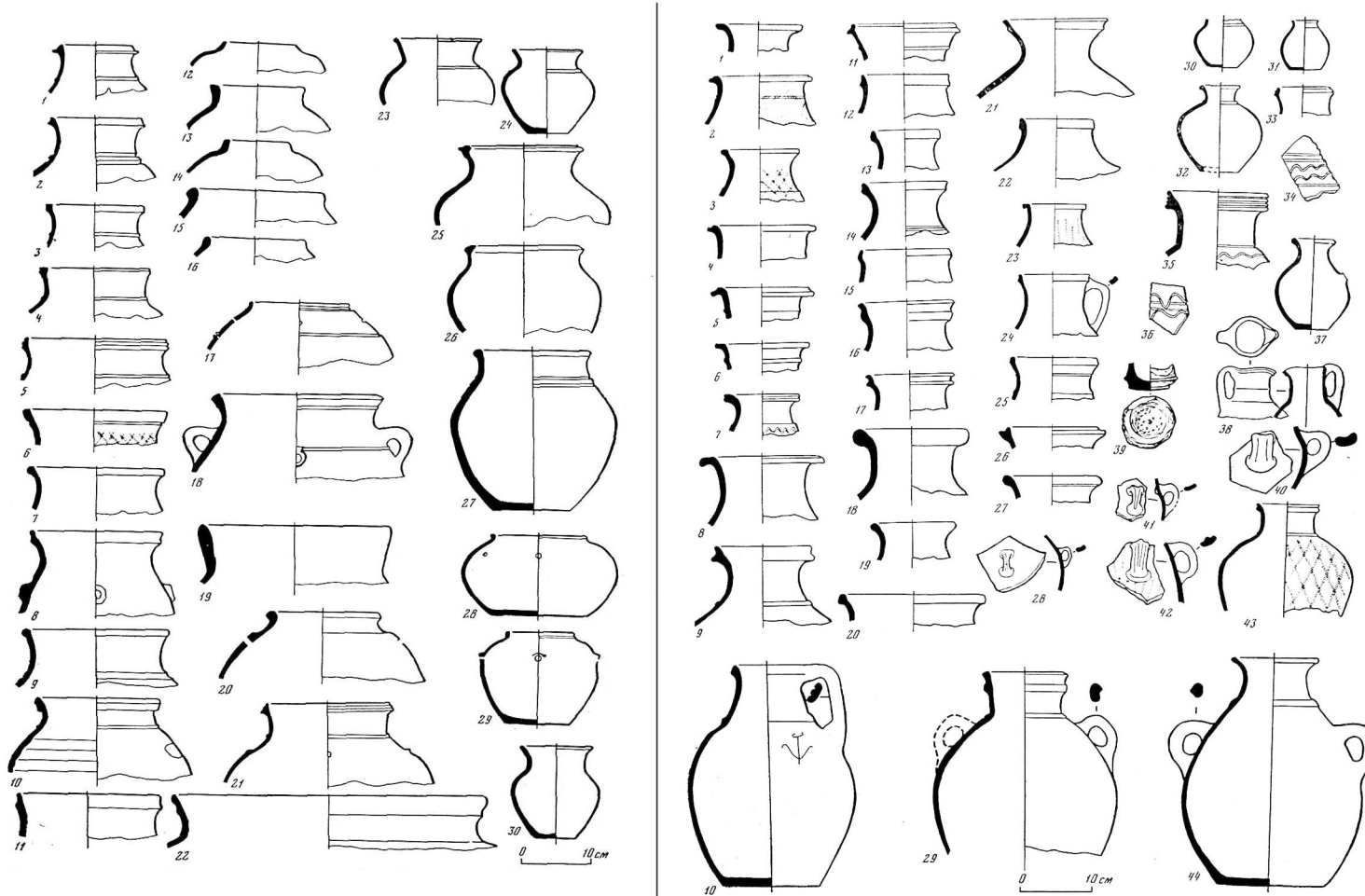


Figure 28 Pottery of Toprak-kala Horizon II (left: Nerazik and Rapoport 1981: fig.42; right: *ib.*: fig.43)

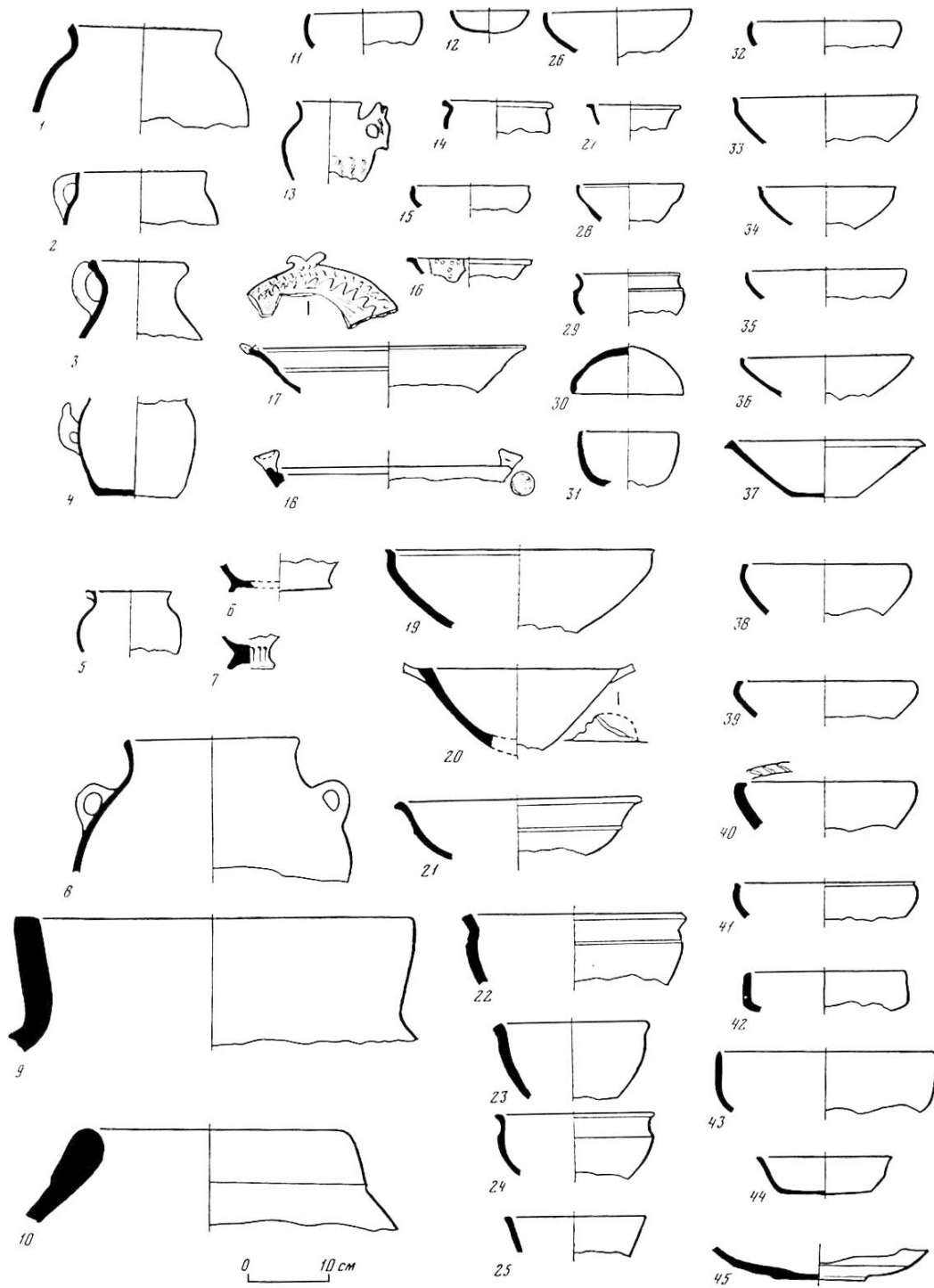


Figure 29 Pottery of Toprak-kala Horizon II (Nerazik and Rapoport 1981: fig.44)

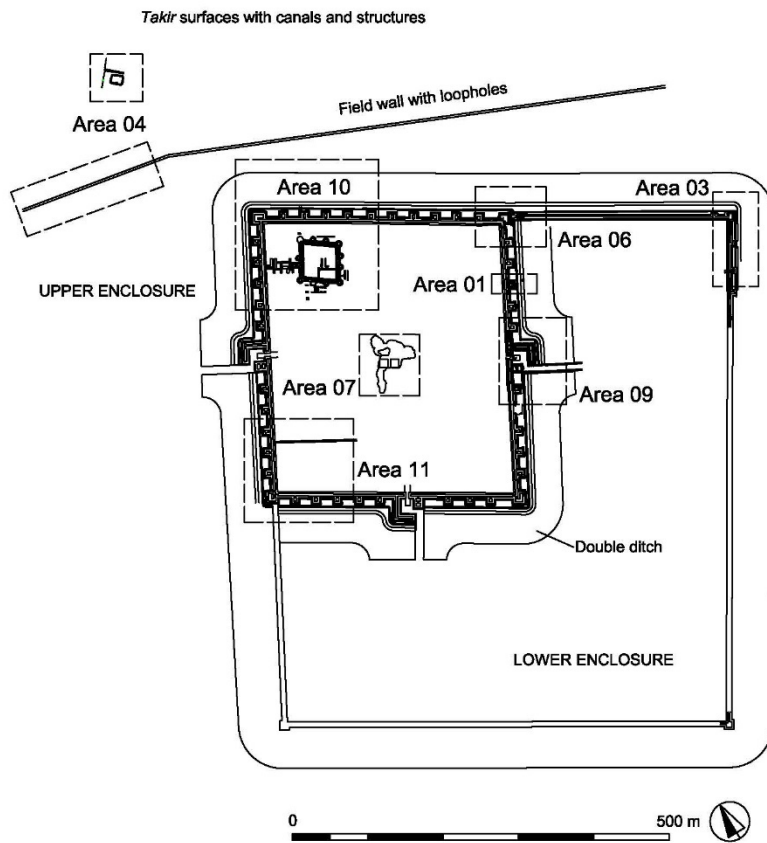


Figure 30 The general plan of Akchakhan-kala by KAE

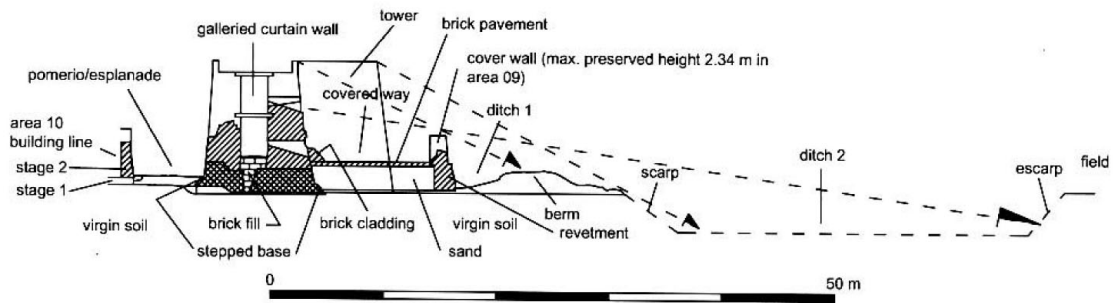


Figure 31 Section through the fortifications of the Upper Enclosure (after Betts et al. 2009: fig.3)

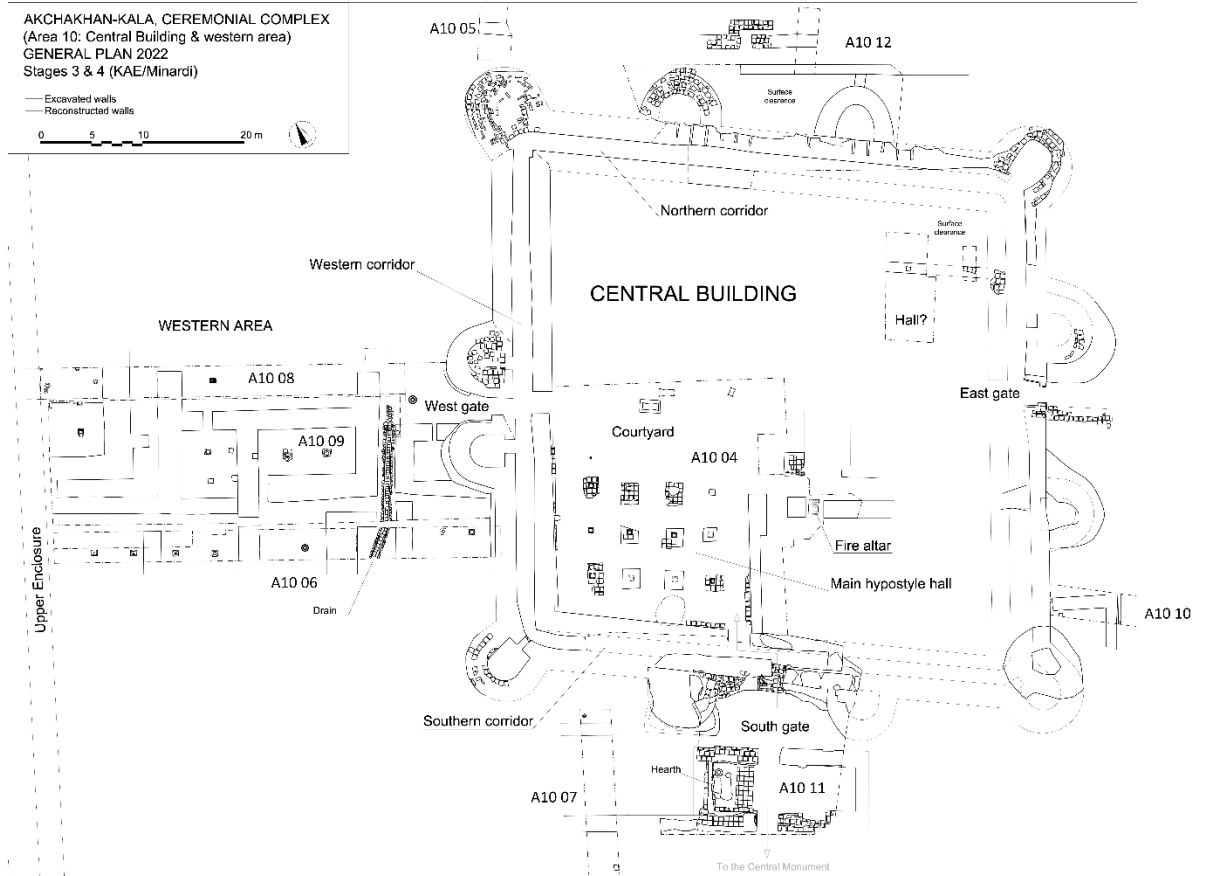
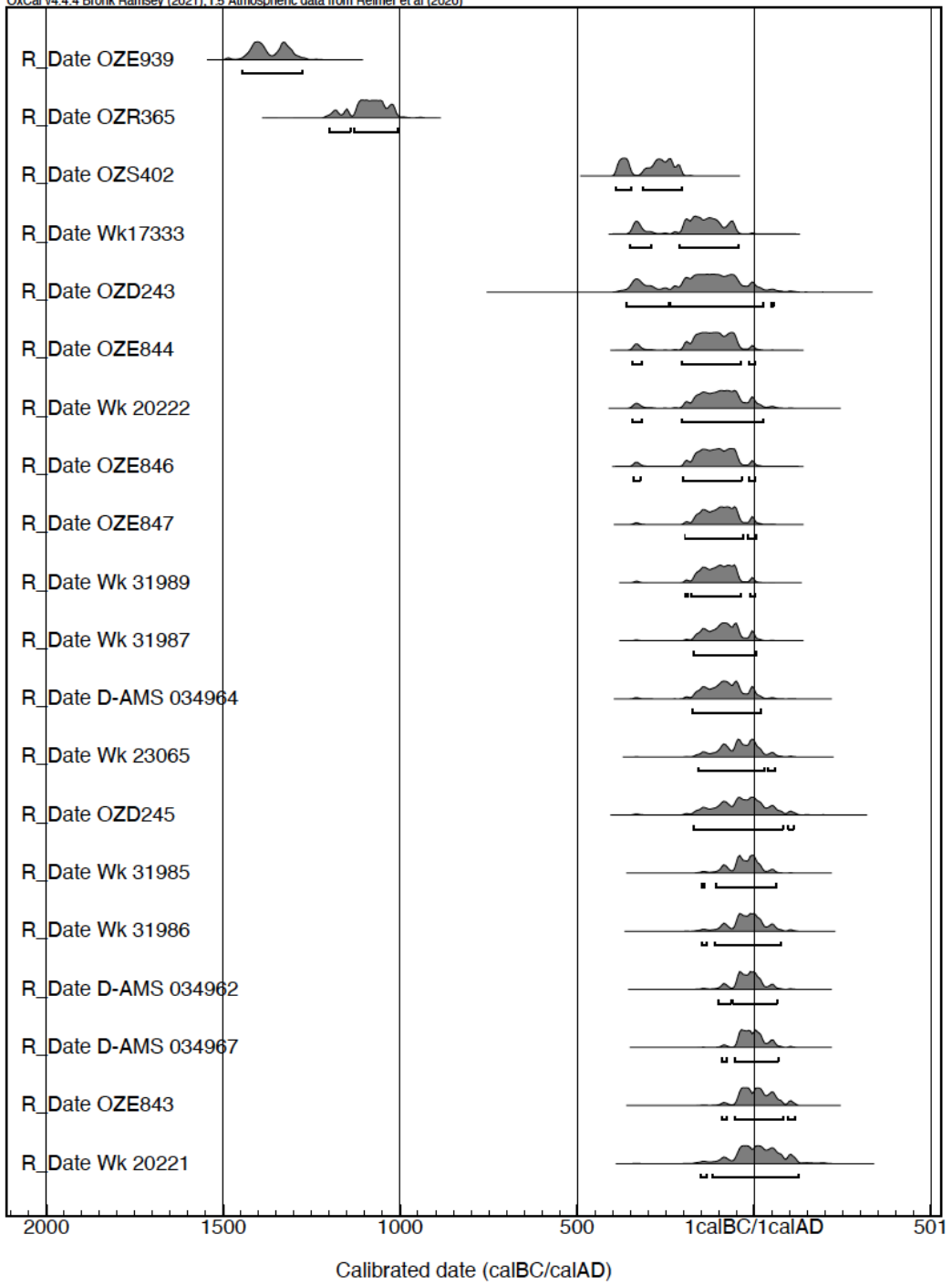


Figure 32 The general plan of Akchakhan-kala Area 10 (Ceremonial Complex) by KAE, with notes on trenches



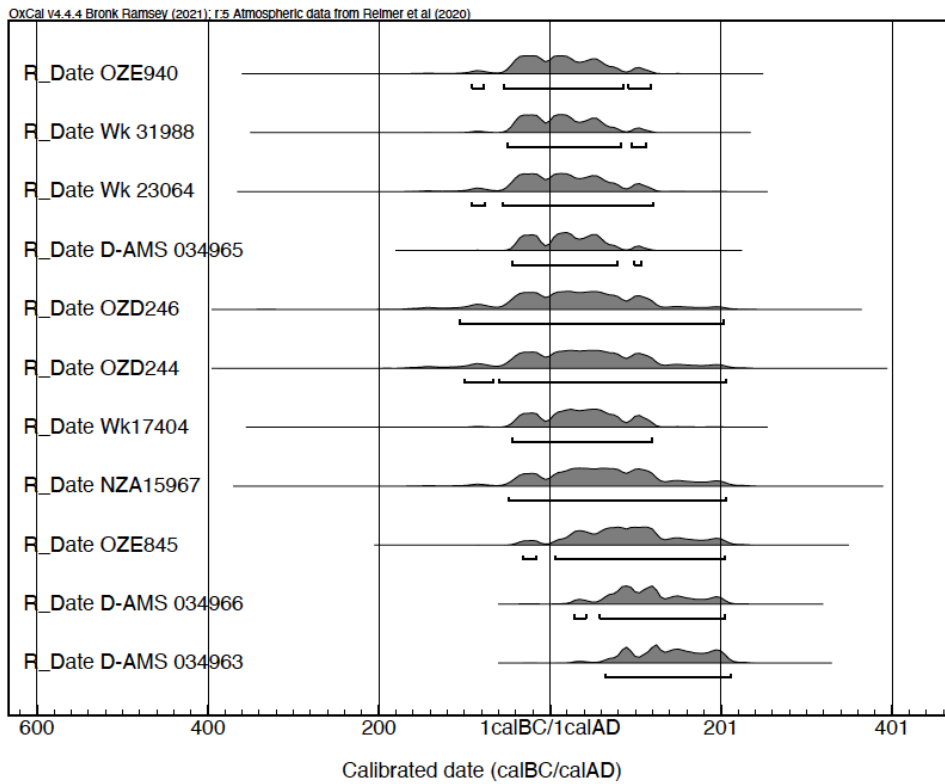


Figure 33 Calibration graph of Tash-K'irman-tepe radiocarbon dates (after Betts et al. 2018: fig.3)

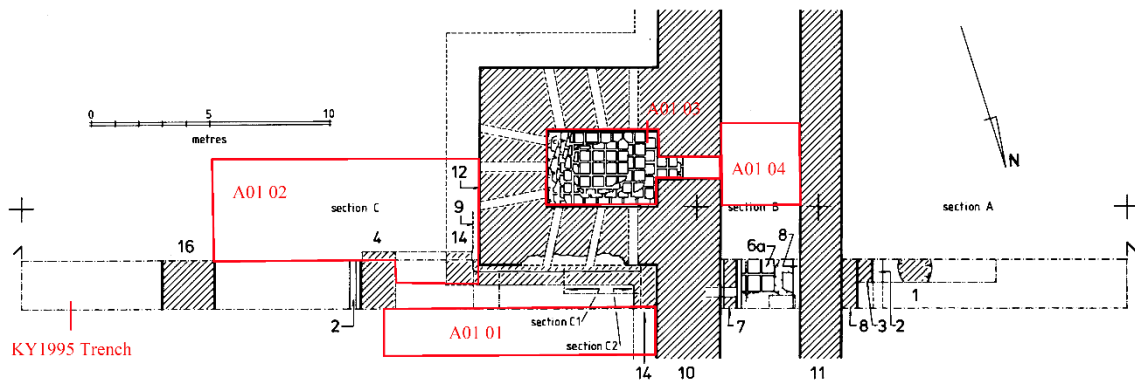


Figure 34 Area 01 Eastern tower, Upper Enclosure: general plan with notes on trenches

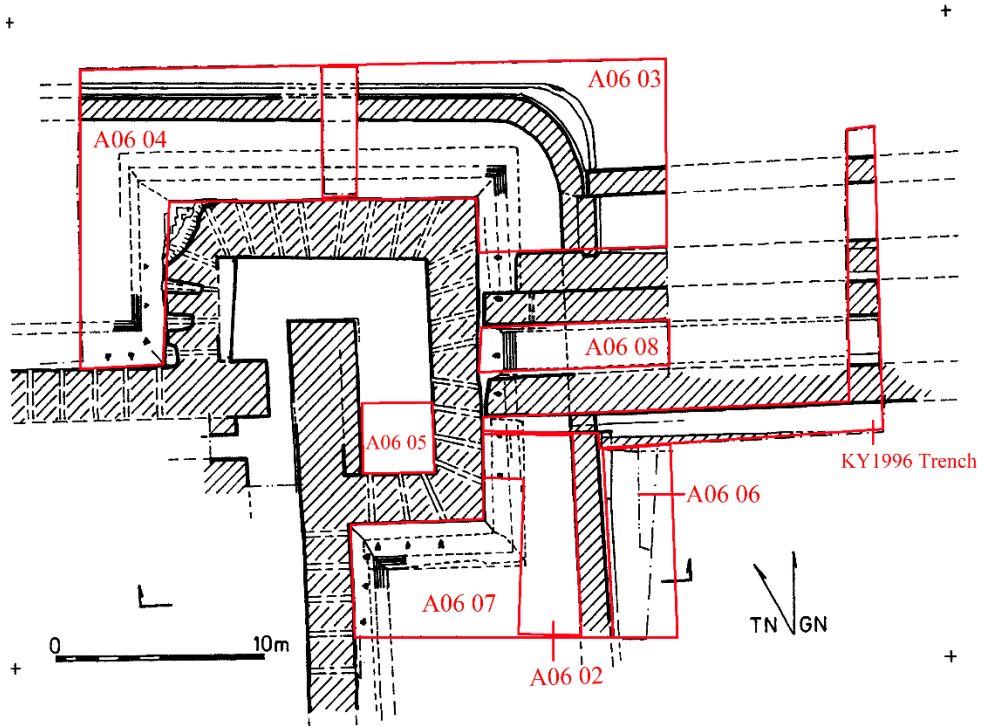


Figure 35 Area 06 North-eastern corner tower: general plan with notes on trenches

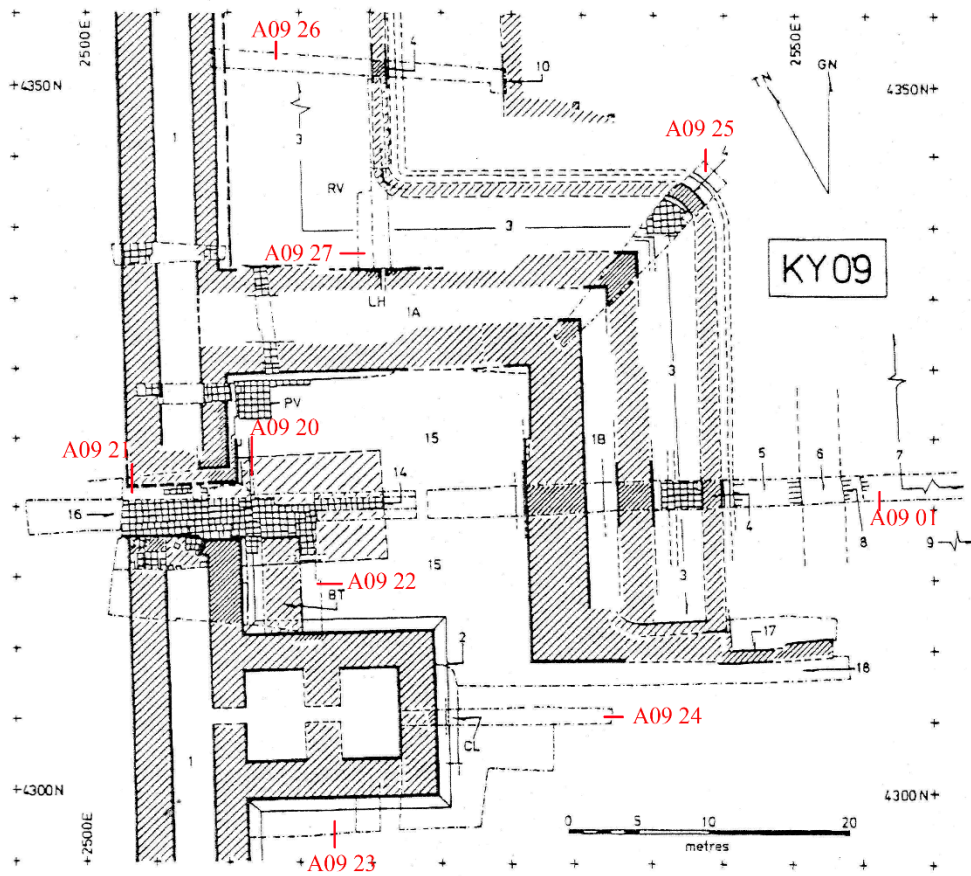


Figure 36 Area 09 East Gate: general plan with notes on trenches

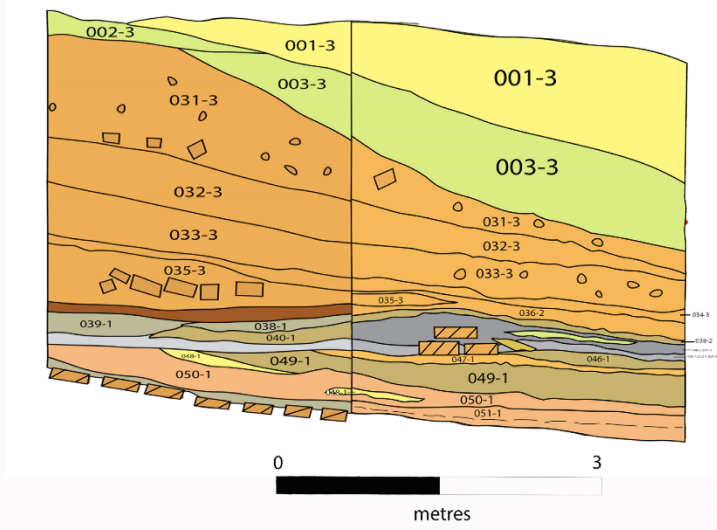
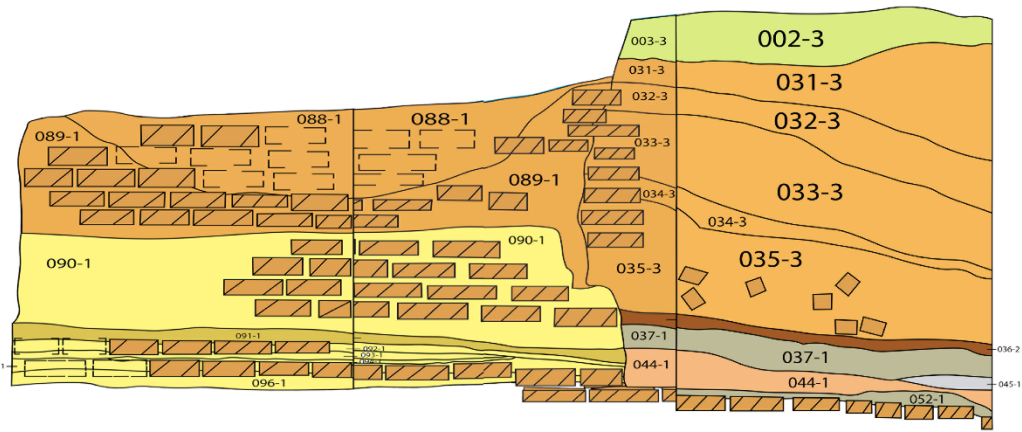


Figure 37 Area 09 East Gate, Upper Enclosure: schematic section through western end of gate and ramp into interior—south face

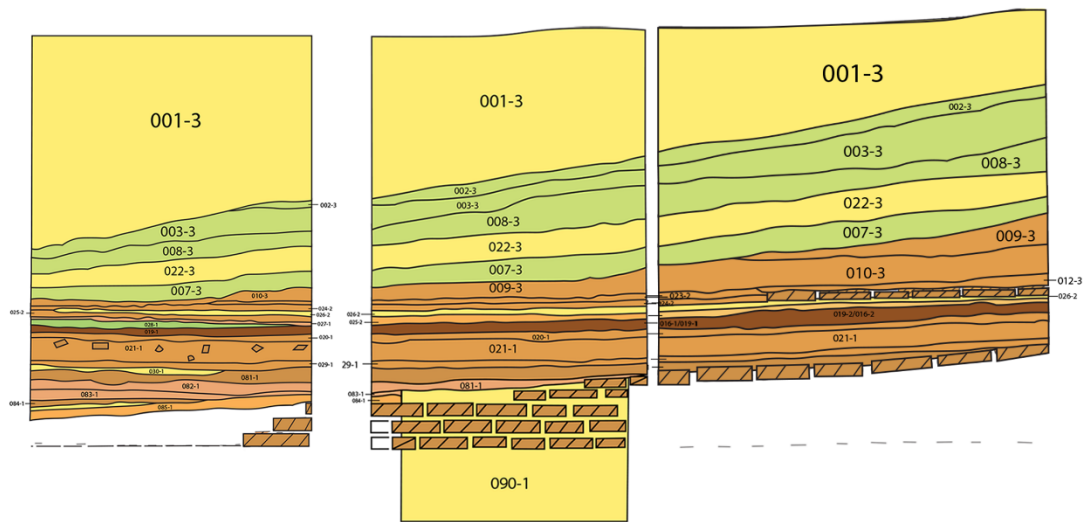
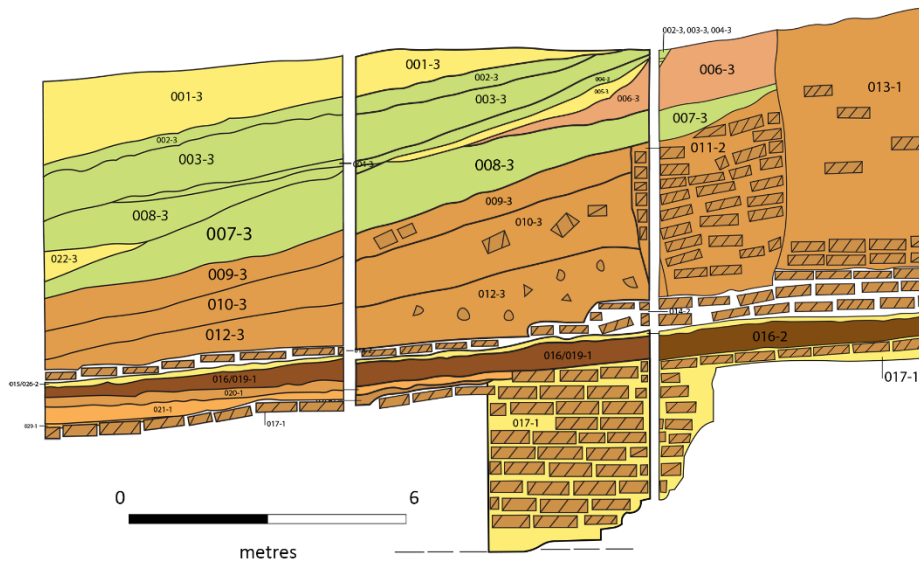


Figure 38 Area 09 East Gate, Upper Enclosure: schematic section through western end of gate and ramp into interior—north face

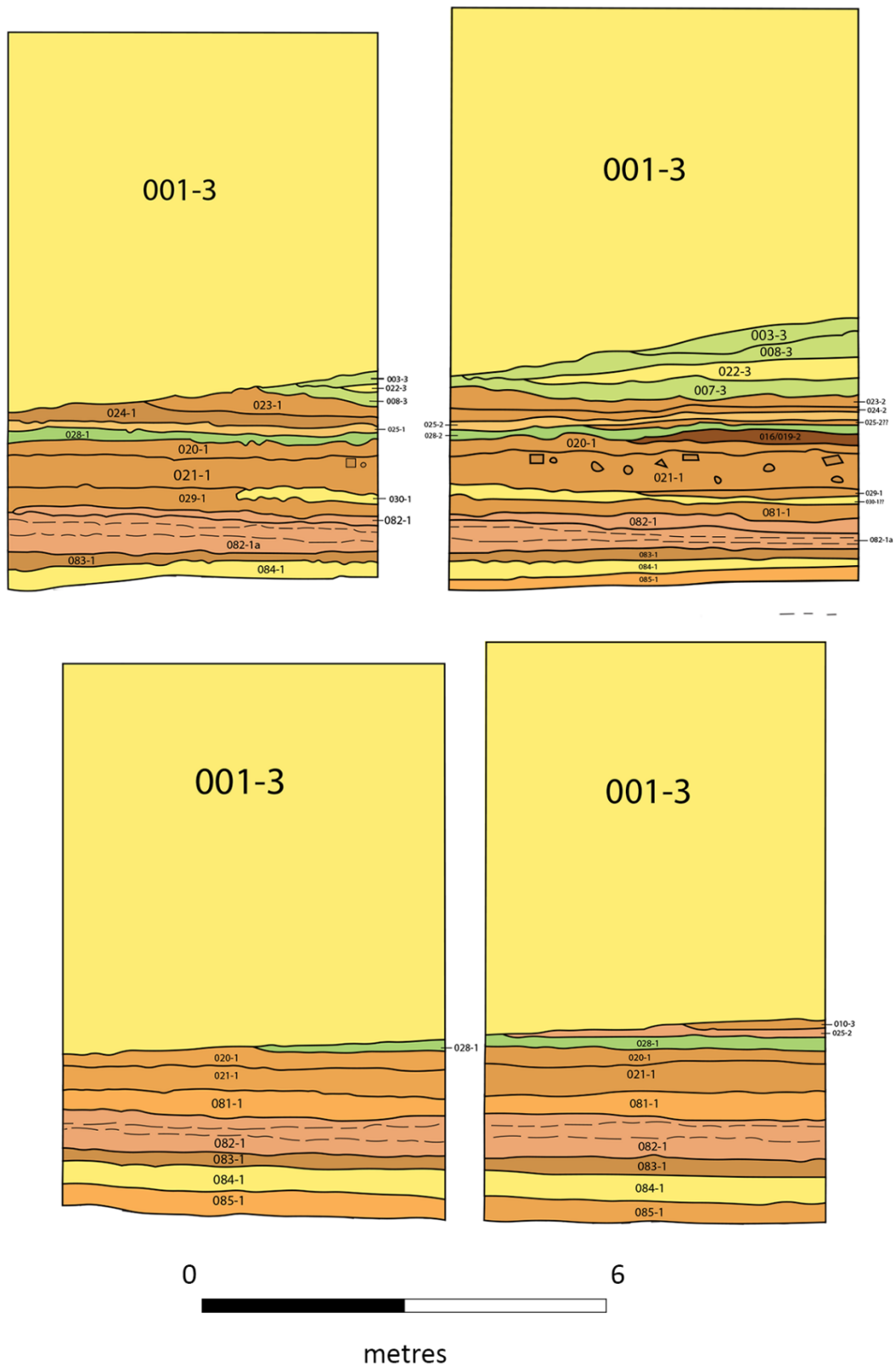


Figure 39 Area 09 East Gate, Upper Enclosure: schematic section through western end of gate and ramp into interior—north face extension

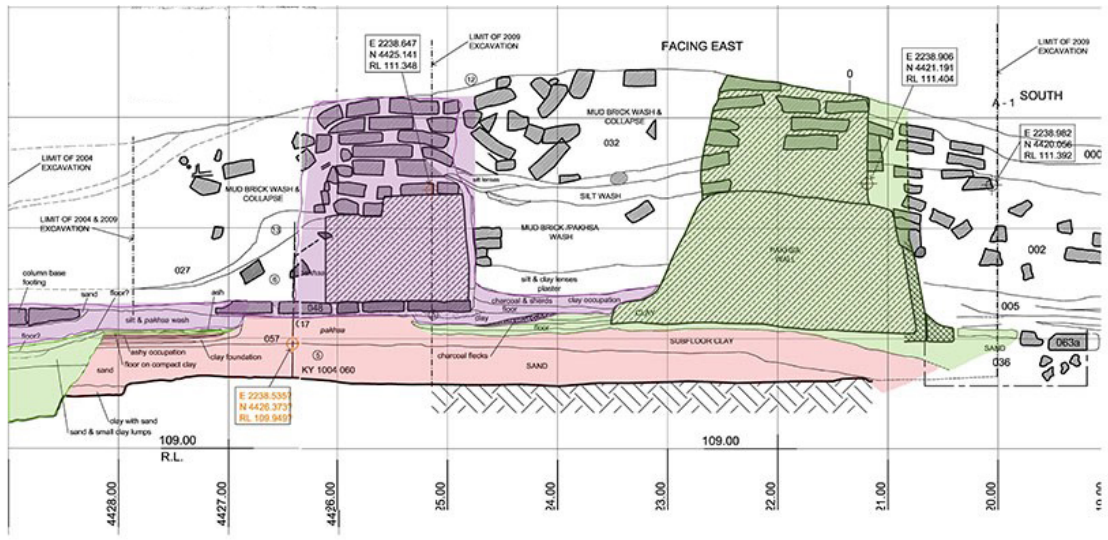


Figure 40 The section of southern corridor of Central Building showing superposition and phases (pink: Stage IB; green: Stage IIB; purple: Stage IIIB)

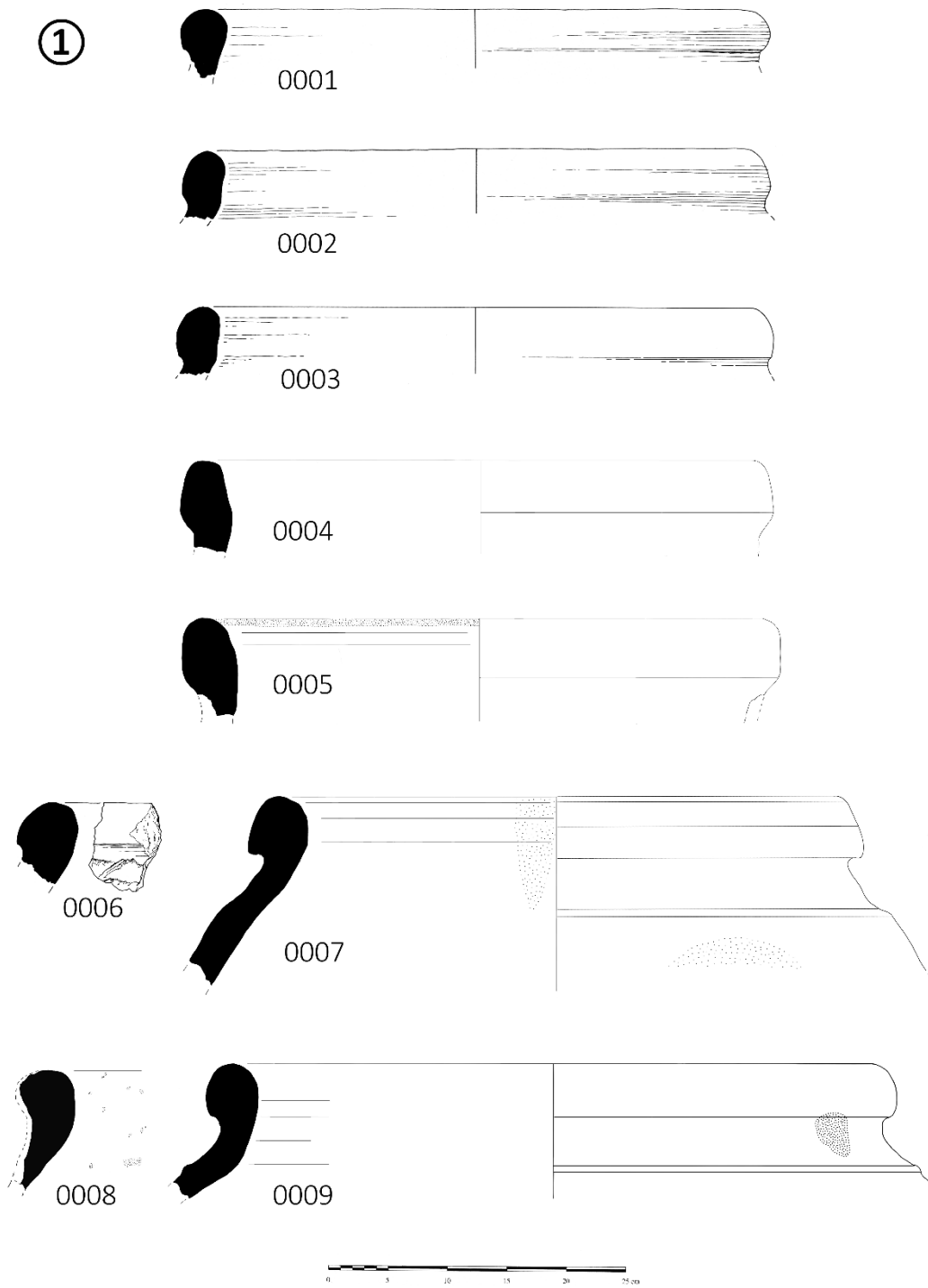


Figure 41 Large storage jars (Genre 1)

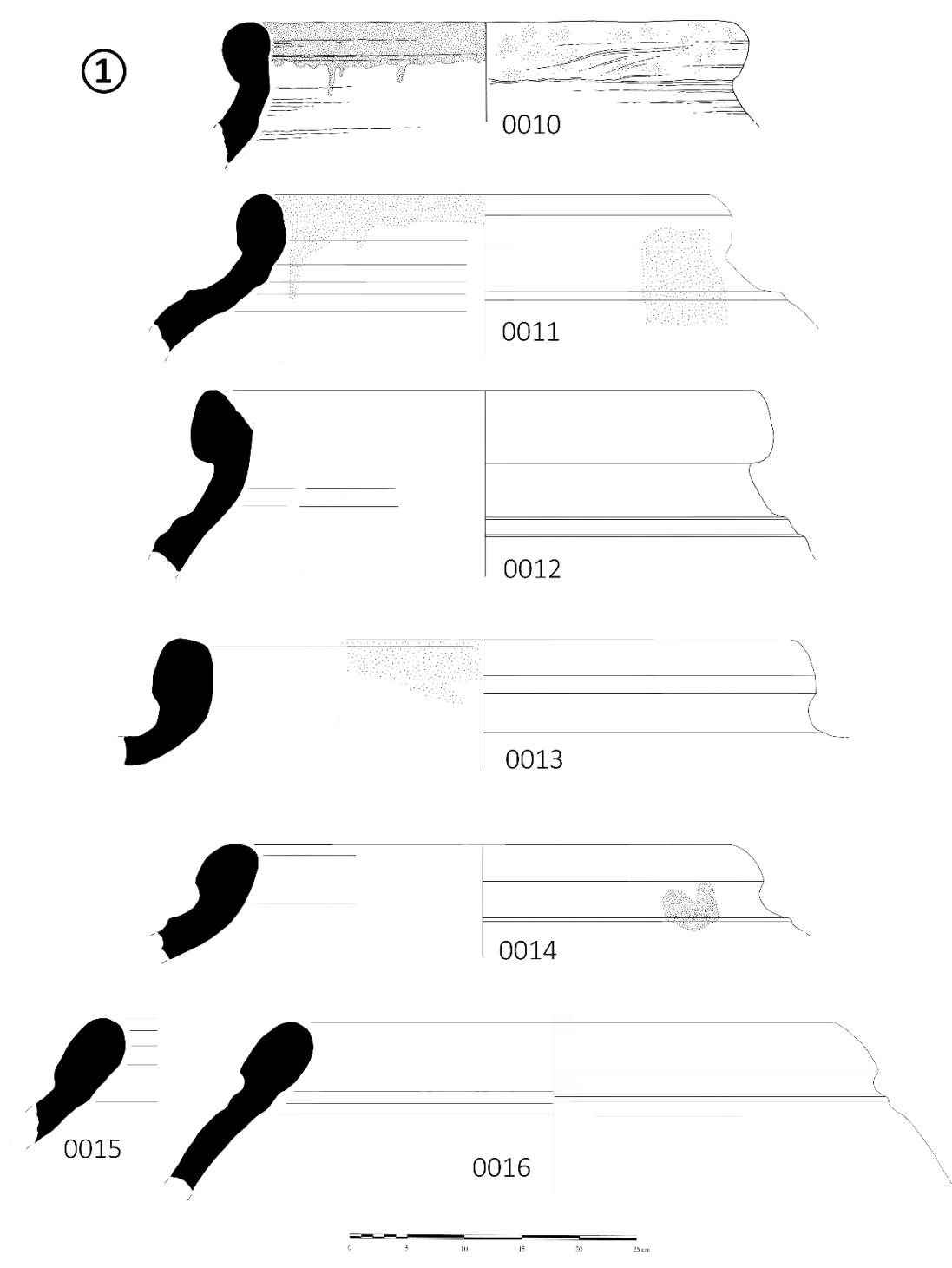


Figure 42 Large storage jars (Genre 1)

*Abbreviation used: la-large; md-medium; ptd-painted; ext-exterior; int-interior

CATN.	Provenance	Stage	Genre	Fabric	Description
0001	A06 07.21	2A.4	1	j	la jar, collared rounded rim
0002	A06 04	4.1	1	h	la jar, collared rounded rim, internally recessed
0003	A09		1	h	la jar, collared rounded rim, internally recessed
0004	A09.52	1A.2	1	a	la jar, collared rim
0005	A09.82	1A.2	1	j	la jar, collared rim, ptd
0006	A09 20.02	4.1	1	h	la jar, collared rounded rim
0007	A09.82	1A.2	1	j	la jar, collared rounded rim, ridge under the neck, ptd
0008	A09.01	1A	1	a	la jar, collared rounded rim
0009	A09.05X2	1A	1	a	la jar, collared rounded rim, ridge under the neck, ptd
0010	A09	4	1	a	la jar, collared rounded rim, internally recessed, ptd
0011	A09.02	1A	1	j	la jar, collared rounded rim, ridge under the neck, ptd
0012	A09.02	1A	1	h	la jar, collared, rounded rim, ridge under the neck
0013	A09.82	1A.2	1	a	la jar, rounded rim, a slight ledge under the neck, ptd
0014	A06		1	j	la jar, collared rounded rim, ridge under the neck, ptd
0015	A09.02/03	1A	1	a	la jar, collared in-curved rim
0016	A09.82	1A.2	1	a	la jar, collared in-curved rim, ridge under the rim
	A06 02.02	4.1	1	j	la jar, collared rounded rim
	A01		1	h	la jar, collared rim

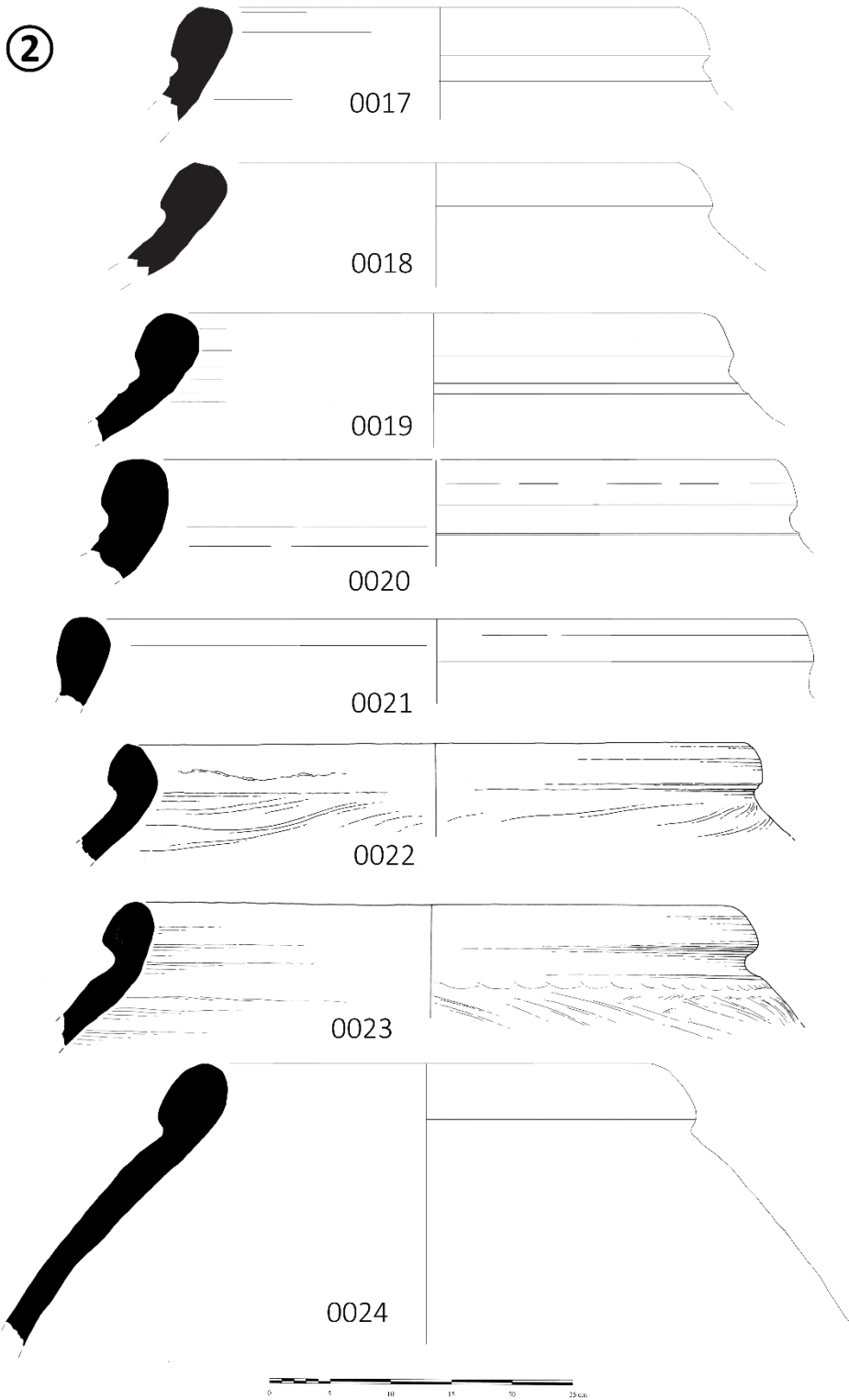


Figure 43 Large storage jars (Genre 2)

