

**T TYPOLOGY AND CHRONOLOGY OF CERAMICS  
OF BACTRA, AFGHANISTAN 600 BCE-500 CE**

**by**

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*for Edna Maxwell*

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## **ABSTRACT**

Bactra was the capital of Bactria during the Achaemenid and Seleucid periods, as well as the capital city of the Graeco-Bactrian Empire. It remained one of the most populous cities in pre-Islamic Central Asia and was a center of trade along the Silk Route until its destruction by Genghis Khan in the 13<sup>th</sup> century CE. Despite its prominence, archaeological excavation has only recently reached its ancient phases.

This dissertation presents a typology and chronological sequence of the ceramic corpus of Bactra found during the 2004-2008 excavations by the French Archaeological Delegation. It constitutes the results of my analysis of ca. 30 metric tons of pottery over four field seasons, a quantity that allowed for greater chronological and typological resolution than was previously possible. Thirteen common ceramic fabrics were identified, and 177 rim types and 40 base types were delineated. Subsequent statistical analysis of co-occurrence using multi-dimensional scaling produced a chronological sequence of six major phases, each with three subphases.

Contextualization of these ceramic phases within the broader historico-political setting of Central Asia highlights several trends of Bactra's ceramic traditions that have implications for understanding its role in the region. The previously unknown Achaemenid-era material from Bactra is largely homogenous with a narrow range of shapes, as well as consistent vessel dimensions and firing practices. The ceramics of the Hellenistic period exhibit significant functional and stylistic changes that are likely indicative of a shift in dining habits. The Hellenistic ceramics were similar in character to those of other large city sites in Bactria and Sogdiana, yet distinctly different from the elite Greek wares found at Ai Khanoum, suggesting that Ai Khanoum, not Bactra, is the outlier. Many ceramic aesthetics that were introduced during the Hellenistic period were retained and adapted in the Nomadic and Kushan periods. During the Kushan and Kushano-Sasanid periods a new standardization of forms, decoration, and production technique reasserted itself.

In sum, this dissertation provides a more refined and accurate dating of Bactra and its environs and lays the groundwork for research on regional and long distance trade in the region.

## خلاصه

این پایان نامه بر توپولوژی و تسلسل زمانی مجموعه سفالی (سرامیک) از شهر باختر متمرکز می باشد که بین سال های دوهزار چهارده تا دوهزار هشت در پی حفاریات هیئت باستانشناسان فرانسه بدست آمده است. شهر باختر پایتخت ولایت باختر در زمان حکمروایی سلسله هخامنشیان و سلوکیان و پایتخت سلطنت یونان باختری بود. شهر باختر تا زمان تخریب آن توسط چنگیز خان در قرن سیزدهم بعد از میلاد یکی از پر جمعیت ترین شهر های آسیای میانه و مرکز تجارت در امتداد جاده ابریشم بود. با وجود موقعیت و جایگاه ویژه شهر باختر در تاریخ، حفاریات باستانشناسی فقط در سال های اخیر برای کشف دوره های باستانی آن شهر انجام شده است.

این مطالعه در جریان چهار فصل بررسی حدود 30 متریک تن سفالی در ساحه انجام یافته است. مقدار این سفالی ها زمینه تحلیل و بررسی بیشتر در مورد تسلسل زمانی و توپولوژی آن را نسبت به هر زمان دیگر میسر ساخته است. در جریان این مطالعه چهارده سبک معمول سفالی شناسایی شد و همچنین 177 نوع لبه و 40 نوع قاعده سفالی نیز تشخیص گردید. تحلیل احصایوی همزمان بودن این نوع سفالی ها با سایر داشته های باستانشناسی، یک تسلسل زمانی شش مرحله ای را ایجاد کرد که هر مرحله آن به نوبه خود دارای سه مرحله فرعی جداگانه است. این پروژه با قرار دادن این مراحل تولید سفالی ها در محیط گسترده تر آسیای میانه، چندین جوانب نقش شهر باختر را در منطقه بیان می کند.

این مطالعه به طور مشخص دیدگاه های جدیدی را پیرامون سنن تولید سفالی هخامنشیان از طریق آسیای میانه تحت تسلط کوشانیان ساسانیان در موارد ذیل ارائه می کند:

ارتباط عناصر و مواد هخامنشیان با شهر باختر که در گذشته نامعلوم بود. یک سنت بیشتر همگون با شکل های باریک و معیاری سازی پختن و ابعاد ظروف تغییرات گسترده وظیفوی و سبکی عصر هلنی که تغییر را در عادات غذا خوری نشان می دهد ویژگی بیشتر محلی این عصر هلنی و تفاوت آن با افزار و آلات نخبگان یونانی که در آی خانم دریافت شده است دوام علاقمندی به زیبایی سفالی هلنی در عصر کوچیگری و کوشانی و معیاری شدن شکل و تزیین و ساحات تولید در جریان عصر کوشانیان و کوشانی ساسانی.

این مطالعه توپولوژی و تسلسل زمانی بر علاوه تاریخ گذاری بیشتر دقیق شهر باختر و اطراف آن، زمینه مطالعات و تحقیقات بیشتر را در این ساحه کمتر شناخته شده مساعد می کند.

## РЕФЕРАТ ДИССЕРТАЦИИ

Типология и хронология керамики из Бактры, Афганистан,  
600 г. до н.э. до 500 н.э.