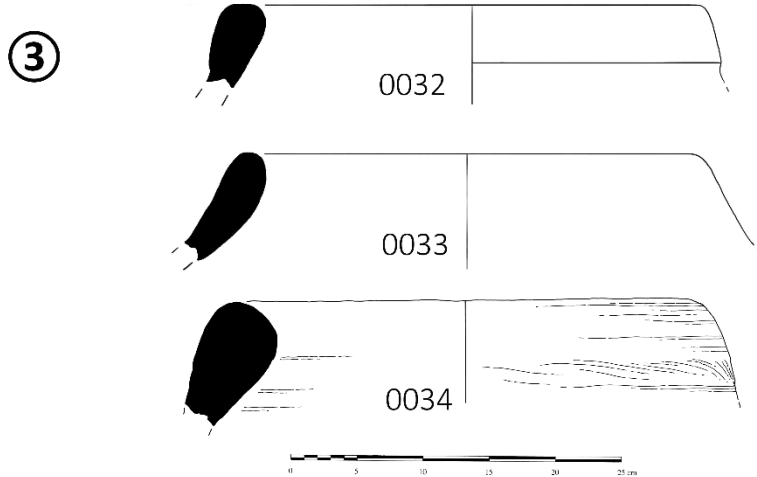
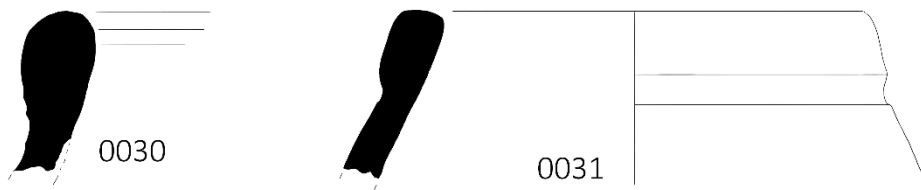
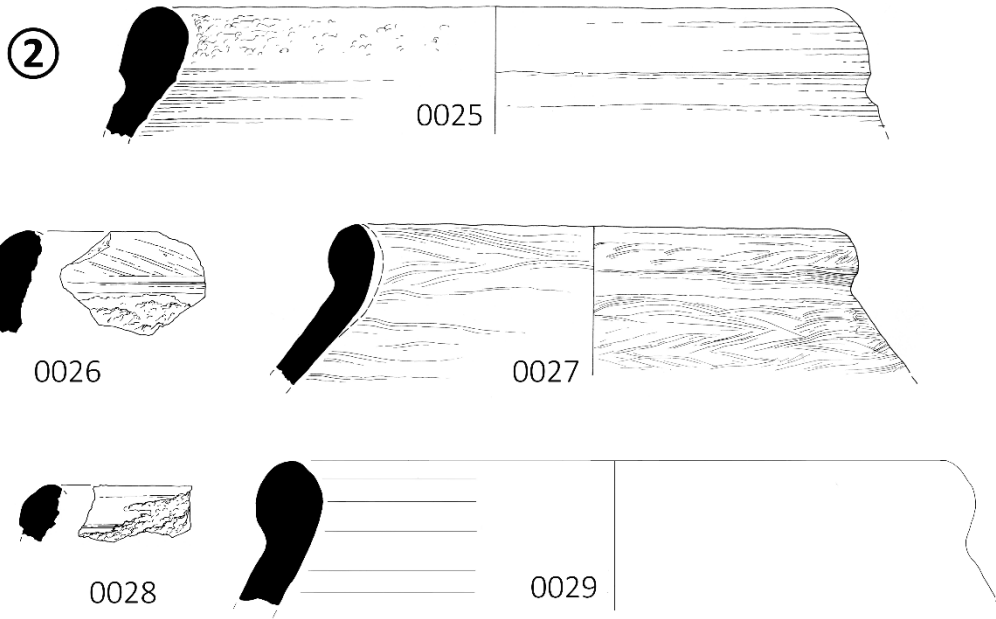


Figure 44 Large storage jars (Genres 2, 3)

CATN.	Provenance	Stage	Genre	Fabric	Description
0017	A10 13.16	2A.2	2	c	la jar, collared rim, a slight ridge
0018	A10 13.16	2A.2	2	i	la jar, collared rim
0019	A09.07V2W2	1A	2	n	la jar, collared rim
0020	A06		2	c	la jar, collared rim
0021	A09.82	1A.2	2	g	la jar, collared rim
0022	A06		2	c	la jar, collared rim
0023	A09 12		2	n	la jar, collared rim
0024	A09.02	1A	2	g	la jar, collared in-curved rim
0025	A09 01.01	4	2	n	la jar, collared rim
0026	A09 20.02	4.1	2	h	la jar, rounded collared rim
0027	A06 01.02	3A.2	2	c	la jar, collared rim
0028	A09 22.10	3A	2	h	la jar, rounded rim
0029	A06		2	k	la jar, collared rim
	A06 07.02	4.1	2	c	la jar, collared rim
	A06 07.04	2A.4	2	g	la jar, collared rim
0030	A01		3	c	la jar, rounded rim
0031	A01		3	c	la jar, squared in-curved rim
0032	A09SF	4	3	g	la jar, squared in-curved rim
0033	A09SF	4	3	c	la jar, in-curved, rounded rim
0034	A09 22.01	4.2	3	g	la jar, rounded in-curved rim

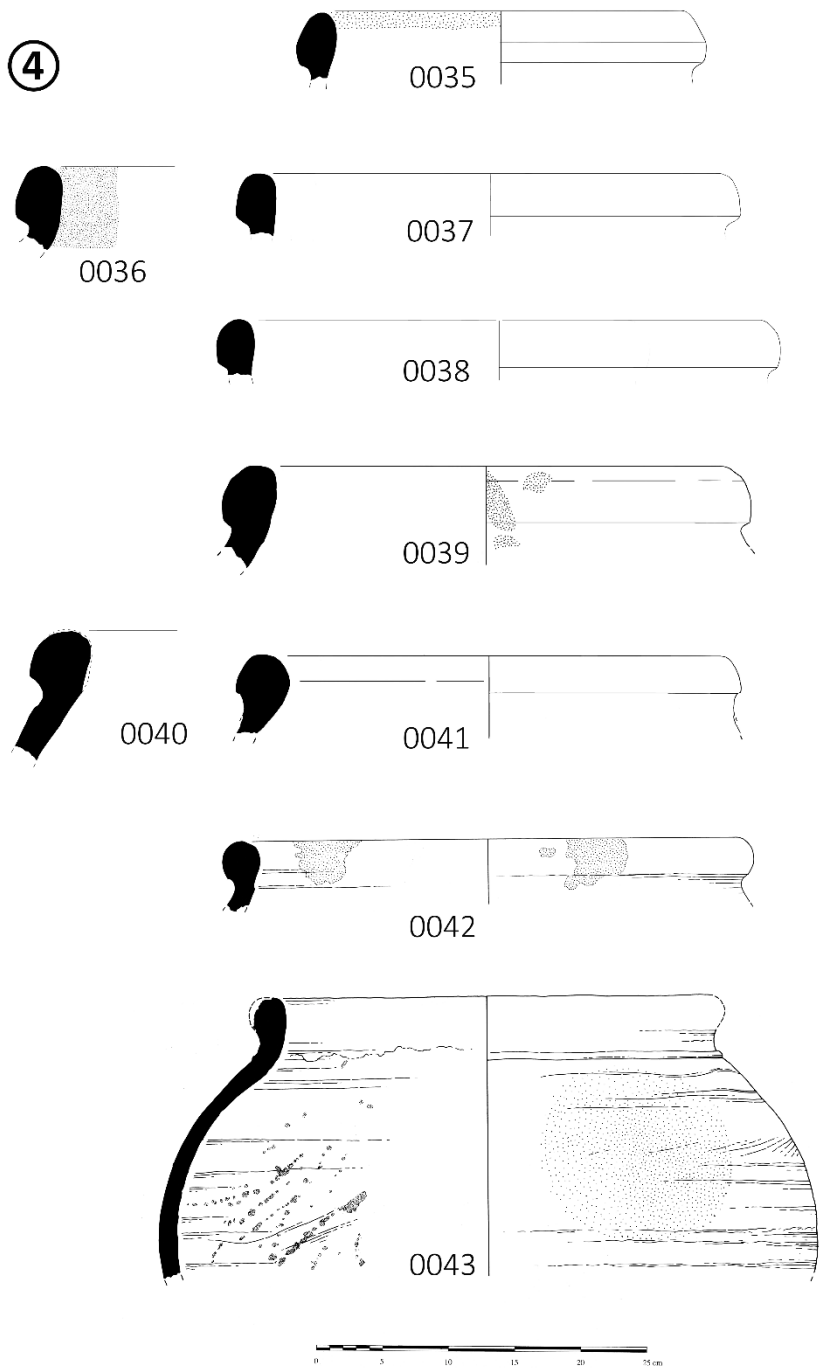


Figure 45 Medium-sized jars (Genre 4)

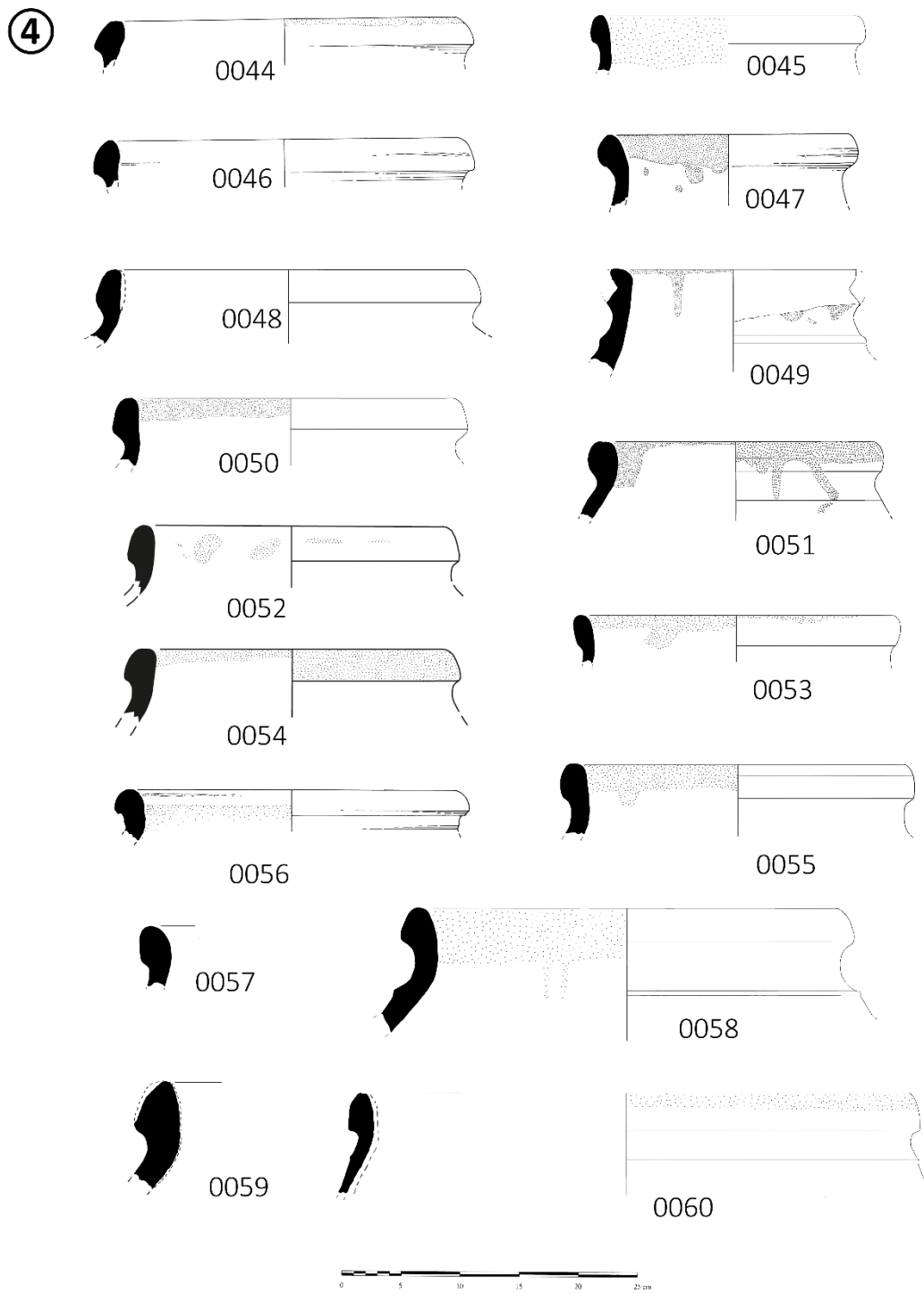
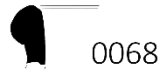
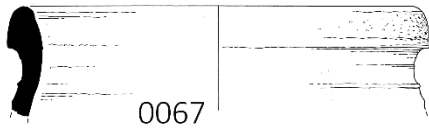
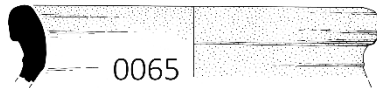
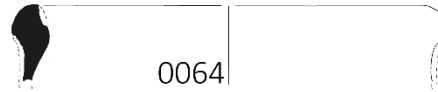
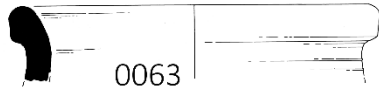
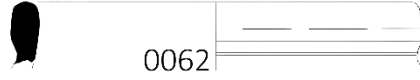
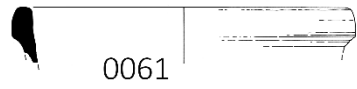


Figure 46 Medium-sized jars (Genre 4)

CATN.	Provenance	Stage	Genre	Fabric	Description
0035	A01		4	a	md jar, collared rounded rim, ptd
0036	A01		4	a	md jar, collared rounded rim, ptd
0037	A09.49/50	1A.2	4	j	md jar, collared rounded rim
0038	A09.10	4.1	4	g	md jar, collared rounded rim
0039	A09.05/06R2S2	1A	4	a	md jar, collared rounded rim, ptd
0040	A09.05	1A	4	h	md jar, collared rounded rim
0041	A09.05Z2AA2	1A	4	j	md jar, collared rounded rim
0042	A09 01.211	2A.4	4	j	md jar, collared rounded rim, ptd
0043	A01		4	a	md jar, collared rim, ridge under the neck, spherical body
0044	A06 04.03	4.1	4	a	md jar, collared, in-curved rim
0045	A09.04	1A	4	g	md jar, collared, rounded rim
0046	A06 04.03	4.1	4	h	md jar, collared rim
0047	A06		4	a	md jar, rounded collared rim, ptd
0048	A09.01/02	1A	4	h	md jar, collared rounded rim
0049	A09.05X2Z2	1A	4	j	md jar, collared rim, ptd, ridge under the neck
0050	A01		4	a	md jar, collared rounded rim, ptd
0051	A09.06/07M2	1A	4	a	md jar, collared rounded rim, ptd
0052	A09.52	1A.2	4	a	md jar, collared, rounded rim
0053	A01		4	a	md jar, rounded, slightly out-curved rim, ptd
0054	A09.52	1A.2	4	a	md jar, collared, rounded rim, ptd
0055	A01		4	a	md jar, collared rim, ptd
0056	A06 07.03	4.2	4	a	md jar, collared, rounded rim
0057	A01		4	a	md jar, collared, pointed rim
0058	A09.82	1A.2	4	j	md jar, collared sub-triangular rim, ridge under the neck, ptd
0059	A09.05	1A	4	h	md jar, collared rim
0060	A09.21	2A	4	j	md jar, collared rim, ptd
	A06 07.21	2A.4	4	h	md jar, collared rim
	A06 07.21	2A.4	4	h	md jar, collared rounded rim
	A06 07.21	2A.4	4	i	md jar, rounded collared rim
	A06 07.21	2A.4	4	i	md jar. rounded collared rim

5



0 5 10 15 20 25 cm

6

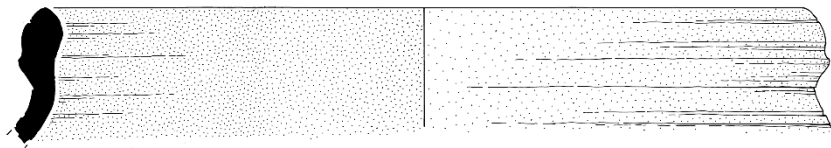
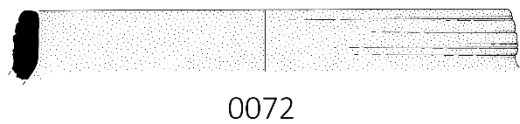
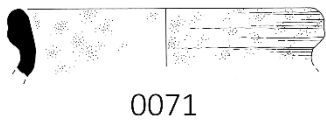
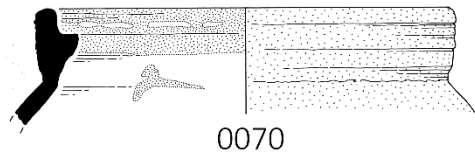
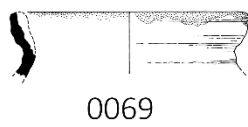


Figure 47 Jars (Genres 5, 6)

CATN.	Provenance	Stage	Genre	Fabric	Description
0061	A09	4	5	x	jar, collared, squared rim
0062	A06		5	h	jar, upright rounded rim
0063	A06 04.03	4.1	5	x	jar, collared slightly out-curved rim
0064	A09.50/52	1A.2	5	h	jar, rounded rim
0065	A06 04	4.1	5	d	jar, collared slightly out-curved rim
0066	A01		5	d	jar, rounded, slightly out-curved rim
0067	A06 02.02	4.1	5	k	jar, collared rim, ridge under the neck
0068	A01		5	g	jar, collared rounded rim
0069	A09	4	6	j	jar, collared, rilled rim
0070	A09 11.07		6	d	jar, collared, rilled and internally recessed rim
0071	A09 23.01	4	6	d	jar, collared, rilled rim
0072	A09 20.11	2A.4	6	d	jar, collared, rilled rim
0073	A06 07.13	4	6	d	jar, collared, rilled rim
	A06 08.09	3A.1	6	h	jar, collared rilled rim
	A06 08.09	3A.1	6	i	jar, collared rilled rim

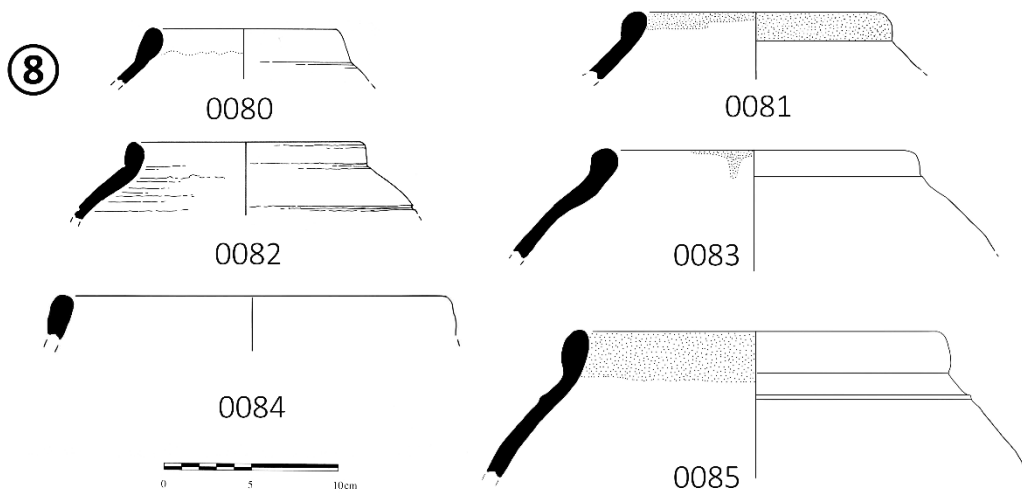
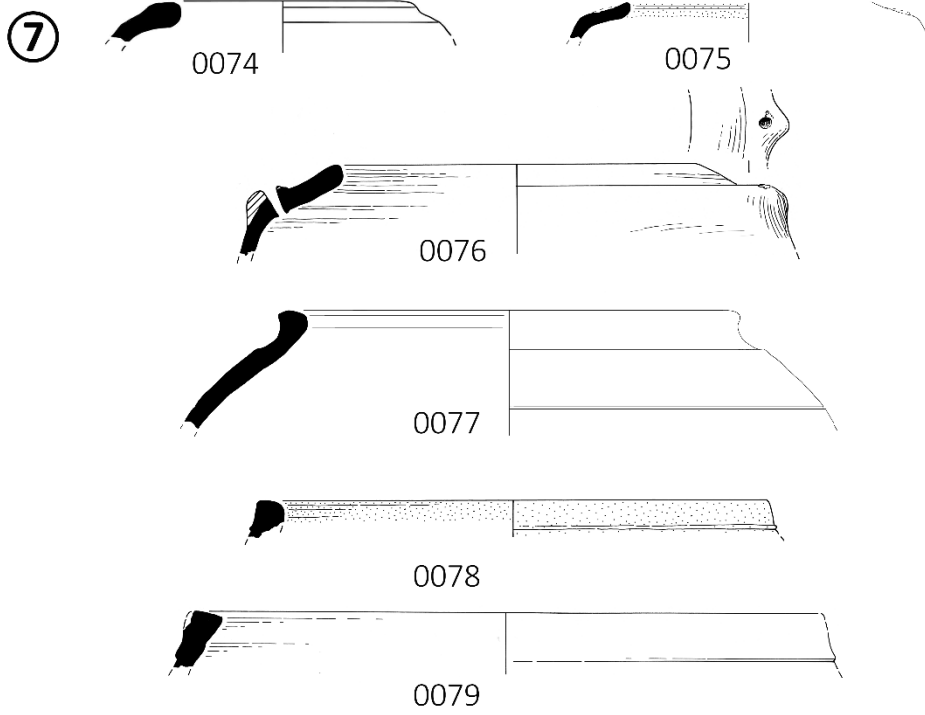


Figure 48 Holemouth/short-necked jars (Genres 7, 8)

CATN.	Provenance	Stage	Genre	Fabric	Description
0074	A09SF	4	7	o	holemouth jar, rounded inverted rim,
0075	A09.04	1A	7	d	holemouth jar, rounded inverted rim
0076	A09 29.07	3A	7	g	holemouth jar, inverted rim ledged shoulder with protrusions (probably two?)
0077	A09.05	1A	7	h	holemouth jar, internally bevelled inverted rim, ledged shoulder
0078	A09 22.01	4.2	7	d	holemouth jar, squared inverted rim
0079	A09 28.04	4.2	7	k	holemouth jar, squared, inverted rim
0080	A09 20.02	4.1	8	d	jar, collared rounded rim
0081	A01		8	a	jar, collared rounded rim, ptd
0082	A09 22.02	4.2	8	d	jar, collared rounded rim
0083	A01		8	a	jar, collared rounded rim, ptd
0084	A09SF	4	8	k	jar, collared rounded rim
0085	A01		8	a	jar, collared rounded rim, ptd, ridge on the shoulder

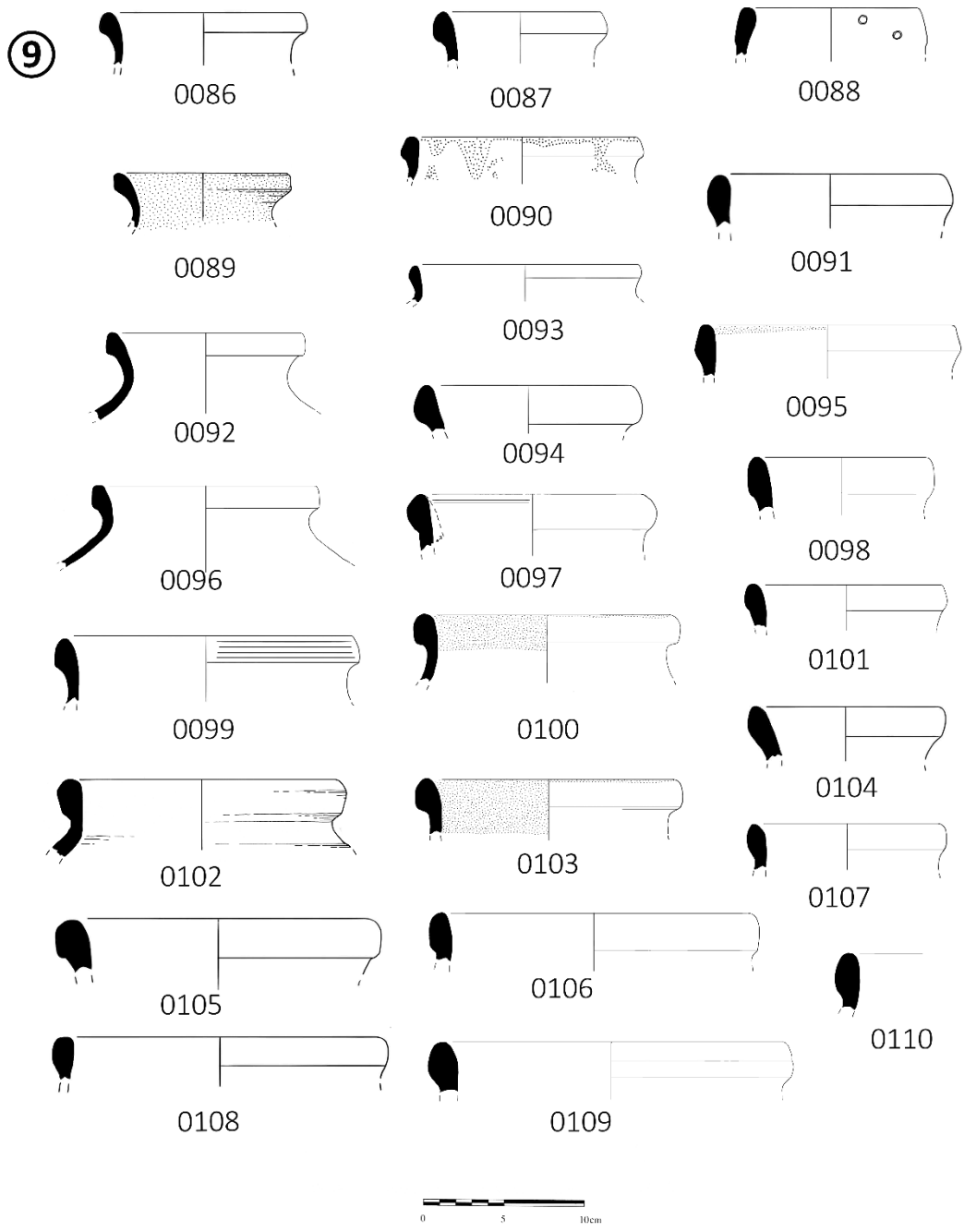


Figure 49 Various collared rim jars (Genre 9)

CATN.	Provenance	Stage	Genre	Fabric	Description
0086	A09SF	4	9	h	jar, collared rim
0087	A01 01.06	3A	9	d	jar, collared rim
0088	A01		9	h	jar, rounded rim
0089	A09 01.01	4	9	d	jar, sub-triangular rim
0090	A09.05	1A	9	a	jar, collared rim, ptd
0091	A09 01.508	2A.4	9	h	jar, rounded rim
0092	A09.45	3A	9	f	jar, collared rim
0093	A01 04.01	4.1	9	d	jar, rounded rim
0094	A01		9	a	jar, collared rim
0095	A09.05/06T2	1A	9	a	jar, collared rim, ptd
0096	A09.10	4.1	9	d	jar, collared, squared rim
0097	A09.82	1A.2	9	d	jar, rounded, collared rim
0098	A09.20	2A	9	g	jar, collared rim
0099	A01 04.06	2A.4	9	f	jar, collared rim
0100	A09.07V2W2	1A	9	a	jar, collared rim, ptd
0101	A09.52	1A.2	9	g	jar, rounded, vertical rim
0102	A09 01.11	4	9	g	jar, collared squared rim
0103	A09.06/07V2W2	1A	9	a	jar, collared rim, ptd
0104	A09 01.509	2A.4	9	h	jar, rounded out-curved rim
0105	A09SF	4	9	g	jar, collared out-curved rim
0106	A09.52	1A.2	9	d	jar, rounded rim
0107	A09.06/07V2W2	1A	9	d	jar, collared rim
0108	A09SF	4	9	h	jar, rounded rim
0109	A09.52	1A.2	9	h	jar, collared rounded rim
0110	A09.52	1A.2	9	h	jar, collared rim

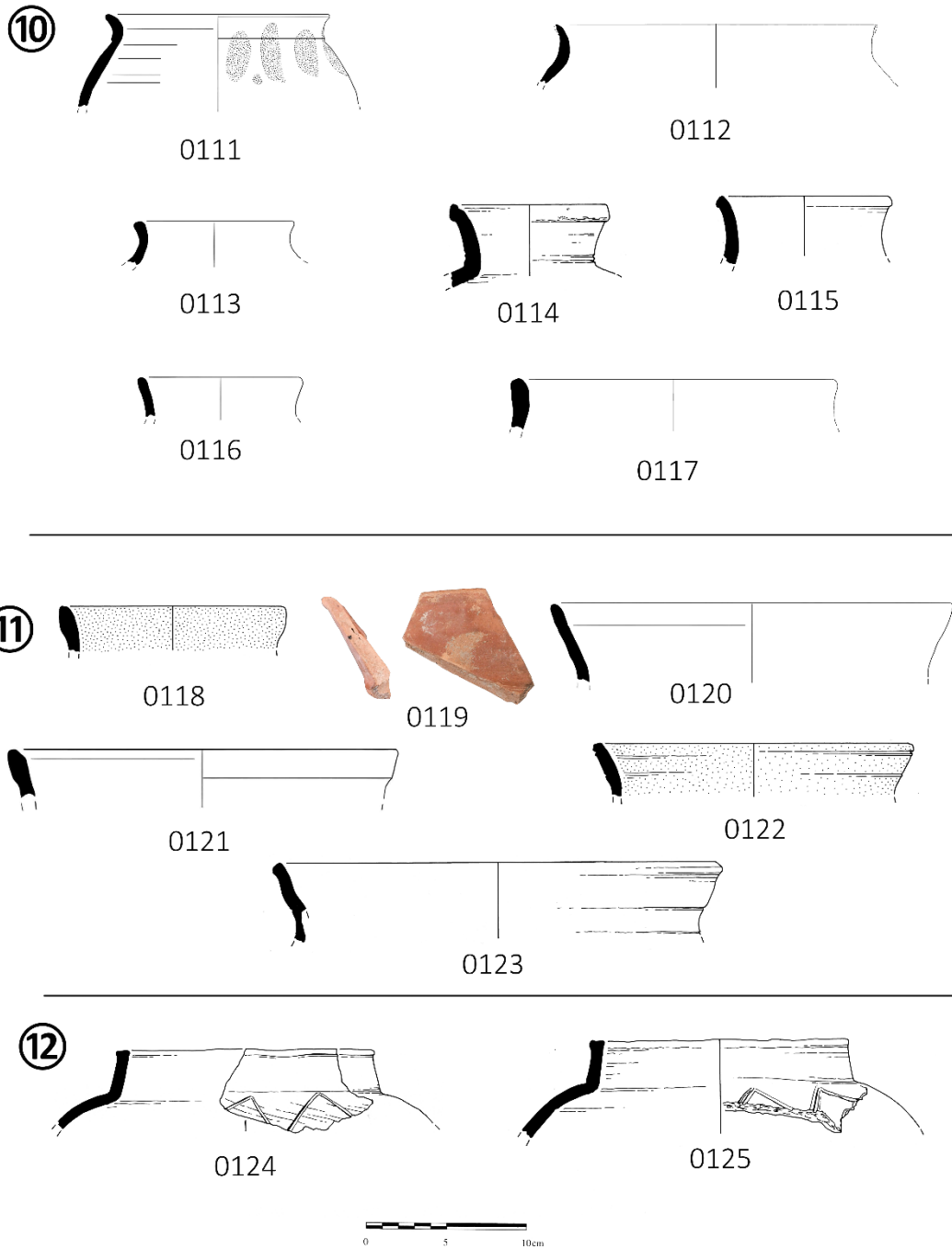


Figure 50 Jars (Genres 10, 11, 12)

CATN.	Provenance	Stage	Genre	Fabric	Description
0111	A01		10	a	jar, everted and pointed rim, ptd
0112	A09.82	1A.2	10	g	jar, pointed out-curved rim
0113	A01 04.02	2A.4	10	h	jar, out-curved rim
0114	A09 01.902	4	10	x	jar, everted rim
0115	A09 23.01	4	10	x	jar, rounded out-curved rim
0116	A01 04.01	4.1	10	g	jar, slightly everted, rounded rim
0117	A09.52	1A.2	10	d	jar, slightly everted, rounded rim
0118	A09	4	11	d	jar, rounded everted rim
0119	A01 04.04	2A.4	11	d	jar, everted rim
0120	A01 04.01	4.1	11	d	jar, everted rim
0121	A09SF	4	11	h	jar, out-curved rim
0122	A09 01.401	4.1	11	d	jar, everted rim
0123	A09	4	11	h	jar, everted and squared rim
0124	A06 02.02	4.1	12	e	jar, upright squared rim, zigzag incisions on the shoulder
0125	A06 04.03	4.1	12	e	jar, upright squared rim, zigzag incisions on the shoulder

13

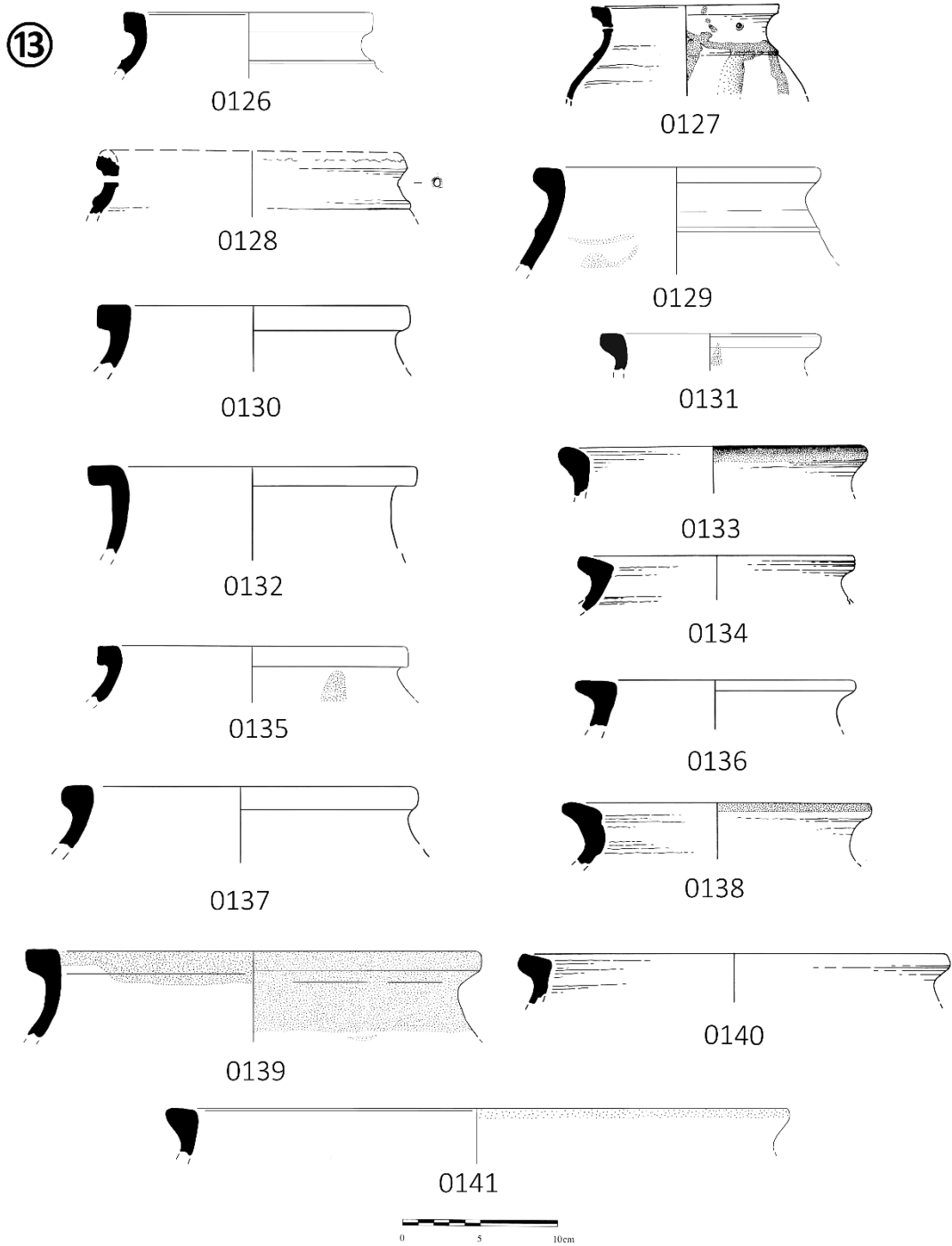


Figure 51 Flattened rim jars (Genre 13)

CATN.	Provenance	Stage	Genre	Fabric	Description
0126	A09.12	4.1	13	h	jar, squared flattened rim, ridge on shoulder
0127	A01		13	a	jar, squared flattened rim, ridge on shoulder, ptd
0128	A09 01.01	4	13	k	jar, everted, flattened rim, ridge under the neck, pre-firing hole
0129	A01 04.02	2A.4	13	a	jar, flattened rim, ridge on the shoulder
0130	A09SF	4	13	g	jar, flattened squared rim
0131	A09.49/50	1A.2	13	j	jar, flattened rim, ptd
0132	A09SF	4	13	g	jar, flattened squared rim
0133	A06 03.01	4.1	13	j	jar, bevelled, rounded rim
0134	A09	4	13	d	jar, internally bevelled rim
0135	A01		13	j	jar, squared, flattened rim, ptd
0136	A09 01.400/410	4	13	h	jar, flattened everted rim
0137	A09SF	4	13	k	jar, flattened, squared rim
0138	A06	4	13	j	jar, internally bevelled rim, ptd
0139	A01		13	j	jar, flattened, squared rim, ptd
0140	A09 23.01	4	13	h	jar, flattened, internally bevelled rim
0141	A09.82	1A.2	13	a	jar, flattened rim, ptd

14

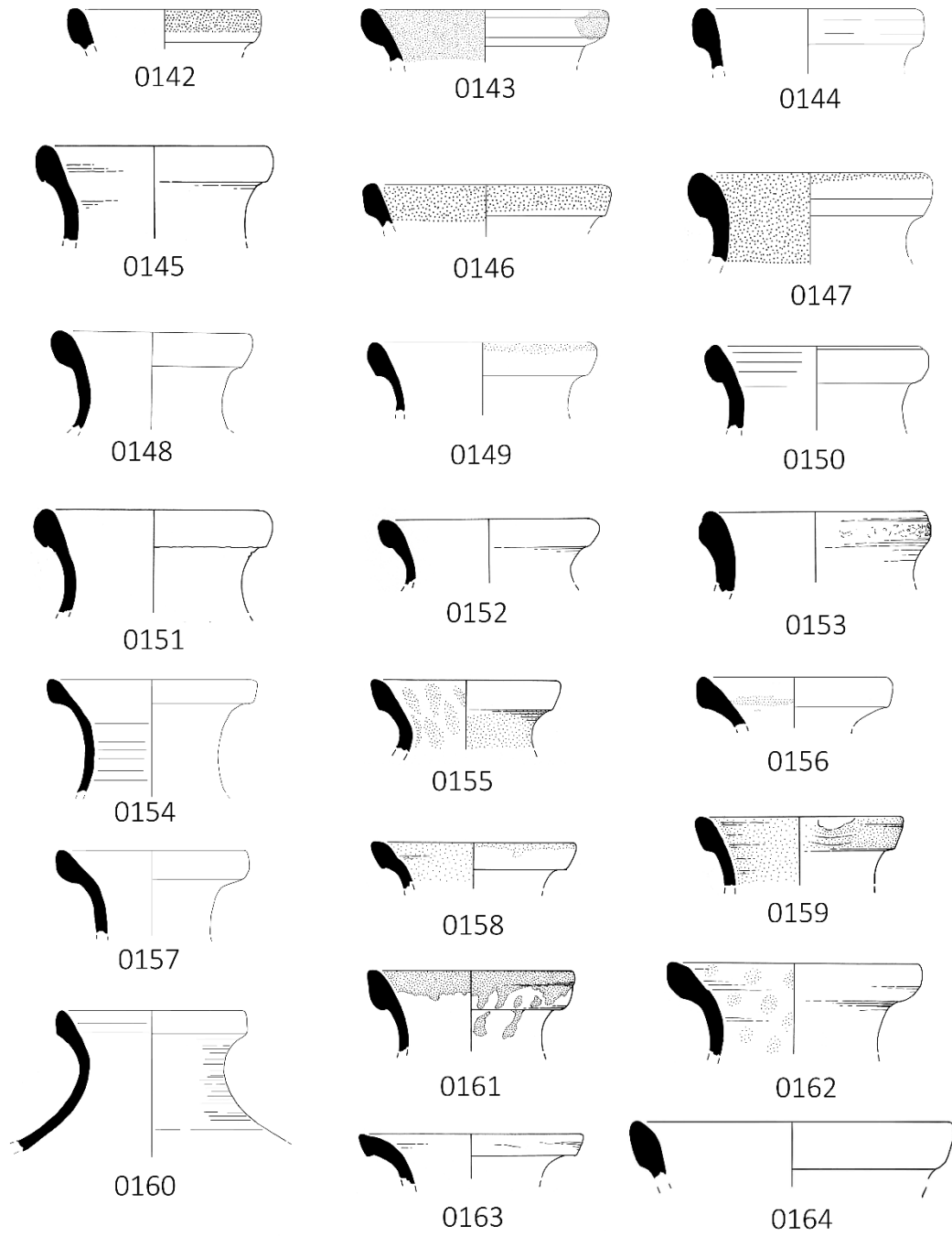


Figure 52 Elongated jars with collared rims (Genre 14)

CATN.	Provenance	Stage	Genre	Fabric	Description
0142	A09.05X2Y2	1A	14	a	elongated jar, collared rim, ptd
0143	A09.03LL2	1A	14	a	elongated jar, collared rim, ptd
0144	A09.02/03	1A	14	a	elongated jar, collared rim
0145	A09 23.01	4	14	k	elongated jar, collared rim
0146	A01		14	a	elongated jar, collared rim, ptd
0147	A09.82	1A.2	14	a	elongated jar, collared rim, ptd
0148	A09.89	1A.2	14	g	elongated jar, collared rim
0149	A09.03II2	1A	14	a	elongated jar, collared rim
0150	A01		14	g	elongated jar, collared rim
0151	A09		14	x	elongated jar, collared rim
0152	A09 28.06	3A	14	g	elongated jar, collared rim
0153	A06 07.10	2A.4	14	h	elongated jar, collared rim
0154	A09.04	1A	14	a	elongated jar, collared rim
0155	A06 04	4.1	14	a	elongated jar, collared pointed rim, ptd
0156	A09.05Z2AA2	1A	14	a	elongated jar, collared, pointed rim, ptd
0157	A09.23	3A	14	g	elongated jar, collared rim
0158	A09 13.04		14	a	elongated jar, collared pointed rim, ptd
0159	A01		14	a	elongated jar, collared rounded rim, ptd
0160	A09.02/03	1A	14	g	elongated jar, collared rim
0161	A06		14	a	elongated jar, collared, pointed overhanging rim, ptd
0162	A09 20.02	4.1	14	a	elongated jar, collared pointed rim, ptd
0163	A09 02		14	g	elongated jar, overhanging pointed rim
0164	A09 25.08	2A.4	14	h	elongated jar, collared pointed rim

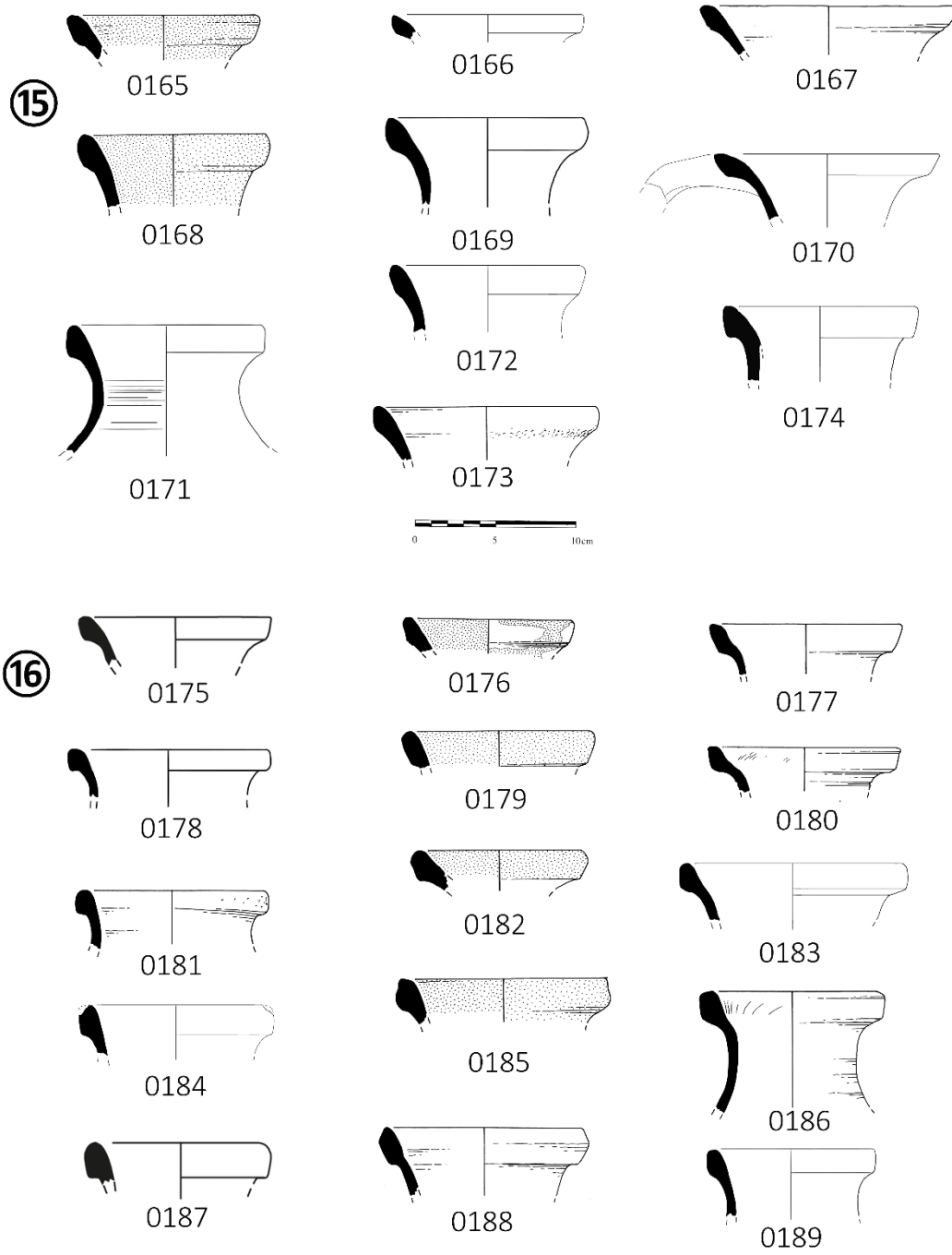


Figure 53 Red slipped elongated jars (Genres 15, 16)

CATN.	Provenance	Stage	Genre	Fabric	Description
0165	A09 22.07	3A	15	d	elongated jar, collared rim
0166	A09.21	2A	15	d	elongated jar, collared pointed rim
0167	A09 23.01	4	15	x	elongated jar, collared rim
0168	A09 28.06	3A	15	d	elongated jar, collared rim
0169	A09SF	4	15	h	elongated jar, collared rim, elongated neck
0170	A09.21	2A	15	d	elongated jar, collared pointed rim with a handle
0171	A01 04.01	4.1	15	f	elongated jar, collared pointed rim
0172	A09.10	4.1	15	d	elongated jar, rounded collared rim
0173	A09 01.08	4	15	d	elongated jar, collared rim
0174	A09.02	1A	15	d	elongated jar, overhanging pointed rim
	A09 01.09	4	15	d	elongated jar, collared pointed rim
	A09.37	3A	15	f	elongated jar, collared rim
	A06 08.09	3A.1	15	i	elongated jar, collared pointed rim
0175	A09.21	2A	16	d	elongated jar, collared, pointed rim
0176	A09 21.13	2A.4	16	d	elongated jar, collared rim
0177	A09	4	16	x	elongated jar, collared, internally recessed rim
0178	A09SF	4	16	h	elongated jar, collared squared rim
0179	A09 21.25	2A.4	16	f	elongated jar, collared rim
0180	A09 28.18	3A	16	h	elongated jar, collared, squared internally recessed rim
0181	A06 02.02	4.1	16	x	elongated jar, collared squared rim
0182	A09 28.07	3A	16	d	elongated jar, collared rim
0183	A09.82	1A.2	16	g	elongated jar, collared squared rim
0184	A09.21	2A	16	d	elongated jar, collared rim
0185	A09 10.14		16	i	elongated jar, collared rim
0186	A09 01.227	1A.2	16	x	elongated jar, squared collared rim
0187	A09.82	1A.2	16	d	elongated jar, collared rim
0188	A09 28.01	4.2	16	h	elongated jar, collared rim
0189	A01		16	d	elongated jar, collared rim

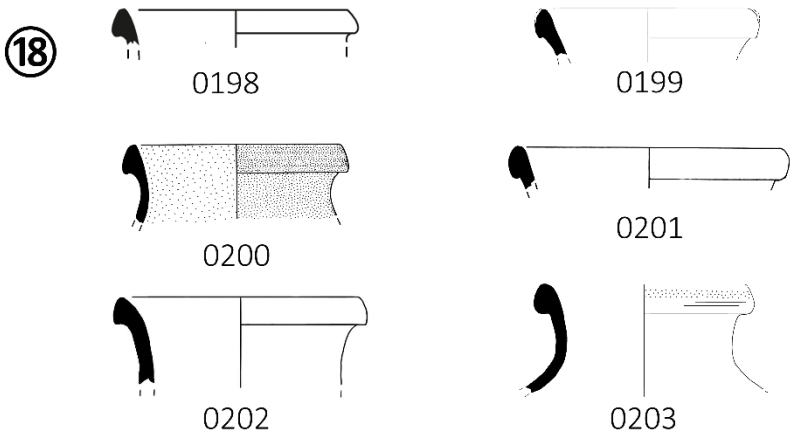
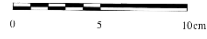
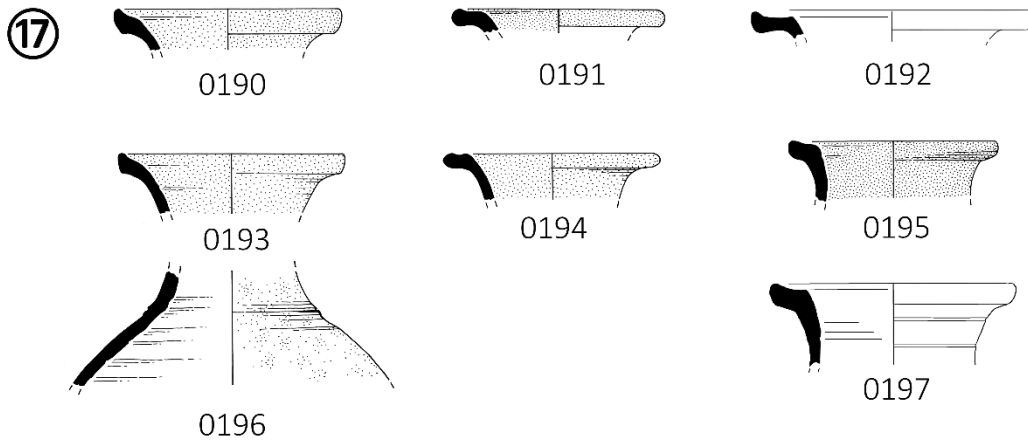


Figure 54 Elongated jars (Genres 17, 18)

CATN.	Provenance	Stage	Genre	Fabric	Description
0190	A09 02		17	d	elongated jar, collared internally recessed rim
0191	A06 01.02	3A.2	17	d	elongated jar, collared internally recessed rim
0192	A01 04.02	2A.4	17	d	elongated jar, everted, flattened internally recessed rim
0193	A09 01.09	4	17	d	elongated jar, collared internally recessed rim
0194	A06 04	4.1	17	d	elongated jar, flattened rim internally recessed
0195	A09 23.01	4	17	d	elongated jar, flattened, squared internally recessed rim
0196	A09		17	d	elongated jar, shoulder with ridge and grooves
0197	A09.06/07M2	1A	17	d	elongated jar, everted internally recessed rim, grooves on the neck
0198	A09.82	1A.2	18	h	elongated jar, overhanging pointed rim
0199	A09.21	2A	18	g	elongated jar, overhanging pointed rim
0200	A06 08.09	3A.1	18	d	elongated jar, overhanging pointed rim
0201	A09 23.04	3A	18	l	elongated jar, overhanging pointed rim
0202	A09SF	4	18	g	elongated jar, overhanging pointed rim
0203	A09.82	1A.2	18	a	elongated jar, collared rim

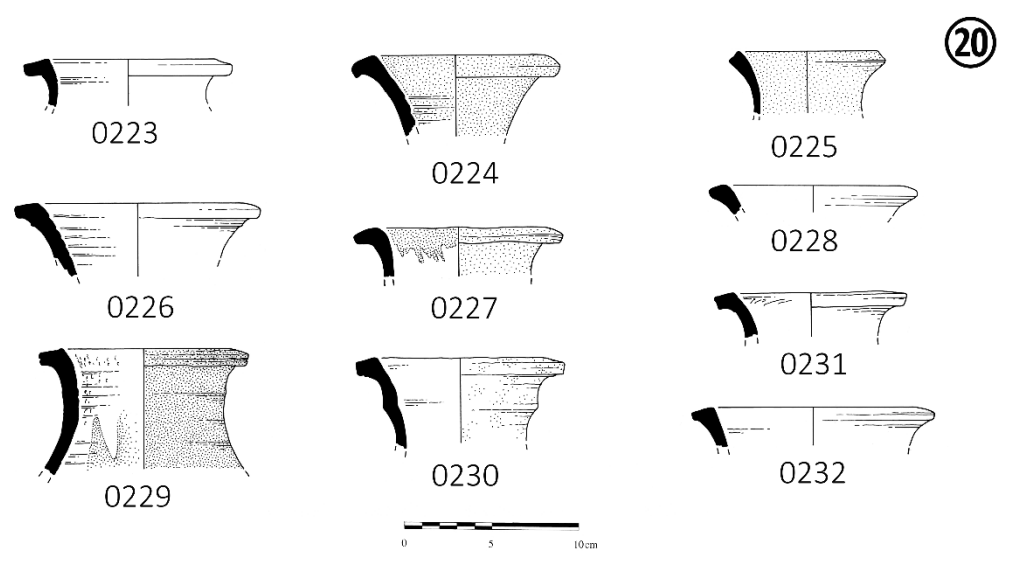
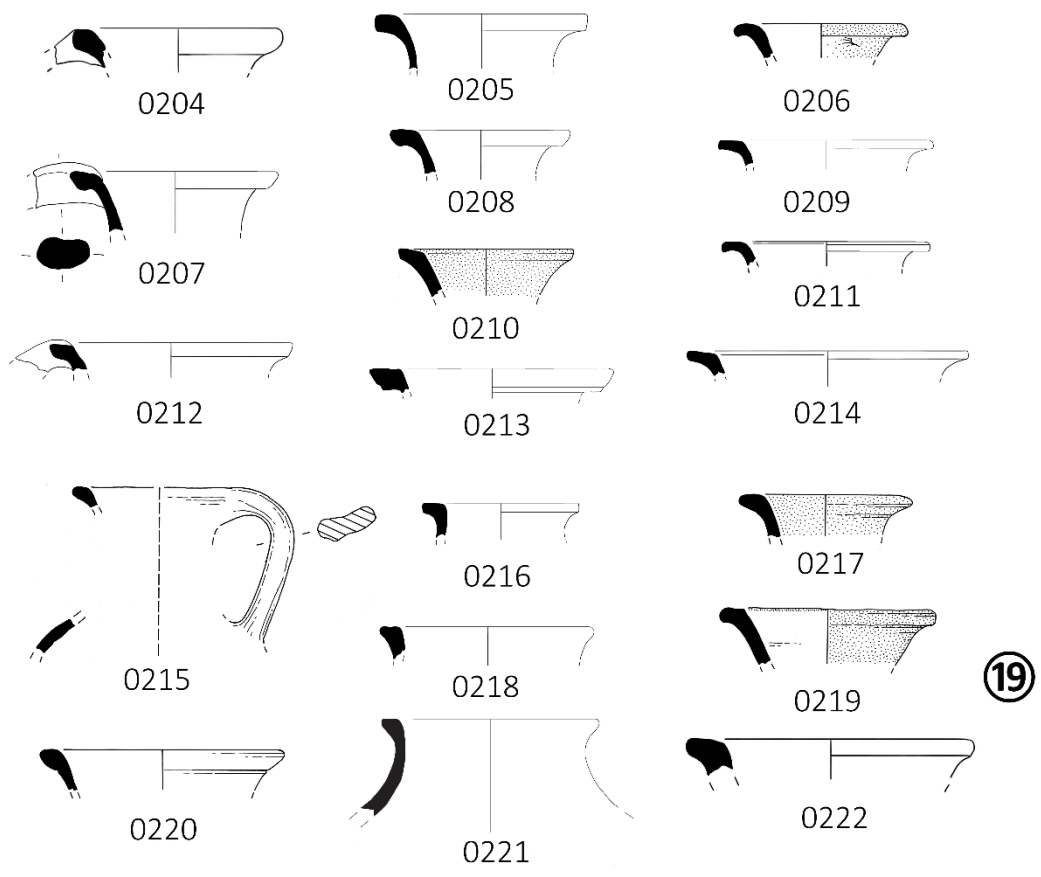


Figure 55 Elongated jars (Genres 19, 20)

CATN.	Provenance	Stage	Genre	Fabric	Description
0204	A09 21.14	2A.4	19	d	elongated jar, squared flattened rim with a strap handle
0205	A09.89	1A.2	19	h	elongated jar, flattened everted rim
0206	A09 23.01	4	19	d	elongated jar, flattened rim
0207	A09.50/52	1A.2	19	d	elongated jar, flattened squared rim
0208	A09.20	2A	19	d	elongated jar, flattened rim
0209	A09.52	1A.2	19	f	elongated jar, flattened rim
0210	A09 28.04	4.2	19	d	elongated jar, everted flattened rim
0211	A09.02	1A	19	d	elongated jar, flattened squared rim
0212	A01 04.02	2A.4	19	d	elongated jar, flattened rim
0213	A09.52	1A.2	19	f	elongated jar, flattened squared rim
0214	A01 04.03	2A.4	19	h	elongated jar, everted, flattened, squared rim
0215	A09 23.01	4	19	x	elongated jar, flattened rounded rim with a strap handle
0216	A09.31	4.1	19	d	elongated jar, flattened squared rim
0217	A09 23.01	4	19	d	elongated jar, everted flattened rim
0218	A09.10	4.1	19	d	elongated jar, flattened rim
0219	A09 23.01	4	19	d	elongated jar, flattened rim
0220	A09 01.08	4	19	d	elongated jar, flattened rim, a groove under the rim
0221	A10 13.16	2A.2	19	d	elongated jar, flattened rim, narrowed neck
0222	A09 01.500	4	19	k	elongated jar, everted flattened rim
	A01 01.06	3A	19	d	elongated jar, flattened rim with strap handle
0223	A09 13.24		20	d	elongated jar, everted and bevelled rim, ridged neck
0224	A09 23.01	4	20	d	elongated jar, everted bevelled rim
0225	A09 28.06	3A	20	d	elongated jar, bevelled rim
0226	A09		20	x	elongated jar, everted bevelled rim
0227	A09 22.02	4.2	20	d	elongated jar, everted bevelled rim
0228	A09 30.03	3A	20	d	elongated jar, everted bevelled rim, ridged neck
0229	A09 01.401/402	4	20	d	elongated jar, everted bevelled rim
0230	A09		20	d	elongated jar, everted bevelled rim, ridged neck
0231	A06	4	20	x	elongated jar, everted bevelled rim
0232	A09 01.506	2A.4	20	x	elongated jar, everted flattened rim

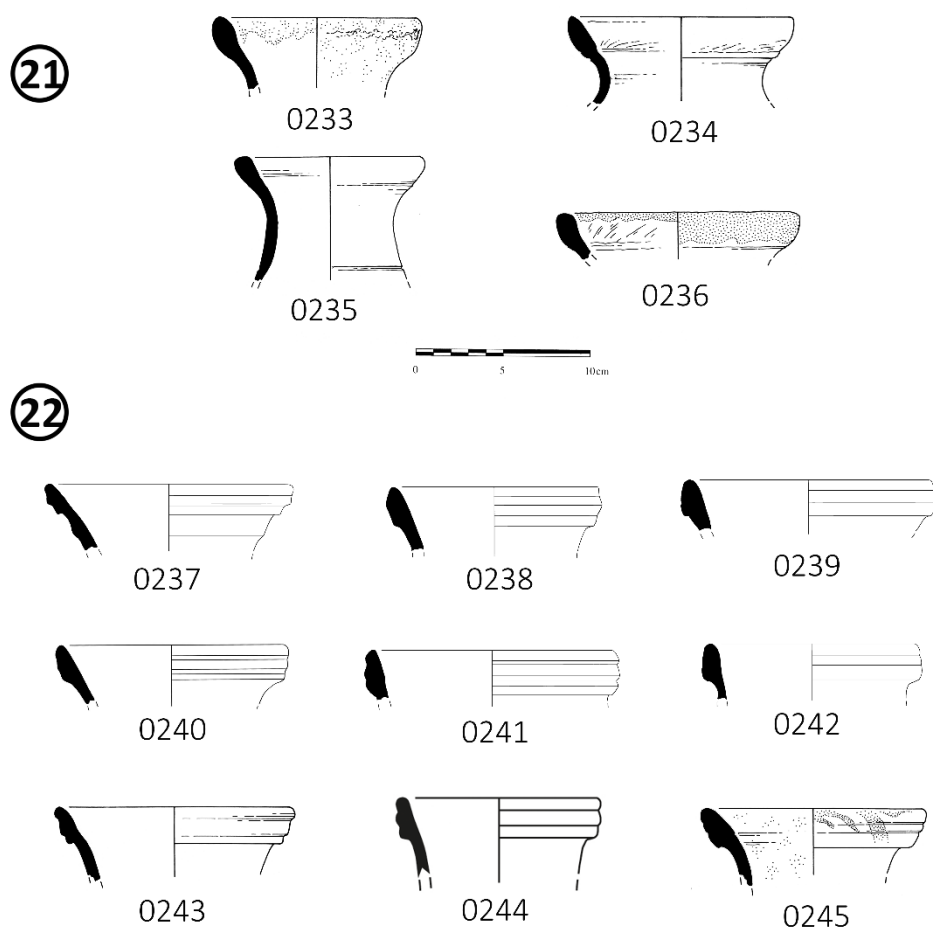
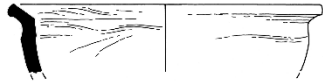


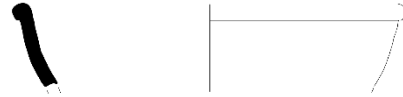
Figure 56 Elongated jars (Genres 21, 22)

CATN.	Provenance	Stage	Genre	Fabric	Description
0233	A09		21	d	elongated jar, flared, recessed rim
0234	A09	4	21	x	elongated jar, pointed recessed rim
0235	A09 01.02	4	21	k	elongated jar, flaring rim, a groove under the neck
0236	A09 23.01	4	21	d	elongated jar, recessed rounded rim
0237	A09.68	2A	22	d	elongated jar, rilled, collared rim
0238	A09.52	1A.2	22	g	elongated jar, rilled and collared rim
0239	A09.20	2A	22	d	elongated jar, rilled, collared rim
0240	A01		22	d	elongated jar, rilled, collared rim
0241	A09.68	2A	22	d	elongated jar, collared, rilled rim
0242	A09.52	1A.2	22	f	elongated jar, collared, rilled rim
0243	A09 01.01	4	22	d	elongated jar, rilled rim
0244	A09.21	2A	22	f	elongated jar, collared, rilled rim
0245	A09 01.902	4	22	d	elongated jar, rilled rim
	A09.12	4.1	22	d	elongated jar, collared rilled rim

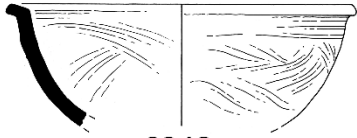
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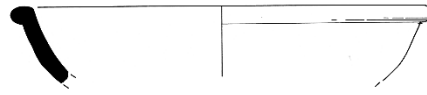
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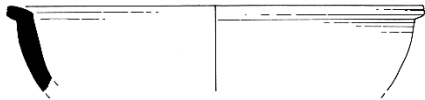
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0248



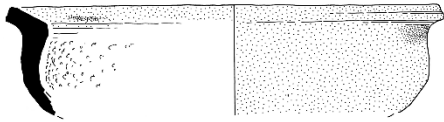
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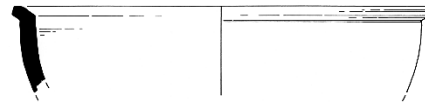
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0251



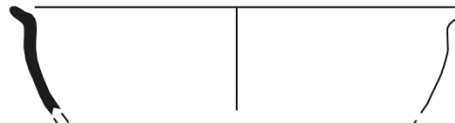
0252



0253



0254



0255



0256



Figure 57 Everted rim bowls (Genre 23)

CATN.	Provenance	Stage	Genre	Fabric	Description
0246	A09		23	g	bowl, everted rim
0247	A09.35	4.1	23	k	bowl, rounded everted rim
0248	A09 23.01	4	23	h	bowl, everted squared rim, a slight ridge under the neck, spherical body
0249	A09 21.01	4.1	23	n	bowl, everted, rounded rim
0250	A06	4	23	x	bowl, everted rim, a groove on the lip
0251	A06 04	4.1	23	k	bowl, everted rim, ridges under the rim
0252	A09 01.211	2A.4	23	d	bowl, everted, squared rim, rounded body
0253	A06 01.02	3A.2	23	c	bowl, everted rim
0254	A09 02		23	x	bowl, everted rim
0255	A09.20	2A	23	c	bowl, everted rim
0256	A09.58/60	4	23	k	bowl, flattened, squared rim

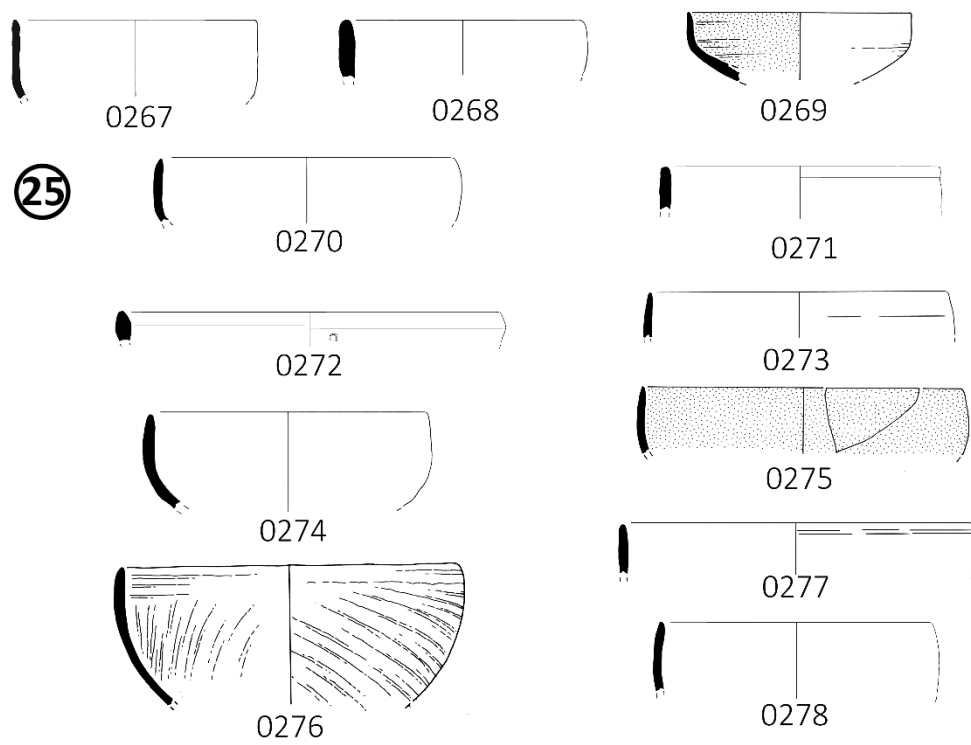
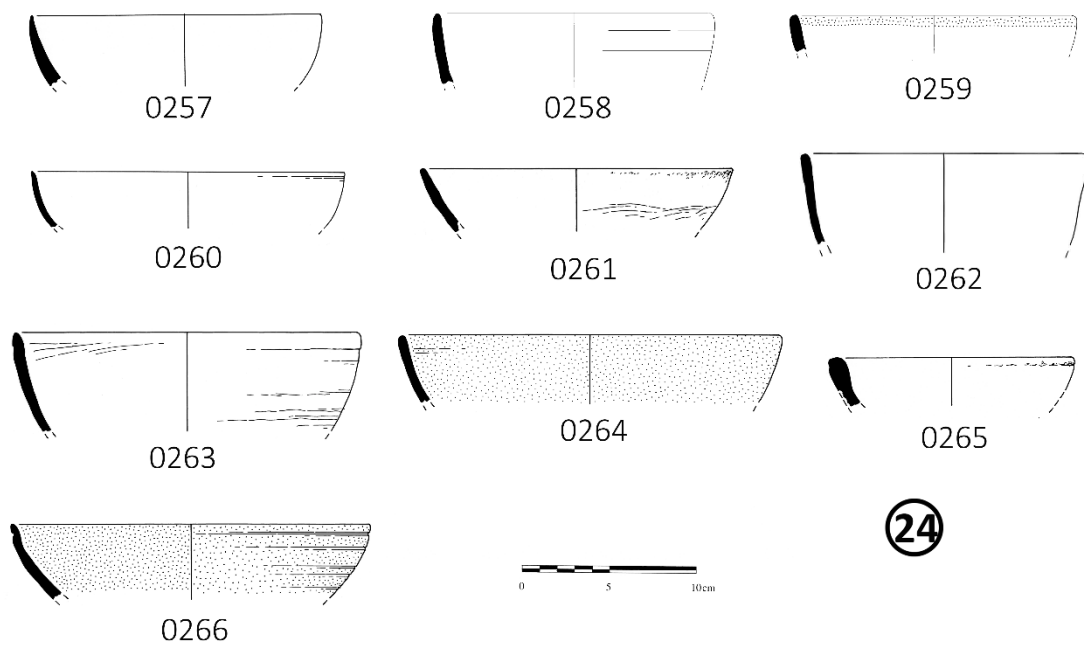


Figure 58 Bowls (Genres 24, 25)

CATN.	Provenance	Stage	Genre	Fabric	Description
0257	A06 02	4	24	k	bowl, pinched rim
0258	A09.03	1A	24	d	bowl, rounded rim
0259	A09.04	1A	24	d	bowl, rounded rim
0260	A09 28.04	4.2	24	h	bowl, pointed rim with a groove
0261	A09	4	24	x	bowl, rounded rim
0262	A09SF	4	24	f	bowl, rounded rim
0263	A09	4	24	x	bowl, rounded rim
0264	A09 01.09	4	24	d	bowl, rounded rim, thin wall
0265	A06 04	4.1	24	k	bowl, rounded rim
0266	A09 01.302	4.2	24	d	bowl, pointed rim with a groove
	A01 04.04	2A.4	24	d	bowl, upright rim
	A01		24	h	bowl, pointed rim, conical body
0267	A09.04N2	1A	25	d	bowl, upright rim
0268	A09.06/07V2W2	1A	25	d	bowl, upright rounded rim
0269	A09 01.01	4	25	d	bowl, pointed rim, sinuous body
0270	A01 04.01	4.1	25	d	bowl, upright pointed rim
0271	A09.50/52	1A.2	25	d	bowl, upright rim
0272	A09.12	4.1	25	d	bowl, rounded rim
0273	A01		25	d	bowl, upright pointed rim
0274	A01 04.01	4.1	25	f	bowl, upright pointed rim
0275	A06 04	4.1	25	d	bowl, upright pointed rim
0276	A01		25	h	bowl, upright rim
0277	A01 04.01	4.1	25	d	bowl, upright rim
0278	A09.52	1A.2	25	d	bowl, pointed rim
	A06 02.02	4.1	25	d	bowl, upright rim
	A09.35	4.1	25	d	bowl, upright pointed rim
	A01 04.01	4.1	25	f	bowl, upright pointed rim, carinated body

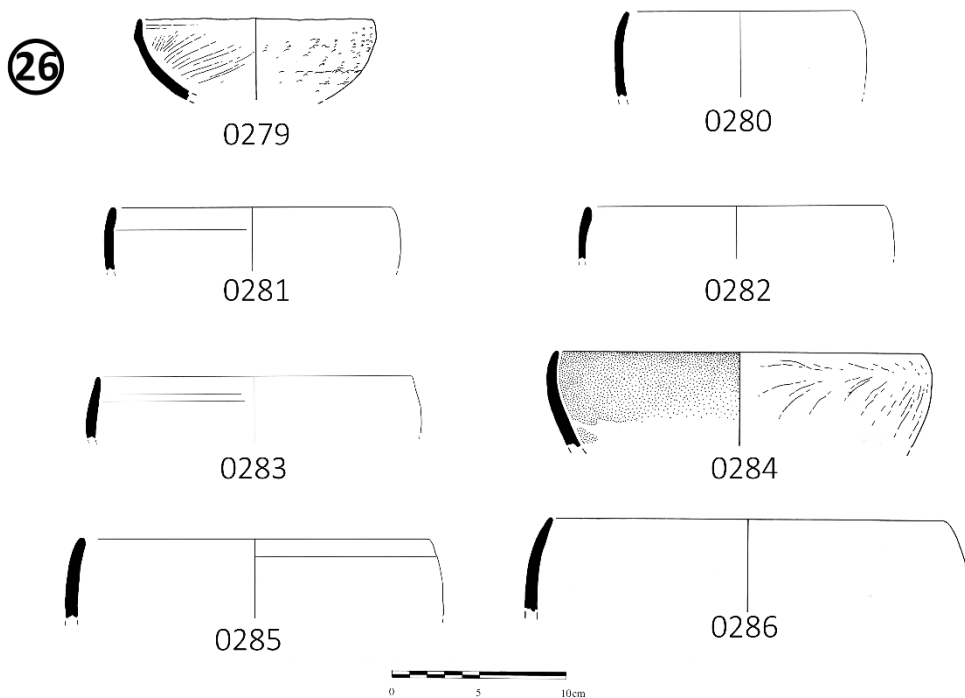


Figure 59 In-turned rim bowls (Genre 26)

CATN.	Provenance	Stage	Genre	Fabric	Description
0279	A09 13.24		26	h	bowl, slightly in-turned rim
0280	A01		26	g	bowl, pointed in-turned rim
0281	A01		26	d	bowl, rounded slightly in-turned rim
0282	A01		26	f	bowl, pointed slightly in-turned rim
0283	A01		26	d	bowl, pointed slightly in-turned rim
0284	A09 23.01	4	26	d	bowl, pointed slightly in-turned rim
0285	A01		26	d	bowl, rounded slightly in-turned rim
0286	A09 23.04	3A	26	k	bowl, pointed slightly in-turned rim

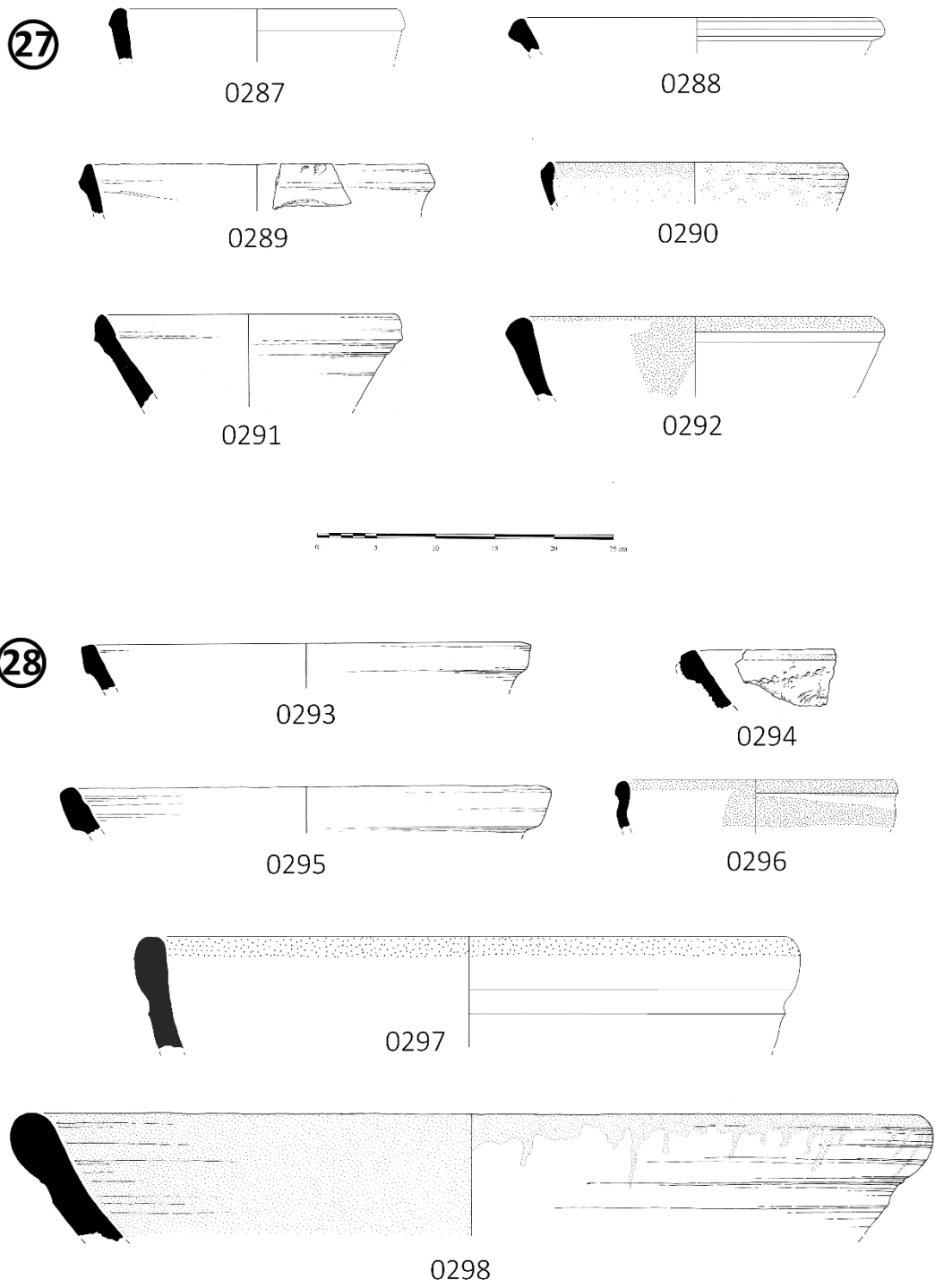


Figure 60 Large bowls (Genres 27, 28)

CATN.	Provenance	Stage	Genre	Fabric	Description
0287	A09.37	3A	27	g	bowl, externally bevelled rim
0288	A01 04.02	2A.4	27	g	bowl, collared rilled rim
0289			27	x	bowl, externally bevelled rim
0290	A09	4	27	d	bowl, slightly in-turned bevelled rim
0291	A09	4	27	k	bowl, collared bevelled rim
0292	A01		27	a	bowl, bevelled rim
	A06 07.21	2A.4	27	g	large bowl, collared rim
0293	A09 21.11	2A.4	28	g	large bowl, collared, squared rim
0294	A09 01.08	4	28	g	large bowl, collared rim
0295	A09 01.01	4	28	c	large bowl, squared collared rim
0296	A01		28	a	large bowl, collared rounded rim
0297	A09.50/52	1A.2	28	c	large bowl, collared rounded rim
0298	A09 01.02	4	28	a	large bowl, collared rounded rim
	A06 08.09	3A.1	28	h	large bowl, collared squared rim
	A06 01.02	3A.2	28	i	large bowl, collared rounded rim

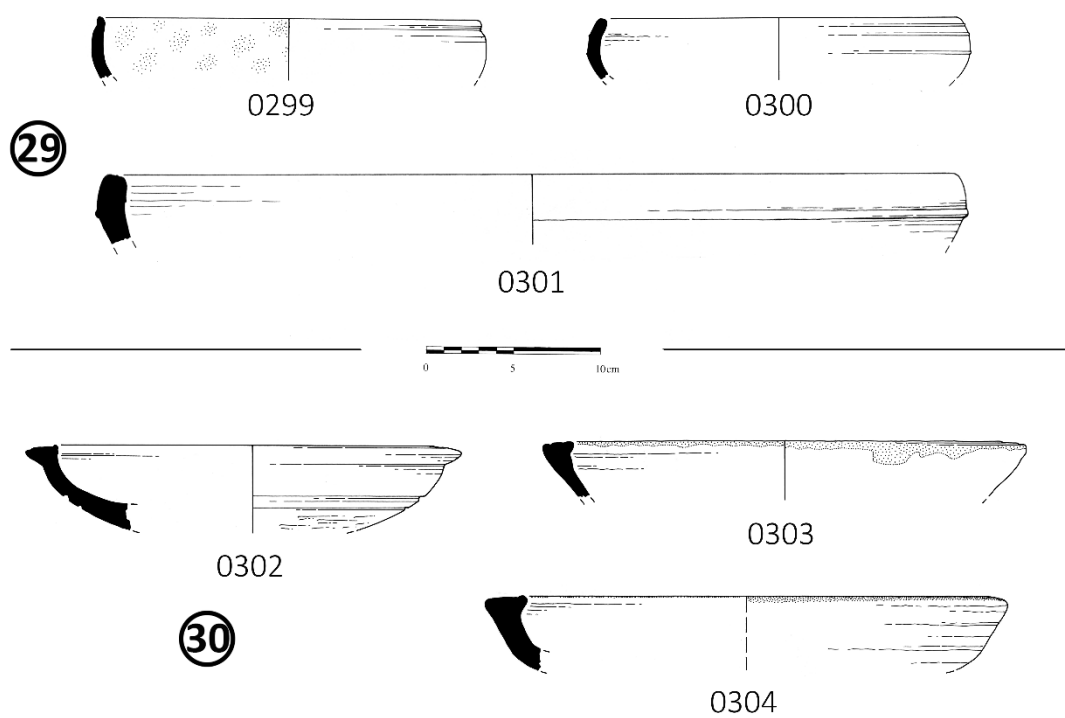


Figure 61 Shallow bowls (Genres 29, 30)

CATN.	Provenance	Stage	Genre	Fabric	Description
0299	A09 01.01	4	29	d	bowl, in-turned rim, globular body
0300	A09 21.16	3A.1	29	h	bowl, in-turned rounded rim, ridged body
0301	A09 01.08	4	29	g	bowl, in-turned rim, spherical body
0302	A09 01.515	1A	30	x	bowl, flattened rim, grooves on the body
0303	A09 13.24		30	j	bowl, flattened inverted rim
0304	A09 23.01	4	30	j	bowl, flattened inverted rim

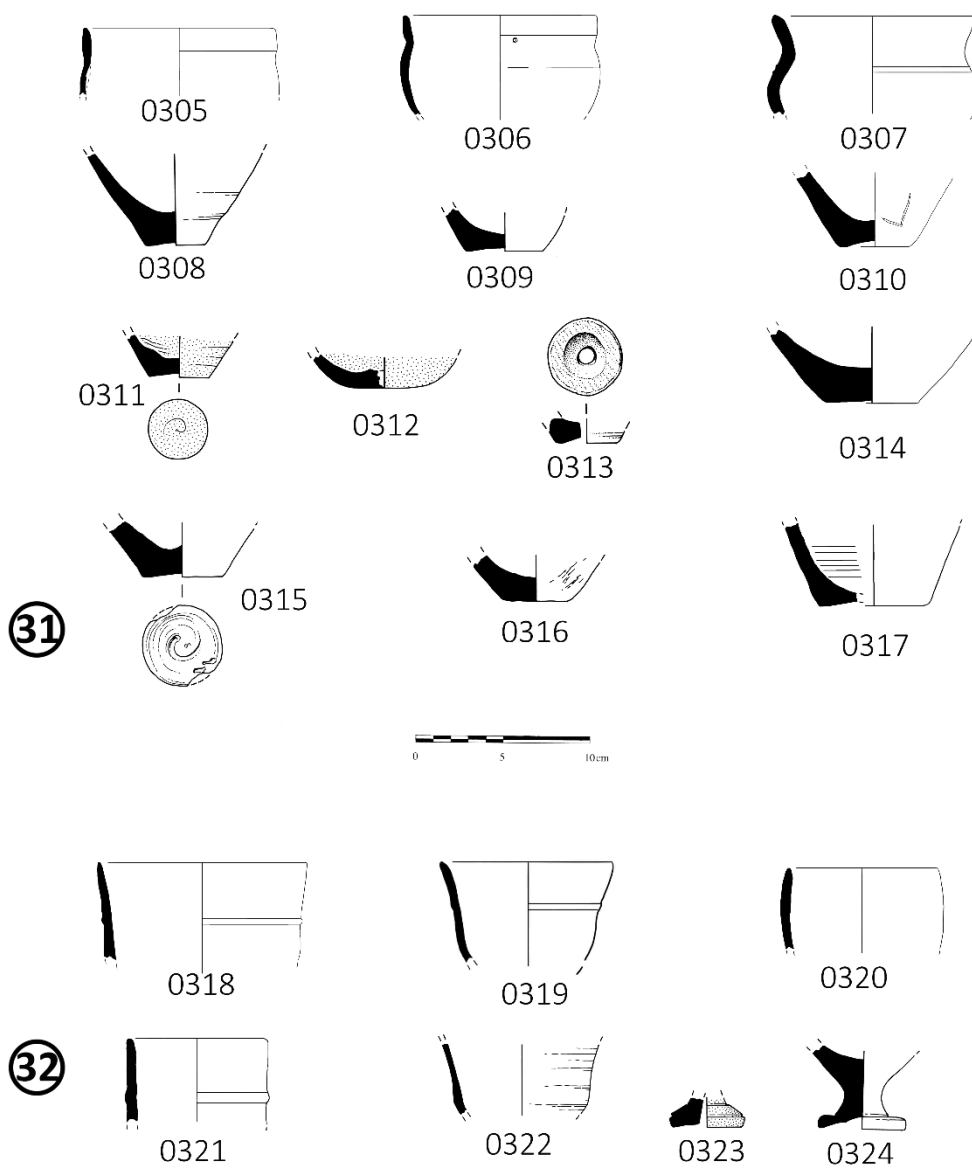
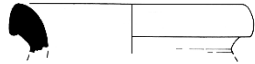


Figure 62 Goblets (Genres 31, 32)

CATN.	Provenance	Stage	Genre	Fabric	Description
0305	A09.58/60	4	31	d	goblet, pointed rim, slightly out-curved
0306	A09.82	1A.2	31	d	goblet, vertical pointed rim, slightly out-curved
0307	A01		31	d	goblet, out-curved rim, ridge on the body
0308	A01		31	f	goblet, concave base
0309	A09 01.08	4	31	k	goblet, slightly concave base
0310	A09.82	1A.2	31	f	goblet, slightly concave base
0311	A09		31	d	goblet, concave base
0312	A09 01.01	4	31	d	goblet, flat base
0313	A01		31	d	goblet, concave base
0314	A01		31	f	goblet, flat base
0315	A09 01.902	4	31	h	goblet, concave base
0316	A09 23.01	4	31	d	goblet, flat base
0317	A09.06/07	1A	31	d	goblet, concave base
	A01		31	f	goblet, flat base
0318	A09.52	1A.2	32	f	goblet, pointed rim, thin straight wall with a ridge
0319	A09 25.08	2A.4	32	d	goblet, pointed rim, ridge on the body
0320	A01 04.05	2A.4	32	f	goblet, rounded rim, straight wall
0321	A09.02	1A	32	f	goblet, pointed rim, straight thin wall with a ridge
0322	A06 02.02	4.1	32	d	goblet, body
0323	A09	4	32	d	goblet, pedestal base
0324			32	x	goblet, pedestal base

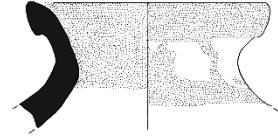
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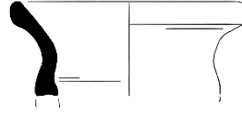
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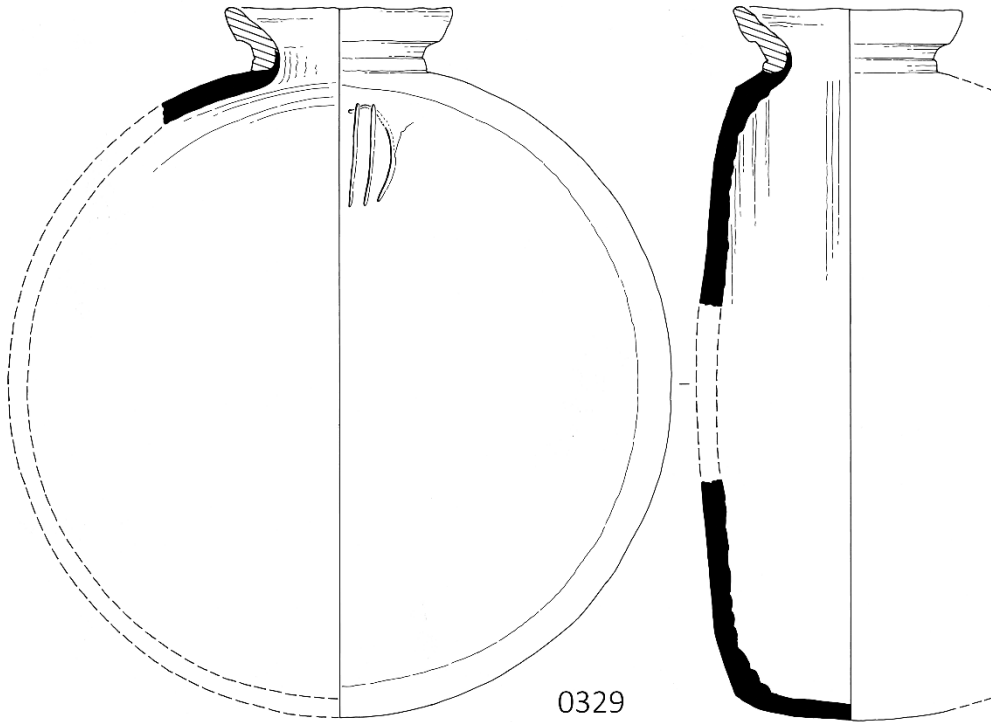
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0327



0328



0329

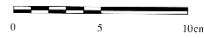


Figure 63 Pilgrim Flasks (Genre 33)

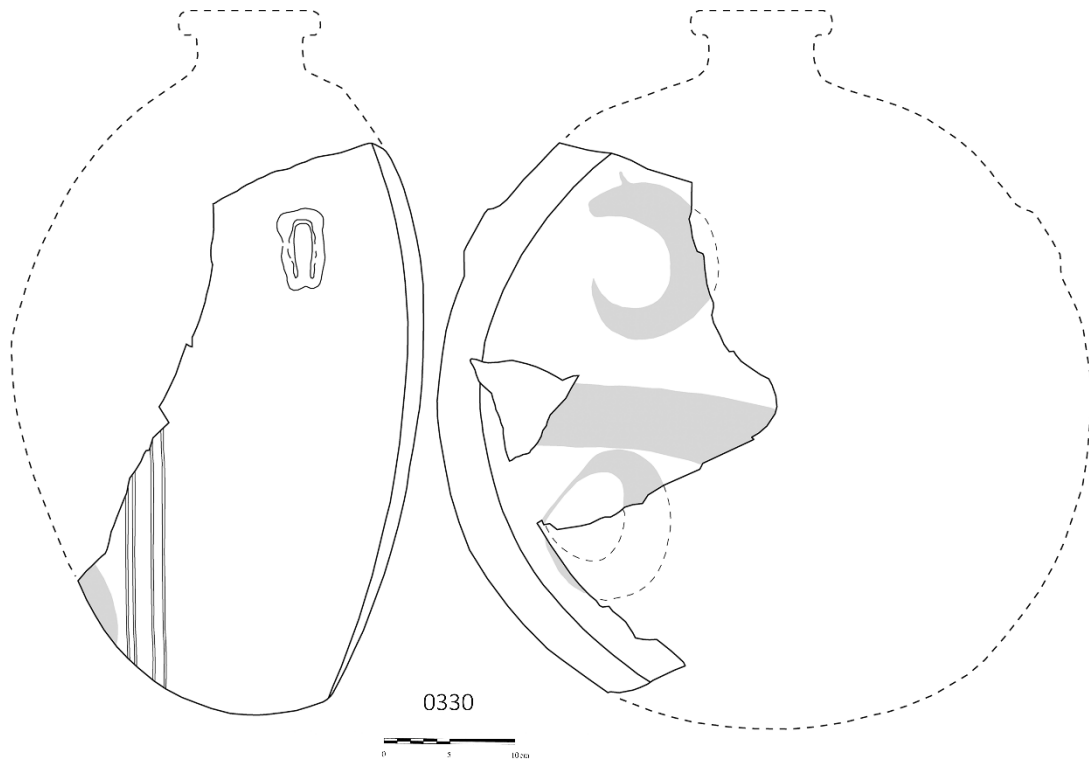


Figure 64 Pilgrim flasks (Genre 33)

CATN.	Provenance	Stage	Genre	Fabric	Description
0325	A09 23	4	33	h	flask? collared out-curved rim
0326	A09 12		33	h	flask? collared rim, narrowed neck
0327	A09.52	1A.2	33	j	flask? flaring, collared rim
0328	A01		33	d	flask? collared squared rim, narrowed neck
0329	A09 25.08	2A.4	33	f	flask, collared rim, globular body and rounded base
0330	A01		33	x	flask, bas relief decoration

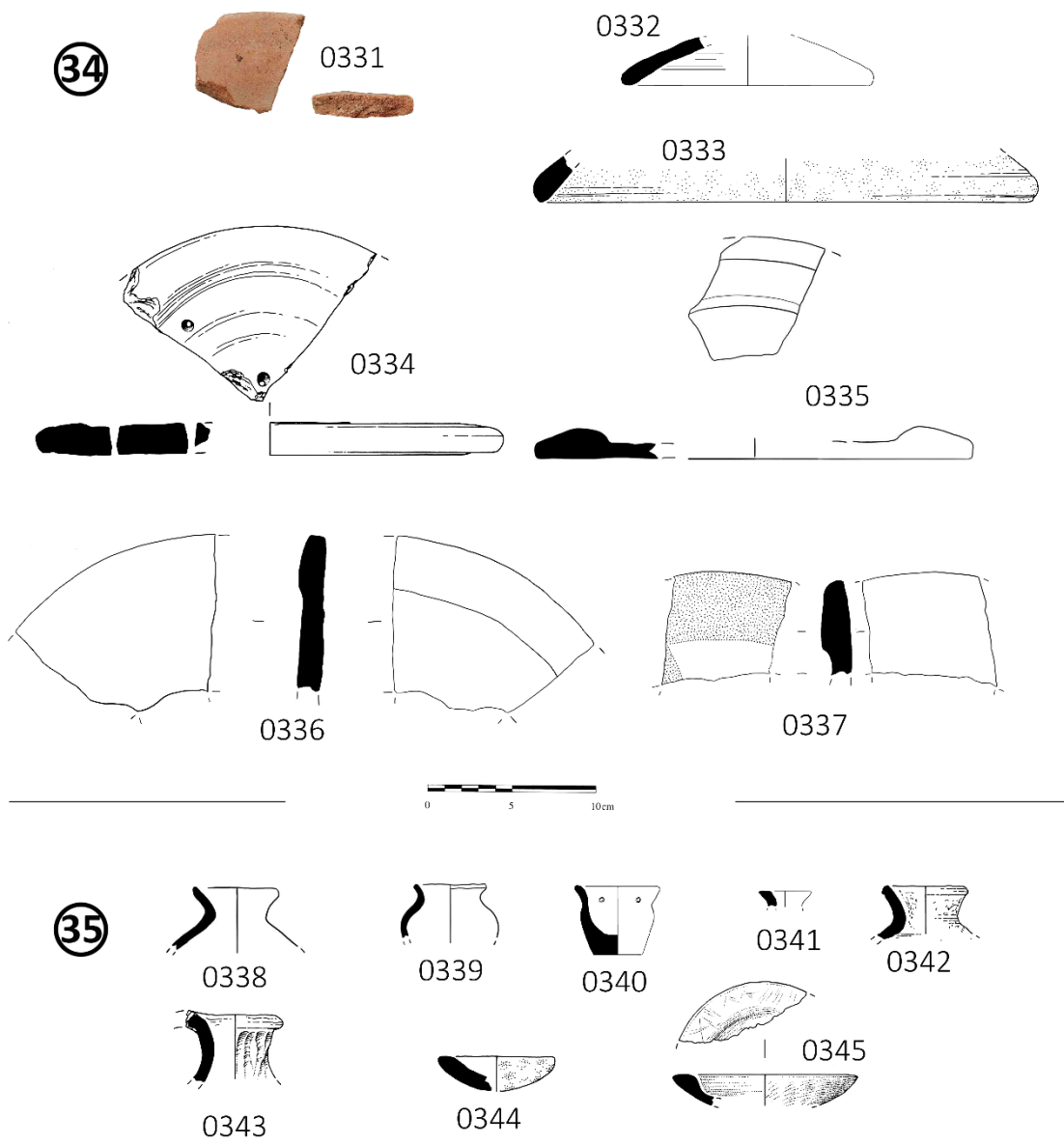


Figure 65 Lids and miniature vessels (Genres 34, 35)

CATN.	Provenance	Stage	Genre	Fabric	Description
0331	A01		34	h	lid, flat
0332	A09.02	1A	34	d	lid, conical
0333	A06 03.01	4.1	34	d	lid, conical
0334	A09	4	34	d	lid, flat
0335	A09 01.505	2A.4	34	g	lid, flat
0336	A01		34	g	lid, flat
0337	A01		34	a	lid, flat
	A01 04.04	2A.4	34	a	lid, conical
	A01 04.04	2A.4	34	e	lid, conical
	A06 07.21	2A.4	34	i	lid, flat
0338	A09 22.17	3A	35	b	miniature, everted rim, narrowed neck
0339	A09SF	4	35	c	miniature, everted rim, rounded body
0340	A09.05/06L1	1A	35	g	miniature
0341	A01 03.01	4.1	35	d	miniature, everted, rounded rim
0342	A09	4	35	b	miniature, everted rim, narrowed neck
0343	A09	4	35	x	miniature, flared rim, narrowed neck with a handle?
0344	A09 23.01	4	35	d	miniature, thick wall, rounded rim
0345	A06 02.02	4.1	35	e	miniature, flattened rim
	A09.35	4.1	35	b	miniature, everted rim, ledge on the shoulder

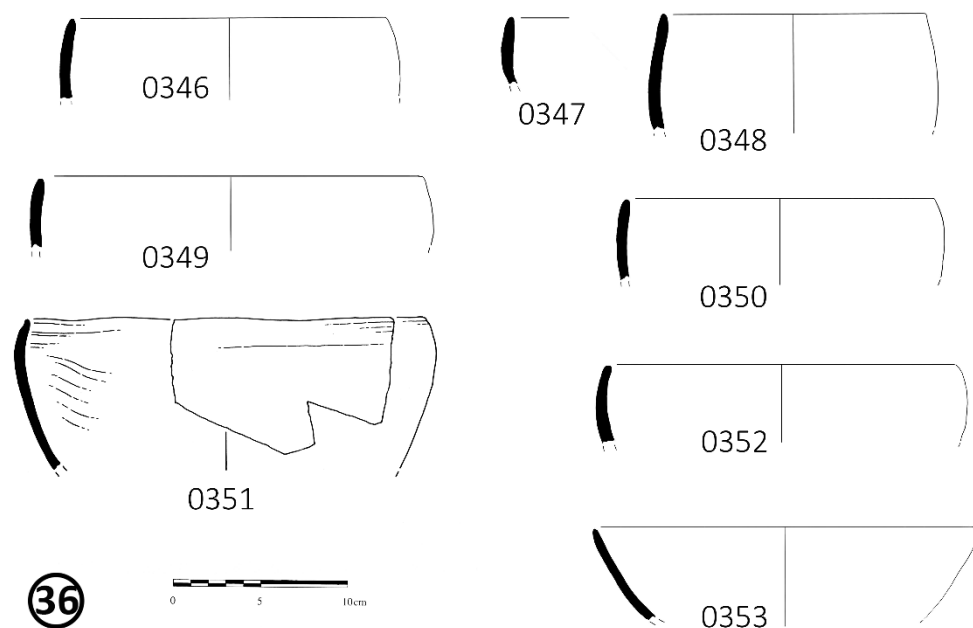


Figure 66 Cooking pots, open form (Genre 36)

CATN.	Provenance	Stage	Genre	Fabric	Description
0346	A01		36	i	cooking pot, pointed slightly in-turned rim
0347	A01 04.05	2A.4	36	i	cooking pot, pointed slightly in-turned rim
0348	A01		36	b	cooking pot, rounded slightly in-turned rim
0349	A01 04.02	2A.4	36	i	cooking pot, rounded slightly in-turned rim
0350	A01 04.06	2A.4	36	i	cooking pot, pointed slightly in-turned rim
0351	A01		36	i	cooking pot, rounded, slightly inverted
0352	A01 03.01	4.1	36	i	cooking pot, pointed slightly in-turned rim
0353	A01		36	e	cooking pot, pointed rim

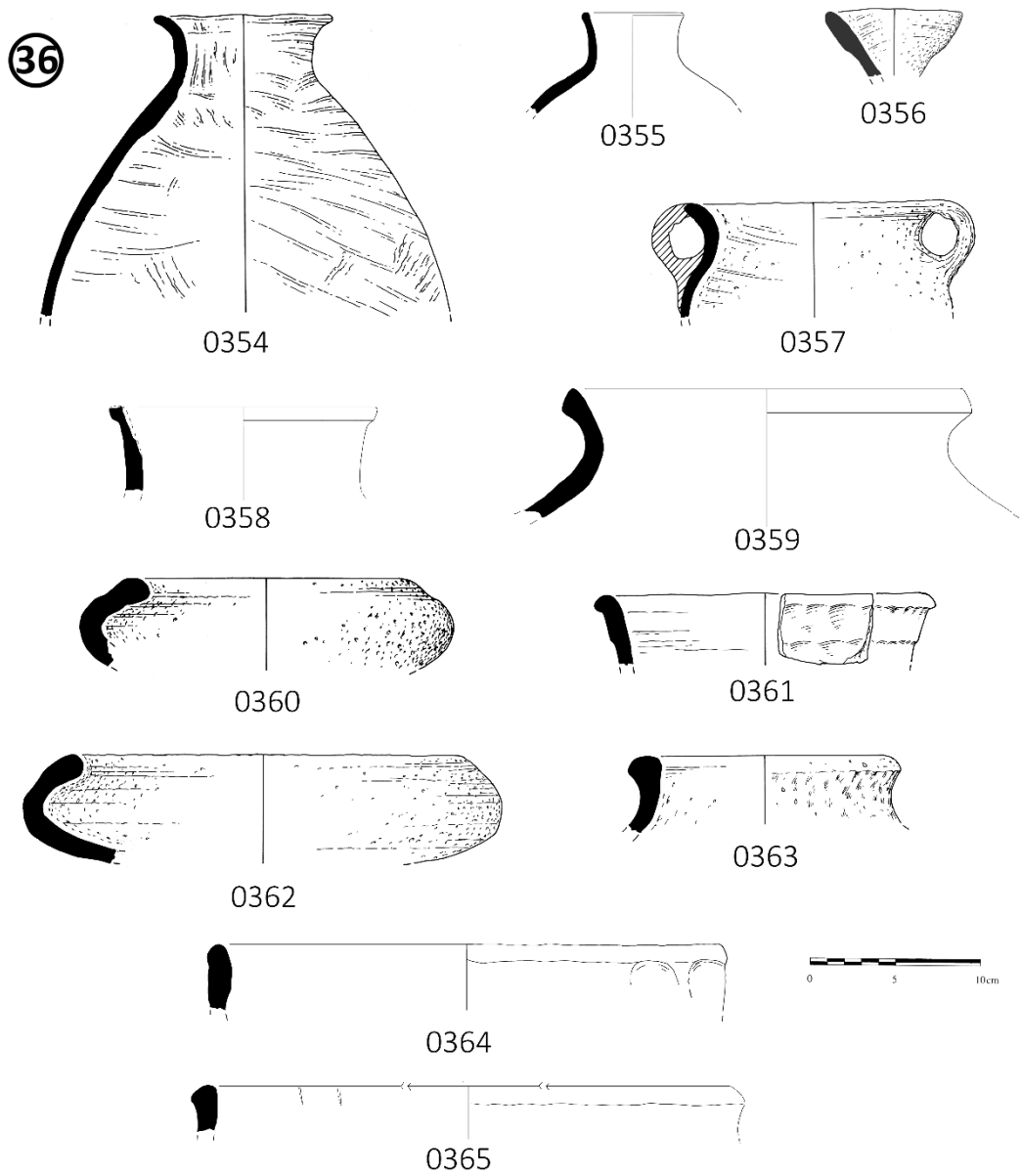


Figure 67 Cooking pots (Genre 36)

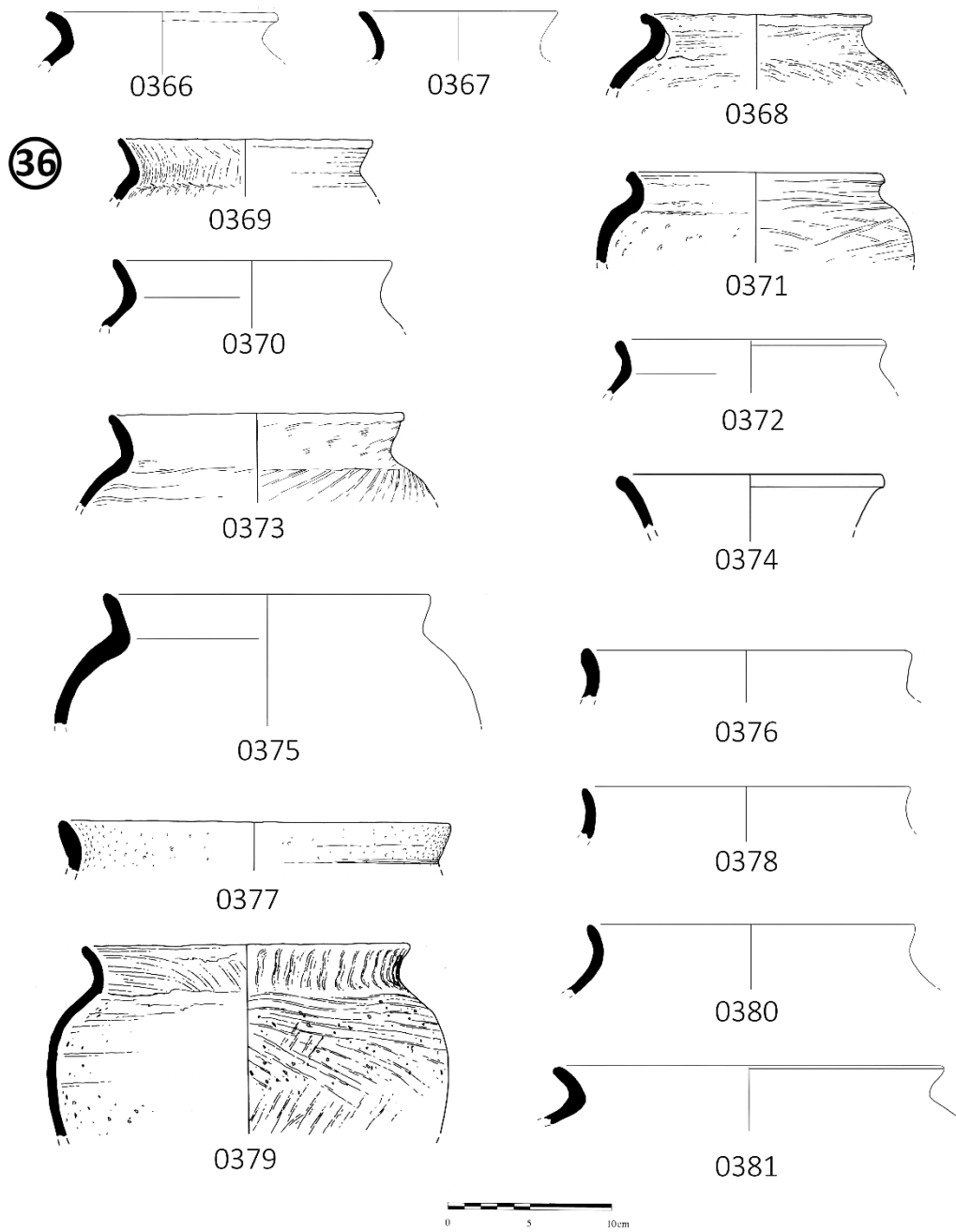
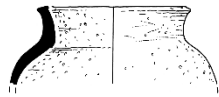
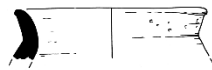


Figure 68 Cooking pots (Genre 36)

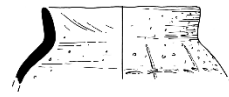
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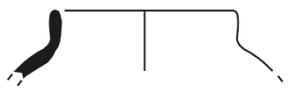
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0383



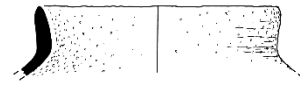
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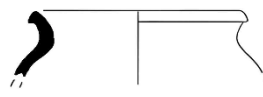
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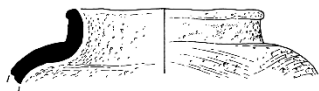
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0388



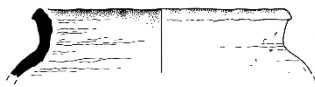
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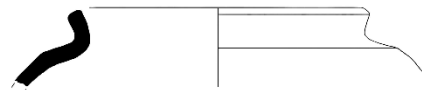
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0391



0392



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0394



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0396



0397



0398

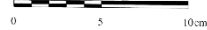


Figure 69 Cooking pots (Genre 36)

CATN.	Provenance	Stage	Genre	Fabric	Description
0354	A01		36	c	cooking pot, everted rim, rounded body
0355	A01 04.03	2A.4	36	c	cooking pot, rounded rim
0356	A09 01.08	4	36	b	cooking pot, rounded flared rim
0357	A09 01.01	4	36	b	cooking pot, everted, rounded rim, with one strap handle attached to the rim
0358	A09.03	4.2	36	e	cooking pot, slightly everted, rounded rim, long mecl
0359	A09.82	1A.2	36	e	cooking pot, everted, squared
0360	A09 13.24		36	i	cooking pot, incurving rim, spherical body
0361	A09 01.08	4	36	i	cooking pot, rounded
0362	A09		36	x	cooking pot, inverted rim, globular body
0363	A09 01.01	4	36	c	cooking pot, thickened
0364	A09.06/07V2W2	1A	36	o	cooking pot, straight, rounded
0365	A09.36	3A	36	b	cooking pot, rounded
0366	A09.04	1A	36	b	cooking pot, everted rim
0367	A09.49/50	1A.2	36	i	cooking pot, everted rim
0368	A09	4	36	x	cooking pot, everted, rounded
0369	A06 03.01	4.1	36	x	cooking pot, everted rim
0370	A01		36	c	cooking pot, everted, rounded
0371	A06 08.09	3A.1	36	b	cooking pot, squared
0372	A01 04.01	4.1	36	b	cooking pot, everted, squared
0373	A06 05.04	3A.2	36	b	cooking pot, everted, rounded rim
0374	A09 01	4	36	b	cooking pot, rounded out-curving rim
0375	A01		36	c	cooking pot, everted, rounded
0376	A01		36	b	cooking pot, everted, rounded
0377	A09 22.01	4.2	36	o	cooking pot, flaring
0378	A01		36	c	cooking pot, everted and rounded rim
0379	A01		36	b	cooking pot, everted and rounded rim
0380	A01		36	b	cooking pot, everted and rounded rim
0381	A01		36	i	cooking pot, everted and rounded rim
0382	A09 28.01	4.2	36	b	cooking pot, flaring, squared
0383	A09 01.02	4	36	b	cooking pot, everted
0384	A06 02	4	36	o	cooking pot, rounded
0385	A09.82	1A.2	36	b	cooking pot, vertical, squared rim

0386	A09.89	1A.2	36	b	cooking pot, everted slightly, rounded rim, uneven
0387	A09 28.01	4.2	36	b	cooking pot, nearly straight, rounded
0388	A09SF	4	36	b	cooking pot, everted rim
0389	A09SF	4	36	b	cooking pot, squared everted rim
0390	A09		36	x	cooking pot, upright squared rim
0391	A09	4	36	b	cooking pot, everted, squared
0392	A09 13.24		36	i	cooking pot, slightly everted, squared rim
0393	A01 04.01	4.1	36	b	cooking pot, everted, squared
0394	A06 02.02	4.1	36	x	cooking pot, slightly everted, squared rim
0395	A01		36	b	cooking pot, everted, rounded
0396	A06 02.02	4.1	36	b	cooking pot, upright rim
0397	A09.44	3A	36	b	cooking pot, vertical, squared rim
0398	A01 04.03	2A.4	36	o	cooking pot, everted and rounded rim
	A09 21.18	2A.4	36	b	cooking pot, upright rim
	A01	4	36	i	cooking pot, pointed rim

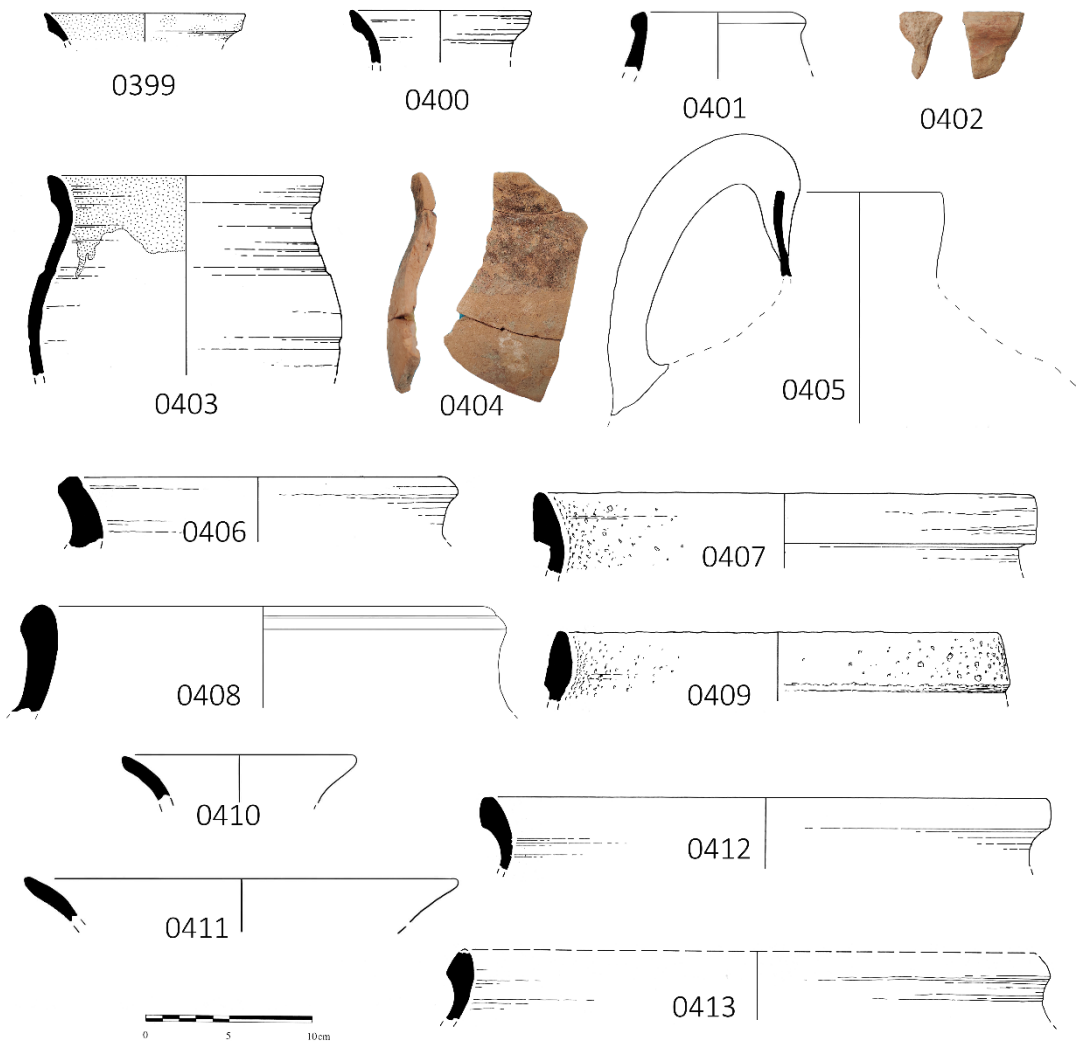


Figure 70 Unclassified forms

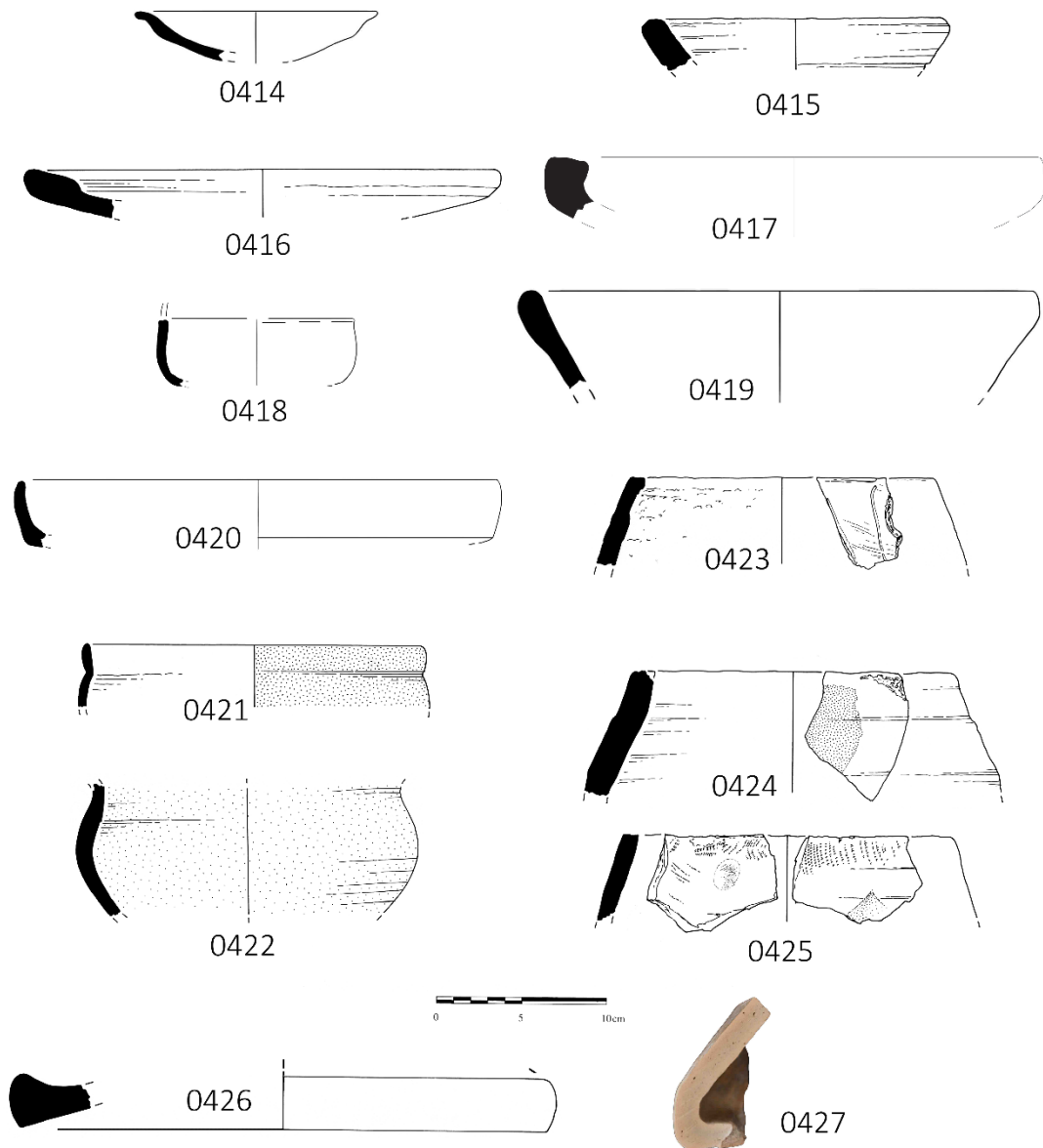


Figure 71 Unclassified forms

CATN.	Provenance	Stage	Genre	Fabric	Description
0399	A09 30.03	3A	UC	f	jar, pointed rim
0400	A09 23.01	4	UC	h	elongated jar, sub-triangular pointed rim
0401	A09SF	4	UC	g	jar? bevelled rim
0402	A09 01.02	4	UC	d	bowl? flattened "T-shaped" rim
0403	A01		UC	d	jar, sub-triangular collared rim, wide neck, sloping shoulder
0404	A06 08.09	3A.1	UC	d	jar, pointed rim with wide open mouth
0405	A06	4	UC	l	elongated jar, vertical, rounded rim, narrowed neck, loop handle
0406	A09 01.401	4.1	UC	g	jar, everted, squared
0407	A06 02.02	4.1	UC	c	jar, folded rim, with triangular cross section
0408	A01	4	UC	d	jar, upright multiple rim
0409	A06 02.02	4.1	UC	x	jar, collared rounded rim
0410	A09SF	4	UC	g	jar, flared pointed rim
0411	A09SF	4	UC	d	jar, flared pointed rim
0412	A06 04.03	4.1	UC	x	jar, collared rim
0413	A06 04.03	4.1	UC	d	jar, collared rim
0414	A09SF	4	UC	h	bowl? rounded rim, shallow wide body
0415	A09 20.09	2A.4	UC	g	bowl or plate?
0416	A09	4	UC	g	plate
0417	A10 13.16	2A.2	UC	a	plate
0418	A01 04.02	2A.4	UC	c	plate, vertical, squared rim, very shallow
0419	A09 01.505	2A.4	UC	k	bowl? flared rim
0420	A01 01.01	4.1	UC	c	low-sided tray, vertical rim, very shallow plate
0421	A09 23.01	4	UC	d	bowl, straight, pointed rim, slightly recessed under the rim
0422	A06 03	4	UC	d	bowl, globular
0423	A06 03.01	4.1	UC	h	inverted, squared rim
0424	A06 07.04	2A.4	UC	a	inverted, squared rim
0425	A06	4	UC	k	squared rim, knife-trimming
0426	A09 27.15		UC	h	crater, pedestal
0427	A06 07.21	2A.4	UC	k	incense burner? wide flat base, incurved body

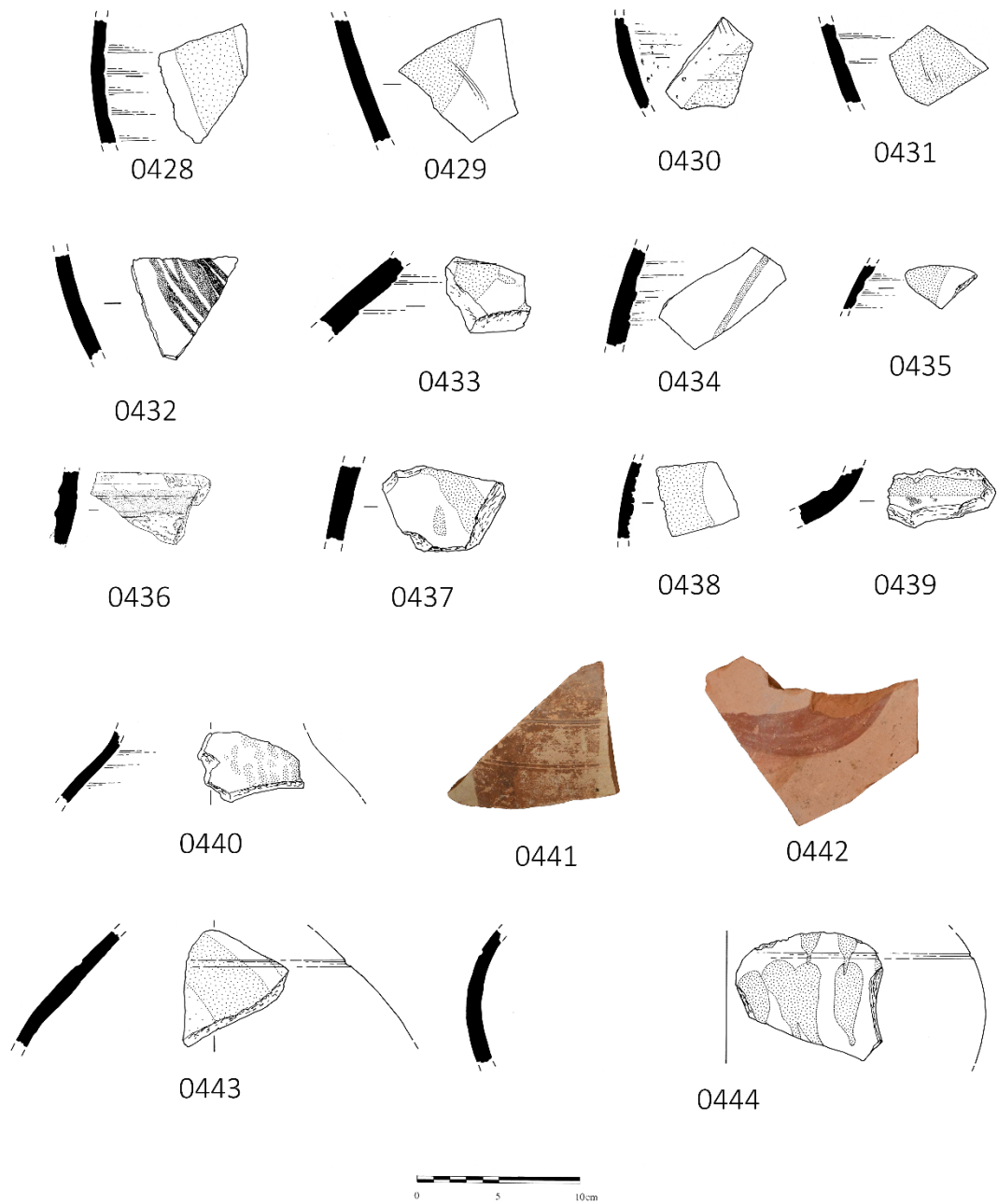


Figure 72 Painted body sherds

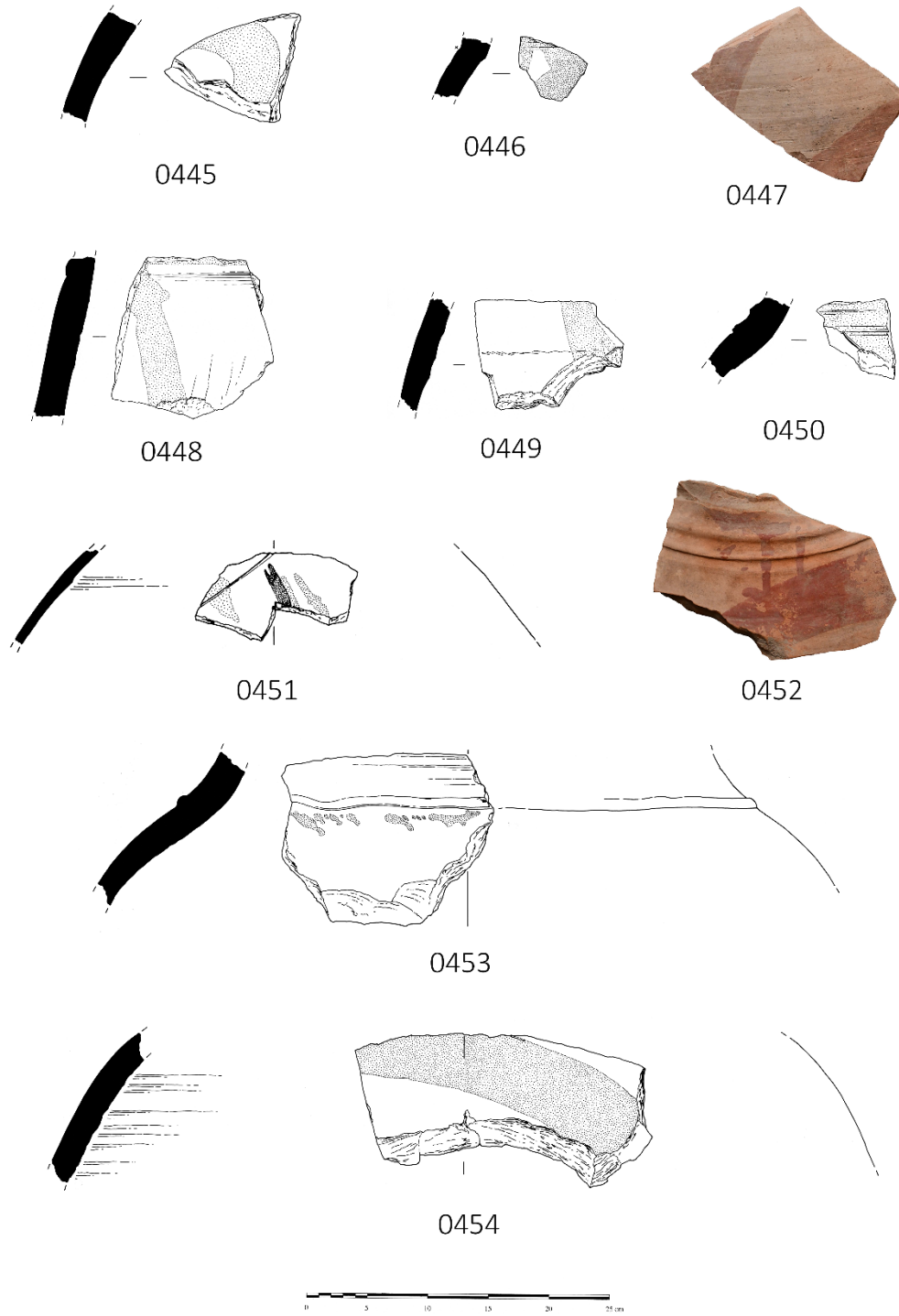


Figure 73 Painted body sherds



Figure 74 Painted body sherds

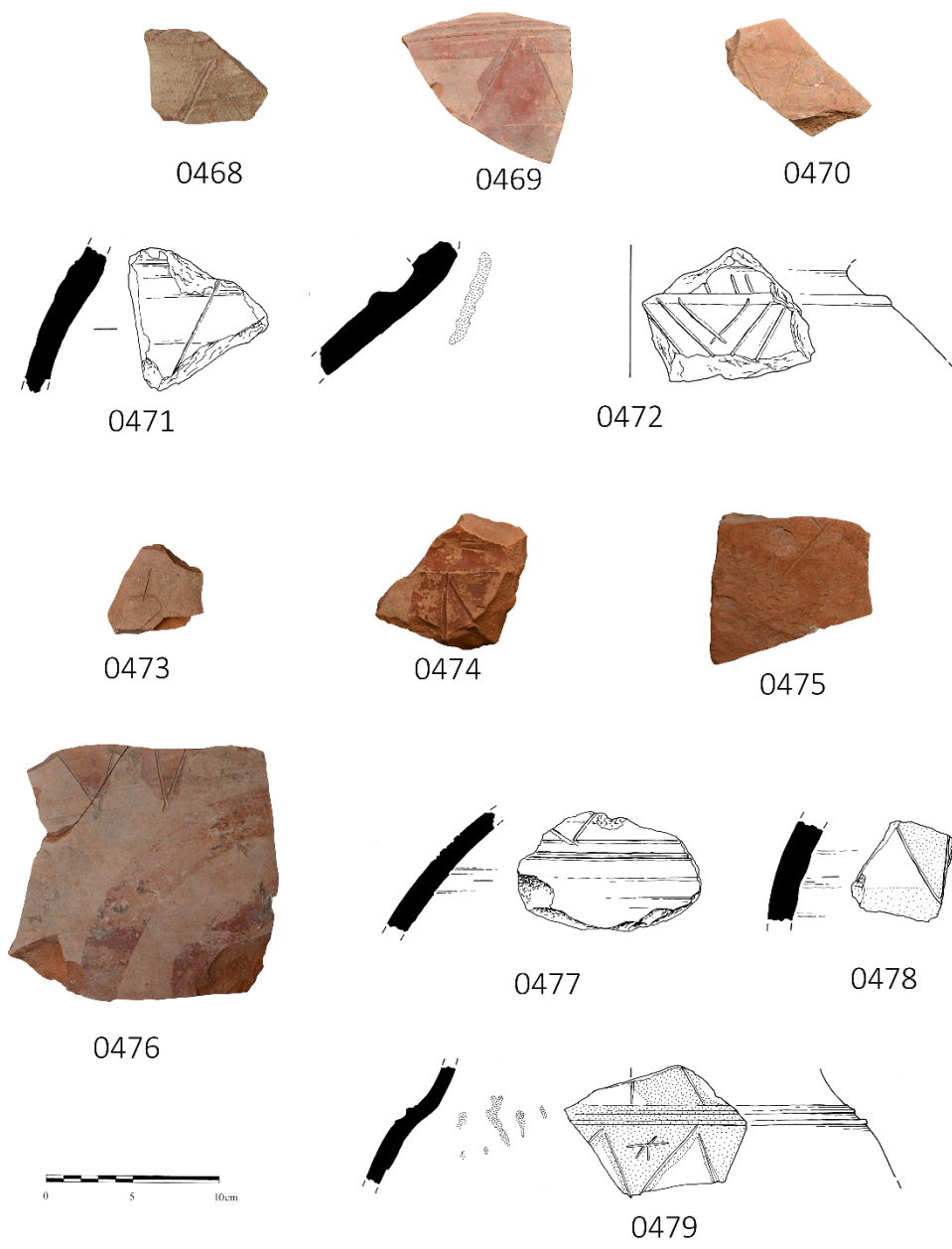


Figure 75 Decorated body sherds

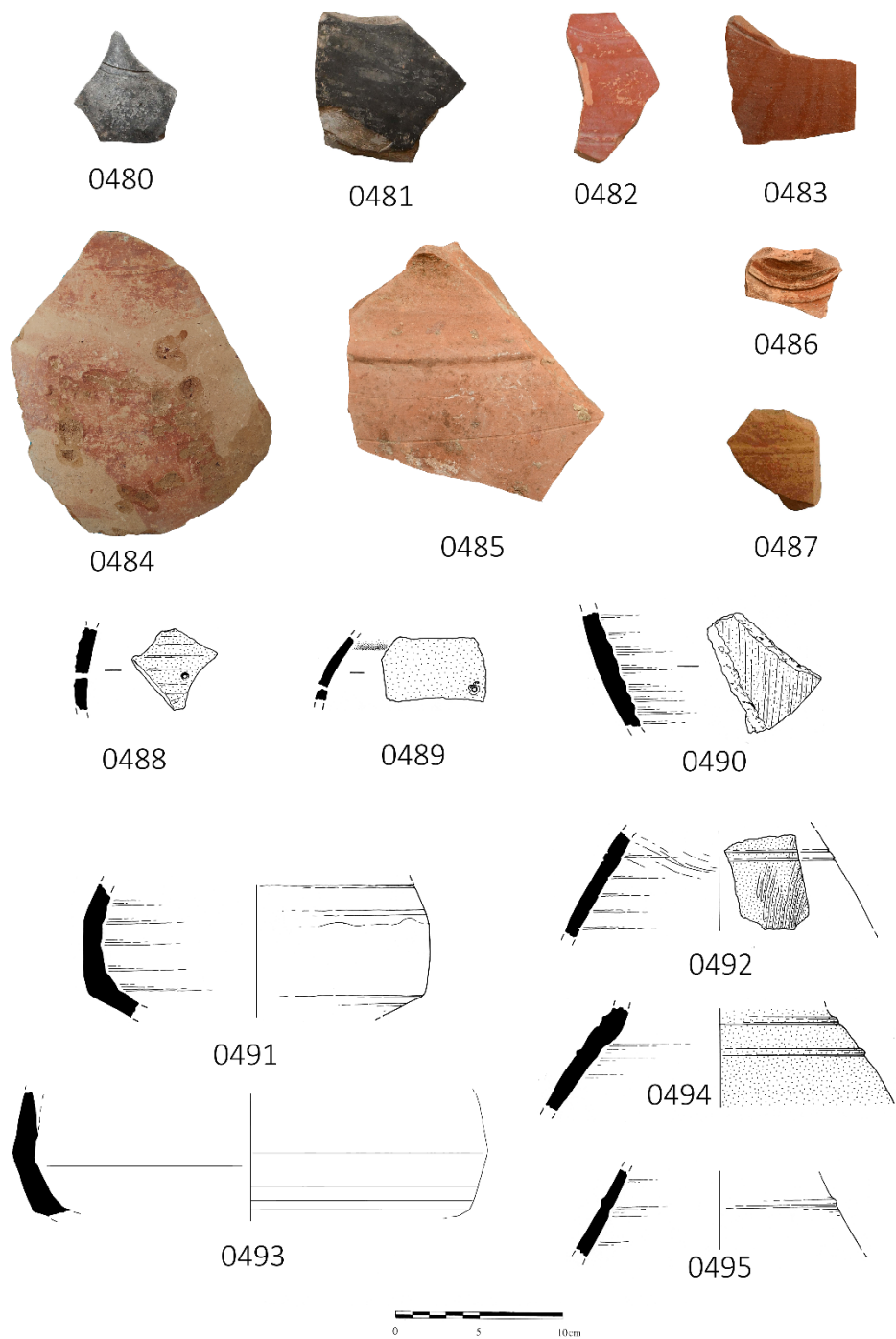


Figure 76 Diagnostic body sherds

CATN.	Provenance	Stage	Genre	Fabric	Description
0428	A06		Z	a	jar, ptd
0429	A09 01.01	4	Z	a	jar, ptd
0430	A09 01.02	4	Z	a	jar, ptd
0431	A06 03.01	4.1	Z	a	jar, ptd
0432	A06 02.02	4.1	Z	a	jar, ptd
0433	A06 07.03	4.2	A	j	la jar, ptd

0434	A06 07.01	4.2	Z	a	ptd
0435	A09 01.01	4	Z	a	jar, ptd
0436	A09 01.905		A	a	la jar, ptd
0437	A06 07.18	2A.4	Z	a	jar, ptd
0438	A06 03.01	4.1	Z	a	ptd
0439	A09 21.12	2A.4	Z	j	jar, ptd shoulder
0440	A06 07.12	4	Z	d	jar, ptd
0441	A01		Z	a	jar, shoulder? two grooves, ptd
0442	A01		Z	a	jar, ptd
0443	A09 13.04		Z	a	jar, ptd shoulder
0444			Z	j	jar, ptd globular body
0445	A09	4	Z	a	ptd
0446	A06 03.01	4.1	A	a	la jar, ptd
0447	A09 01.200	4.2	Z	a	jar, ptd
0448	A06 04	4.1	A	a	la jar, ptd
0449	A06 07.10	2A.4	A	a	la jar, ptd
0450	A09 01.08	4	A	a	la jar, ptd shoulder
0451	A09 13.24		Z	a	jar, ptd
0452	A09.02	1A	A	j	la jar, ptd shoulder
0453	A06		A	j	la jar, ptd shoulder
0454	A06		A	a	la jar, ptd shoulder
0455	A01		Z	a	ptd
0456	A09.05X2	1A	A	a	la jar, ptd
0457	A09.21	2A	Z	a	jar, ptd
0458	A09.44	3A	Z	a	ptd
0459	A09.05L2M2	1A	Z	a	jar, ptd
0460	A09.68	2A	Z	a	ptd
0461	A09.20	2A	A	a	la jar, ptd
0462	A01		A	a	la jar, ptd
0463	A09.52	1A.2	Z	j	jar, ptd
0464	A09.07	1A	A	a	la jar, ptd shoulder
0465	A09.82	1A.2	A	j	la jar, ptd
0466	A06		A	a	la jar, ptd
0467	A09.07	1A	A	a	la jar, ptd
0468	A06 08.09	3A.1	Z	c	jar, zigzag incision
0469	A09.82	1A.2	Z	a	jar, filled geometric pattern
0470	A09.68	2A	Z	h	incisions
0471	A09 13		A	d	la jar, incisions
0472	A09 22.02	4.2	A	g	la jar, shoulder with ridge and incisions
0473	A09 01.500	4	Z	h	jar, mark
0474	A09.49/50	1A.2	Z	d	jar, incision
0475	A09.50/52	1A.2	Z	d	incision
0476	A09 01.507	2A.4	A	a	la jar, filled geometric pattern

0477	A06 04.03	4.1	Z	g	jar, shoulder with grooves and zigzag incisions
0478	A06 07.18	2A.4	A	a	la jar, filled geometric pattern
0479	A06 02.02	4.1	A	a	la jar, shoulder with ridges, marks, filled geometric pattern
0480	A09 01.200	4.2	Z	l	jar, shoulder with grooves
0481	A09.82	1A.2	Z	m	polished
0482	A09.82	1A.2	Z	f	grooves
0483	A09.68	2A	Z	f	elongated jar, shoulder with a groove
0484	A01		Z	a	jar, ptd
0485	A09.82	1A.2	A	d	la jar, shoulder with a ridge
0486	A09.02N2	1A	Z	d	jar, neck-shoulder, ridges
0487	A09.06N2O2	1A	Z	d	jar, ridge
0488	A06 04	4.1	Z	f	jar
0489	A09 01.08	4	Z	d	jar
0490	A06 02.02	4.1	Z	f	elongated jar, vertically burnished
0491	A06 04	4.1	Z	h	carinated body, groove
0492	A06 07.10	2A.4	Z	f	elongated jar, shoulder with grooves
0493	A09.82	1A.2	Z	d	carinated body
0494	A09 01.02	4	Z	d	jar, shoulder with ridges
0495	A09 01.02	4	Z	d	elongated jar, shoulder with a ridge
	A09 02.01	4	Z	d	carinated body
	A09.35	4.1	Z	d	burnished
	A09 28.01	4.2	Z	d	jar
	A09.82	1A.2	Z	a	jar, ptd
	A09.68	2A	Z	f	elongated jar
	A10 13.16	2A.2	Z	a	jar, ptd
	A09 28.07	3A	Z	a	jar, ptd
	A09 28.07	3A	Z	a	jar, ptd
	A09 30.01	3A	Z	a	ptd
	A09 30.01	3A	Z	a	jar, ptd
	A09.44	3A	Z	f	jar, burnished
	A06 08.09	3A.1	Z	d	burnished
	A01		Z	a	jar, ptd
	A01		Z	a	jar, ptd
	A01		Z	a	jar, ptd
	A01		Z	a	ptd
	A01		Z	d	jar
	A01		Z	d	elongated jar, two ridges/ledges
	A09 13.01		Z	d	carinated body
	A09.21	2A	A	a	la jar, body, ptd
	A09.21	2A	A	j	la jar, body, ptd

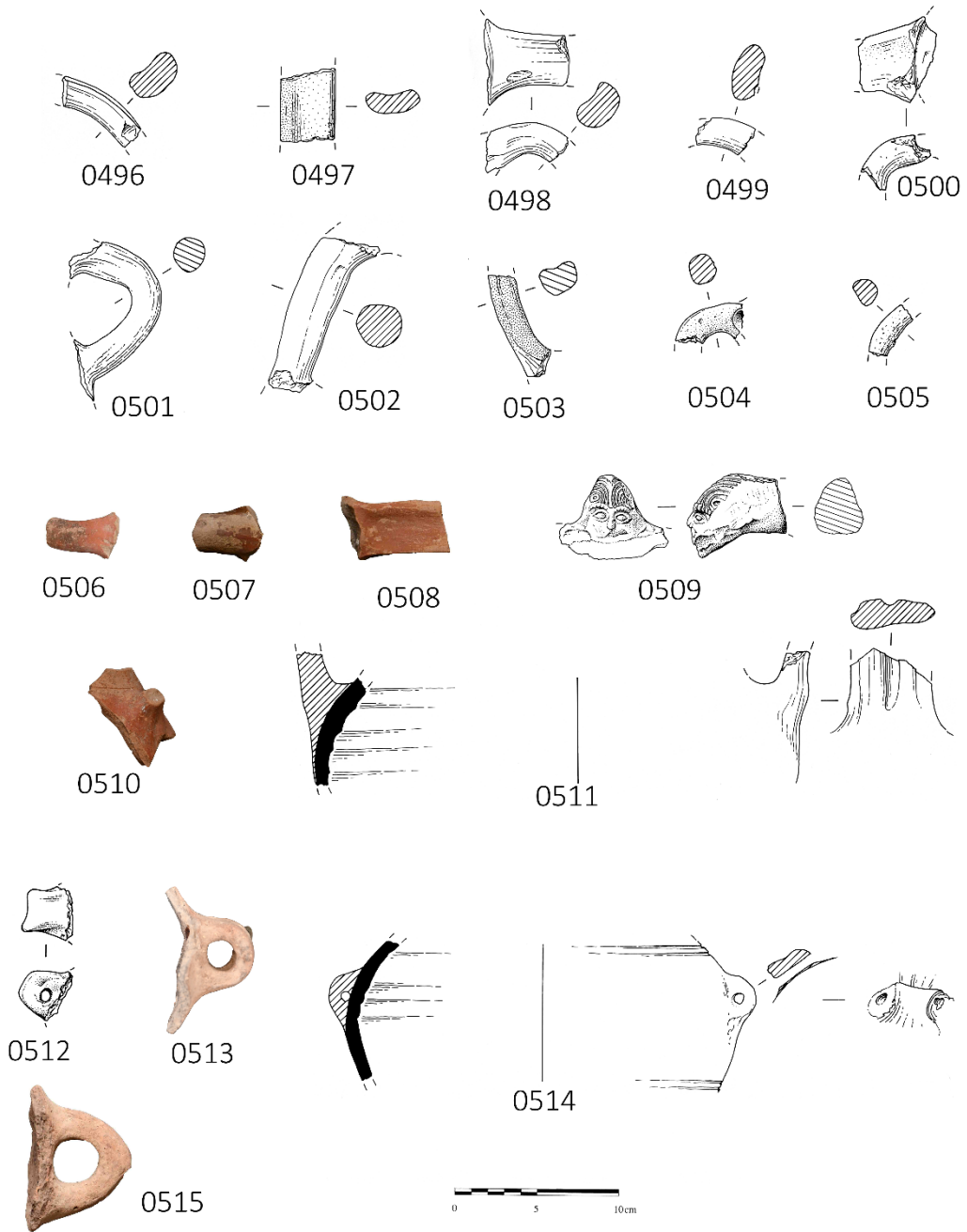


Figure 77 Various handles

CATN.	Provenance	Stage	Genre	Fabric	Description
0496	A06 07.04	2A.4	C	d	elongated jar, strap handle
0497	A06 04	4.1	C	d	elongated jar, strap handle
0498	A09 01.508	2A.4	C	d	elongated jar, strap handle
0499	A09 13.04		C	d	elongated jar, strap handle
0500	A09 22.07	3A	C	h	elongated jar, strap handle
0501	A09 01.509	2A.4	C	h	elongated jar, loop handle
0502	A06 07.04	2A.4	C	d	elongated jar, loop handle
0503	A09 23.01	4	C	d	elongated jar, strap handle
0504	A09 20.02	4.1	C	i	elongated jar, loop handle
0505	A09 13		Y	b	loop handle
0506	A09.20	2A	C	f	elongated jar, loop handle
0507	A09.31	4.1	C	d	elongated jar, loop handle
0508	A09.49/50	1A.2	C	d	elongated jar, strap handle
0509	A01 05.01	1A.2	C	x	elongated jar, lion <i>protome</i> handle
0510	A09.44	3A	C	d	elongated jar, jar shoulder
0511	A06 02	4	C	d	elongated jar, fluted strap handle
0512	A09 21.13	2A.4	Y	x	jar, lug handle
0513	A01 04.01	4.1	Y	e	jar, lug handle
0514	A09 01.08	4	Y	d	jar, lug handle
0515	A09.07V2W2	1A	Y	c	cooking pot, loop handle
	A09.06N2O2	1A	Y	b	jar, strap handle
	A09 01.500	4	C	d	elongated jar, strap handle
	A09.10	4.1	C	d	elongated jar, loop handle
	A09.10	4.1	C	d	elongated jar, loop handle
	A09.35	4.1	C	d	elongated jar, strap handle
	A09 01.200	4.2	C	d	elongated jar, strap handle
	A09.52	1A.2	C	d	elongated jar, strap handle
	A09.52	1A.2	C	d	elongated jar, strap handle
	A09.52	1A.2	C	d	elongated jar, strap handle
	A09.52	1A.2	C	d	elongated jar, loop handle
	A09.82	1A.2	C	d	elongated jar, loop handle
	A09.21	2A	C	d	elongated jar, strap handle
	A09 21.14	2A.4	C	h	elongated jar, loop handle
	A09.36	3A	C	d	elongated jar, loop handle
	A09 09.03		C	a	elongated jar, strap handle
	A01		C	d	elongated jar, loop handle
	A01		C	d	elongated jar

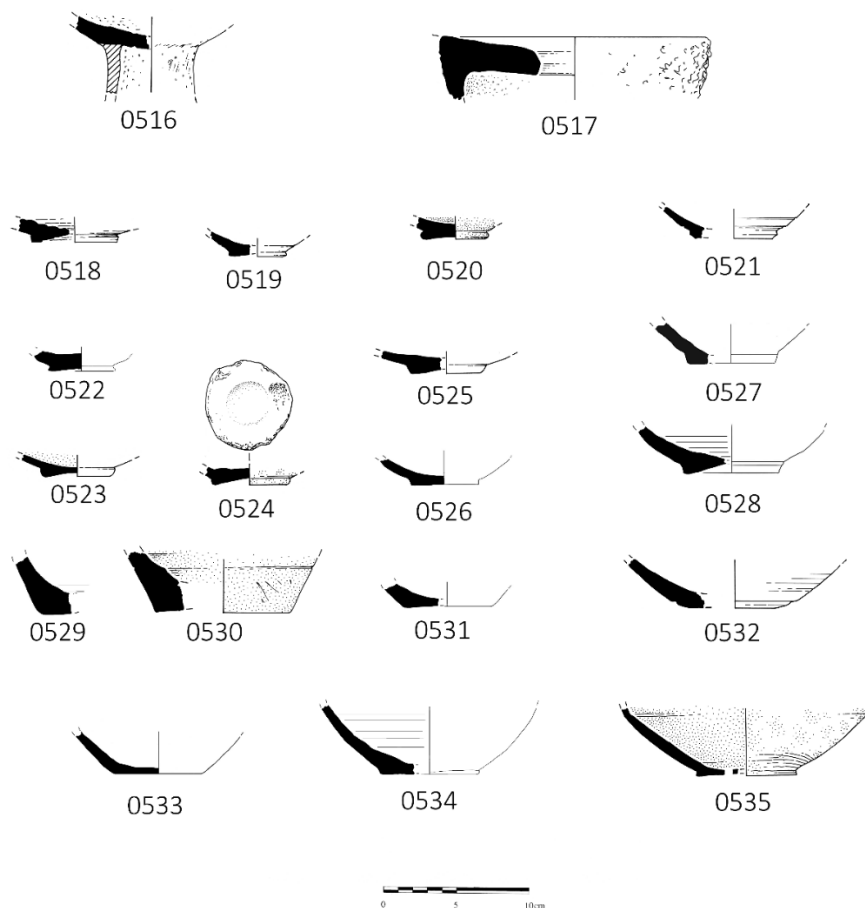


Figure 78 Bases

CATN.	Provenance	Stage	Genre	Fabric	Description
0516	A09 01.01	4	X	c	pedestal base
0517	A09 01.02	4	X	i	pedestal base
0518	A06 08.09	3A.1	D	d	bowl, ring base
0519	A06 01.02	3A.2	D	d	bowl, ring base
0520	A06 01.01	4.2	D	d	bowl, ring base
0521	A09 20.14	2A.4	D	d	bowl, disc base
0522	A09.02	1A	D	d	bowl, ring base
0523	A06 04	4.1	D	d	bowl, ring base
0524	A09 13.04		D	d	bowl, ring base
0525	A06	4	D	h	bowl, ring base
0526	A01 04.05	2A.4	D	d	bowl, disc base
0527	A09.10	4.1	D	d	bowl, disc base
0528	A01 04.06	2A.4	D	f	bowl, ring base
0529	A09.05	1	D	g	bowl, flat base
0530	A06 07.02	4.1	D	d	bowl, flat base
0531	A09.05	1A	X	g	flat base
0532	A06 02.02	4.1	D	h	bowl, disc base
0533	A09.82	1A.2	D	d	bowl, flat base
0534	A09.82	1A.2	D	d	bowl, disc base
0535	A06	4	D	d	bowl, disc base

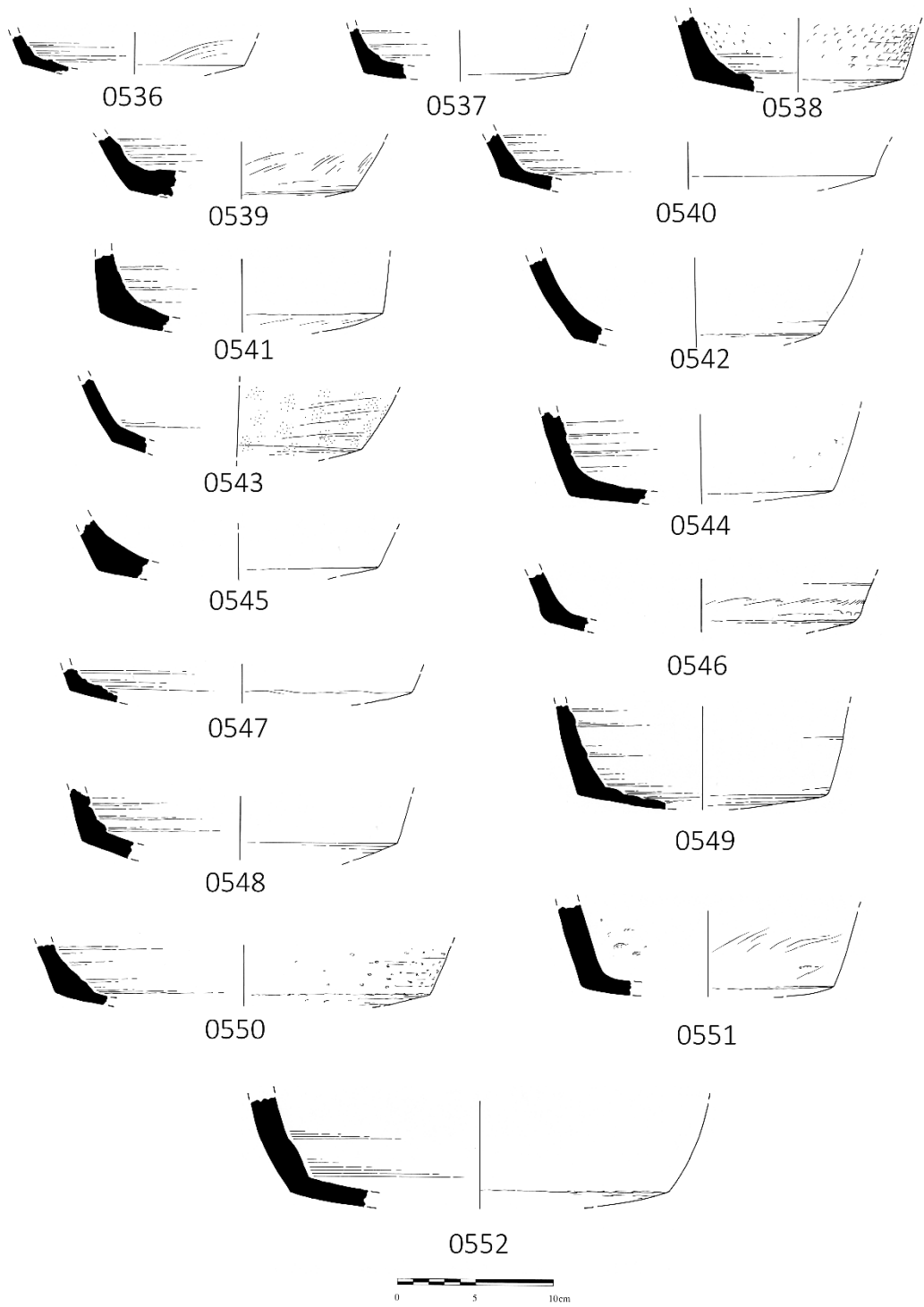


Figure 79 Bases

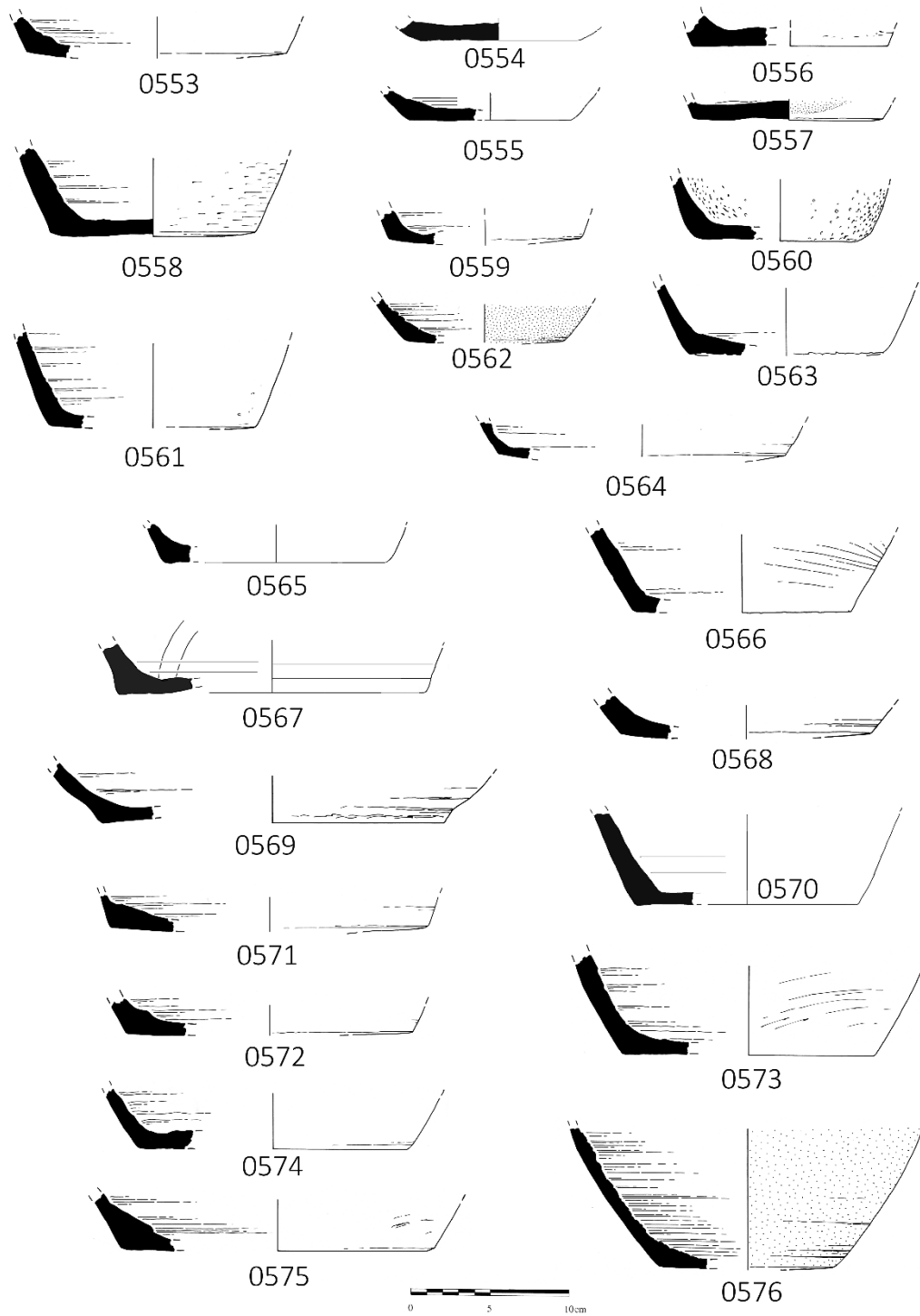


Figure 80 Bases

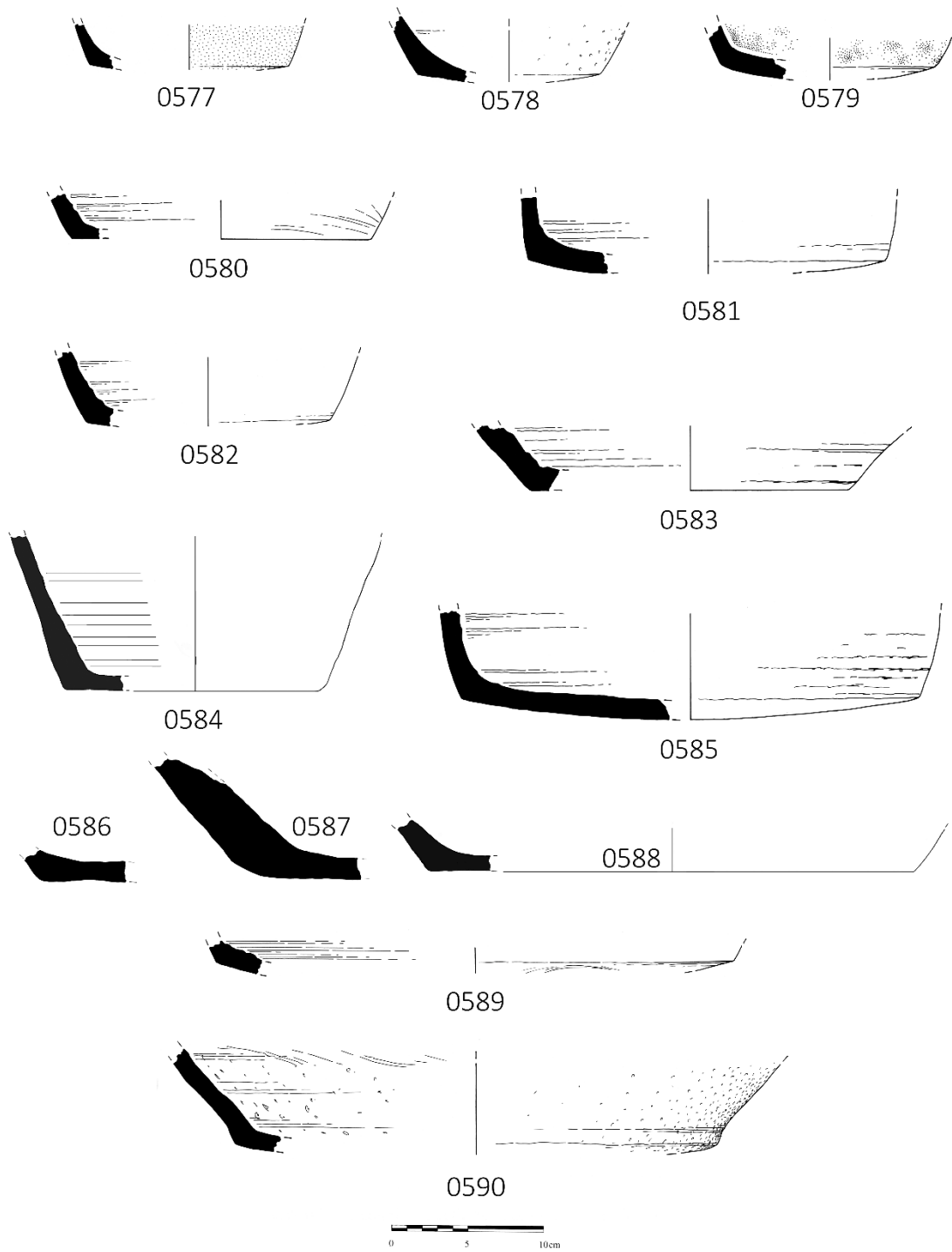


Figure 81 Bases

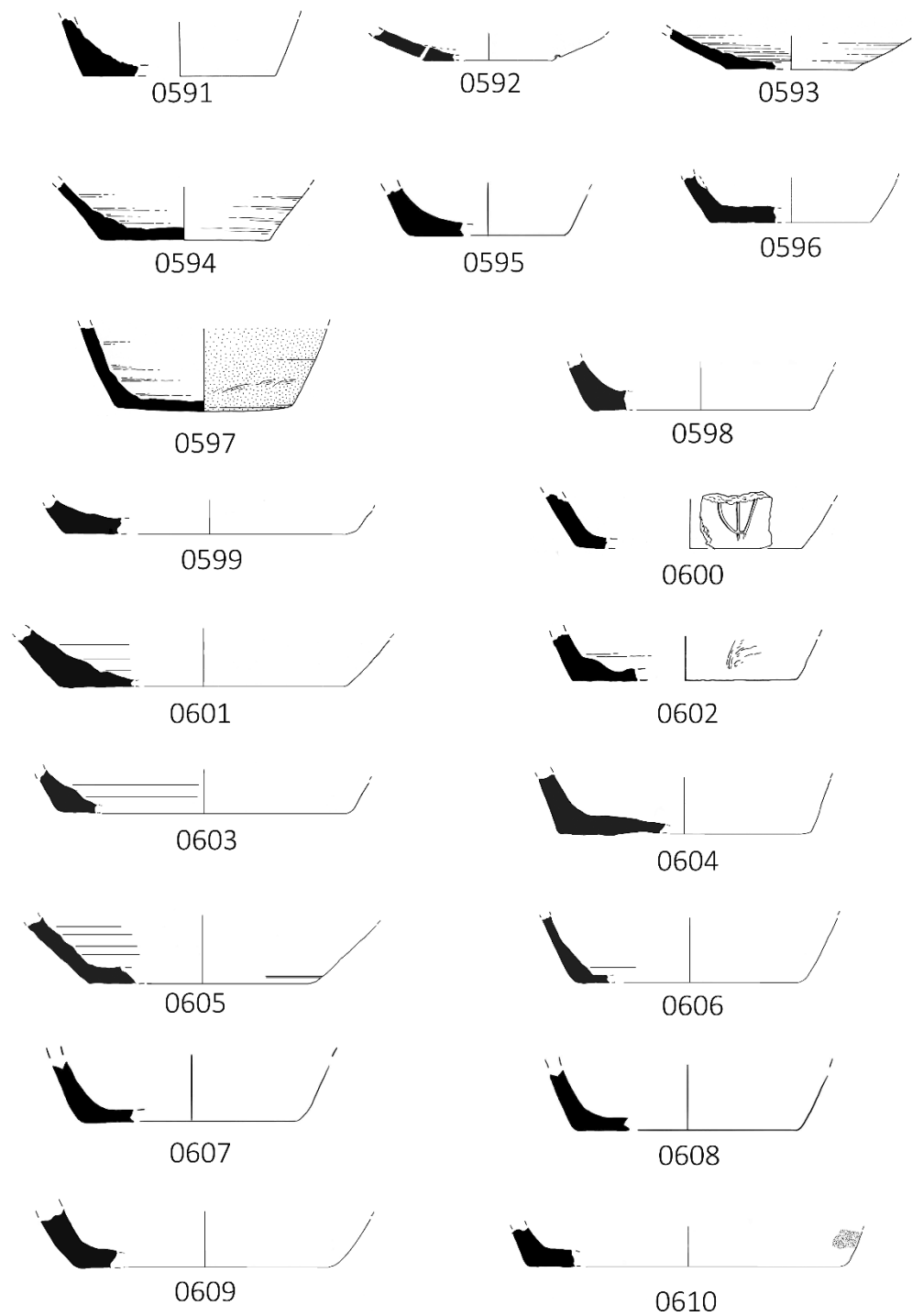


Figure 82 Bases

CATN.	Provenance	Stage	Genre	Fabric	Description
0536	A06 04	4.1	X	d	convex base
0537	A09 01.08	4	X	k	flat base
0538	A09 02		X	i	jar, convex base
0539	A09 01.08	4	X	k	convex base
0540	A09 28.03	4.1	X	e	jar, convex base
0541	A09 13.04		X	k	convex base

0542	A09 01.01	4	X	k	convex base
0543	A09 22.02	4.2	X	d	convex base
0544	A06 07.18	2A.4	X	h	jar, convex base
0545	A06 03	4	X	k	convex base
0546	A06 07.03	4.2	X	c	convex base
0547	A09 01.01	4	X	k	convex base
0548	A06 02.02	4.1	X	h	jar, convex base
0549	A06 07.01	4.2	X	n	convex base
0550	A09 01.02	4	X	h	convex base
0551	A06 04	4.1	X	h	convex base
0552	A09 01.02	4	X	h	jar, convex base
0553	A09 13.04		X	h	flat base
0554	A09.02/03	1A	X	h	flat base
0555	A09.21	2A	X	a	flat base
0556	A09 02		X	g	flat base
0557	A09 02		X	g	jar, flat base
0558	A09 02		X	g	jar, flat base
0559	A09 20.11	2A.4	X	g	jar, flat base
0560	A09 23.01	4	X	o	flat base
0561	A09 13.01		X	h	flat base
0562	A06 07.01	4.2	X	d	jar, flat base
0563	A09 22.01	4.2	X	h	flat base
0564	A09 20.19	1A	X	g	flat base
0565	A09.06/07	1A	X	k	flat base
0566	A09 13.24		X	h	flat base
0567	A09.82	1A.2	X	b	flat base
0568	A09 23.01	4	X	n	flat base
0569	A09 23.01	4	X	x	flat base
0570	A09.10	4.1	X	g	flat base
0571	A09 01.08	4	X	g	flat base
0572	A09 13.04		X	k	flat base
0573	A09 01.08	4	X	g	jar, flat base
0574	A09 02		X	g	jar, flat base
0575	A06 07.04	2A.4	X	h	flat base
0576	A06 02.02	4.1	X	d	jar, flat base
0577	A09 28.04	4.2	X	d	flat base
0578	A09 28.01	4.2	X	i	convex base
0579	A09 23.01	4	X	d	convex base
0580	A09 23.01	4	X	k	flat base
0581	A09 23.01	4	X	k	convex base
0582	A09 30.01	3A	X	g	flat base
0583	A09	4	X	h	flat base
0584	A09.49/50	1A.2	X	h	flat base
0585	A09	4	X	d	flat base

0586	A09.05	1A	X	h	flat base
0587	A09.05	1A	X	h	flat base
0588	A09.58	4.1	X	d	flat base
0589	A09 21.12	2A.4	X	h	convex base
0590	A09 21.12	2A.4	X	b	jar, flat base
0591	A09 20.18	1A	X	h	flat base
0592	A09.82	1A.2	D	d	bowl, flat base
0593	A09 02		D	h	bowl, flat base
0594	A06 08.09	3A.1	X	h	flat base
0595	A09 01.219	1A.2	X	k	flat base
0596	A09.02/03	1A	X	d	bowl, flat base
0597	A06 02.02	4.1	X	d	bowl, flat base
0598	A09.52	1A.2	X	g	flat base
0599	A09.52	1A.2	X	d	flat base
0600	A09 01.08	4	X	h	jar, flat base, mark near the bottom
0601	A09.52	1A.2	X	g	flat base
0602	A09 23.01	4	X	h	flat base
0603	A09.52	1A.2	X	g	flat base
0604	A09.82	1A.2	X	h	flat base
0605	A09.45	3A	X	d	flat base
0606	A09.37	3A	X	d	flat base
0607	A09SF	4	X	k	flat base
0608	A09SF	4	X	h	flat base
0609	A09.89	1A.2	X	k	flat base
0610	A09.50/52	1A.2	X	a	flat base, ptd
	A01 03.01	4.1	X	g	flat base
	A09.35	4.1	X	g	flat base
	A01 03.01	4.1	X	h	jar, flat base
	A01 04.01	4.1	X	n	flat base
	A09 28.04	4.2	X	h	flat base
	A09.52	1A.2	X	d	flat base
	A01 04.03	2A.4	X	h	flat base
	A01 04.11	2A.4	X	k	flat base
	A06 08.09	3A.1	X	k	flat base
	A01		X	c	la bowl? flat base
	A01		X	c	la bowl? flat base
	A01		X	g	flat base
	A01		X	g	flat base
	A01		X	g	jar, flat base
	A01		X	h	jar, flat base
	A01		X	h	spindle whorl, flat base
	A01		X	h	slightly concave base
	A01		X	i	jar, flat base

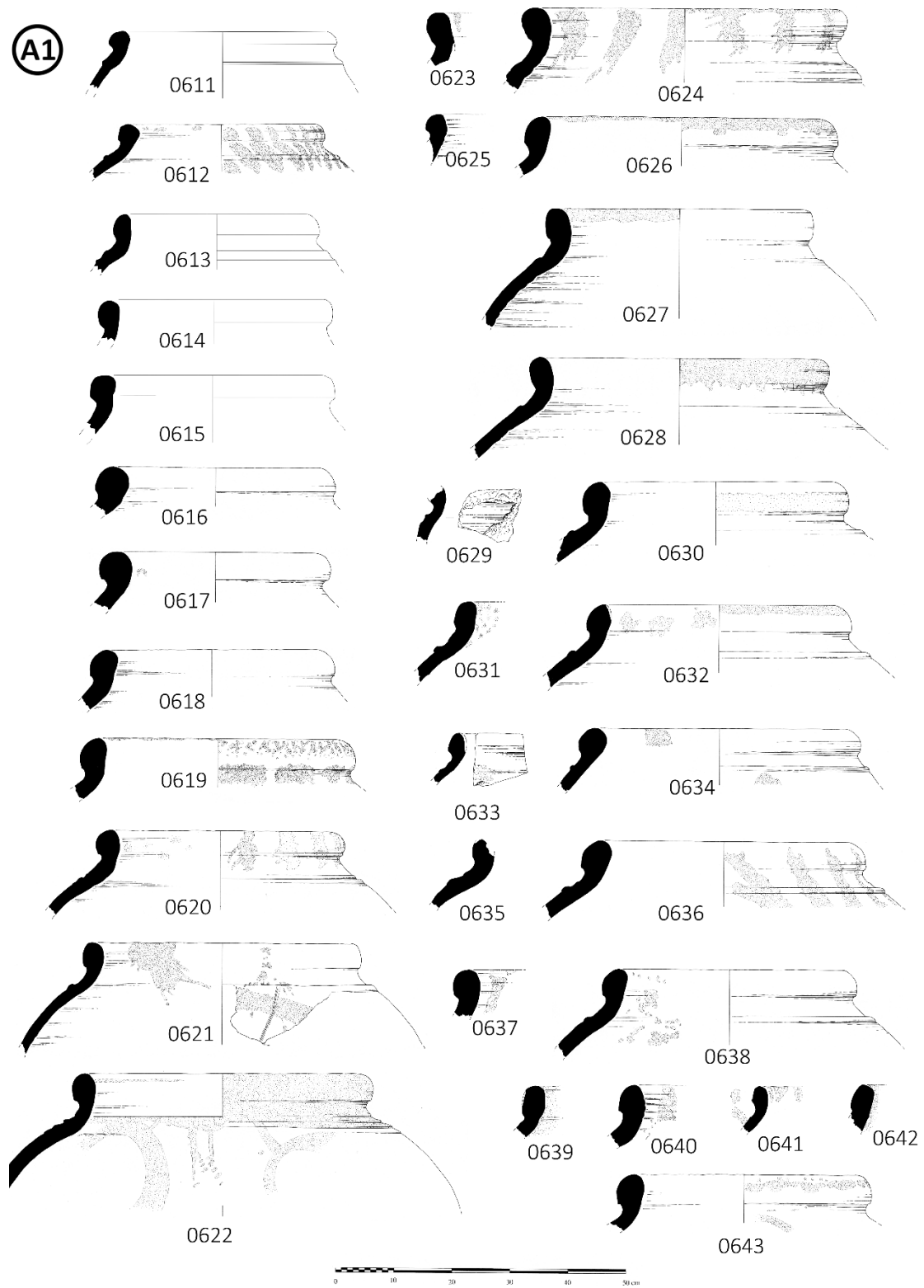


Figure 83 Large storage jars (A1)

CATN.	Provenance	Stage	Type	Fabric	Description
0611	A10 11.03	4.2	A1	j	la jar, collared rounded rim, ridge under the neck
0612	A10 05.21	4.1	A1	j	la jar, collared rim, ridge at shoulder, ptd
0613	A10 11.08	4.1	A1	j	la jar, collared rim, ridges under neck
0614	A10 11.05	4.1	A1	j	la jar, collared rounded rim
0615	A10 11.03	4.2	A1	j	la jar, collared, internally recessed rim
0616	A10 09.110	4.1	A1	h	la jar, collared rim
0617	A10 09.112	4.1	A1	g	la jar, rounded collared rim
0618	A10 09.39	3B	A1	j	la jar, collared internally recessed rim
0619	A10 09.39	3B	A1	j	la jar, collared rim, ptd
0620	A10 06.28	2B	A1	j	la jar, collared rim, ridges under neck, ptd
0621	A10 06.34	3B	A1	j	la jar, collared rim, ridge under neck, ptd
0622	A10 04.04	4.1	A1	j	la jar, collared rim, ridges under neck, ptd
0623	A10 05.11	4.1	A1	j	la jar, collared rim, ptd
0624	A10 09.111	4.1	A1	j	la jar, collared rim, ridges at shoulder, ptd
0625	A10 05.11	4.1	A1	h	la jar, collared rim
0626	A10 09.111	4.1	A1	j	la jar, collared rim, ptd
0627	A10 09.39	3B	A1	j	la jar, collared rim, ledge under neck
0628	A10 09.39	3B	A1	j	la jar, collared rim, ledge under neck, ptd
0629	A10 05.21	4.1	A1	g	la jar, collared rim, ridge under neck
0630	A10 09.39	3B	A1	j	la jar, collared rim, ridge under neck
0631	A10 06.06	3B	A1	a	la jar, collared rim, ridge under neck
0632	A10 09.39	3B	A1	j	la jar, rounded collared rim, ridge under neck, ptd
0633	A10 07.14	4.1	A1	j	la jar, collared rim, ridge under neck
0634	A10 04.33	4.1	A1	j	la jar, collared rim, a ridge at shoulder, ptd
0635	A10 08.16	4.1	A1	h	la jar, collared rim, ridge at shoulder, ptd
0636	A10 09.39	3B	A1	j	la jar, collared rim, ridge under neck, ptd
0637	A10 05.21	4.1	A1	a	la jar, collared rim, ptd
0638	A10 09.39	3B	A1	j	la jar, collared rim, ridge under neck, ptd
0639	A10 06.06	3B	A1	j	la jar, collared rim
0640	A10 04.136	4.1	A1	a	la jar, collared rim, ptd
0641	A10 06.50	2/3B	A1	j	la jar, collared rim, ptd
0642	A10 06.06	3B	A1	j	la jar, collared squared rim
0643	A10 09.39	3B	A1	j	la jar, collared rim, ptd
	A10 06.06	3B	A1	d	la jar, collared rim

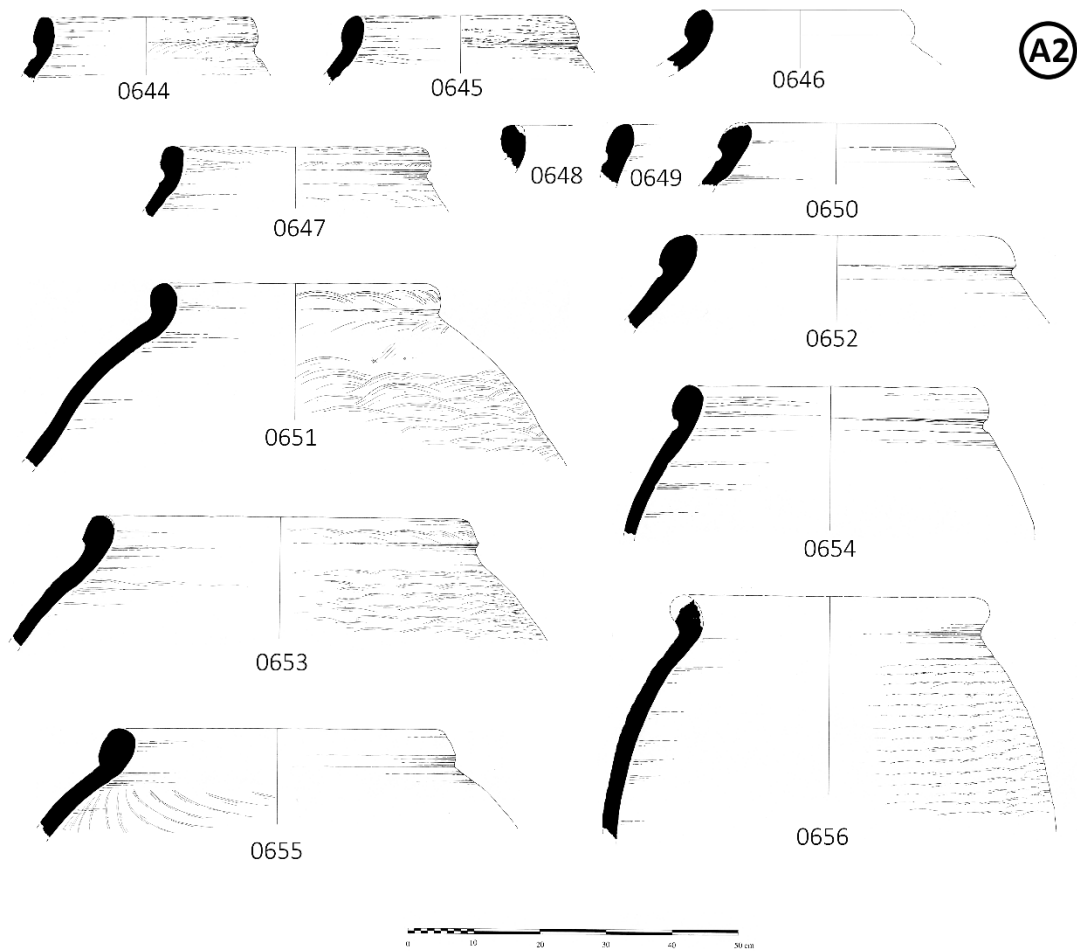


Figure 84 Large storage jars (A2)

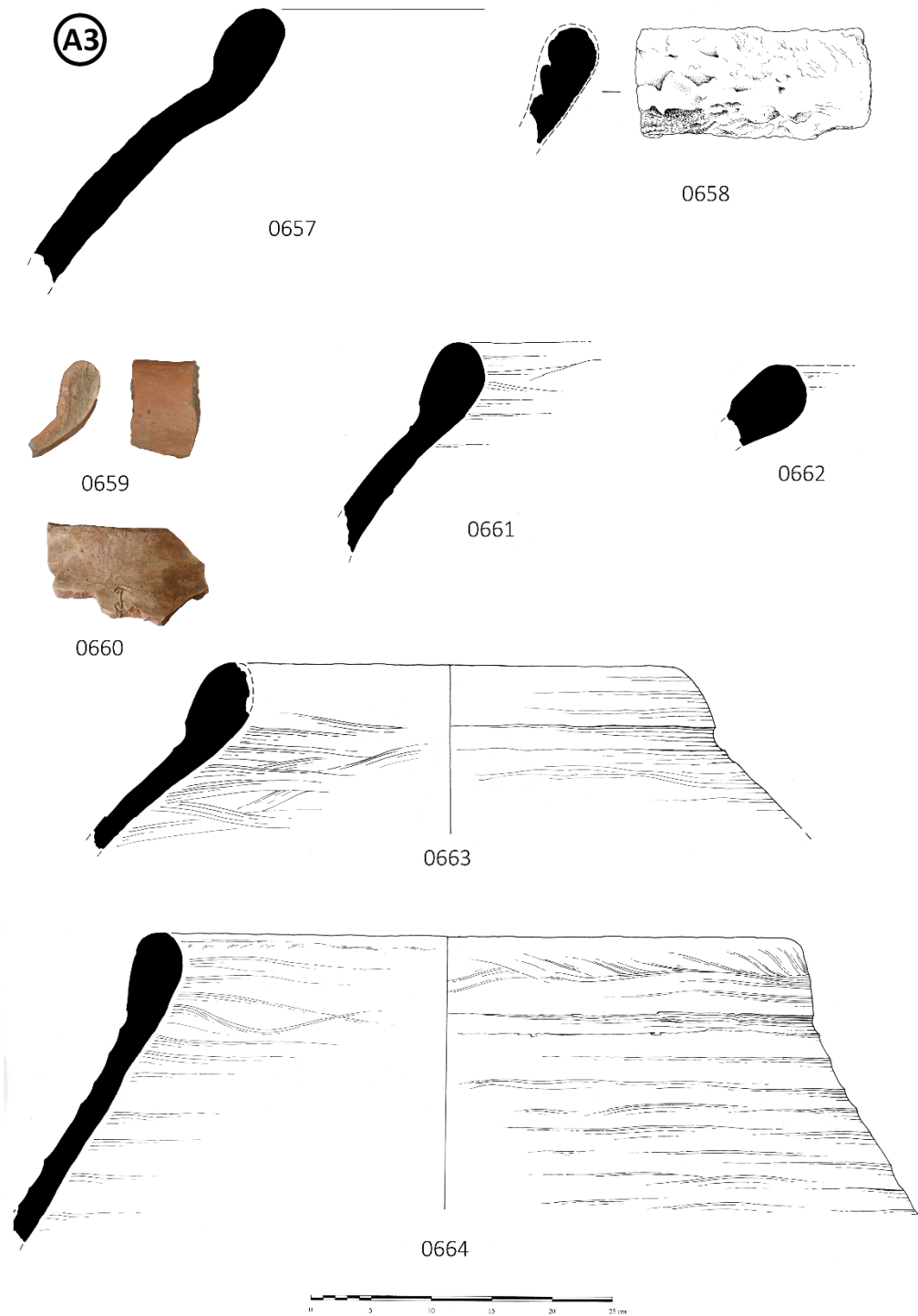


Figure 85 Large storage jars with inverted rims (A3)

CATN.	Provenance	Stage	Type	Fabric	Description
0644	A10 04.11	4.2	A2	g	la jar, collared rim, a slight ledge under neck
0645	A10 04.11	4.2	A2	h	la jar, collared rim
0646	A10 11.03	4.2	A2	h	la jar, collared rim
0647	A10 04.11	4.2	A2	h	la jar, squared collared rim
0648	A10 09.111	4.1	A2	h	la jar, rounded rim
0649	A10 06.06	3B	A2	g	la jar, collared rim
0650	A10 09.112	4.1	A2	g	la jar, in-curved collared rim, a ledge under rim
0651	A10		A2	g	la jar, rounded collared rim
0652	A10 09.112	4.1	A2	g	la jar, collared rim, a ledge under the rim
0653	A10 06.28	2B	A2	g	la jar, in-curved rounded rim, sloping shoulder
0654	A10 07.07	3B	A2	g	la jar, collared rim, ledge under short neck, sloping shoulder
0655	A10 06.28	2B	A2	g	la jar, collared rim
0656	A10 06.28	2B	A2	g	la jar, rounded rim, sloping shoulder
	A10 09.111	4.1	A2	g	la jar, in-curved rim
	A10 07.30	3B	A2	g	la jar, collared rim
0657	A10 04.900		A3	g	la jar, inverted rim
0658	A10 01.02	4.1	A3	h	la jar, inverted, rounded rim
0659	A10 04		A3	h	la jar, rounded rim
0660	A10 10.26	4.1	A3	g	la jar, inverted rounded rim, an incised mark under the rim
0661	A10 04.10	4.2	A3	g	la jar, in-curved rim, a slight ledge under neck
0662	A10 04.508	3B	A3	n	la jar, rounded rim
0663	A10 04.04	4.1	A3	g	la jar, inverted, collared rim
0664	A10 01.02	4.1	A3	g	la jar, collared rim

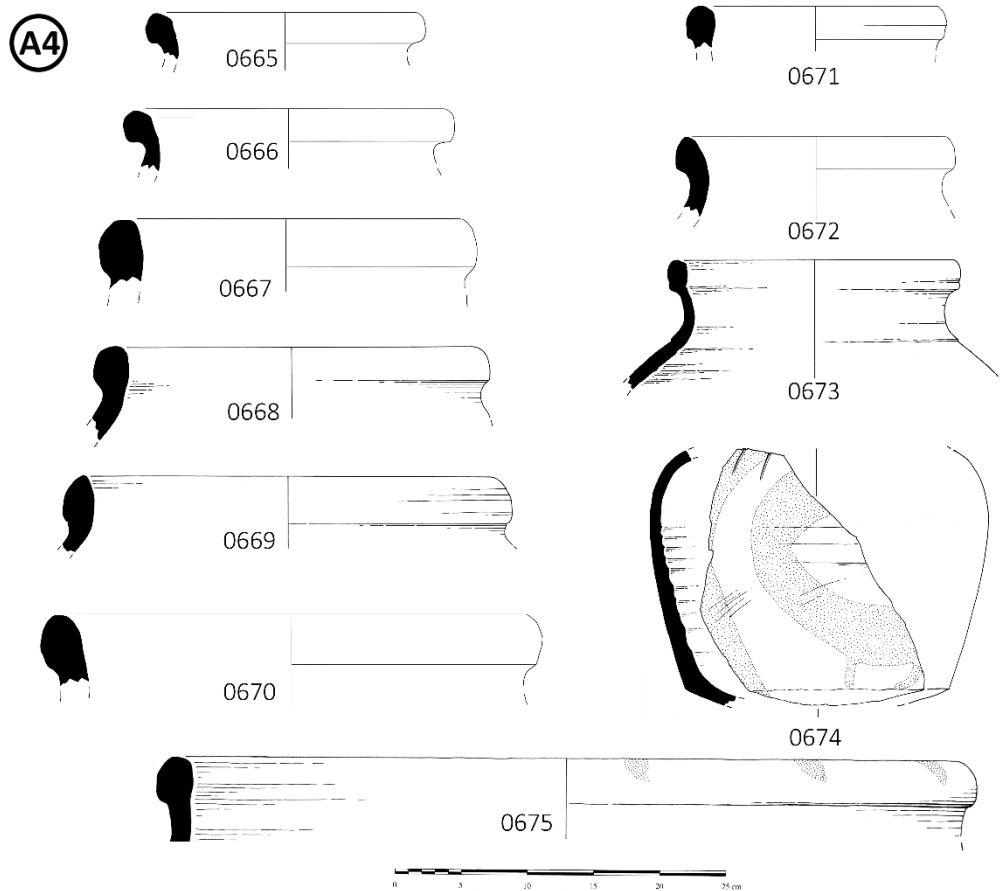
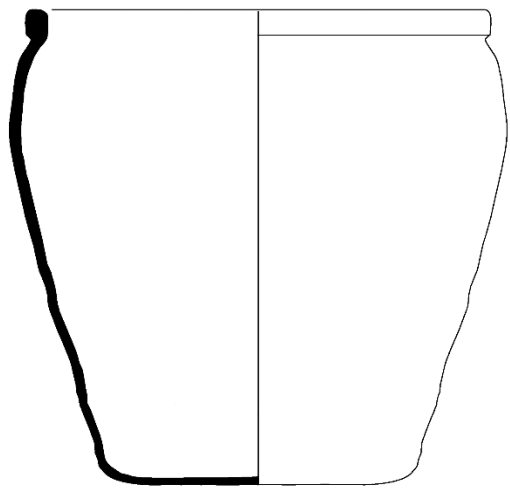
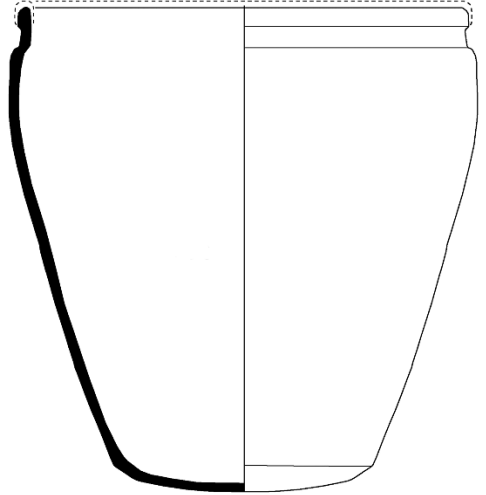


Figure 86 Medium jars (A4)

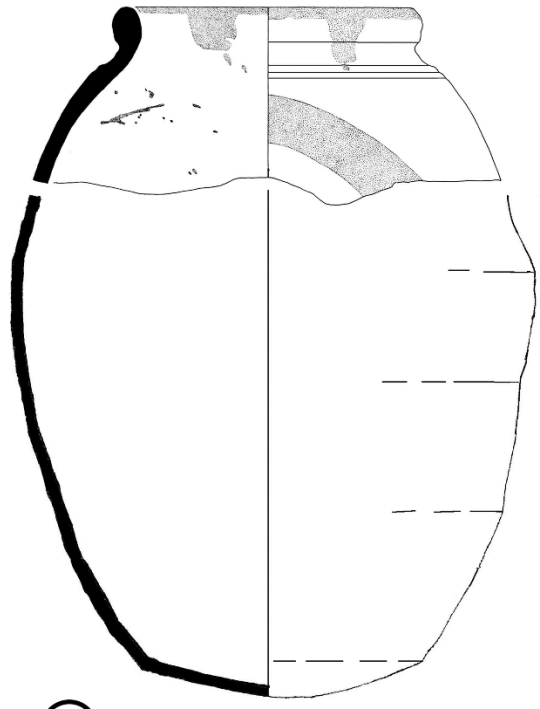
CATN.	Provenance	Stage	Type	Fabric	Description
0665	A10 11.08	4.1	A4	d	md jar, collared out-curved rim
0666	A10 11.08	4.1	A4	h	md jar, collared out-curved rim
0667	A10 11.05	4.1	A4	h	md jar, collared rim
0668	A10 09.111	4.1	A4	g	md jar, collared rim
0669	A10 05.07	4.1	A4	g	md jar, collared rim
0670	A10 11.08	4.1	A4	h	md jar, collared out-curved rim
0671	A10 11.05	4.1	A4	g	md jar, collared rim
0672	A10 11.08	4.1	A4	j	md jar, collared rim
0673	A10 04.173		A4	g	md jar, squared collared rim
0674	A10 04.100	1B	A4	j	md jar, rounded shoulder, squat shaped body, ptd, convex base
0675	A10 05.21	4.1	A4	j	md jar, upright collared rim, ptd



0676

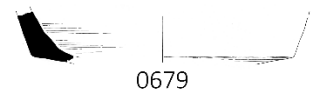


0677

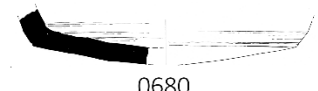


A

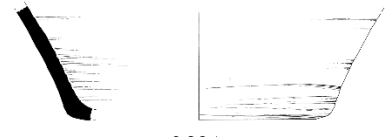
0678



0679



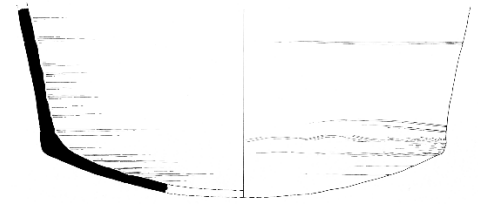
0680



0681



0682



0683



Figure 87 Large storage jars

CATN.	Provenance	Stage	Type	Fabric	Description
0676	A10 06.56	2/3B	A2	a	la jar, squared collared rim, conical body, flat base, ptd
0677	A10 04.466	1B	A1	a	la jar, upright collared rim with a slight ledge under the neck, conical body, convex base, ptd
0678	A10 04.82	3B	A1	a	la jar, collared rim with ridges under the neck, barrel-shaped body, ptd, convex base
0679	A10 09.11	4	A	h	la jar, flat base
0680	A10 05.08	4.1	A	h	la jar, convex base
0681	A10 04.75	3B	A	g	la jar, flat base
0682	A10 04.75	3B	A	g	la jar, convex base
0683	A10 04.75	3B	A	g	la jar, convex base



Figure 88 Large storage jar (0676) kept in the Institute of Nukus, photographed by Alison Betts

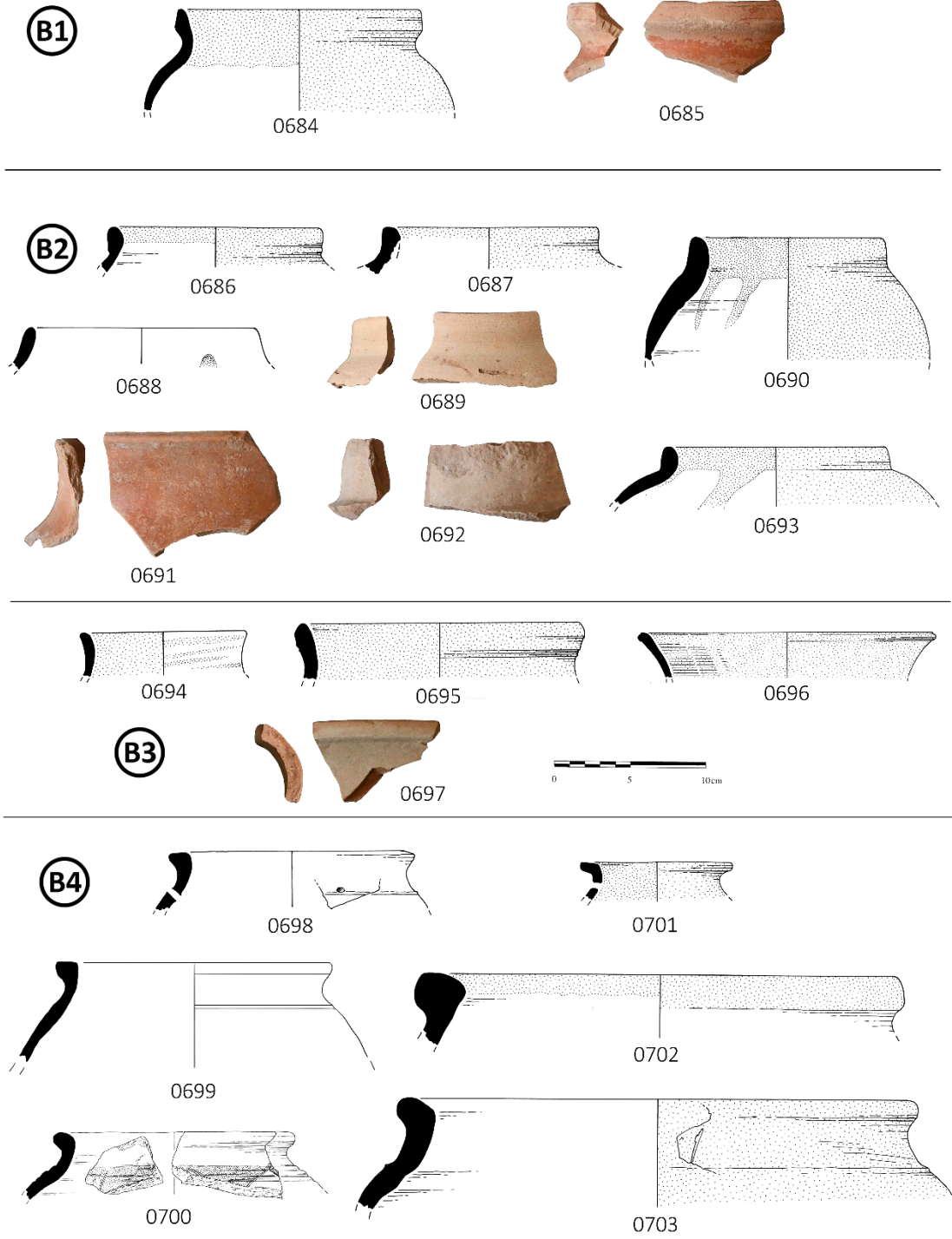


Figure 89 Various jars (B1-B4)

CATN.	Provenance	Stage	Type	Fabric	Description
0684	A10 04.526	3B	B1	d	jar, collared rim
0685	A10 07.52	4.1	B1	d	jar, collared rim
0686	A10 06.02	3B	B2	d	jar, upright rounded rim
0687	A10 09.04	4.1	B2	d	jar, upright rounded rim
0688	A10 05.11	4.1	B2	a	jar, slightly in-curved rounded rim
0689	A10 09.111	4.1	B2	k	jar, upright rounded rim
0690	A10 04.503	3B	B2	d	jar, upright rounded rim, spherical body
0691	A10 09.223		B2	d	jar, upright rim
0692	A10 09.216	4.1	B2	k	jar, upright rim
0693	A10 04.159	4.1	B2	j	jar, upright rim, spherical body
	A10 09.216	4.1	B2	k	jar, upright rim
0694	A10 04.238	4.1	B3	d	jar, rounded out-curved rim
0695	A10 09.111	4.1	B3	d	jar, rounded out-curved rim
0696	A10 05.11	4.1	B3	d	jar, flared rim with a groove on the lip
0697	A10 07.14	4.1	B3	g	jar, flared squared rim
0698	A10 11.10	4.1	B4	k	jar, flattened rim, ridged shoulder with a pre-firing hole
0699	A10 11.03	4.2	B4	g	jar, flattened rim, ridged shoulder
0700	A10 05.21	4.1	B4	j	jar, internally bevelled rim, short neck, ridges under neck
0701	A10 04.503	3B	B4	d	jar, flattened rim, a pre-firing hole on the neck
0702	A10 08.16	4.1	B4	d	jar, thickened bevelled rim
0703	A10 06.34	3B	B4	d	jar, internally bevelled rim, a ledge under neck

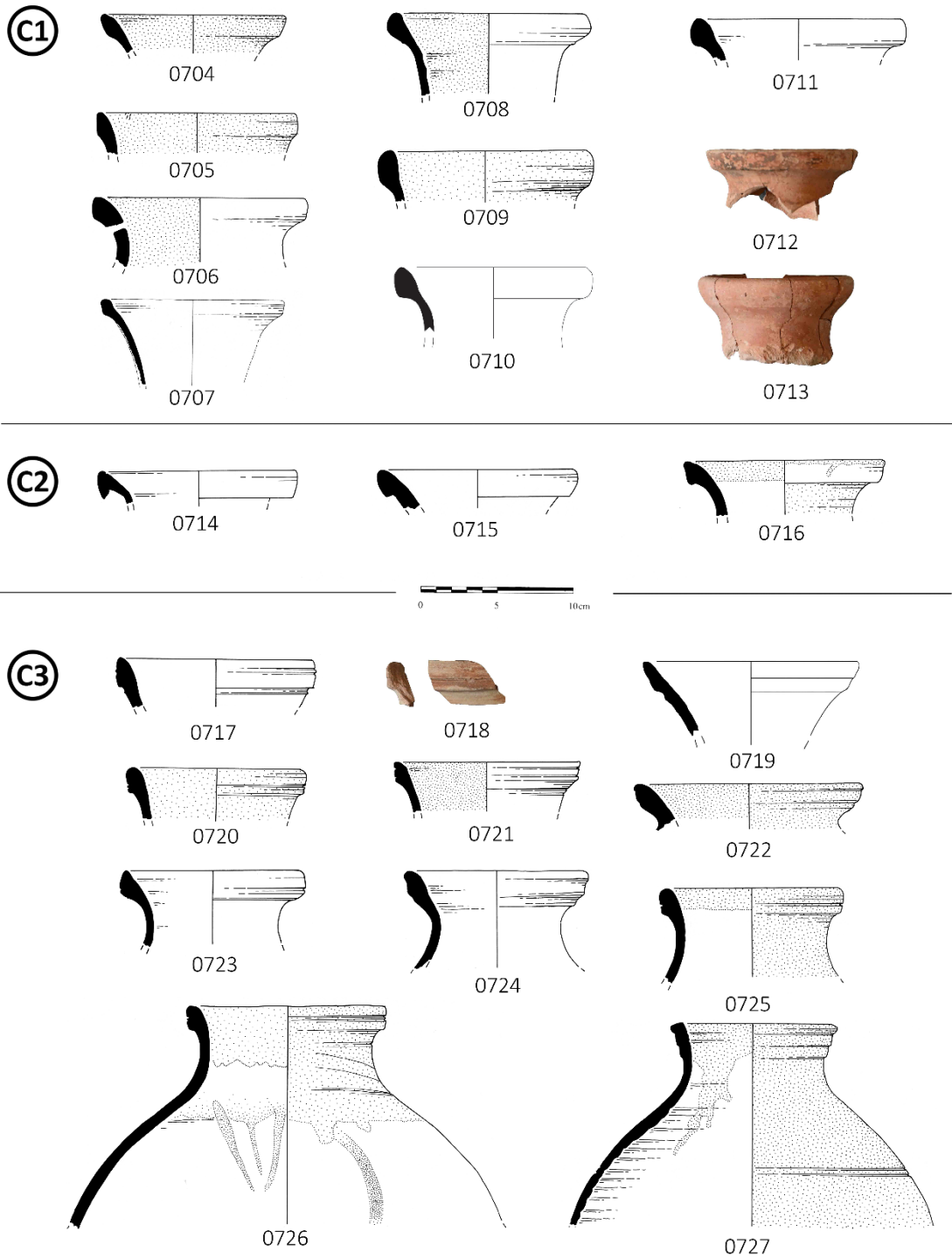


Figure 90 Elongated jars (C1-C3)

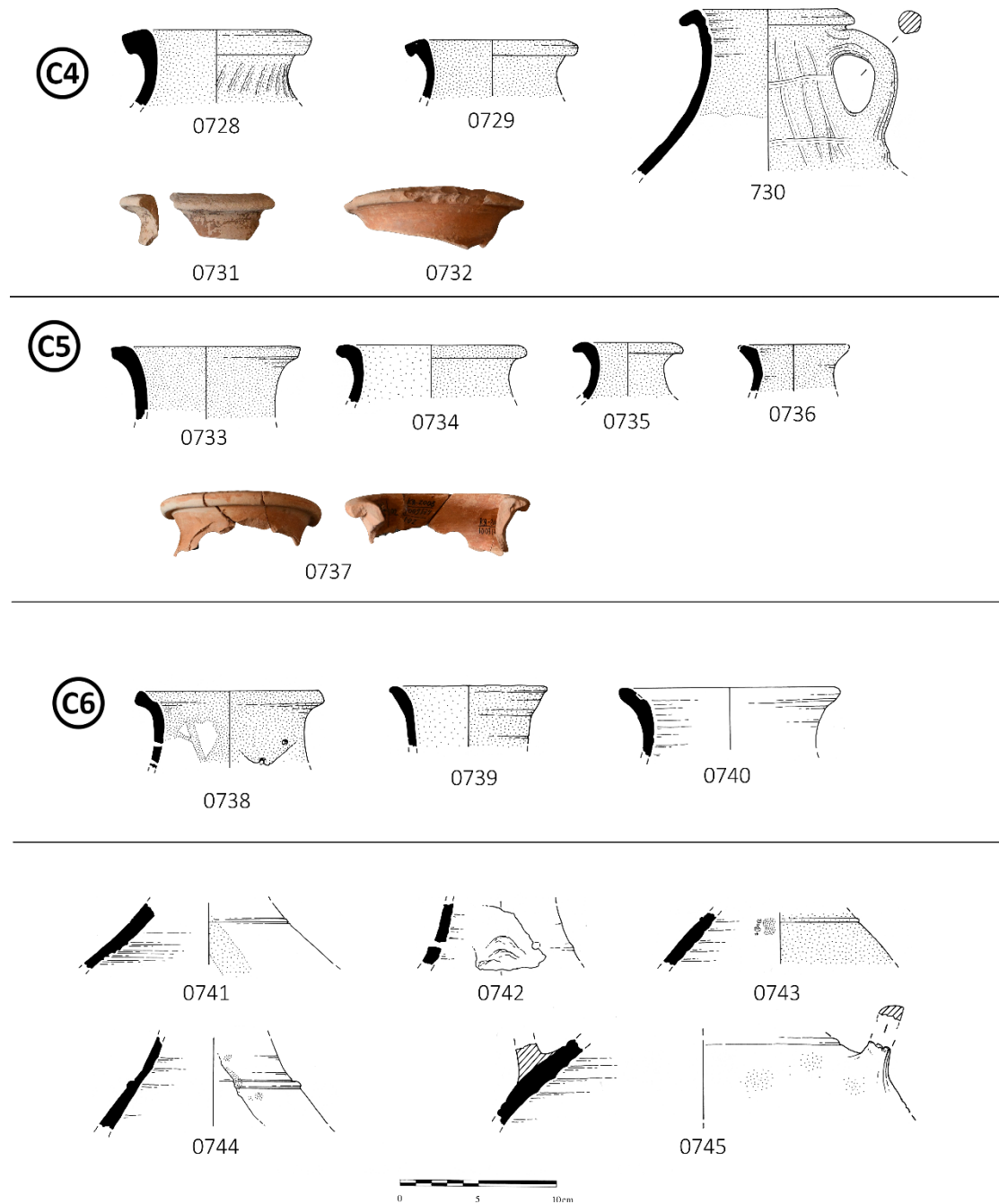


Figure 91 Elongated jars (C4-C6)

CATN.	Provenance	Stage	Type	Fabric	Description
0704	A10 04.503	3B	C1	d	elongated jar, collared pointed rim
0705	A10 04.526	3B	C1	d	elongated jar, collared rim
0706	A10 04.526	3B	C1	a	elongated jar, collared rim
0707	A10 09.110	4.1	C1	g	elongated jar, collared squared rim
0708	A10 08.10	4.2	C1	a	elongated jar, collared rim, a ridge under rim
0709	A10 09.110	4.1	C1	d	elongated jar, collared rim, slightly recessed

0710	A10 13.22	4.1	C1	d	elongated jar, collared slightly recessed rim
0711	A10 08.13	1/2B	C1	h	elongated jar, collared rim
0712	A10 10.13	4.1	C1	d	elongated jar, collared rim
0713	A10 10.13	4.1	C1	d	elongated jar, collared rim
0714	A10 05.04	4.1	C2	g	elongated jar, overhanging rim
0715	A10 04.135	4.1	C2	h	elongated jar, overhanging rim
0716	A10 04.86	2B	C2	d	elongated jar, overhanging rim
0717	A10 07.52	4.1	C3	g	elongated jar, collared rilled rim
0718	A10 04.503	3B	C3	g	elongated jar, collared rilled rim
0719	A10 11.08	4.1	C3	d	elongated jar, rilled flared rim
0720	A10 04.501	4.1	C3	d	elongated jar, collared rilled rim
0721	A10 09.110	4.1	C3	g	elongated jar, collared, rilled rim
0722	A10 04.252	1B	C3	d	elongated jar, collared, rilled rim
0723	A10 04.80	4	C3	g	elongated jar, collared rilled rim
0724	A10 06.09	3B	C3	g	elongated jar, collared rilled rim
0725	A10 04.159	4.1	C3	d	elongated jar, collared rilled rim
0726	A10 04.503	3B	C3	j	elongated jar, collared rilled rim, rounded shoulder, ptd
0727	A10 04.503	3B	C3	d	elongated jar, externally bevelled rilled rim, sloping shoulder with two grooves
0728	A10 08.10	4.2	C4	f	elongated jar, squared externally bevelled rim, burnished ext.
0729	A10 09.03	4.2	C4	d	elongated jar, squared externally bevelled rim
0730	A10 04.526	3B	C4	d	elongated jar, bevelled rim with a loop handle, burnished ext.
0731	A10 07.14	4.1	C4	d	elongated jar, externally bevelled rim
0732	A10 10.06	4.1	C4	d	elongated jar, externally bevelled rim
0733	A10 04.252	1B	C5	d	elongated jar, flattened squared rim
0734	A10 11.10	4.1	C5	d	elongated jar, rolled rim
0735	A10 04.508	3B	C5	d	elongated jar, rolled rim
0736	A10 04.503	3B	C5	d	elongated jar, internally bevelled rim
0737	A10 09.174	1B?	C5	d	elongated jar, flattened rim
0738	A10 04.731	4.1	C6	d	elongated jar, flared squared, slightly recessed rim
0739	A10 04.252	1B	C6	d	elongated jar, flared rim
0740	A10 05.11	4.1	C6	n	elongated jar, flared rim
0741	A10 09.11	4	C	h	elongated jar, ridged shoulder, ptd
0742	A10 09.11	4	C	g	elongated jar, ridged shoulder
0743	A10 05.21	4.1	C	d	elongated jar, ridged shoulder
0744	A10 09.11	4	C	d	elongated jar, ridged shoulder
0745	A10 09.86	4.1	C	g	elongated jar, ridged shoulder with handle

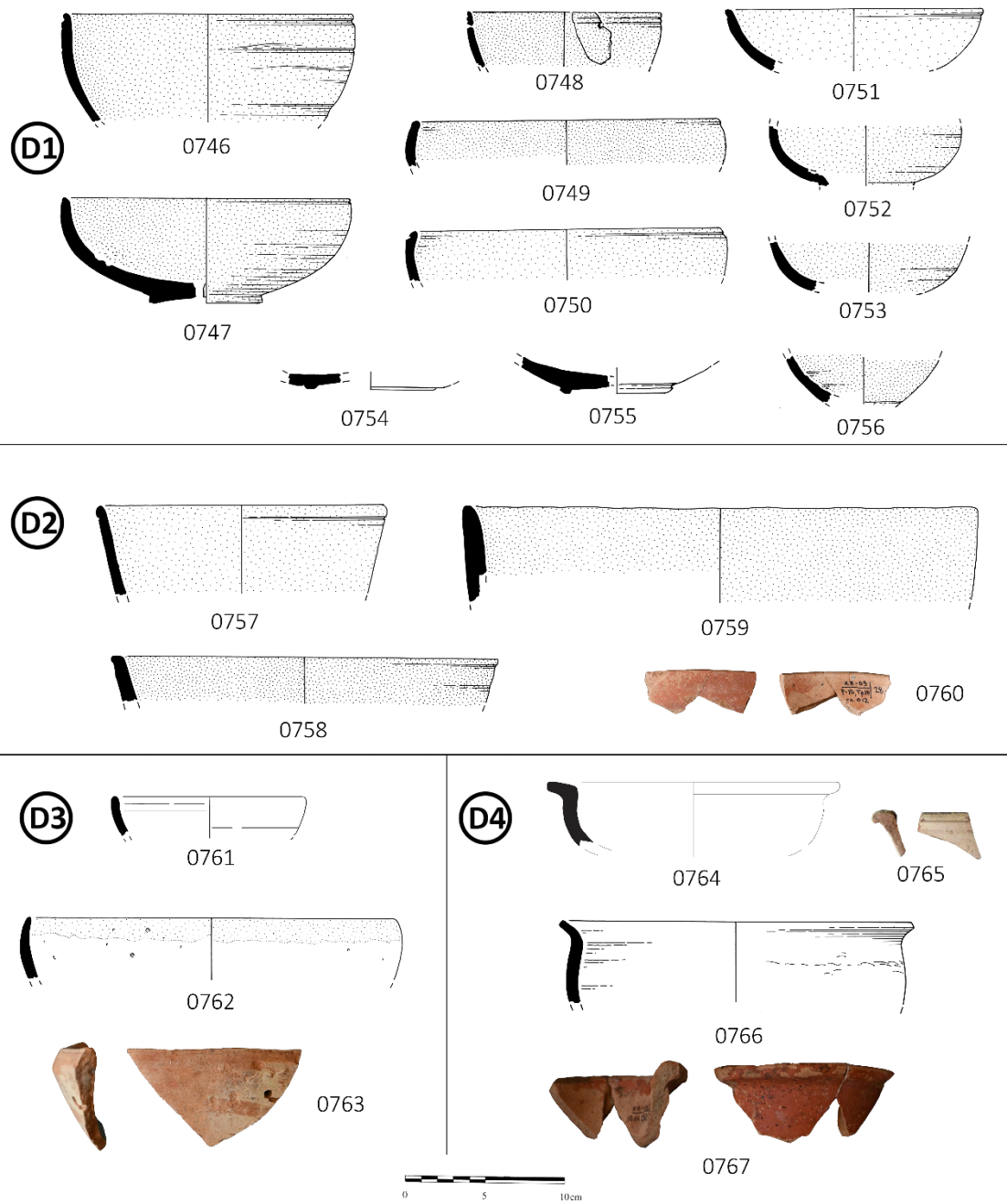


Figure 92 Bowls (D1-D4)

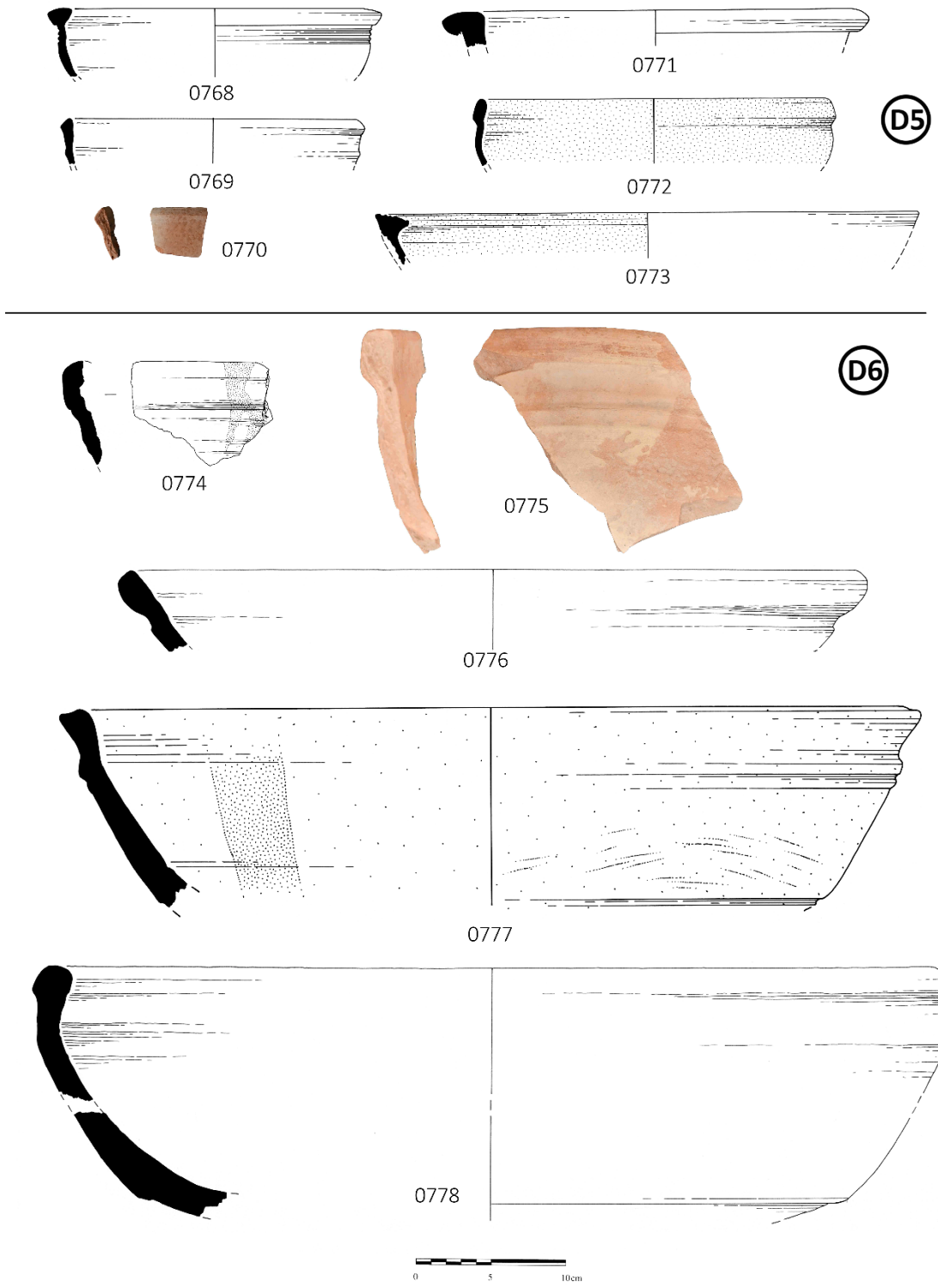


Figure 93 Large bowls (D5-D6)

CATN.	Provenance	Stage	Type	Fabric	Description
0746	A10 05.11	4.1	D1	f	bowl, pointed rim with a groove, globular body with grooves
0747	A10 04.508	3B	D1	d	bowl, pointed rim with a groove, spherical body, ring base
0748	A10 04.168		D1	d	bowl, pointed rim with grooves
0749	A10 09.111	4.1	D1	d	bowl, in-curved rim
0750	A10 04.57	1B	D1	d	bowl, slightly in-curved rim, with a groove
0751	A10 08.12	1/2B	D1	d	bowl, rounded rim with a groove
0752	A10 04.252	1B	D1	d	bowl, spherical body
0753	A10 09.11	4	D1	d	bowl, spherical body
0754	A10 04.135	4.1	D1	d	bowl, ring base
0755	A10 04.130	4.1	D1	h	bowl, ring base
0756	A10 05.08	4.1	D1	d	bowl, spherical body with a groove
	A10 10.13	4.1	D1	d	bowl, ring base
	A10 09.111	4.1	D1	f	bowl, ring base
0757	A10 11.10	4.1	D2	d	bowl, rounded rim with a groove
0758	A10 04.508	3B	D2	d	la bowl, squared rim
0759	A10 04.135	4.1	D2	d	bowl? vertical, rounded rim
0760	A10 10.12	4.1	D2	d	bowl, upright squared rim
0761	A10-pit	2B	D3	f	bowl, rounded rim
0762	A10 04.135	4.1	D3	e	bowl, pointed in-curved rim
0763	A10 07.67	3B	D3	a	bowl, inverted rounded rim
0764	A10 13.22	4.1	D4	d	bowl, everted flattened rim
0765	A10 09.110	4.1	D4	n	bowl, everted rim
0766	A10 09.87	4.1	D4	g	bowl, everted, squared rim
0767	A10 04.232	2B	D4	d	bowl, everted rim
0768	A10 04.540	3B	D5	d	bowl, T shaped rim, grooves under rim
0769	A10 06.03	4.1	D5	g	bowl, bevelled rim, ridged body
0770	A10 06.03	4.1	D5	g	bowl, externally bevelled rim
0771	A10 09.111	4.1	D5	h	la bowl, everted flattened rim
0772	A10 05.07	4.1	D5	d	bowl, collared rim, globular body
0773	A10 04.04	4.1	D5	d	bowl, in-curved flattened rim
0774	A10 05.11	4.1	D6	j	la bowl, collared rim, ptd
0775	A10 11.14	4.1	D6	a	la bowl, squared rim, ptd
0776	A10 06.34	3B	D6	h	la bowl, collared rim
0777	A10 03.21		D6	a	la bowl, squared rim, recessed in the middle, ridge under rim, ptd int.
0778	A10 09.112	4.1	D6	g	la bowl, collared rim, spherical body

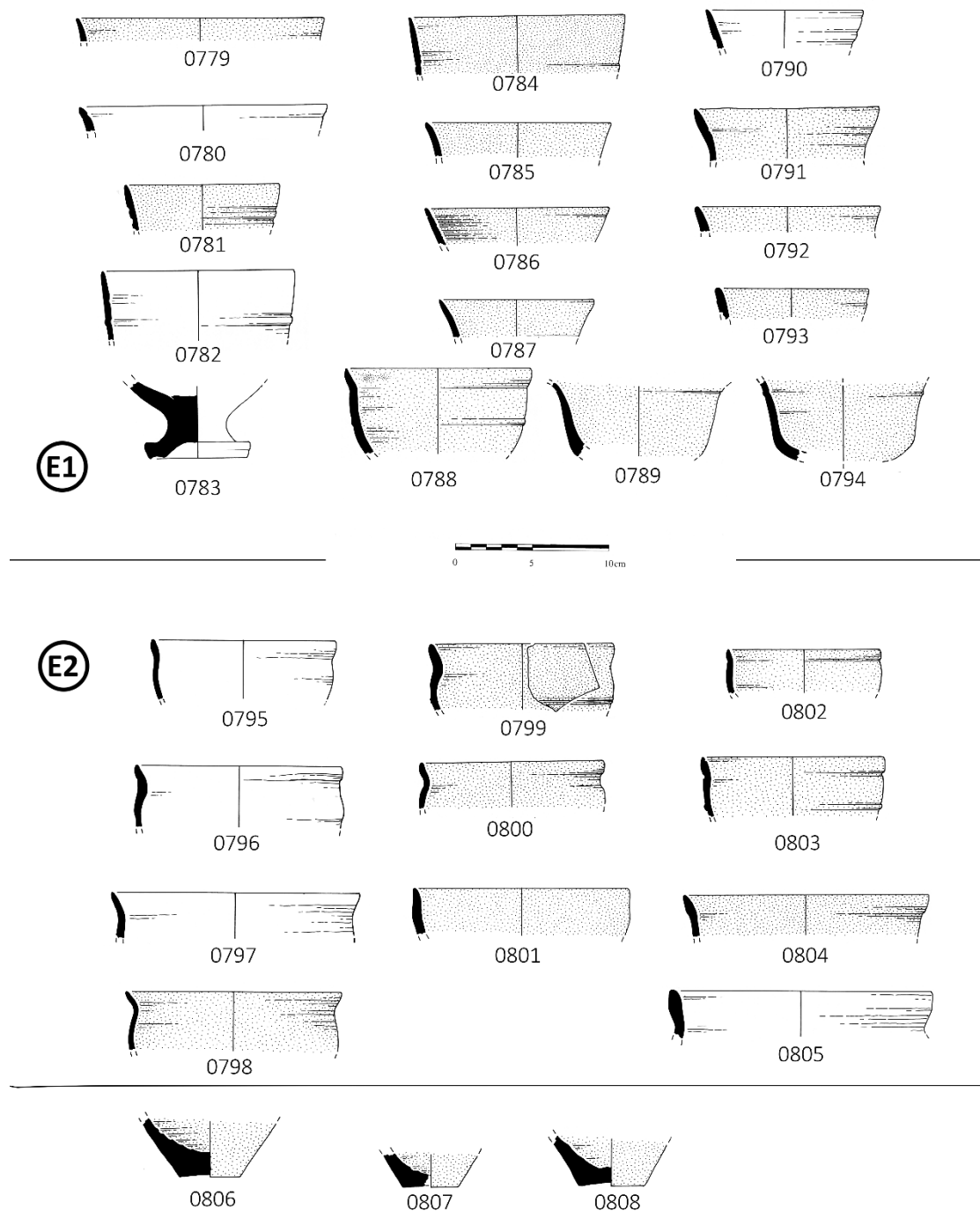


Figure 94 Goblets (E1-E2)

CATN.	Provenance	Stage	Type	Fabric	Description
0779	A10 04.04	4.1	E1	f	goblet, pointed rim, thin wall
0780	A10 04.248	1B	E1	h	goblet, pointed out-curved rim
0781	A10 04.04	4.1	E1	f	goblet, pointed rim, grooves on body
0782	A10 05.11	4.1	E1	f	goblet, pointed upright rim, thin straight body with a ridge
0783	A10 04.202	4.1	E1	h	goblet, pedestal base
0784	A10 04.246	2B	E1	f	goblet, pointed straight rim
0785	A10 04.508	3B	E1	d	goblet, pointed out-curved rim
0786	A10 05.08	4.1	E1	d	goblet, pointed out-curved rim
0787	A10 09.11	4	E1	d	goblet, pointed out-curved rim
0788	A10 11.10	4.1	E1	d	goblet, pointed out-curved rim, ridge on the body
0789	A10		E1	f	goblet, globular body
0790	A10 04.80	4	E1	h	goblet, pointed rim
0791	A10 04.21	4.1	E1	f	goblet, pointed out-curved rim
0792	A10 04.04	4.1	E1	f	goblet, rounded out-curved rim
0793	A10 04.508	3B	E1	d	goblet, rounded rim
0794	A10 04.21	4.1	E1	f	goblet, globular body
0795	A10 04.33	4.1	E2	f	goblet, pointed out-curved rim
0796	A10 04.135	4.1	E2	f	goblet, pointed out-curved rim
0797	A10 05.11	4.1	E2	f	goblet, pointed out-curved rim
0798	A10 04.168		E2	d	goblet, pointed out-curved rim
0799	A10 04.21	4.1	E2	f	goblet, pointed out-curved rim
0800	A10 04.21	4.1	E2	f	goblet, pointed out-curved rim
0801	A10 08.13	1/2B	E2	d	goblet, pointed out-curved rim
0802	A10 04.246	2B	E2	d	goblet, pointed out-curved rim
0803	A10 05.21	4.1	E2	f	goblet, pointed out-curved rim, ridged body
0804	A10 04.131	4.1	E1	d	goblet, pointed out-curved rim
0805	A10 04.503	3B	E2	d	goblet? rounded out-curved rim
0806	A10 04.80	4	E	f	goblet, flat base
0807	A10 04.80	4	E	f	goblet, flat base
0808	A10 04.21	4.1	E	d	goblet, slightly concave base

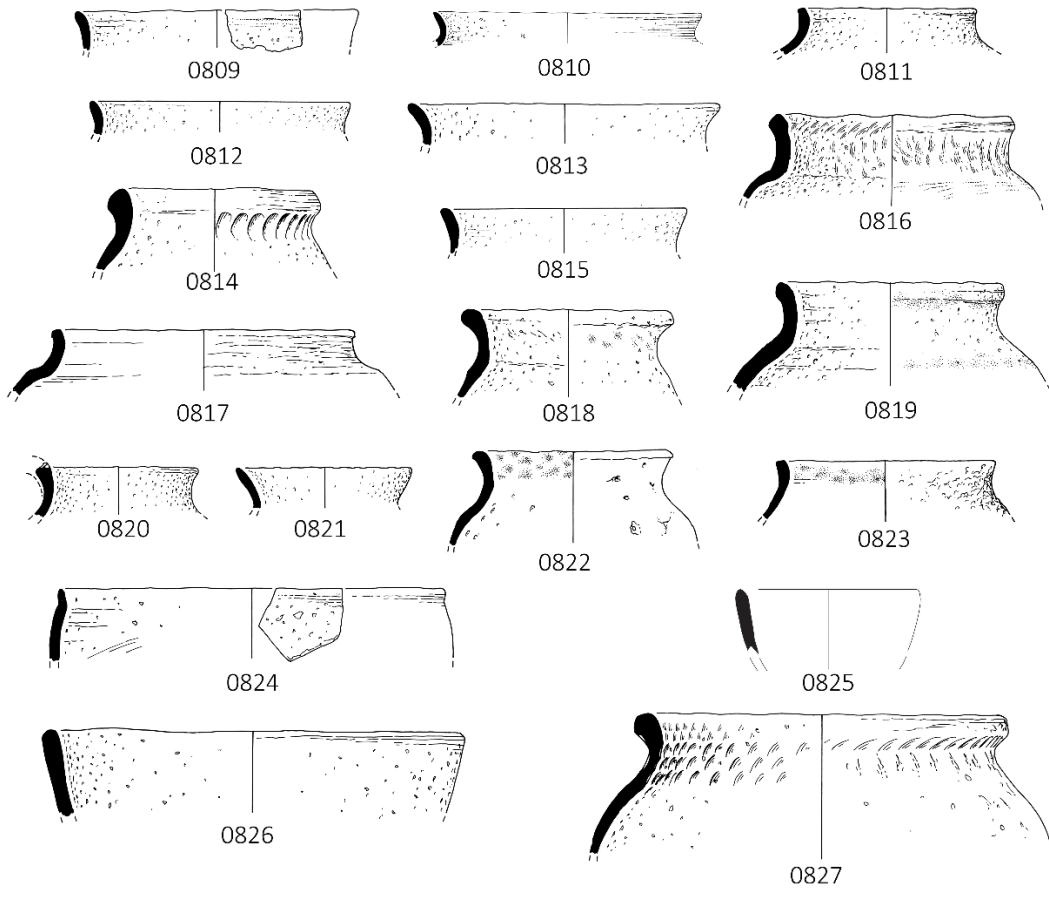


Figure 95 Cooking pots

CATN.	Provenance	Stage	Type	Fabric	Description
0809	A10 04.04	4.1	F	b	cooking pot, everted rounded rim
0810	A10 04.36	4.2	F	b	cooking pot, everted rim
0811	A10 04.202	4.1	F	b	cooking pot, squared everted rim
0812	A10 04.45	4.1	F	o	cooking pot, everted, rounded
0813	A10 04.202	4.1	F	b	cooking pot, flared rim
0814	A10 04.526	3B	F	o	cooking pot, everted thickened rim, fingerprints on the neck
0815	A10 04.21	4.2	F	o	cooking pot, everted rounded rim
0816	A10 04.503	3B	F	o	cooking pot, squared out-curved rim
0817	A10 04.501	4.1	F	o	cooking pot, squared everted rim
0818	A10 04.526	3B	F	o	cooking pot, everted thickened rim
0819	A10 04.503	3B	F	o	cooking pot, everted rim
0820	A10 05.02	4.2	F	b	cooking pot, squared rim with handle
0821	A10 09.79	4.2	F	o	cooking pot, everted rim
0822	A10 07.14	4.1	F	o	cooking pot, everted rim
0823	A10 09.86	4.1	F	o	cooking pot, squared rim
0824	A10 09.11	4	F	b	cooking pot, slightly everted rim
0825	A10 13.22	4.1	F	c	cooking pot, rounded rim
0826	A10 04.503	3B	F	c	cooking pot, rounded rim
0827	A10 06.01	4.1	F	o	cooking pot, everted thickened rim
	A10 07		F	b	cooking pot, everted rim
	A10 09.111	4.1	F	g	cooking pot, straight rim
	A10 07.14	4.1	F	o	cooking pot, flared
	A10 09.70	4.2	F	o	cooking pot, everted rim
	A10 07.05	3B	F	o	cooking pot, everted rim
	A10 07.22	3B	F	o	cooking pot, straight rim
	A10 07.23	3B	F	o	cooking pot, squared everted rim
	A10 07.67	3B	F	o	cooking pot, everted rim

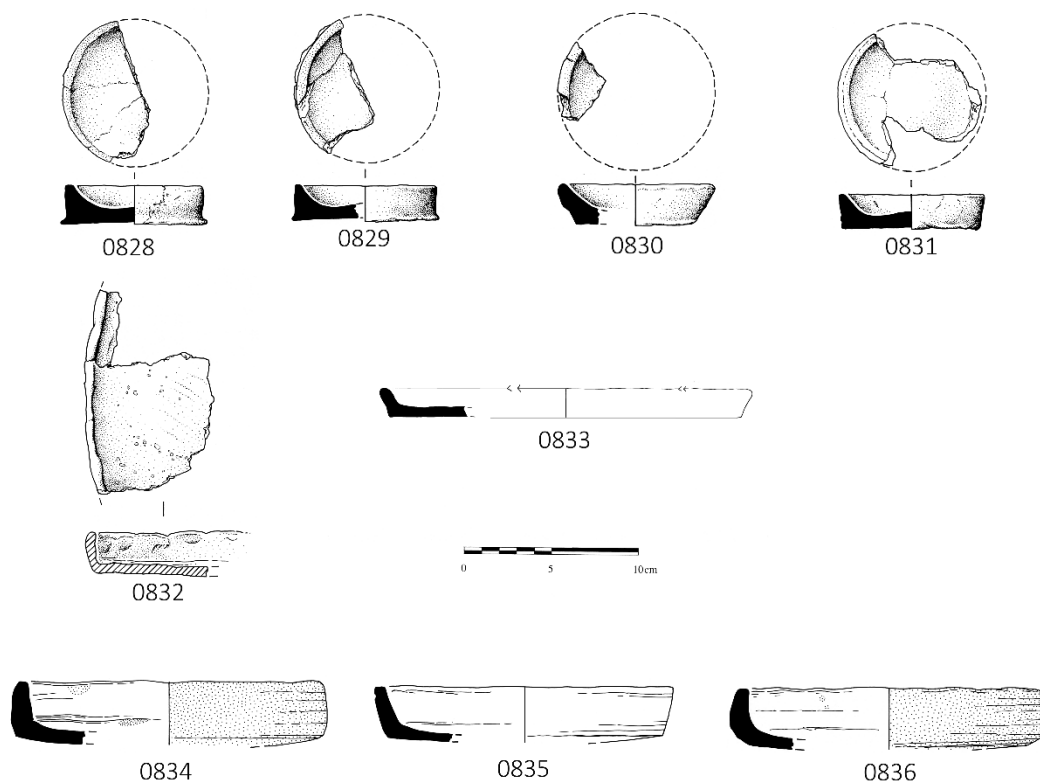


Figure 96 Low-sided trays

CATN.	Provenance	Stage	Type	Fabric	Description
0828	A10 04.70	4.1	F	b	tray, squared rim, shallow body, flat base
0829	A10 04.70	4.1	F	b	tray, squared rim, shallow body, flat base
0830	A10 04.70	4.1	F	b	tray, rounded rim, shallow body, flat base
0831	A10 04.70	4.1	F	b	tray, squared rim, shallow body, flat base
0832	A10 04.252	1B	F	c	tray, shallow body, flat base
0833	A10-pit	2B	F	b	tray, shallow body, flat base
0834	A10 04.526	3B	F	d	tray, squared rim, flat base
0835	A10 04.526	3B	F	a	tray, squared rim, flat base
0836	A10 04.526	3B	F	d	tray, squared slightly in-curved rim, flat base
	A10 09.215	4.1	F	b	tray, upright rim

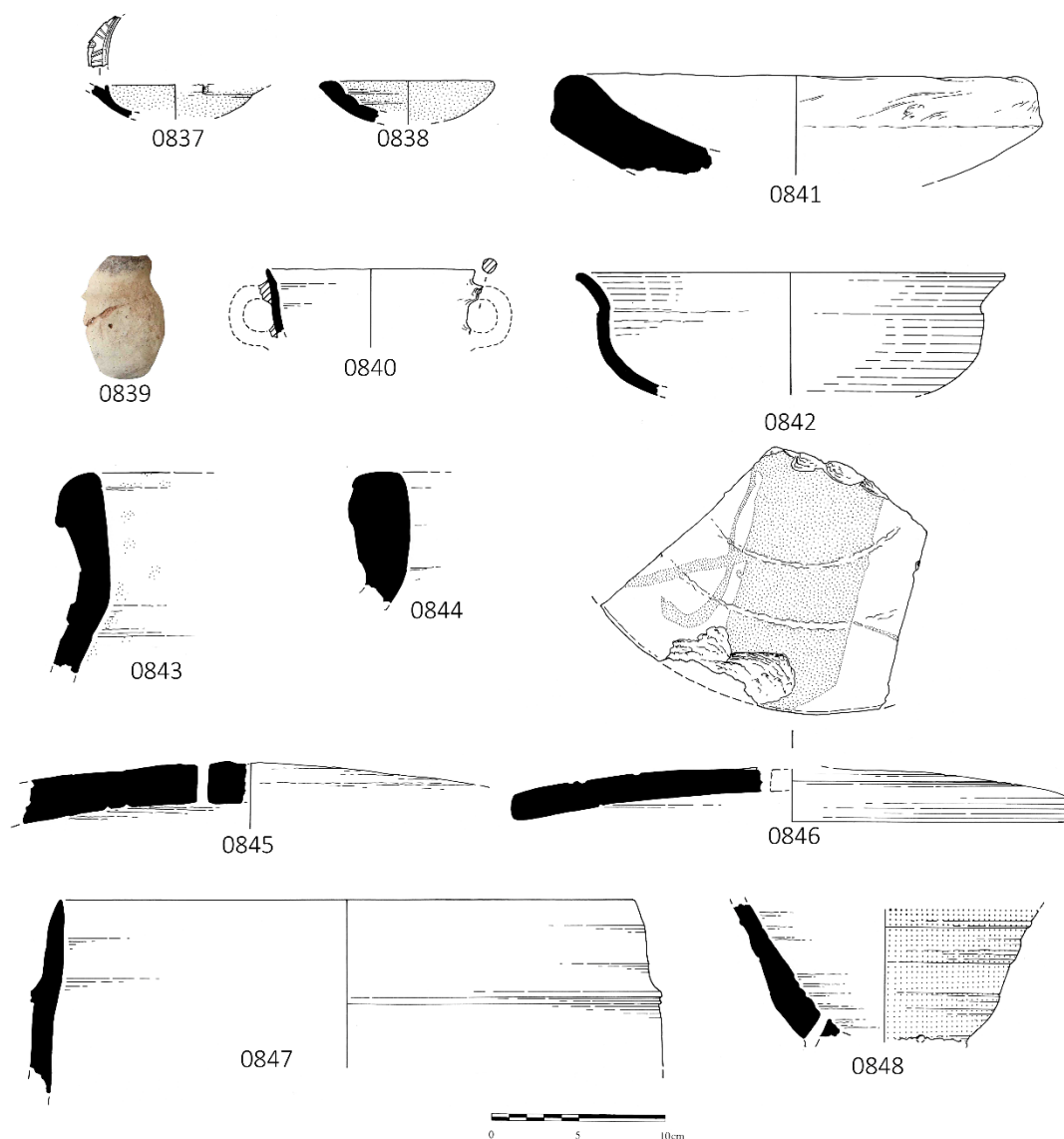


Figure 97 Unclassified forms

CATN.	Provenance	Stage	Type	Fabric	Description
0837	A10 04.246	2B	UC	f	miniature, incised pattern on the rim, with handle?
0838	A10 08.11	1/2B	UC	d	miniature, rounded rim, rounded base
0839	A10 09.111	4.1	UC	g	miniature jar
0840	A10		UC	h	cup, pointed rim with loop handle
0841	A10 05.11	4.1	UC	g	plate, rounded rim, heavy thick wall
0842	A10 01.03	4.1	UC	x	tulip bowl
0843	A10 06.06	3B	UC	g	la jar, collared rim, elongated neck with a ridge
0844	A10 06.06	3B	UC	d	la jar, squared upright rim
0845	A10 06.06	3B	UC	h	lid
0846	A10 08.19	2/3B	UC	a	lid, ptd ext.
0847	A10 09.112	4.1	UC	k	jar? nearly vertical and pointed rim
0848	A10 09.11	4	UC	x	cup/bowl, glazed, Islamic period

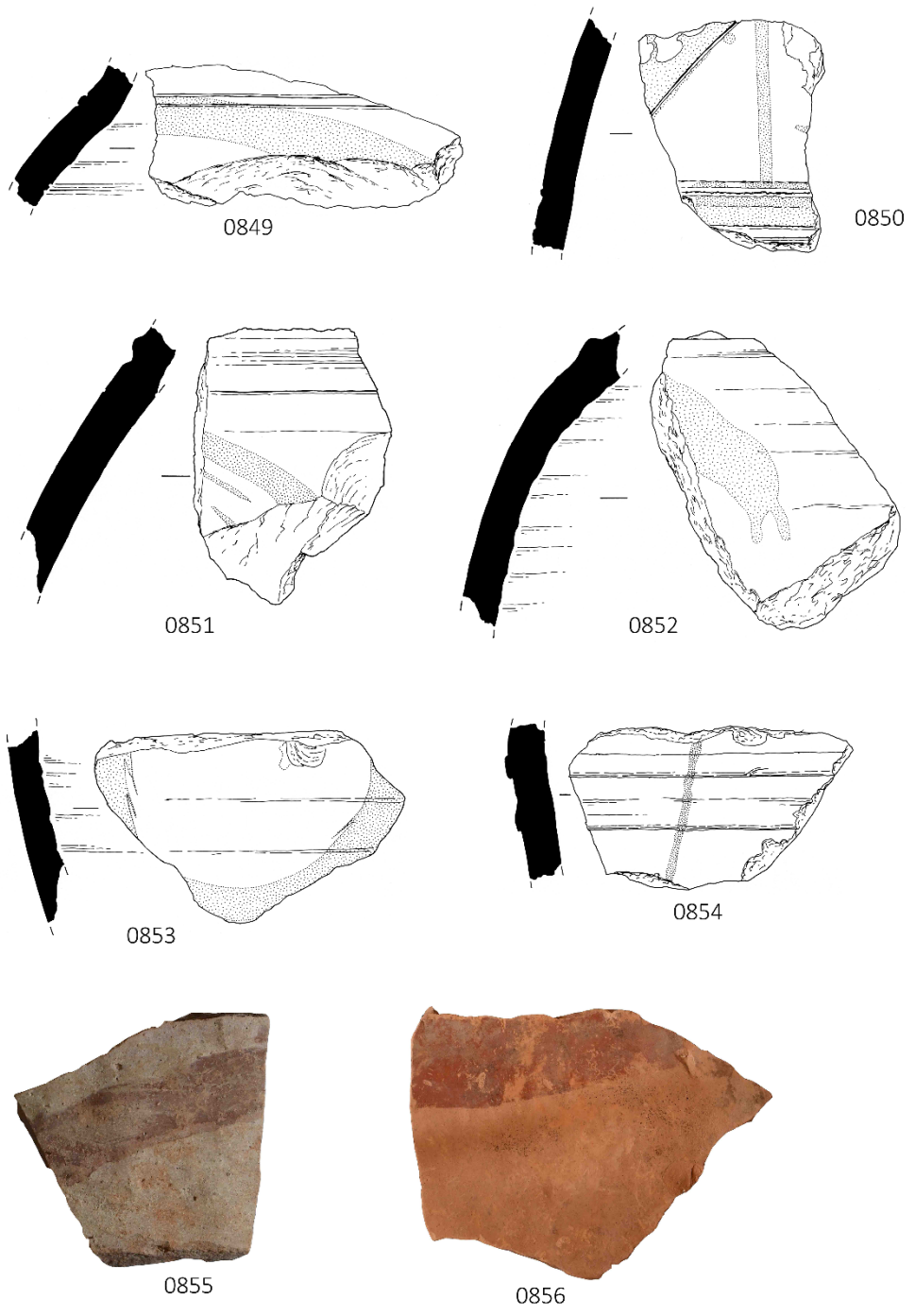


Figure 98 Painted body sherds

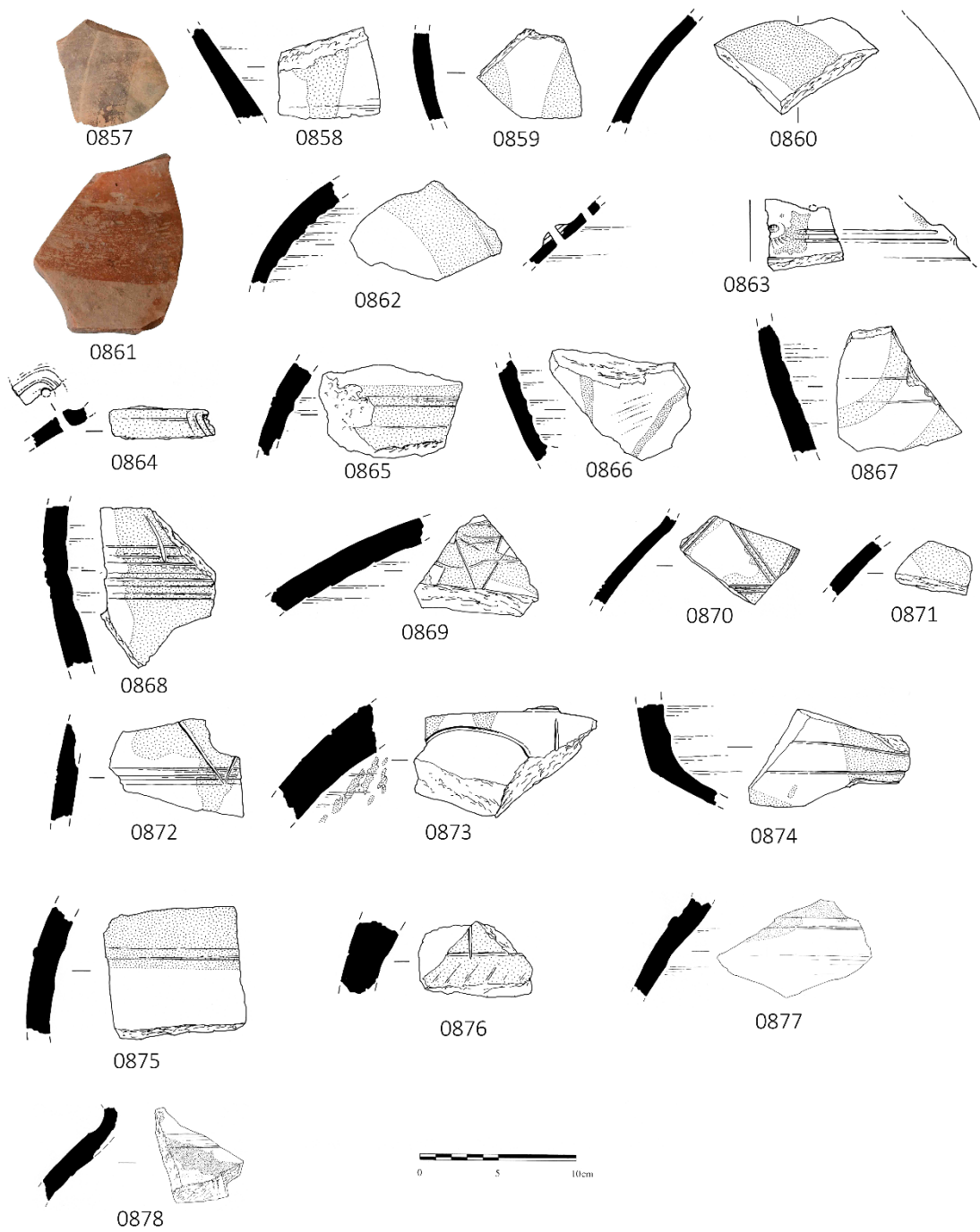


Figure 99 Painted body sherds

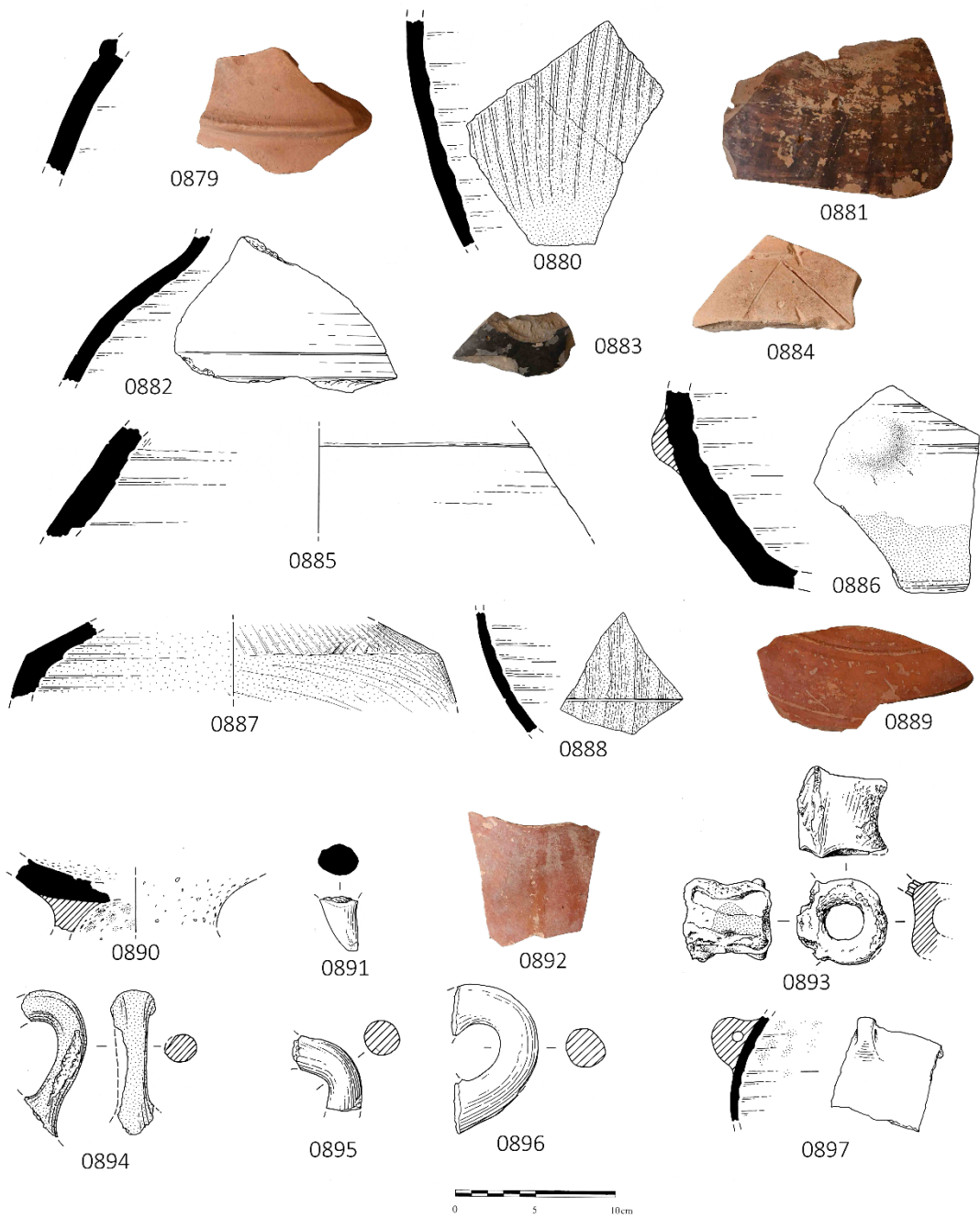


Figure 100 Body sherds, handles and miscellaneous forms

CATN.	Provenance	Stage	Type	Fabric	Description
0849	A10 05.11	4.1	A	a	la jar, shoulder, grooves, ptd
0850	A10 05.21	4.1	A	j	la jar, incised ptd body
0851	A10 05.21	4.1	A	j	la jar, ptd ridged body
0852	A10 06.34	3B	A	a	la jar, ptd ridged body
0853	A10 08.24	4.1	A	a	la jar, ptd body
0854	A10 11.10	4.1	A	a	la jar, ptd body with ridges
0855	A10 13.16	2A.2	A	a	la jar, ptd body
0856	A10 09.39	3B	A	j	la jar, ptd body
0857	A10 03.08		Z	a	jar, ptd body
0858	A10 04.04	4.1	Z	a	jar, ptd body
0859	A10 04.11	4.2	Z	a	jar, ptd body
0860	A10 03.10		Z	j	jar, ptd shoulder
0861	A10 04.503	3B	Z	j	jar, ptd shoulder
0862	A10 04.238	4.1	Z	a	jar, ptd shoulder
0863	A10 04.33	4.1	Z	a	jar, shoulder with grooves and protrusions
0864	A10 09.04	4.1	Z	d	body with plastic protrusions
0865	A10 05.11	4.1	Z	j	jar, ptd body with grooves
0866	A10 05.08	4.1	Z	a	jar, ptd body
0867	A10 05.21	4.1	Z	a	jar, ptd body
0868	A10 06.06	3B	Z	j	jar, ptd body with grooves
0869	A10 06.06	3B	Z	j	jar, body with ptd incisions
0870	A10 06.48	2/3B	Z	a	jar, body with ptd incisions
0871	A10 05.11	4.1	Z	j	jar, ptd body
0872	A10 08.13	1/2B	Z	j	jar, body with grooves and zigzag incisions, ptd
0873	A10 08.16	4.1	Z	a	body with marks, ptd
0874	A10 08.16	4.1	Z	j	body? ptd
0875	A10 08.13	1/2B	Z	j	ridged body, ptd
0876	A10 09.21	2B	Z	d	jar, incised body
0877	A10 09.39	3B	A	j	la jar, ridged shoulder, ptd
0878	A10 09.39	3B	A	j	la jar, shoulder, ptd
0879	A10 07.32	4.1	Z	h	ridged body
0880	A10 04.526	3B	Z	d	body, vertically burnished ext.
0881	A10 08.10	4.2	Z	f	body, vertically burnished ext.
0882	A10 04.238	4.1	Z	g	jar, shoulder with a groove
0883	A10 04.91	2B	Z	m	body, polished ext.
0884	A10 09.111	4.1	Z	k	body, zigzag incisions
0885	A10 06.06	3B	Z	d	jar, body with a groove
0886	A10 06.34	3B	Z	d	jar, body with a nipple-like decoration
0887	A10 05.08	4.1	Z	d	jar, carinated body, burnished

0888	A10 04.159	4.1	Z	d	body, vertically burnished
0889	A10 04.252	1B	Z	d	body with grooves
0890	A10 07.14	4.1	X	o	cooking pot, pedestal base
0891	A10 09.11	4	X	f	foot
0892	A10 09.87	4.1	Z	f	body, vertically burnished ext.
0893	A10 09.03	4.2	Y	g	loop handle
0894	A10 04.159	4.1	C	d	elongated jar, loop handle
0895	A10		C	l	elongated jar, loop handle
0896	A10 04.508	3B	C	d	elongated jar, loop handle
0897	A10 04.146	4.1	Y	h	jar, shoulder with a loop handle
	A10 07.52	4.1	Z	a	jar, ptd body
	A10 09.66	3B	Z	a	jar, ptd body
	A10 09.66	3B	Z	a	la jar, ptd body
	A10 07.67	3B	Z	h	body
	A10 09.112	4.1	Z	j	body, ptd
	A10 06.50	2/3B	Z	j	jar, ptd
	A10 09.16	2B	Z	j	jar, ptd
	A10 09.39	3B	Z	j	body, ptd
	A10 07.72	1B	Z	l	body
	A10 07.52	4.1	Z	a	jar, ptd

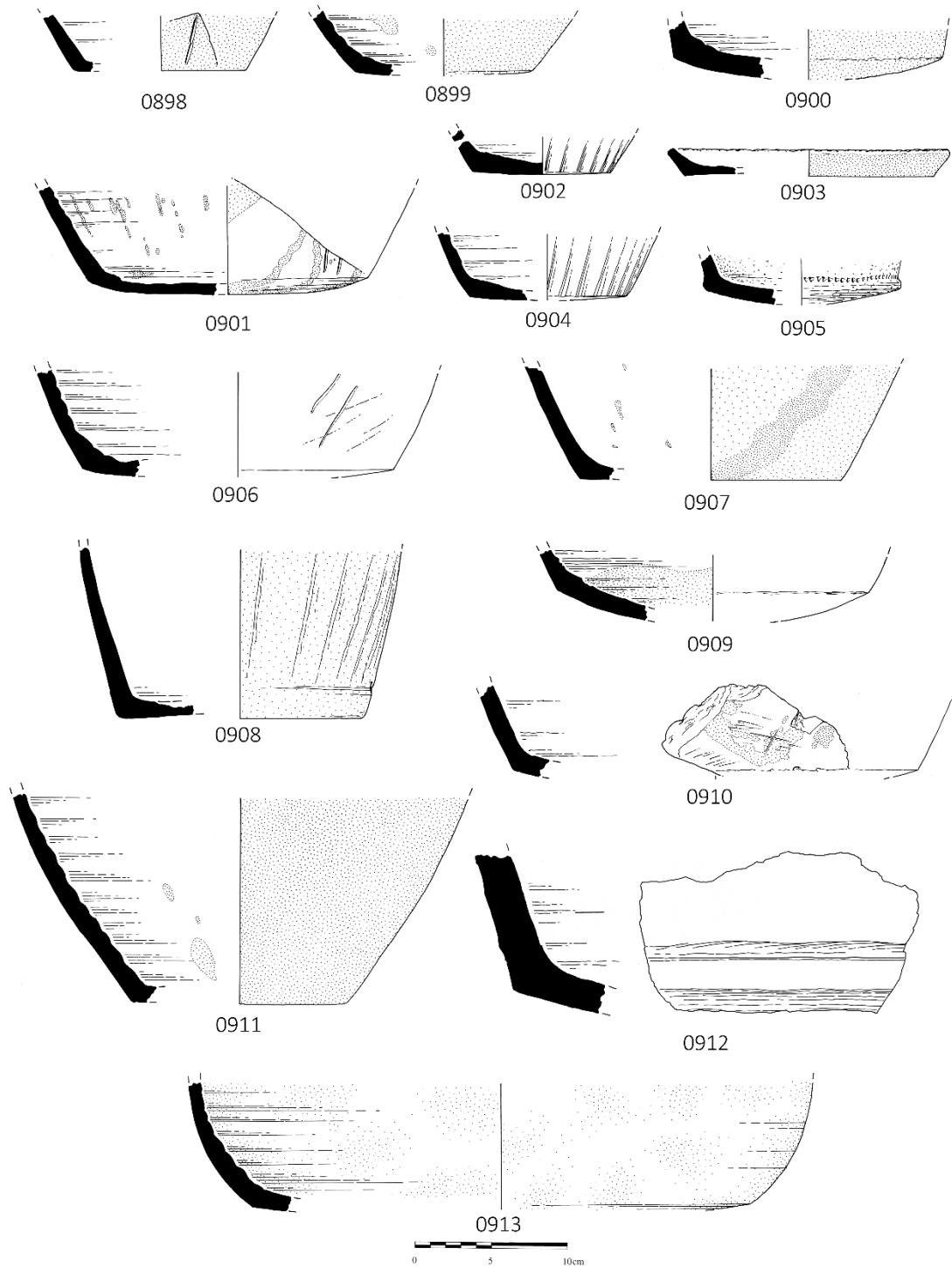


Figure 101 Bases

CATN.	Provenance	Stage	Type	Fabric	Description
0898	A10 04.526	3B	X	d	jar, flat base, a mark near the bottom
0899	A10 04.503	3B	X	d	flat base
0900	A10 05.21	4.1	X	h	jar, flat base
0901	A10 04.74	3B	X	a	jar, flat base, ptd
0902	A10 04.168		X	k	flat base
0903	A10 04.503	3B	X	d	flat base
0904	A10 04.230	3B	X	x	flat base
0905	A10 04.323	3B	X	k	convex base with indented decorations
0906	A10 04.12	4.2	X	g	jar, flat base
0907	A10 04.159	4.1	X	d	flat base
0908	A10 08.11	1/2B	X	d	flat base, vertically burnished ext.
0909	A10 03.08		X	d	convex base
0910	A10 05.11	4.1	X	d	flat base
0911	A10 08.05	4.1	X	d	flat base
0912	A10 04.503	3B	X	h	convex base
0913	A10 11.10	4.1	X	d	flat base
	A10 06.34	3B	X	a	jar, flat base
	A10 04.45	4.1	X	c	flat base
	A10 08.05	4.1	X	d	flat base
	A10 10.13	4.1	X	d	flat base
	A10 10.13	4.1	X	d	flat base
	A10 11.05	4.1	X	d	flat base
	A10 11.10	4.1	X	d	flat base
	A10 04.159	4.1	X	d	flat base
	A10 04.202	4.1	X	d	flat base
	A10 04.501	4.1	X	d	flat base
	A10 04.501	4.1	X	d	flat base
	A10 09.111	4.1	X	d	flat base
	A10 05.11	4.1	X	d	jar, flat base
	A10 05.21	4.1	X	d	jar, flat base
	A10 05.21	4.1	X	d	convex base
	A10 08.11	1/2B	X	d	flat base
	A10 04.100	1B	X	d	flat base
	A10 04.106	1B	X	d	flat base
	A10 04.86	2B	X	d	flat base
	A10 04.508	3B	X	d	flat base
	A10 04.508	3B	X	d	flat base
	A10 04.526	3B	X	d	flat base
	A10 04.526	3B	X	d	jar, flat base
	A10 09.223		X	d	flat base

A10 03.08		X	d	jar, flat base
A10 09.86	4.1	X	g	flat base
A10 09.112	4.1	X	g	flat base
A10 08.11	1/2B	X	g	flat base
A10 09.125	1B	X	g	flat base
A10 04.502	3B	X	g	flat base
A10 04.503	3B	X	g	flat base
A10 04.503	3B	X	g	flat base
A10 06.02	3B	X	g	jar, flat base
A10 06.06	3B	X	g	jar, flat base
A10 04.147	4.1	X	h	convex base
A10 04.303	4.1	X	h	flat base
A10 09.110	4.1	X	h	flat base
A10 05.07	4.1	X	h	jar, flat base
A10 06.53	1B	X	h	flat base
A10 04.503	3B	X	h	flat base
A10 04.503	3B	X	h	flat base
A10 04.503	3B	X	h	flat base
A10		X	h	flat base
A10-pit	2B	X	j	jar, flat base
A10 09.87	4.1	X	k	concave base
A10 04.11	4.2	X	k	flat base
A10 04.508	3B	X	k	convex base
A10 04.168		X	n	jar, flat base

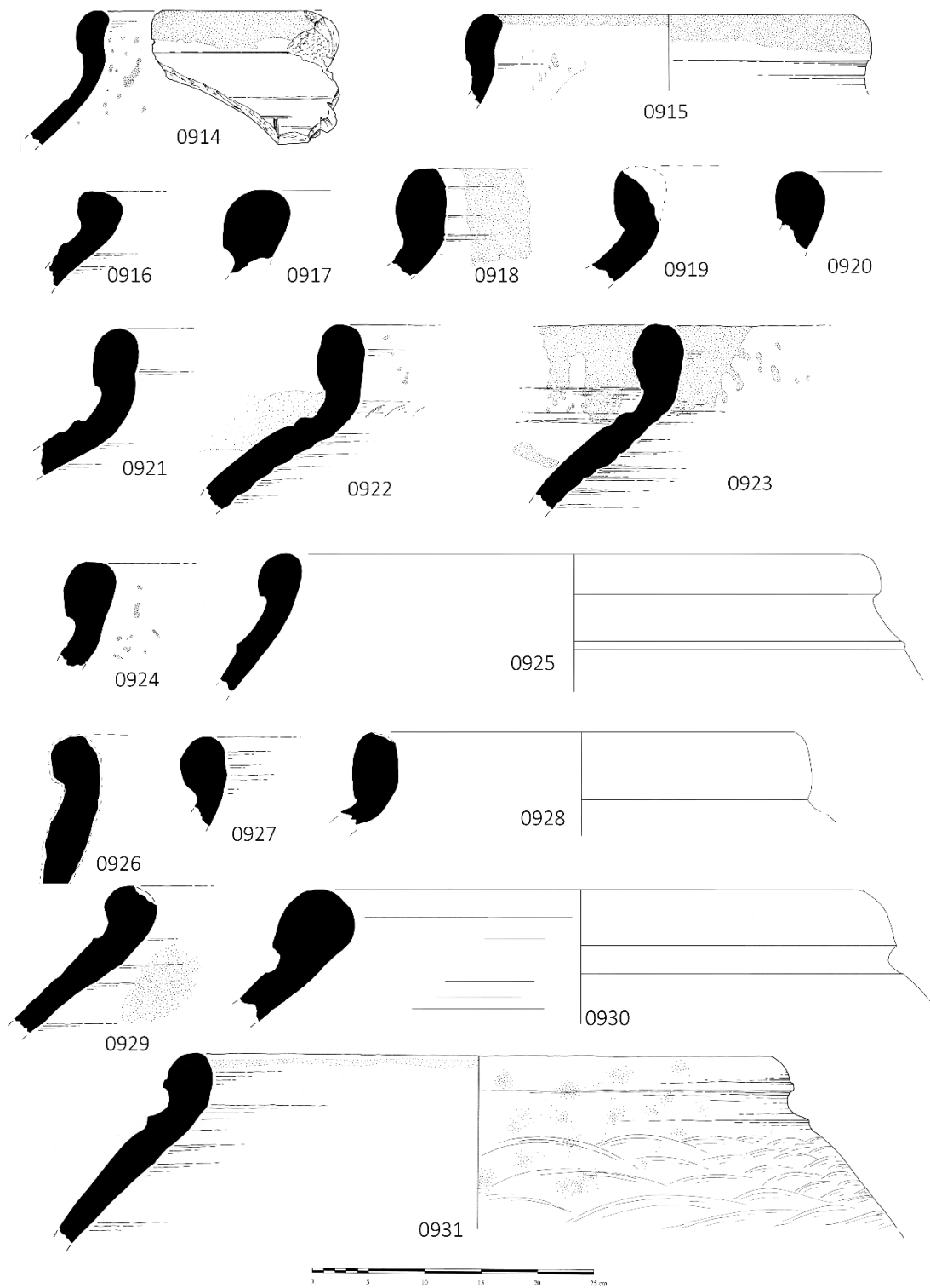


Figure 102 Large storage jars

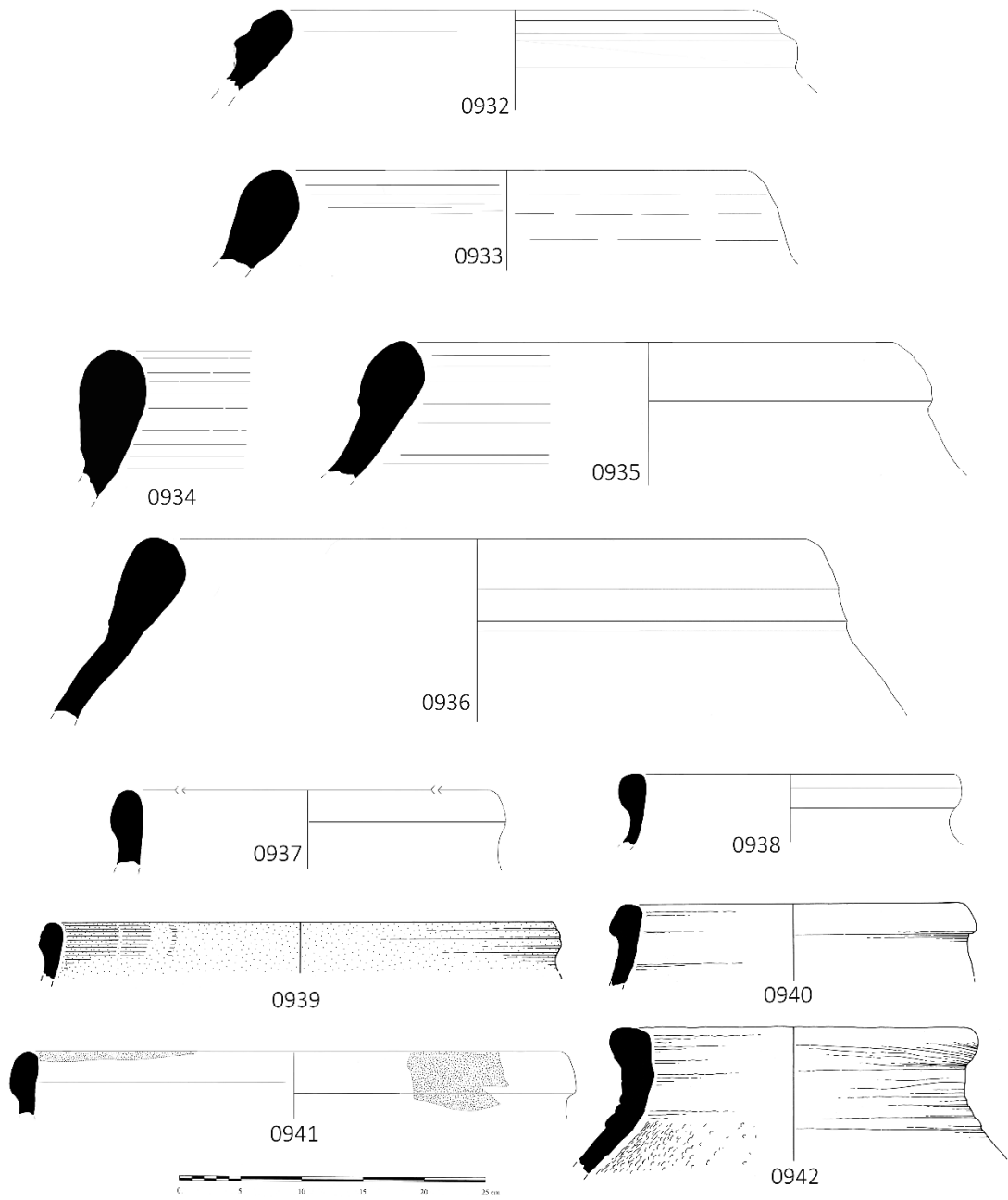


Figure 103 Large and medium jars

CATN.	Provenance	Type	Fabric	Description
0914	A03 05.13	Type 1	j	la jar, collared rim, slightly recessed, ptd
0915	A03 05.US	Type 1	j	la jar, collared rim, slightly recessed, ptd
0916	A08 UF	Type 1	j	la jar, collared internally bevelled rim, ridge under neck
0917	A03	Type 1	h	la jar, rounded collared rim
0918	A03 05.25	Type 1	j	la jar, upright collared rim, ptd
0919	A03	Type 1	j	la jar, rounded collared rim
0920	A03	Type 1	j	la jar, rounded collared rim
0921	A03 05.16	Type 1	a	la jar, upright collared rim, ridge under neck
0922	A03 05.25	Type 1	j	la jar, upright collared rim, ridge under neck
0923	A03 05.18	Type 1	a	la jar, rounded, collared rim, ptd
0924	A03 05.08	Type 1	j	la jar, collared rounded rim
0925	A03	Type 1	j	la jar, rounded collared rim, ridge under neck
0926	A03	Type 2	h	la jar, collared rounded rim, surface peeled
0927	A08 21.03	Type 2	g	la jar, rounded collared rim
0928	A07 15	Type 1	h	la jar, upright collared rim
0929	A03 05.16	Type 2	g	la jar, collared slightly inverted rim
0930	A07 02.004	Type 2	g	la jar, rounded collared rim
0931	A03 05.18	Type 2	x	la jar, collared slightly inverted rim, ridge under neck
0932	A07 02	Type 3	x	la jar, rilled inverted rim
0933	A07 02.004	Type 3	x	la jar, rounded inverted rim
0934	A07 004pakhsa	Type 3	h	la jar, rounded inverted rim
0935	A03	Type 3	k	la jar, rounded inverted rim
0936	A07 02.004	Type 3	h	la jar, rounded inverted rim
0937	A03	Type 4	h	md jar, rounded upright rim
0938	A03	Type 4	h	md jar, squared collared rim
0939	A03 05.24	Type 4	d	md jar, collared, rilled rim
0940	A03	Type 4	g	md jar, collared slightly inverted rim
0941	A03	Type 4	j	md jar, collared upright rim, ptd
0942	A03	Type 4	h	md jar, collared rim, well-defined neck ridges under the neck

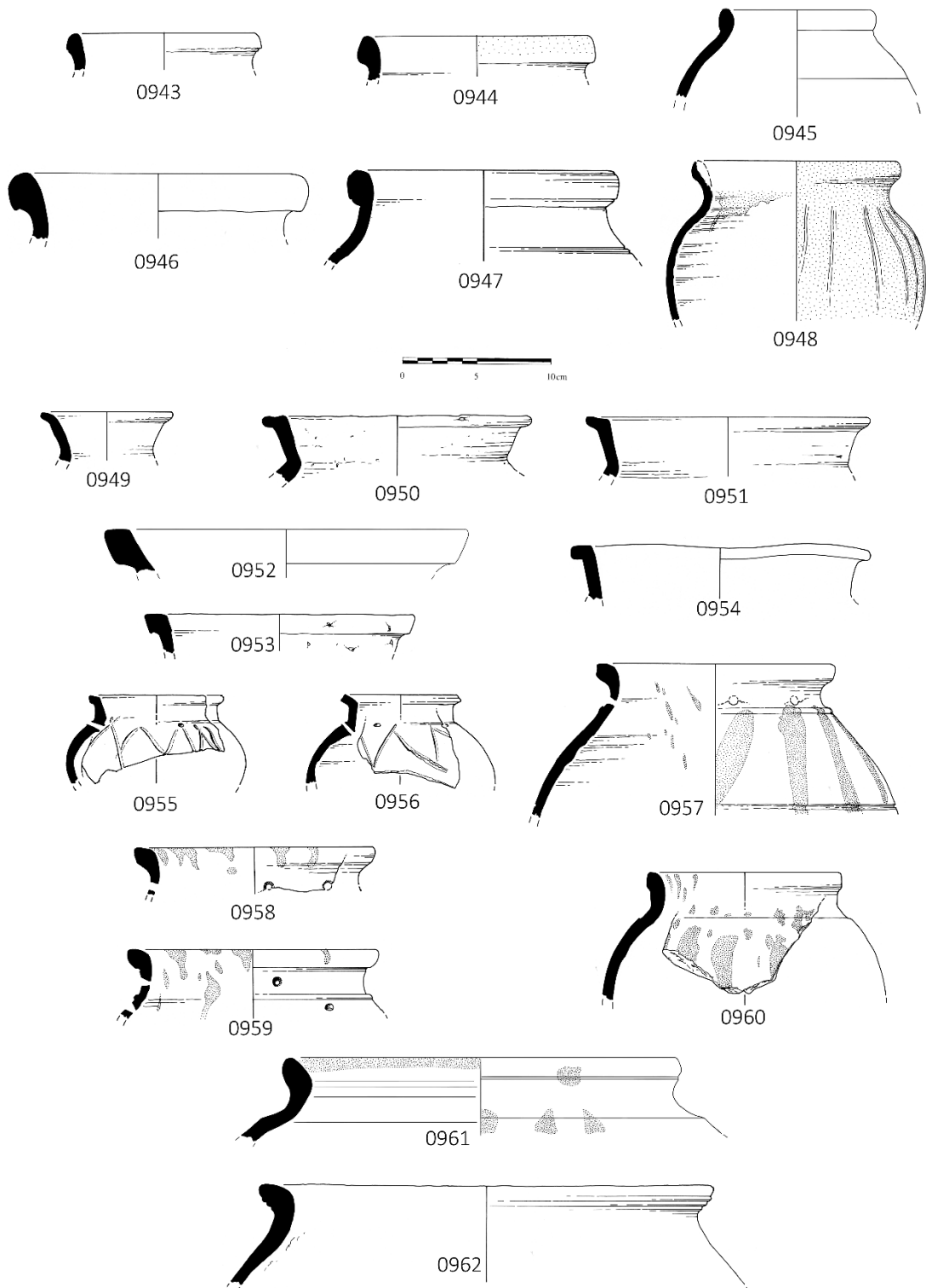


Figure 104 Jars (Type 1-3)

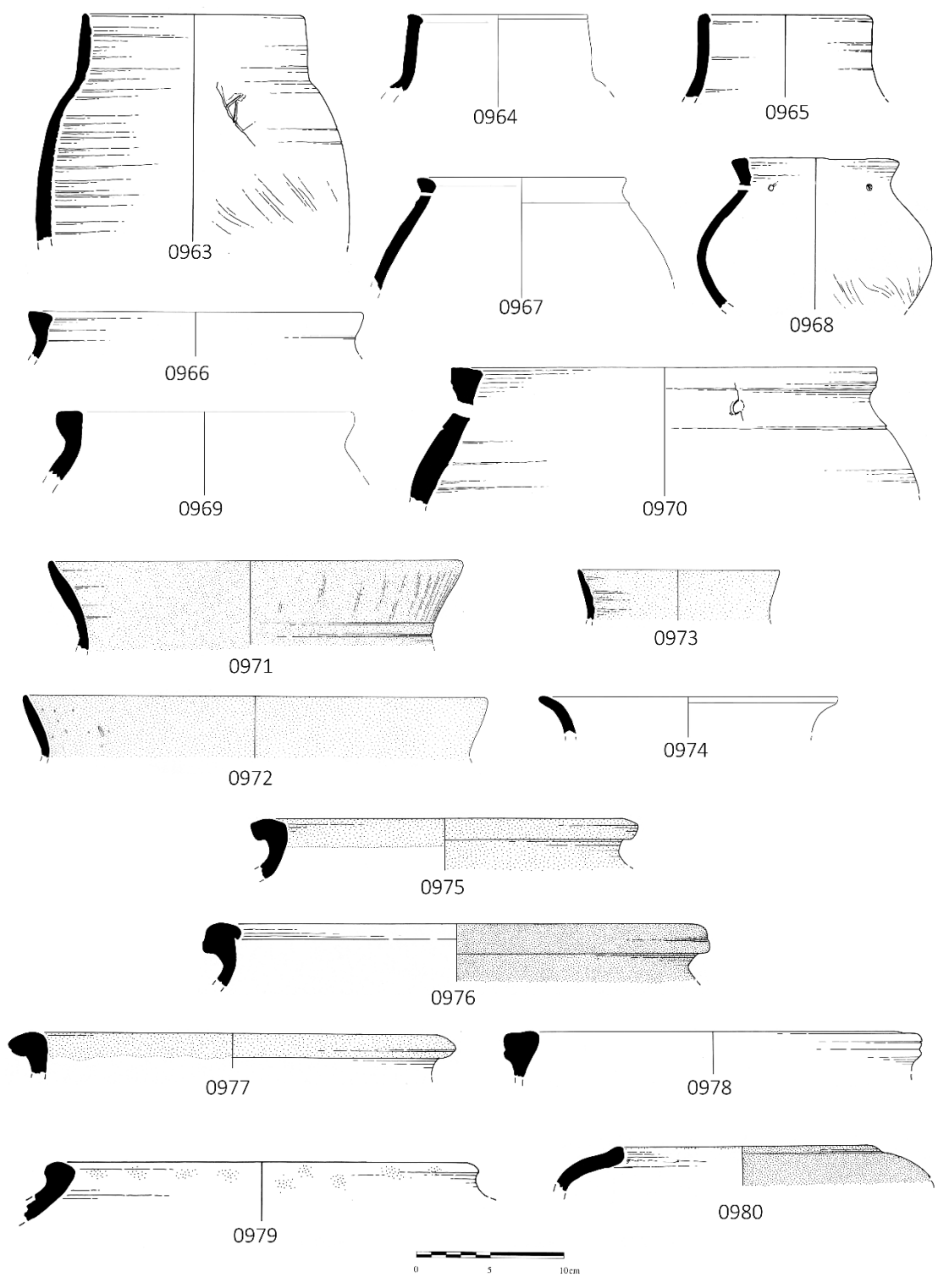


Figure 105 Jars (Type 4-8)

CATN.	Provenance	Type	Fabric	Description
0943	A08 21.11	Type 1	h	jar, rounded collared rim
0944	A03 05.17	Type 1	a	jar, collared rim
0945	A07 07	Type 1	x	short-necked jar, upright rim, spherical body
0946	A03 05.18	Type 1	g	jar, collared out-curved rim
0947	A03	Type 1	g	jar, collared rim, two grooves under the neck
0948	A03 05.US	Type 1	f	jar, rounded collared rim, globular body
	A05	Type 1	a	jar, collared rim
	A05	Type 1	d	jar, collared rim
	A08 21.04	Type 1	g	jar, collared rim
0949	A03 05.24	Type 2	g	jar, everted rim, elongated neck
0950	A03 05.02	Type 2	c	jar, everted, flattened rim
0951	A03 05.23	Type 2	g	jar, everted, bevelled rim
0952	A03	Type 2	g	jar, flanged squared rim
0953	A03 05.US	Type 2	h	jar, flattened, squared rim
0954	A03 05.08	Type 2	c	jar, squared and flattened rim
0955	A03 05.24	Type 2	e	jar, everted flattened rim, spherical body with zigzag incisions
0956	A03 05.24	Type 2	e	jar, everted squared rim, spherical body with zigzag incisions
0957	A03 05.18	Type 3	a	jar, everted squared rim, pre-firing holes on neck, ridge on shoulder, ptd
0958	A03 05.18	Type 3	a	jar, everted squared rim, ptd, pre-firing holes on the neck
0959	A03 05.18	Type 3	a	jar, everted, rounded rim, ptd, pre-firing holes on the neck, ridge on shoulder
0960	A03 05.24	Type 3	j	jar, collared rim, ledged shoulder, globular body, ptd
0961	A05	Type 3	j	jar, everted rounded rim, ledged shoulder, ptd
0962	A03 05.US	Type 3	d	jar, everted, rounded rim with ridges
0963	A08	Type 4	k	jar? rounded upright rim, cylindrical body
0964	A07 07	Type 4	x	jar, squared vertical rim
0965	A03	Type 4	h	jar, vertical rim
0966	A03 05.US	Type 5	g	jar, flattened rim
0967	A03	Type 5	k	jar, flattened rim, a slight ridge under neck
0968	A03 05.24	Type 5	g	jar, flattened rim, pre-firing holes on neck, globular body
0969	A07 07	Type 5	x	jar, flattened rim
0970	A03	Type 5	g	jar, flattened rim, bevelled inward, pre-firing hole on neck, a groove under the neck
	A05	Type 5	d	jar, flattened, flattened rim
0971	A03 05.US	Type 6	d	jar, rounded everted rim, grooves under rim

0972	A03 05.US	Type 6	d	jar, everted rounded rim
0973	A03 05.US	Type 6	d	jar, everted pointed rim
0974	A03	Type 6	g	jar, everted and rounded rim
	A05	Type 6	d	jar, everted squared rim
0975	A03 05.16	Type 7	d	jar, everted, externally bevelled rim
0976	A03 05.30	Type 7	d	jar, folded rim
0977	A03 05.16	Type 7	d	jar, externally bevelled rim
0978	A03 05.16	Type 7	h	jar, rilled, thickened, flattened rim
0979	A08	Type 8	d	holemouth jar, rounded inverted rim
0980	A03 05.21	Type 8	d	holemouth jar, inverted rounded rim

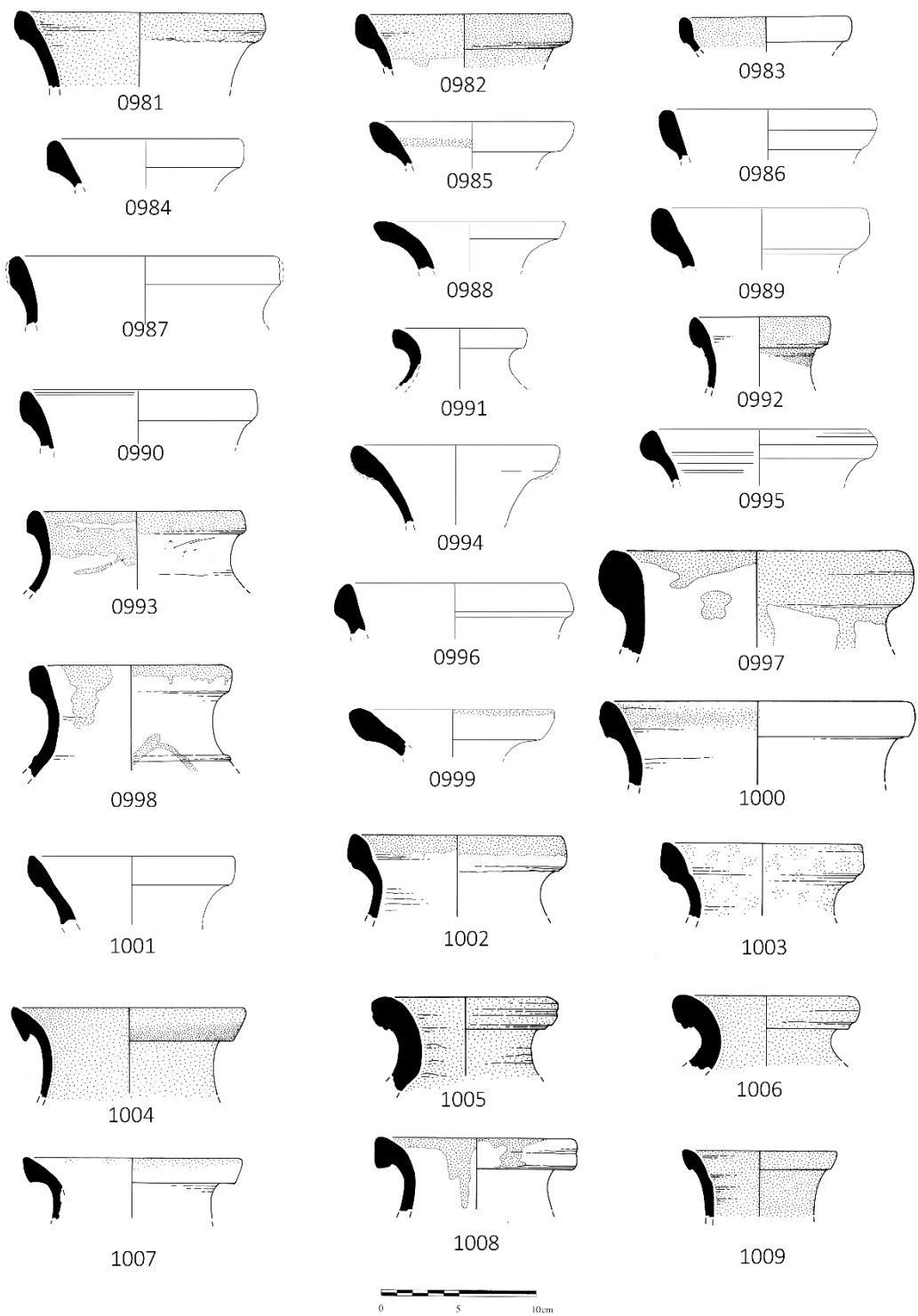


Figure 106 Elongated jars (Type 1, 2)

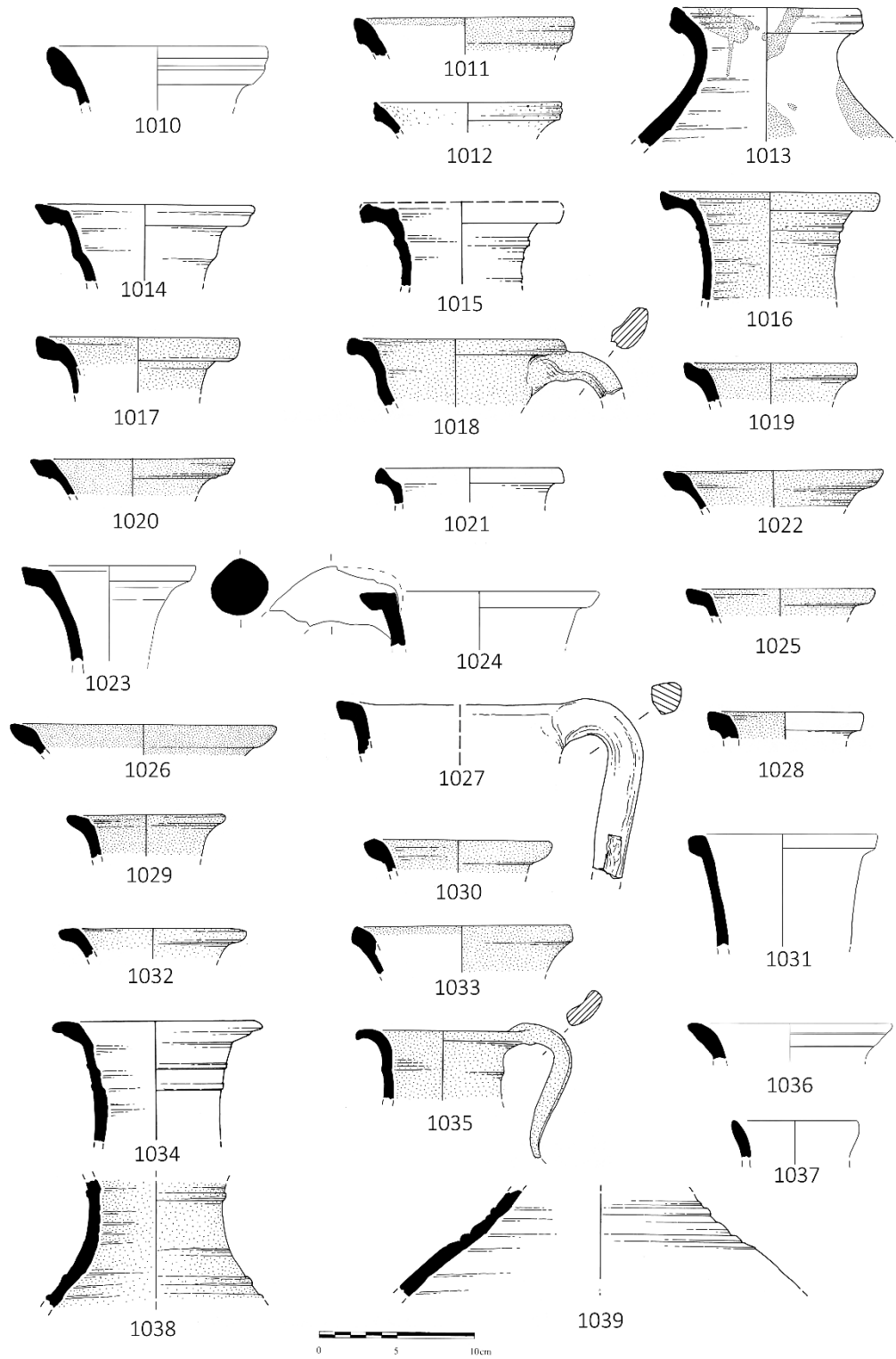


Figure 107 Elongated jars (Type 3-6)

CATN.	Provenance	Type	Fabric	Description
0981	A03 05.18	Type 1	a	elongated jar, collared rounded rim
0982	A03 05.16	Type 1	d	elongated jar, collared rim
0983	A03 05.26	Type 1	d	elongated jar, collared rim slightly recessed
0984	A08	Type 1	x	elongated jar, collared pointed rim
0985	A03	Type 1	a	elongated jar, collared pointed rim
0986	A03	Type 1	d	elongated jar, collared rounded rim slightly recessed
0987	A03	Type 1	d	elongated jar, collared rim
0988	A03	Type 1	h	elongated jar, collared flared rim
0989	A03	Type 1	d	elongated jar, collared rim slightly recessed
0990	A03	Type 1	j	elongated jar, collared pointed rim
0991	A03	Type 1	d	elongated jar, collared flared rim
0992	A03 05.US	Type 1	d	elongated jar, collared pointed rim
0993	A03 05.01	Type 1	j	elongated jar, collared, rounded rim
0994	A03	Type 1	h	elongated jar, collared rim, narrowed elongated neck
0995	A03	Type 1	g	elongated jar, collared pointed rim
0996	A03	Type 1	f	elongated jar, collared pointed rim
0997	A03	Type 1	j	elongated jar, collared rim, ptd
0998	A03 05.23	Type 1	a	elongated jar, collared rim, ptd, ridged shoulder
0999	A03	Type 1	a	elongated jar, collared flared rim
1000	A03	Type 1	d	elongated jar, collared rim
1001	A07 004pakhsa	Type 1	d	elongated jar, collared pointed rim
1002	A08	Type 1	d	elongated jar, collared pointed rim decorated with a groove
1003	A08	Type 1	d	elongated jar, collared pointed rim
	A03	Type 1	d	elongated jar, collared rim
1004	A03 05.24	Type 2	d	elongated jar, overhanging rim
1005	A08	Type 2	d	elongated jar, collared rim with grooves
1006	A08	Type 2	d	elongated jar, collared flared rim with a ledge
1007	A03 05.16	Type 2	d	elongated jar, overhanging rim
1008	A08	Type 2	j	elongated jar, overhanging rim, ptd
1009	A03 05.18	Type 2	f	elongated jar, overhanging flared rim
1010	A03	Type 3	a	elongated jar, collared and rilled rim
1011	A03 05.26	Type 3	d	elongated jar, sub-triangular, rilled rim
1012	A03 05.25	Type 3	i	elongated jar, collared, rilled rim
1013	A08	Type 3	a	elongated jar, collared rilled rim, ptd
1014	A08	Type 4	d	elongated jar, internally recessed rim, ridged neck

1015	A08	Type 4	x	elongated jar, collared internally recessed rim, ridged neck
1016	A08	Type 4	f	elongated jar, collared internally recessed rim, ridged neck
1017	A08	Type 4	d	elongated jar, collared internally recessed rim, ridged neck
1018	A03 05.18	Type 4	d	elongated jar, flattened rim with a strap handle
1019	A03 05.16	Type 4	d	elongated jar, internally recessed rim
1020	A03 05.18	Type 4	d	elongated jar, flattened internally recessed rim
1021	A03 05.23	Type 4	d	elongated jar, collared internally bevelled rim
1022	A03 05.17	Type 4	d	elongated jar, squared flattened rim internally recessed
1023	A08	Type 5	x	elongated jar, flattened squared rim
1024	A03	Type 5	f	elongated jar, flattened rim, with handle
1025	A03 05.17	Type 5	d	elongated jar, flattened squared rim
1026	A03 05.18	Type 5	d	elongated jar, flattened pointed rim
1027	A08	Type 5	x	elongated jar, flattened squared rim with a loop handle
1028	A03 05.16	Type 5	d	elongated jar, flattened rim
1029	A03 05.17	Type 5	d	elongated jar, flattened rim
1030	A03 05.16	Type 5	d	elongated jar, collared rim
1031	A08	Type 5	x	elongated jar, flattened squared rim
1032	A03 05.24	Type 5	f	elongated jar, everted, rounded, flattened rim
1033	A03 05.23	Type 5	d	elongated jar, squared flaring rim
1034	A03	Type 6	d	elongated jar, flattened rim, elongated neck with ridges
1035	A03 05.US	Type 6	d	elongated jar, flared flattened rim, strap handle
1036	A03	Type 6	d	elongated jar, flaring, flattened rim
1037	A07 07	Type 6	x	elongated jar, rounded rim, narrowed neck
1038	A08		f	elongated jar, ridged neck
1039	A08		d	elongated jar, ridged shoulder
	A03		d	elongated jar, strap handle
	A03		d	elongated jar, strap handle
	A03		d	elongated jar, strap handle
	A03 05.19		d	elongated jar, strap handle

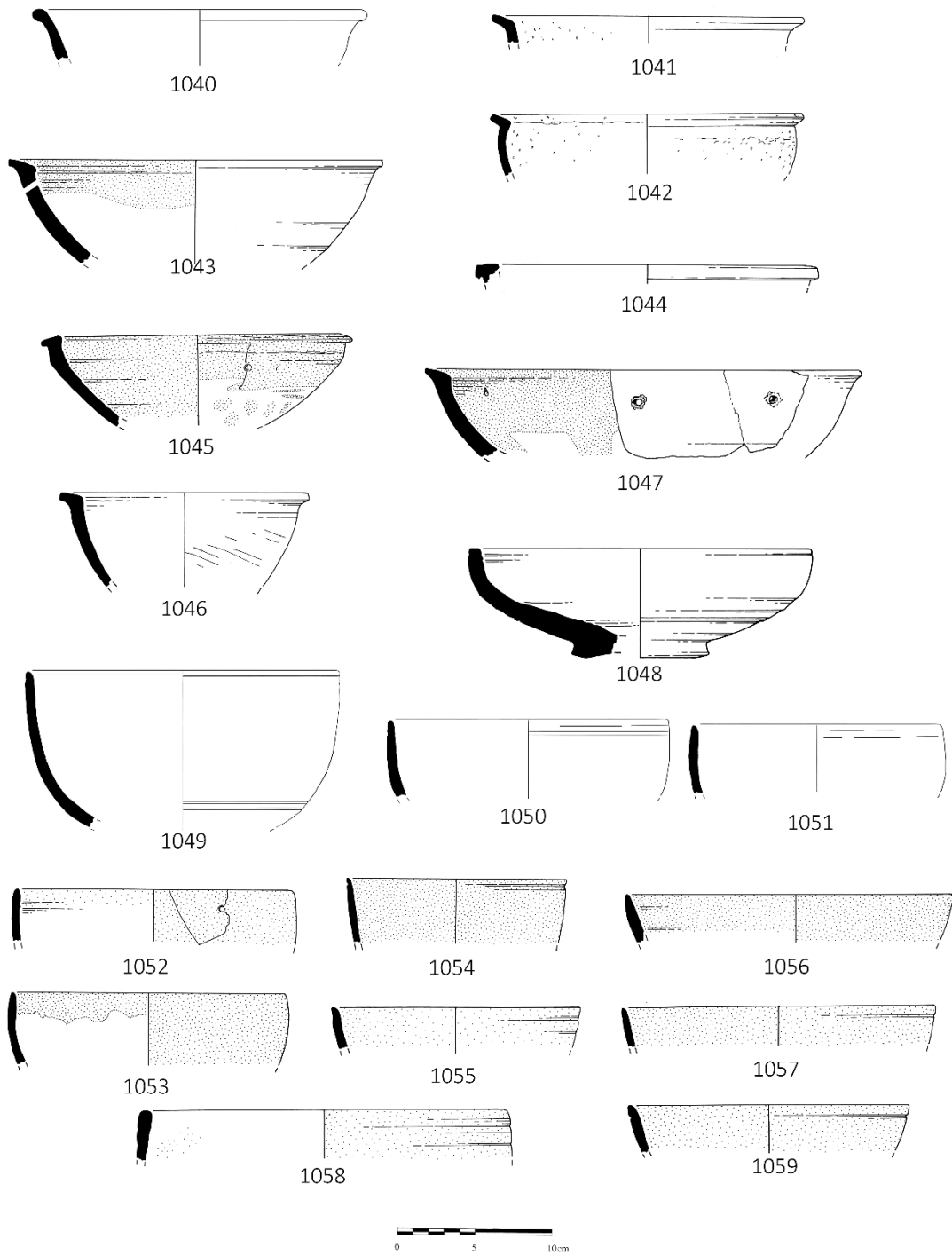


Figure 108 Bowls

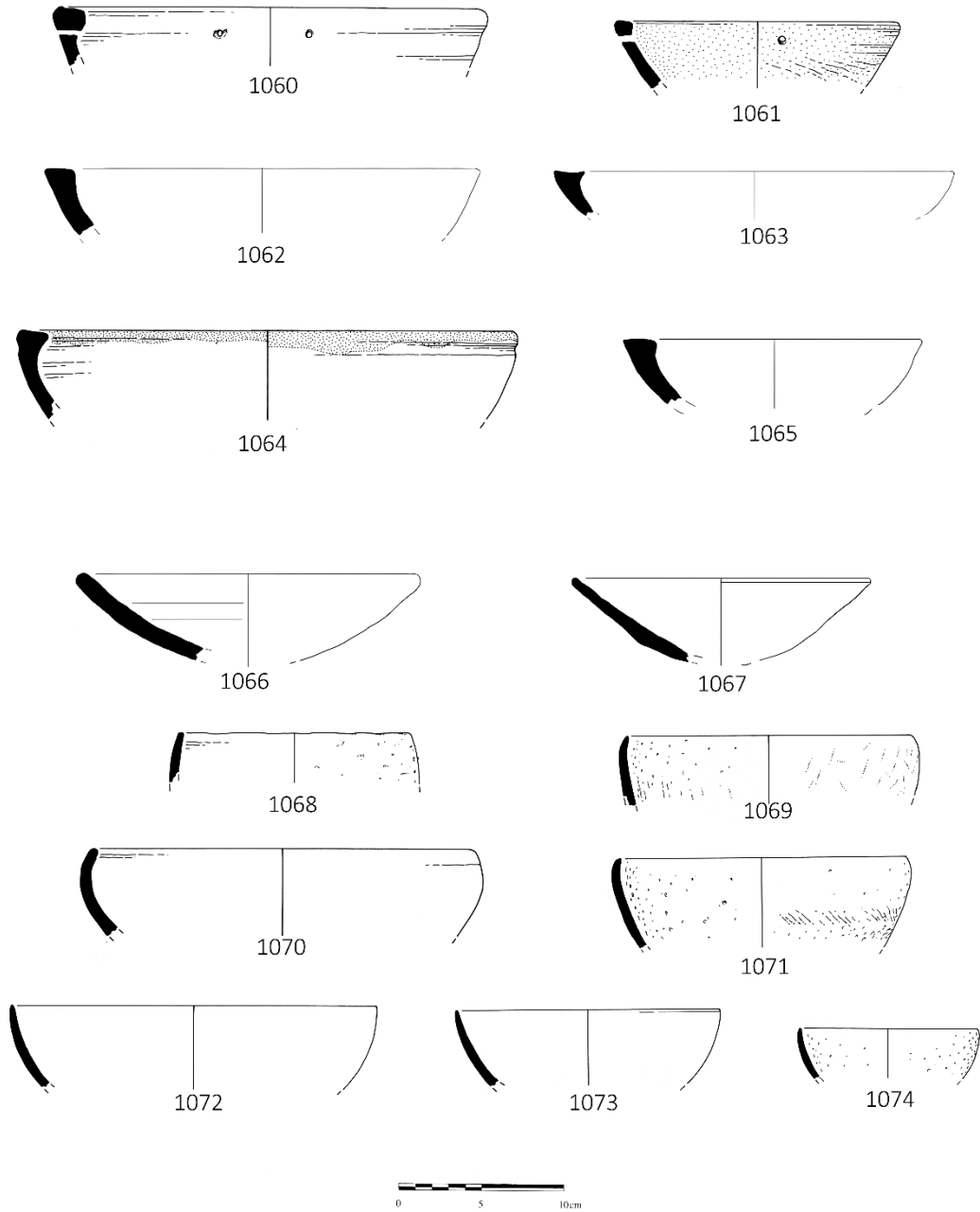


Figure 109 Bowls

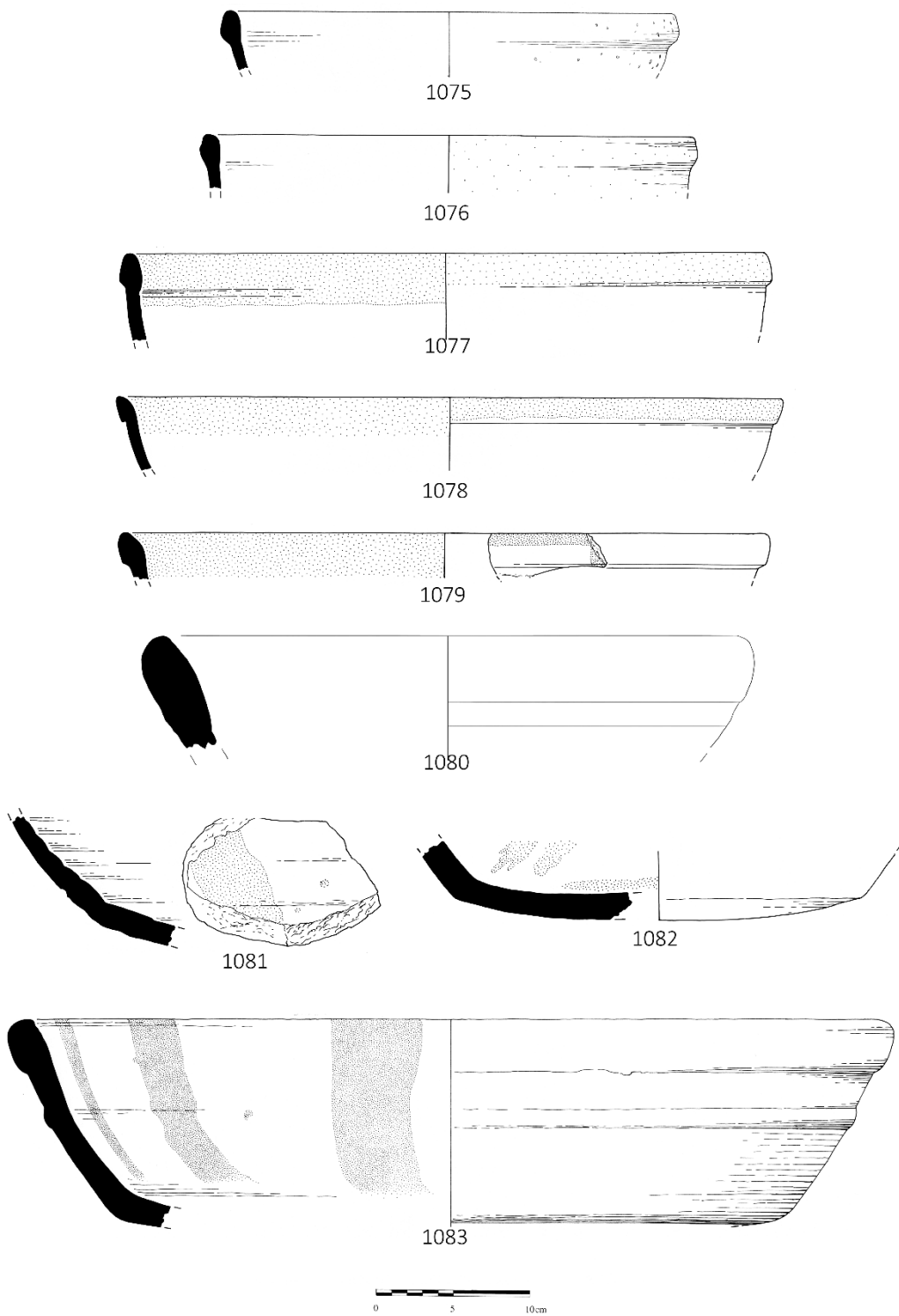


Figure 110 Large bowls

CATN.	Provenance	Type	Fabric	Description
1040	A03	Type 1	d	bowl, everted and rounded rim
1041	A03 05.16	Type 1	e	bowl, everted rim
1042	A03 05.16	Type 1	e	bowl, everted squared rim
1043	A03 05.22	Type 1	a	bowl, everted rim, ptd
1044	A03 05.24	Type 1	d	bowl, flattened rim
1045	A03 05.17	Type 1	j	bowl, everted, bevelled rim, ptd
1046	A03 05.18	Type 1	e	bowl, everted, squared rim,
1047	A03 05.19	Type 1	a	bowl, squared internally bevelled rim, ptd
	A03 05.30	Type 1	f	bowl, rounded rim
	A05	Type 1	e	bowl, everted flattened rim
1048	A03	Type 2	f	bowl, squared upright rim with a groove, spherical body, ring base
1049	A03	Type 2	d	bowl, upright rim, grooves under rim, spherical body
1050	A03	Type 2	d	bowl, rounded upright rim
1051	A03	Type 2	d	bowl, pointed upright rim
1052	A03 05.22	Type 2	d	bowl, upright pointed rim
1053	A03 05.29	Type 2	f	bowl, pointed rim
1054	A03 05.22	Type 2	d	bowl, upright pointed rim decorated with a groove
1055	A03 05.16	Type 2	d	bowl, rounded rim
1056	A03 05.16	Type 2	d	bowl, pointed rim
1057	A03 05.17	Type 2	d	bowl, pointed rim
1058	A03 05.26	Type 2	f	bowl? upright rounded rim with grooves
1059	A03 05.23	Type 2	d	bowl, pointed rim with a groove
	A03	Type 2	d	bowl, rounded rim
	A03	Type 2	d	bowl, rounded rim
	A03	Type 2	d	bowl, rounded rim
	A03	Type 2	d	bowl, pointed rim, thin wall
	A03	Type 2	d	bowl, rounded rim
	A03	Type 2	f	bowl, rounded rim
	A03	Type 2	f	bowl, rounded rim with grooves
1060	A08	Type 3	a	la bowl, flattened incurved rim
1061	A08	Type 3	d	bowl, flattened rim
1062	A03	Type 3	a	bowl, flattened rim
1063	A03	Type 3	d	bowl, flattened incurved rim
1064	A08	Type 3	a	bowl, flattened incurved rim, ptd
1065	A07 05	Type 3	x	bowl, flattened rim
1066	A03	Type 4	g	bowl, rounded rim, conical body
1067	A07 07	Type 4	x	bowl, rounded rim, conical-shaped body
1068	A03 05.US	Type 5	h	bowl, squared slightly in-curved rim
1069	A03 05.17	Type 5	e	bowl, slightly in-curved rim
1070	A03	Type 5	g	bowl, in-curved rim, globular body

1071	A03 05.US	Type 5	g	bowl, rounded slightly incurved rim
1072	A03 05.16	Type 5	g	bowl, pointed rim
1073	A03 05.17	Type 5	g	bowl, pointed rim
1074	A03 05.22	Type 5	e	bowl, pointed rim
	A03	Type 5	e	bowl, pointed rim
1075	A03 05.22	Type 6	k	la bowl, collared rim
1076	A03 05.24	Type 6	g	bowl, rounded collared rim
1077	A03 05.23	Type 6	j	la bowl, collared rim, ptd
1078	A03 05.24	Type 6	j	la bowl, rounded collared rim, ptd
1079	A03 05.23	Type 6	a	la bowl, rounded collared rim, ptd
1080	A07 07	Type 6	x	la bowl, rounded rim
1081	A03 05.23	Type 6	a	la bowl, rounded base
1082	A03 05.17	Type 6	a	la bowl, rounded base
1083	A03 05.21	Type 6	j	la bowl, rounded collared rim, ridged body, flat base, ptd int.

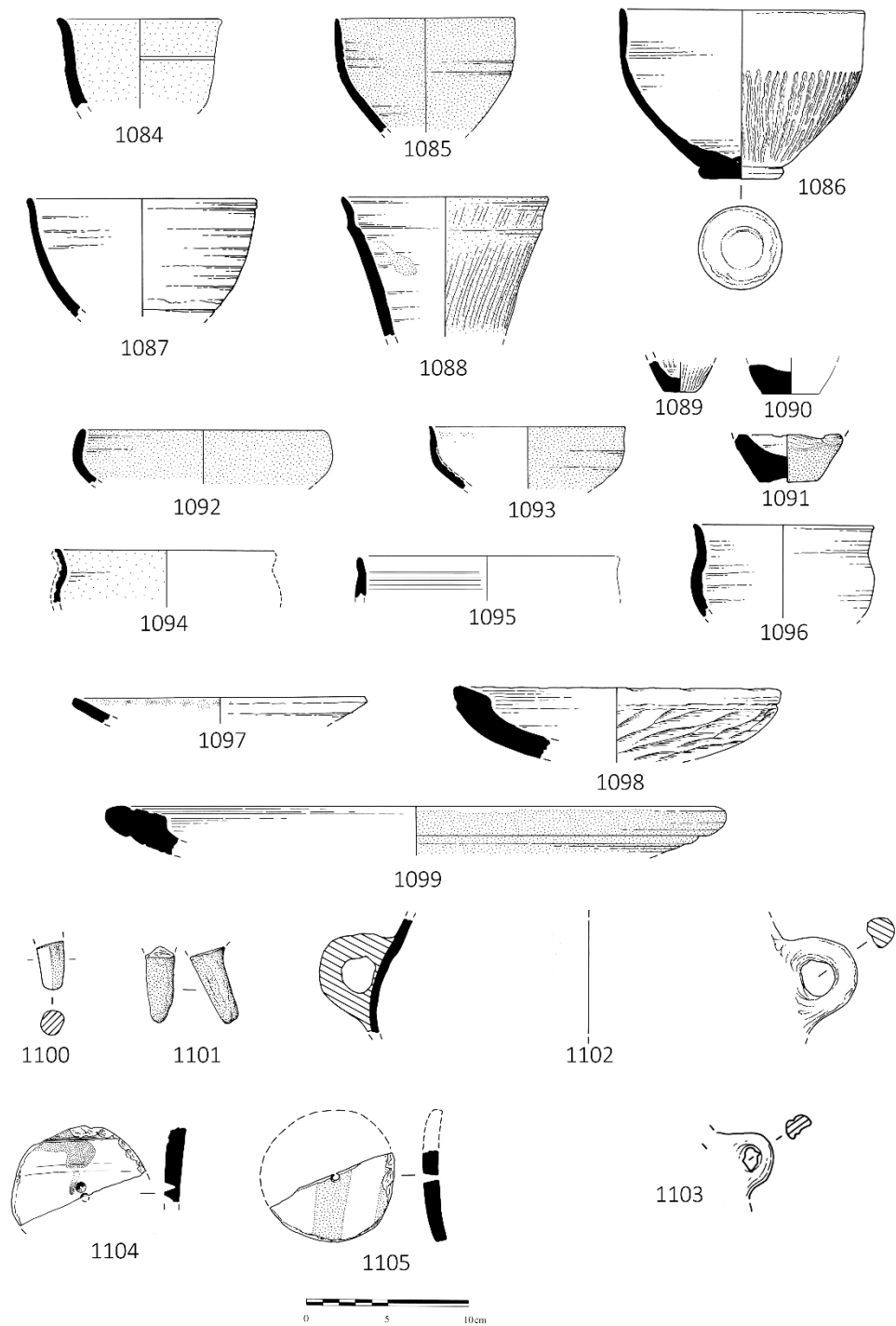


Figure 111 Goblets and miscellaneous forms

CATN.	Provenance	Type	Fabric	Description
1084	A07 004pakhsa	E	f	goblet, rounded slightly flared rim, a groove on the body
1085	A03 05.25	E	d	goblet, pointed rim, conical body with grooves
1086	A03	E	f	goblet, pointed rim, conical body, disc base
1087	A03	E	d	goblet, rounded rim thin wall
1088	A03 05.21	E	f	goblet, pointed slightly out-curved rim with a slight ridge, conical body
1089	A03	E	d	goblet, flat base
1090	A07 07	E	h	goblet, flat base
1091	A03	E	f	goblet, flat base
1092	A03 05.22	E	d	goblet, inverted rounded rim, shallow body
1093	A03 05.24	E	d	goblet, straight, rounded rim, carinated body
1094	A03 05.18	E	d	goblet, out-curved, pointed rim
1095	A03	E	d	goblet, pointed slightly out-curved rim
1096	A03	E	d	goblet, pointed slightly out-curved rim
	A03	E	d	goblet, pointed slightly out-curved rim
	A03	E	d	goblet, concave base
	A07 02.002	E	d	goblet
1097	A03 05.23	F	d	goblet, rounded rim, conical body
1098	A03 05.18	F	g	plate, internally bevelled rim, thickened wall
1099	A03 05.25	F	d	plate, internally bevelled rim, thickened wall
1100	A03 05.04	F	f	foot
1101	A03	F	d	foot
1102	A03	F	e	jar, rounded body with two loop handles
1103	A03 05.26	F	g	jar, loop handle
1104	A03 05.23	F	a	spindle whorl
1105	A03 05.23	F	a	spindle whorl

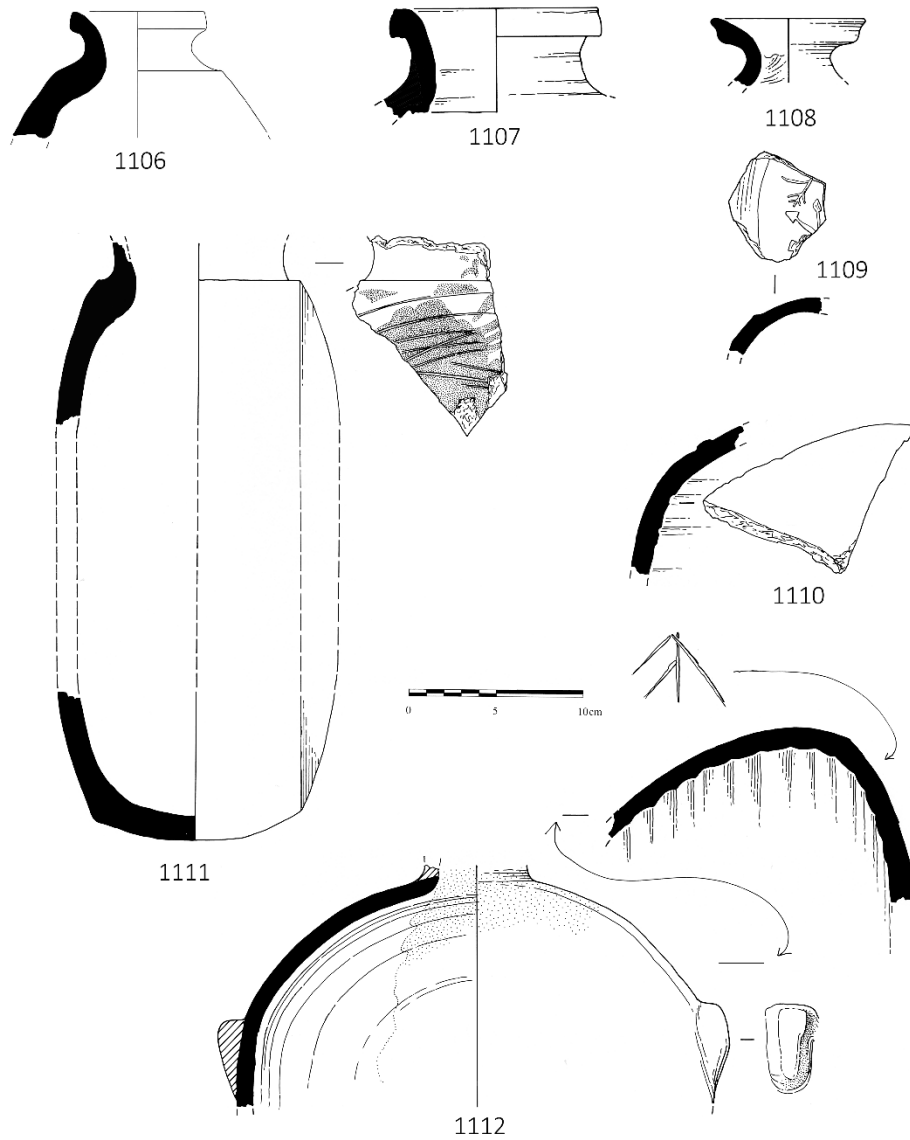


Figure 112 Pilgrim flasks

CATN.	Provenance	Type	Fabric	Description
1106	A03	F	d	flask, collared rim, narrowed neck
1107	A03	F	d	flask, flattened, squared rim
1108	A03	F	g	flask, sub-triangular, flaring rim
1109	A03	F	f	flask? bas relief decoration
1110	A03 05.16	F	d	flask? shoulder
1111	A03 05.US	F	a	flask, body
1112	A03 05.18	F	d	flask, body with two lug handles

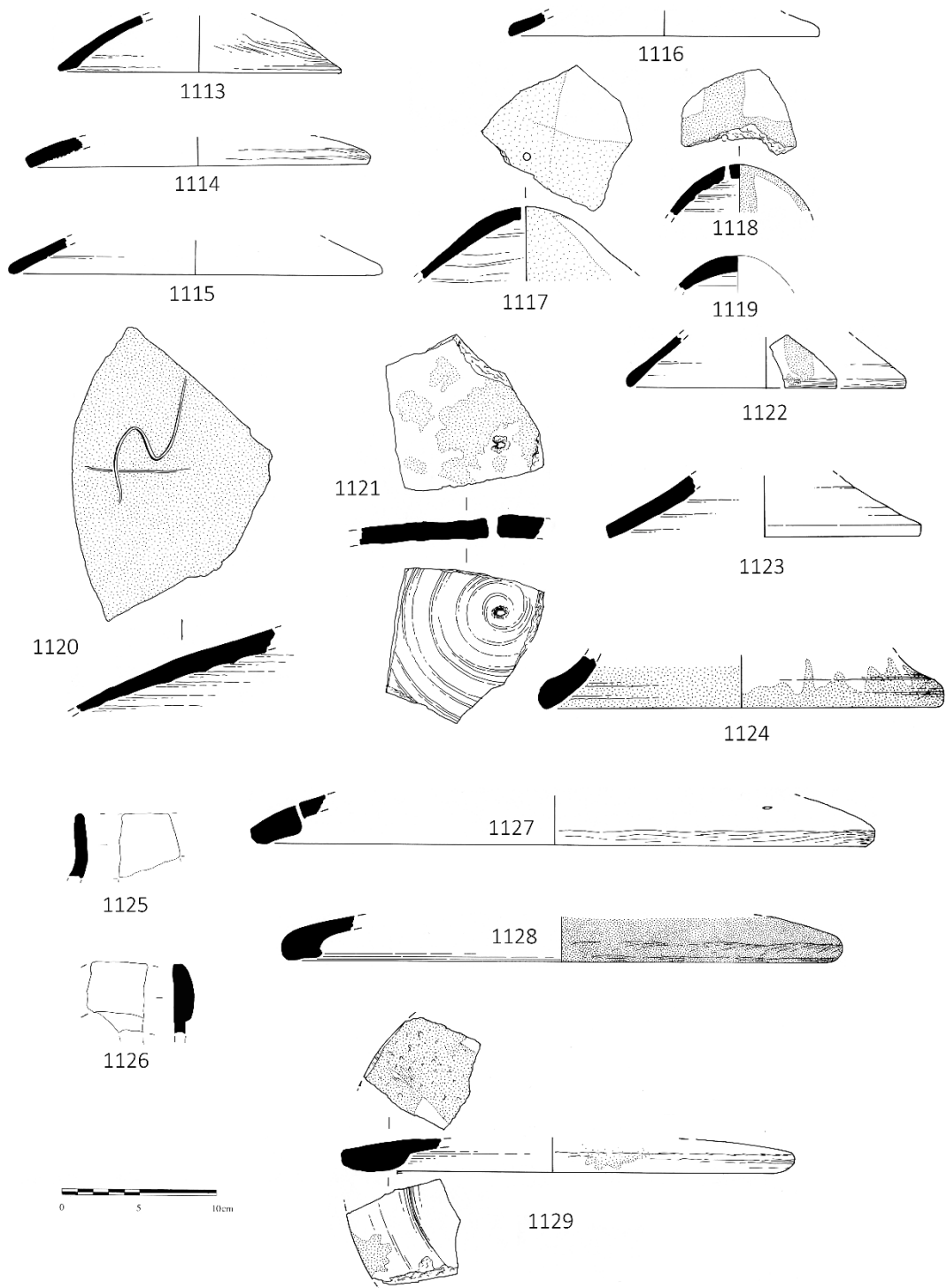


Figure 113 Lids

CATN.	Provenance	Type	Fabric	Description
1113	A03 05.04	F	c	lid, conical-shaped
1114	A03 05.04	F	e	lid, conical-shaped
1115	A03 05.16	F	k	lid, conical-shaped
1116	A03 05.24	F	h	lid, conical-shaped
1117	A03 05.22	F	j	lid, conical-shaped, ptd
1118	A03 05.18	F	a	lid, conical-shaped, ptd
1119	A03	F	d	lid, conical-shaped
1120	A03 05.23	F	d	lid, with a mark
1121	A03 05.26	F	d	lid
1122	A03 05.US	F	j	lid, conical-shaped, ptd
1123	A03	F	g	lid, conical-shaped
1124	A08	F	d	lid, conical-shaped
1125	A03	F	f	lid
1126	A07	F	k	lid
	004pakhsa			
1127	A03 05.US	F	h	lid
1128	A03 05.US	F	d	lid
1129	A03 05. UF	F	a	lid, ptd

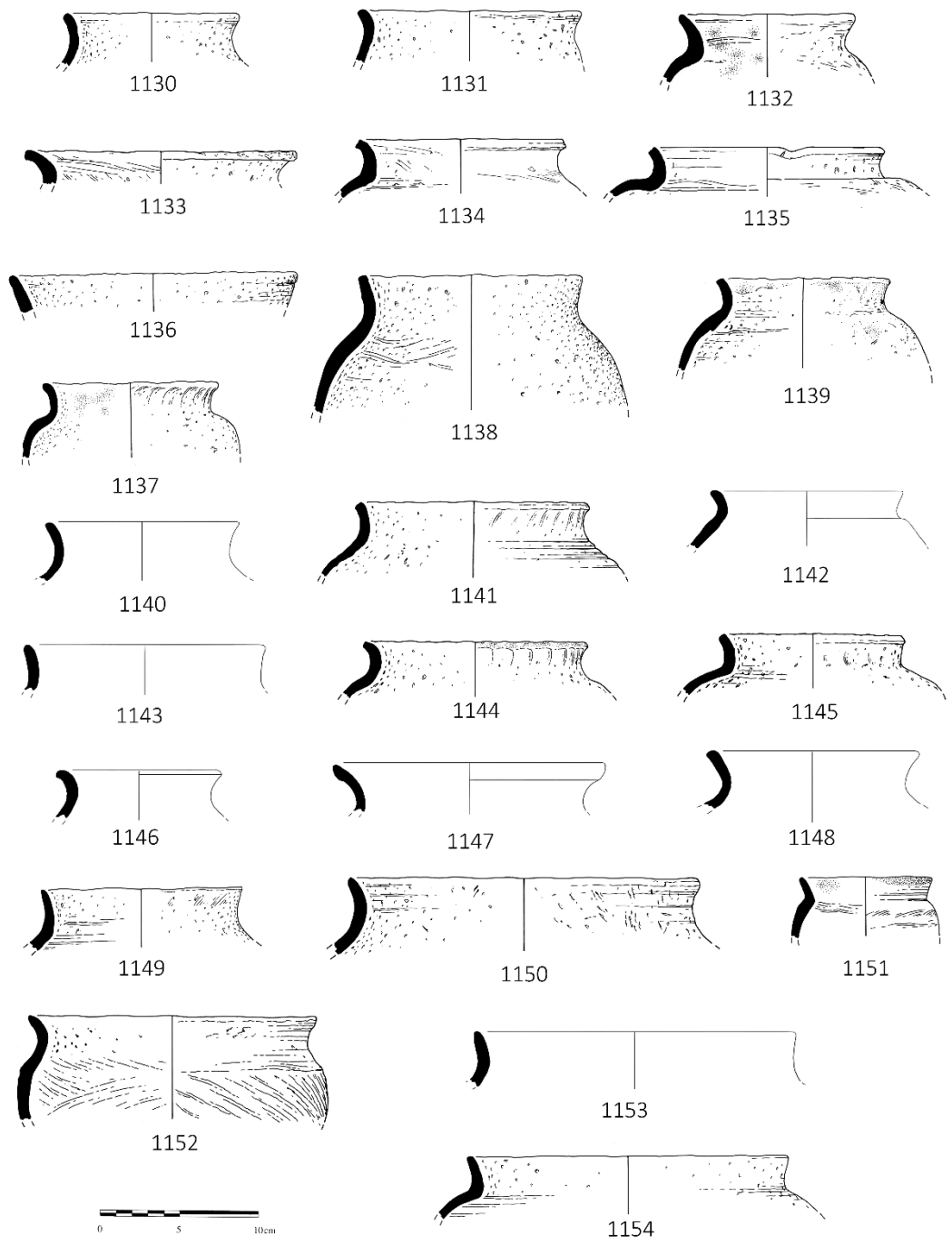


Figure 114 Cooking pots

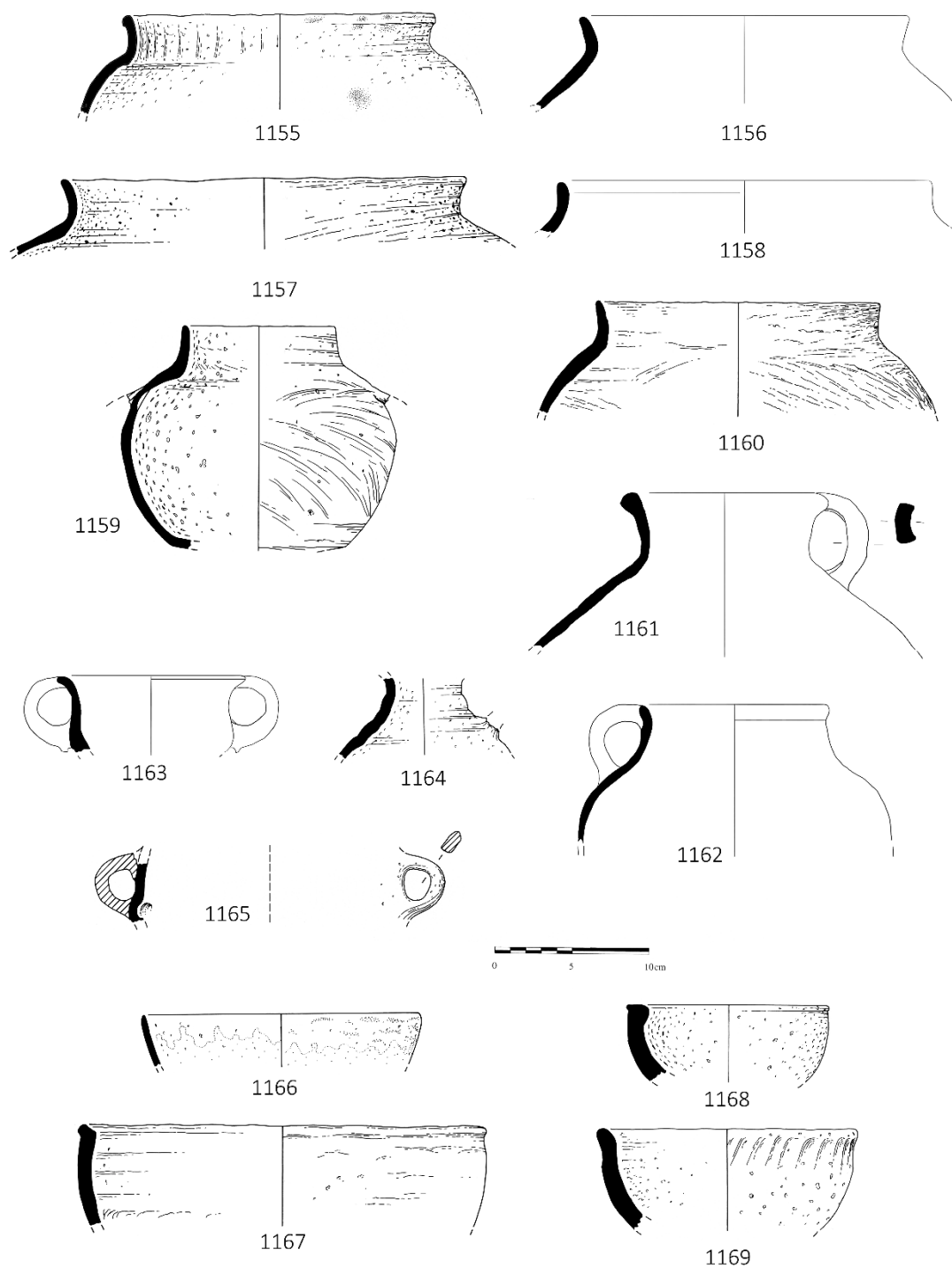


Figure 115 Cooking pots

CATN.	Provenance	Type	Fabric	Description
1130	A03 05.16	F	o	cooking pot, everted, rounded rim
1131	A03 05.16	F	b	cooking pot, everted, rounded rim
1132	A03 05.23	F	b	cooking pot, everted, rounded rim

1133	A03 05.24	F	b	cooking pot, flared, squared rim
1134	A03 05.23	F	b	cooking pot, everted, squared rim
1135	A03 05.23	F	b	cooking pot, everted, squared rim, slightly cropped
1136	A03 05.17	F	c	cooking pot, rounded everted rim
1137	A03 05.25	F	b	cooking pot, everted, rounded rim
1138	A03 05.24	F	b	cooking pot, squared rim
1139	A03 05.24	F	b	cooking pot, everted, squared rim
1140	A03	F	o	cooking pot, everted and rounded rim
1141	A03 05.25	F	o	cooking pot, everted rim
1142	A03	F	b	cooking pot, everted and rounded rim, a ridged under neck
1143	A03	F	b	cooking pot, slightly everted, rounded rim
1144	A03 05.US	F	o	cooking pot, everted, squared rim
1145	A03 05.US	F	o	cooking pot, everted, rounded rim
1146	A03	F	e	cooking pot, everted and rounded rim
1147	A03	F	b	cooking pot, everted and rounded rim
1148	A03	F	i	cooking pot, everted and rounded rim
1149	A03 05.US	F	o	cooking pot, everted, rounded rim
1150	A03 05.25	F	b	cooking pot, flared rim
1151	A03 05.US	F	c	cooking pot, everted, rounded rim
1152	A03	F	b	cooking pot, everted and rounded rim, globular body
1153	A03	F	b	cooking pot, slightly everted, rounded rim
1154	A03 05.US	F	o	cooking pot, everted rim
1155	A03 05.24	F	b	cooking pot, everted, rounded rim
1156	A03	F	b	cooking pot, everted rim
1157	A03	F	i	cooking pot, everted and rounded rim
1158	A03	F	o	cooking pot, everted and rounded rim
1159	A03 05.US	F	o	cooking pot, vertical rim, two handles globular body with two handles, flat base
1160	A08	F	o	cooking pot, everted rim
1161	A07 02.004	F	o	cooking pot, everted rim with a strap handle
1162	A07 07	F	x	cooking pot, rounded rim with a handle
1163	A03	F	b	cooking pot, everted, rounded rim with loop handle
1164	A03 05.25	F	b	cooking pot, narrowed neck, one handle
1165	A03 05.US	F	i	cooking pot, loop handle on the body
1166	A03 05.23	F	c	cooking pot, rounded rim
1167	A03	F	h	cooking pot, everted rim
1168	A03 05.16	F	o	cooking pot, flattened rim
1169	A03 05.24	F	o	cooking pot, rounded rim, thickened wall

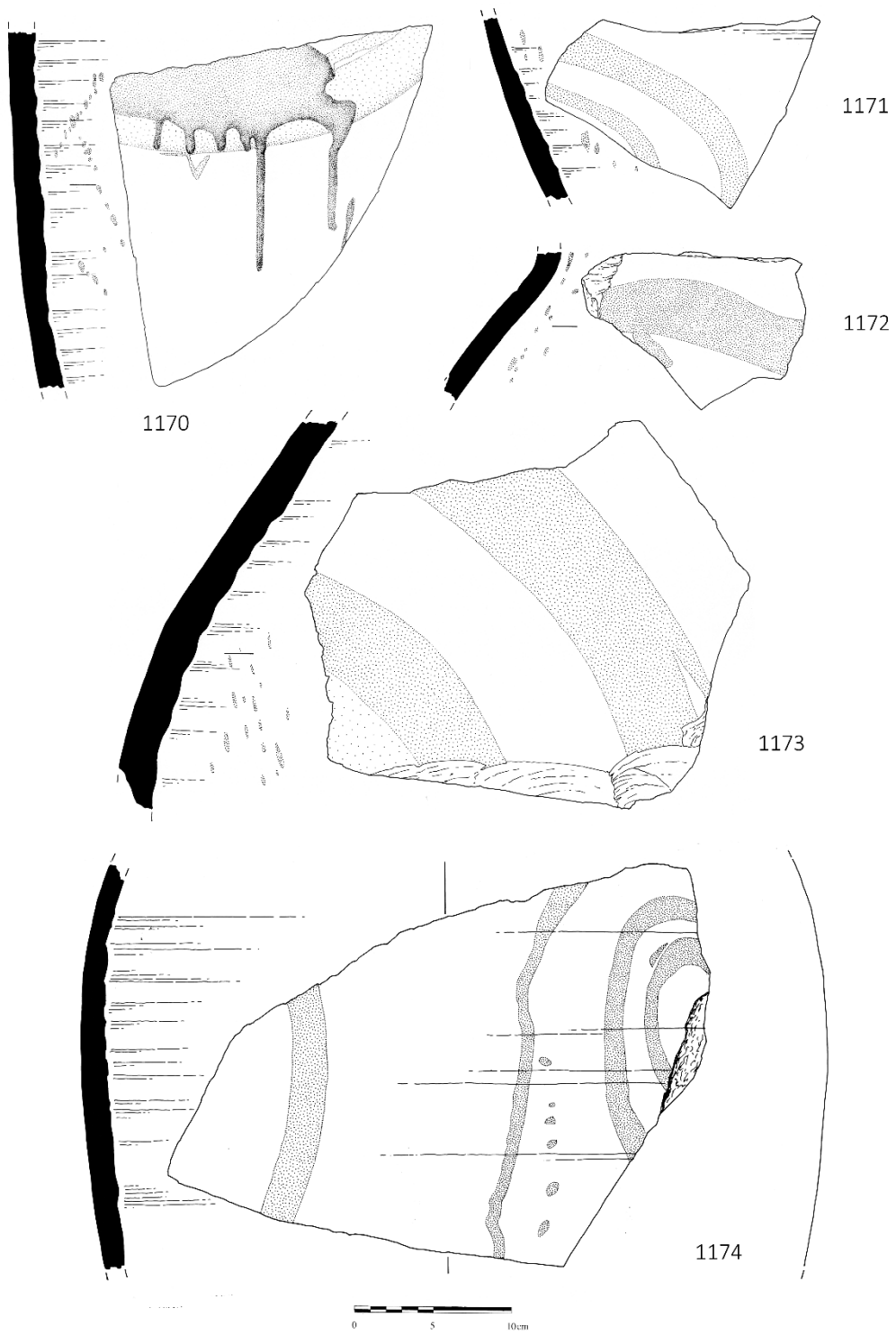


Figure 116 Painted body sherds

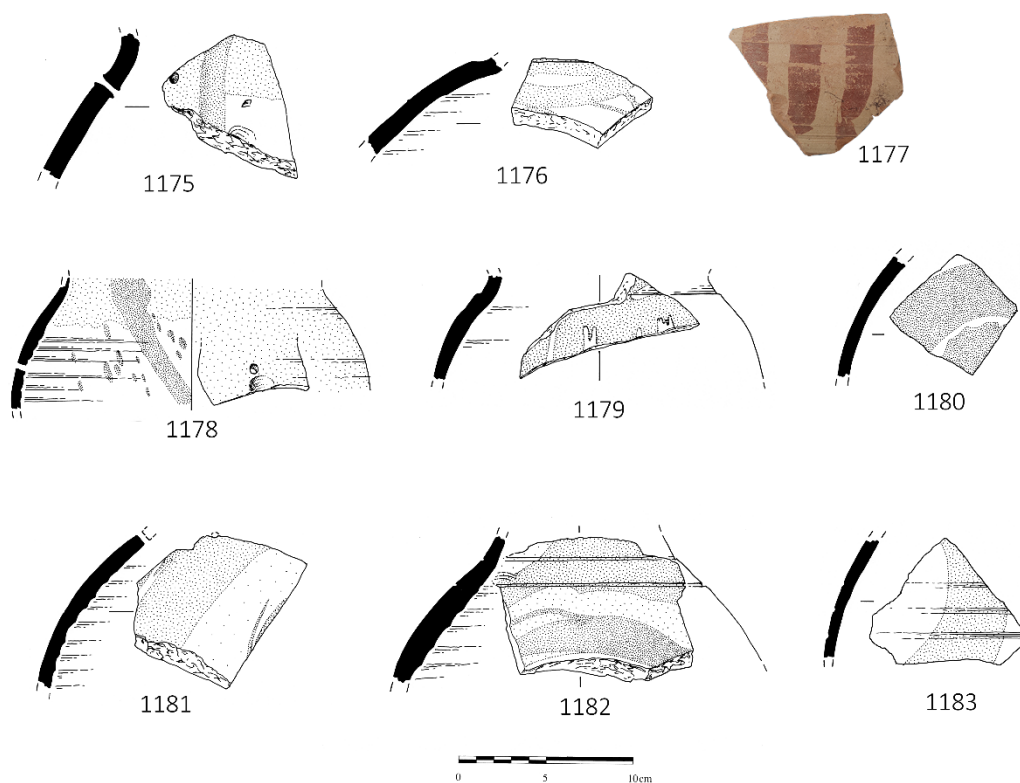


Figure 117 Painted body sherds

CATN.	Provenance	Type	Fabric	Description
1170	A03 05.18	A	a	la jar, ptd body
1171	A03 05.18	A	a	la jar, ptd body
1172	A03 05.US	A	j	la jar, ptd body
1173	A03 05.US	A	a	la jar, ptd body
1174	A08	A	a	la jar, ptd body
1175	A03 05.08		a	ptd body
1176	A03 05.16		j	md jar, ptd body
1177	A03		a	jar, ptd body
1178	A03 05.10		d	jar
1179	A03 05.24		a	jar, ptd body
1180	A03 05.16		a	jar, ptd body
1181	A03 05.16		a	jar, ptd body
1182	A03 05.18		j	jar, shoulder with grooves, ptd
1183	A03 05.16		j	jar, ptd body

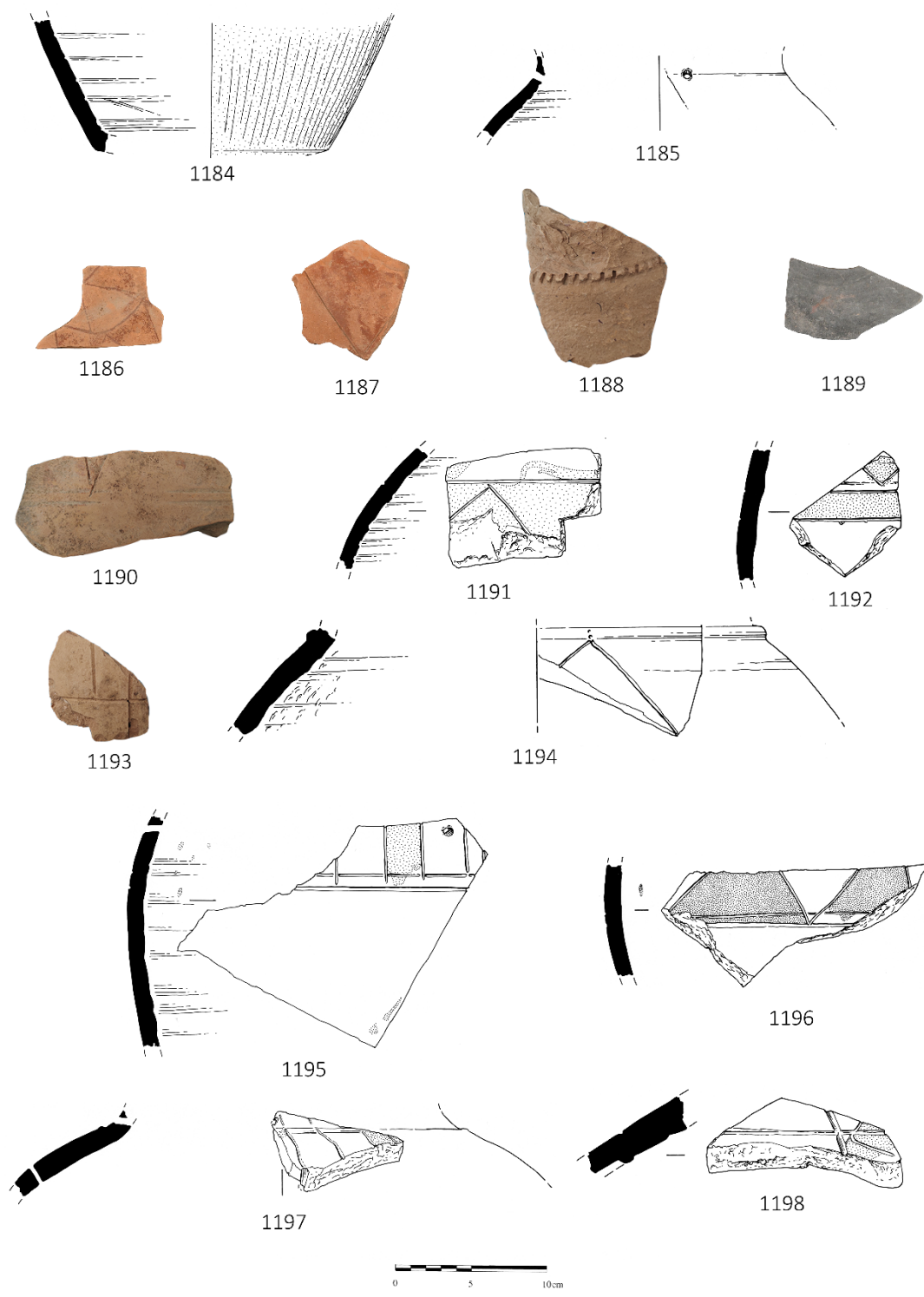


Figure 118 Body sherds

CATN.	Provenance	Type	Fabric	Description
1184	A03 05.08		d	jar, vertically burnished, flat base
1185	A03 05.12		x	jar, shoulder with a pe-firing hole
1186	A03		j	body, ptd with incisions
1187	A03		j	jar, ptd body with incisions
1188	A03		k	body with indentation impressions
1189	A07 01.000		l	
1190	A03		k	jar, body with zigzag incisions
1191	A03 05.23		j	body, ptd, zigzag incisions
1192	A08		j	jar, ptd body with zigzag incisions
1193	A03		g	jar, body with geometric incisions
1194	A03		j	jar, ridged shoulder with zigzag incisions
1195	A03 05.21		a	jar, body with geometric incised patterns, ptd
1196	A03 05.18		a	jar, body with ptd zigzag incisions
1197	A03 05.16		a	jar, shoulder with geometric incisions, ptd
1198	A03 05.UF		j	jar, body with incisions, ptd

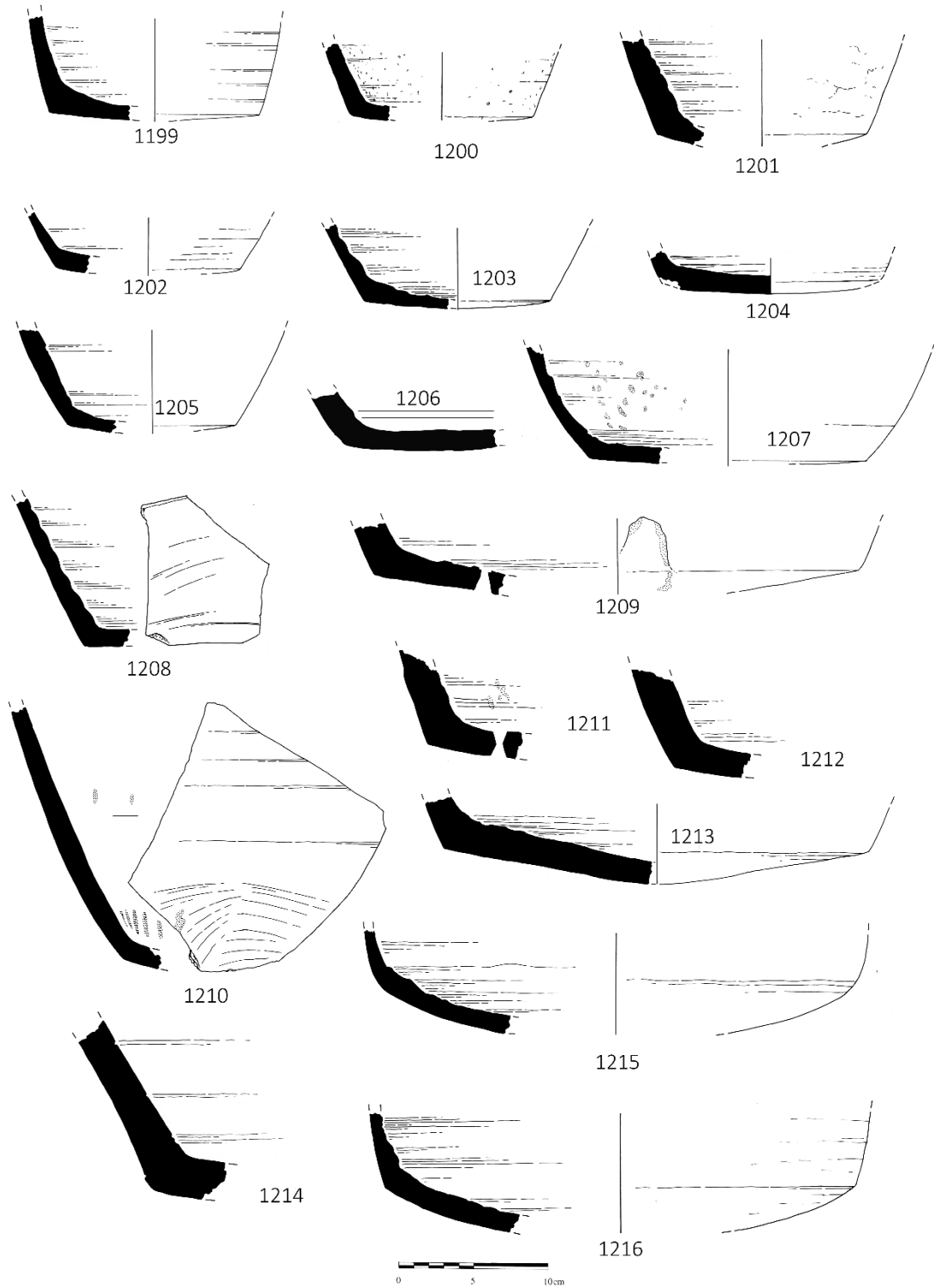


Figure 119 Bases

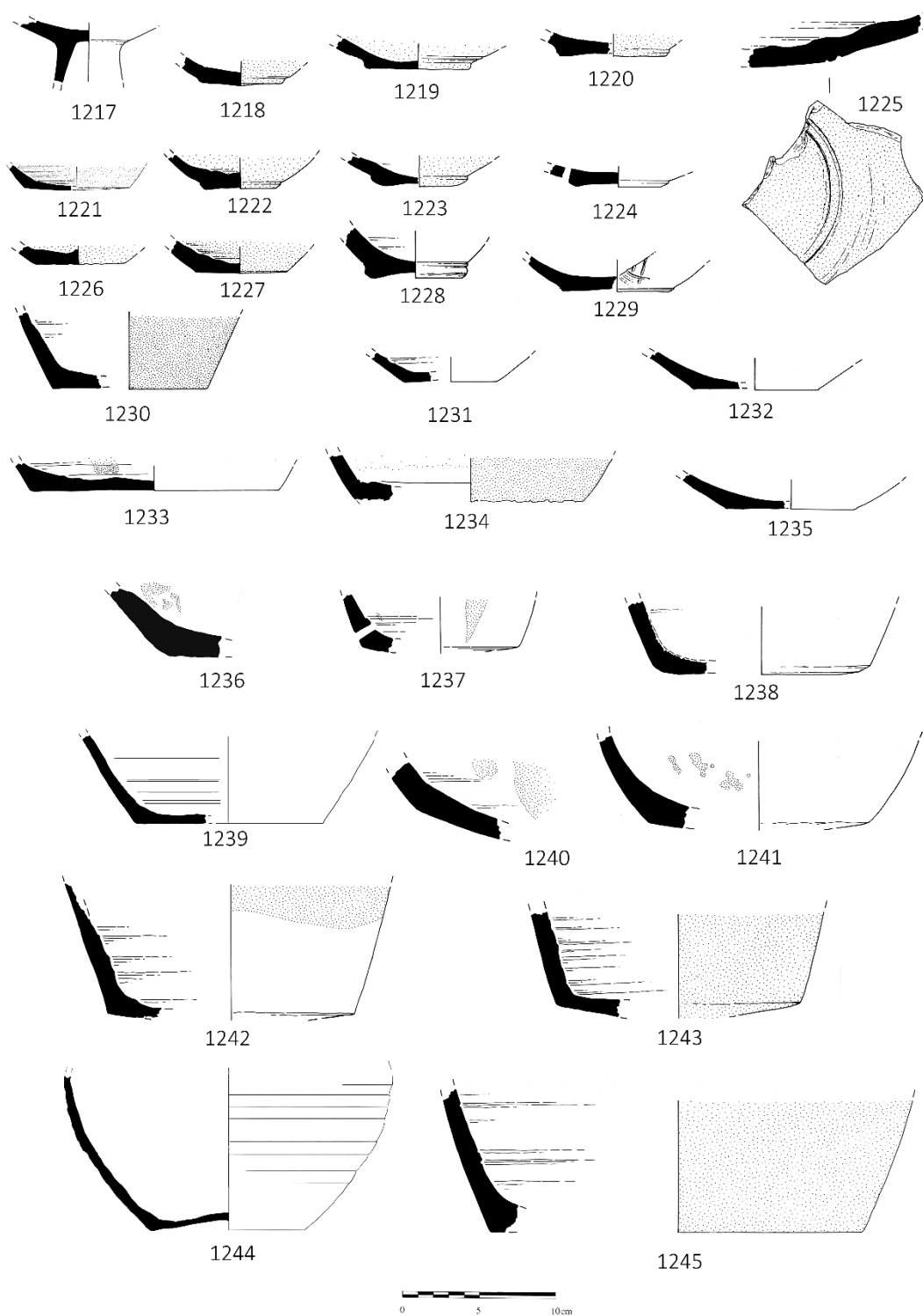


Figure 120 Bases

CATN.	Provenance	Type	Fabric	Description
1199	A03 05.US		g	flat base
1200	A03 05.02		o	flat base
1201	A03 05.24		x	flat base

1202	A03 05.18		g	flat base
1203	A03 05.16		g	jar, flat base
1204	A03 05.17		h	flat base
1205	A03 05.12		g	flat base
1206	A03 05.18		g	jar, flat base
1207	A03 05.US		a	flat base
1208	A03 05.19		d	jar, flat base
1209	A03 05.25	A	j	la jar, convex base
1210	A03 05.19	A	d	la jar, convex base
1211	A03 05.26	A	j	la jar, flat base
1212	A03 05.26	A	h	la jar, flat base
1213	A03 05.25	A	k	la jar, convex base
1214	A03 05.17	A	x	la jar, flat base
1215	A03 05.21		x	rounded base
1216	A03 05.23		x	rounded base
1217	A03 05.US		k	pedestal base
1218	A03 05.16	D	d	bowl, disc base
1219	A03 05.16	D	d	bowl, disc base
1220	A03 05.16	D	d	bowl, disc base
1221	A03 05.23		d	flat base
1222	A03 05.24		d	flat base
1223	A03 05.17	D	d	bowl, ring base
1224	A03 05.US	D	d	bowl, ring base
1225	A03 05.24	D	d	bowl, disc base
1226	A03 05.17	D	d	bowl, flat base
1227	A03 05.23		d	bowl? flat base
1228	A03	D	d	bowl, ring base
1229	A03 05.16	D	d	bowl, disc base, incised mark near the bottom
1230	A03 05.18	D	d	bowl, ring base
1231	A03 05.17	D	h	bowl, flat base
1232	A03 05.22		d	flat base
1233	A03 05.24		j	flat base
1234	A03 05.16		d	flat base
1235	A03 05.16		g	bowl, flat base
1236	A03 05.26		a	flat base
1237	A03 05.16		a	flat base, ptd
1238	A03 05.23		x	flat base
1239	A07 02.004		d	jar, flat base
1240	A03 05.26	D6	j	la bowl, convex base, ptd int.
1241	A03 05.23		d	flat base
1242	A03 05.16		j	jar, flat base, ptd
1243	A03 05.19		d	jar, flat base
1244	A07 04		x	jar, concave base
1245	A03 05.24		d	flat base