Эта диссертация развивает типологию и хронологический порядок большого керамического корпуса из Бактры, найденный в течение 2004-2008 раскопов, которые выполняла Французская археологическая делегация. Бактра являлась столицей Бактрии во время государства Селевкидов и держава Архменидов, а также столицей Греко-Бактрийского царства. Она являлась одним из самых густонаселенных городов в Центральной Азии и центром торговли вдоль Шелкового пути до её разрушения Чингисханом в 13 веке нашей эры. Несмотря на известность Бактры, археологические раскопы только недавно достигли древних периодов города.

Это изучение было достигнуто в течение четырех сезонов местного анализа примерно 30 метрических тонн керамики, объём которой позволил более значительное хронологическое и типологическое разложение, чем было возможно ранее. Четырнадцать общеизвестные керамические материалы были выявлены; 177 видов обода и 40 видов базы были разграничены. Статистический анализ совместного появления этих типов в археологических отложениях производил хронологический порядок шести значительных фаз, каждая имеющая три участки. При помощи контекстуализации этих керамических фаз в более широком контексте Центральной Азии, этот проект уточняет некоторые аспекты роли Бактры в регионе.

В частности, это изучение предлагает новый взгляд на керамические традиции Ахеменидской до Кушано-Сасидской Центральной Азии на предметы: ранее неизвестный Ахеменидский материал из Бактры, в основном однородная традиция, имеющая узкий диапазон форм и стандартизацию огневых размеров и размеры сосудов; великие функциональные и стилистические изменения эллинистического периода, которые указывают сдвиг столовых привычек; в основном локальный характер этого эллинистического периода и его отличие от элитных греческих изделий, обнаруженные на Ай Ханум; продолженная, но адаптированная, любовь к эстетике эллинистической керамики в кочевых и Кушанских периодах; стандартизация форм и украшений, и вероятные производственных площадок в Кушанских и Кушано - Сасанидских периодах.

В дополнение к возможности более рафинированного и точного определения возраста самой Бактры и её окрестностей, эта типология и хронологический порядок дают основу для дальнейших исследований в этой малопонятной области.



## CHAPTER ONE

### BACKGROUND AND SCOPE OF RESEARCH

#### **Bactria as Center and Periphery**

Ancient Bactria was situated north of the Hindu Kush Mountains and south of the Oxus River, in modern Afghanistan, at the crossroads of overland trade routes, east and west between China, Mesopotamia, and the Mediterranean, north and south between the nomadic Siberian tribes and South Asia. In addition to being a hub of cross-continental trade, for much of its history Bactria was highly urbanized in its own right.<sup>1</sup> Dubbed the “land of a thousand cities” in the classical periods and “mother of cities” in Islamic periods, Bactria was claimed by a long succession of empires.<sup>2</sup> Sometimes on the frontier of an empire, 5000 kilometers from the capital, other times the heartland of the imperial dynasty itself, Bactria was home to intermingling populations of nomadic and sedentary peoples, a wide array of cultures and religions, and natural resources that allowed its inhabitants to flourish over thousands of years.

Bactria’s exceptional placement at the juncture of so many empires, cultures, and transshipment routes makes it an ideal subject for research on frontier zones, borderlands, and imperial dynamics. Detailed study of the area, however, has been hindered both by the dearth of literary and documentary sources and, ironically, by the

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<sup>1</sup> The city of Bactra’s citadel walls, which date back to the Achaemenid period, are expansive, over 1.5 km in diameter. Unpublished survey data have identified at least 300 Achaemenid and Hellenistic sites of occupation in the modern provinces of Balkh and Kunduz.

<sup>2</sup> Strabo 15.1.3 and Justin 41.4.6. The Arabic *umm al-belaad* can mean “mother of lands” or “mother of states.” *Belaad* has a variety of uses, from land-based references to countryside to political connotations of country, city, or polity.

barriers posed by the diverse languages and disparate cultures and academic systems of the modern scholars researching it.<sup>3</sup>

Archaeological investigation, although in the unique position to address a broad range of questions, has been stalled by a number of factors. Prominent among these has been scholars' inability, with very few exceptions, to closely date the material culture of the region. The recently excavated corpus of ceramic material from Bactra, the ancient capital of Bactria, is the focus of my research and provides an opportunity to address this problem of dating even as it also offers a set of tools with which to address larger questions of imperial control, cultural exchange, and economic trends.

The province of Bactria, in contemporary Afghanistan, was often a frontier zone of large empires, but the ancient ceramic material of its capital city, Bactra, shows a history of strong local traditions not easily or often swayed by external influence. I provide in support of this statement a complete typology of shapes; an overview and descriptions of fabrics and decorations; and a chronological sequence of the ceramics found at the ancient city of Bactra. I focus on the ceramics from the Achaemenid period, the earliest substantial occupation at the site, through the Kushano-Sasanid period, approximately 6<sup>th</sup> century BCE to 5<sup>th</sup> century CE. I then analyze the ceramics within their broader context of Central Asia to try to understand the dynamic history of Bactra.

Excavations of the walled city of Bactra in the 1920s, 1940s, and 1950s by the French Archaeological Delegation of Afghanistan failed to uncover any substantial Hellenistic era deposits of pottery or architecture.<sup>4</sup> This led to the notion of the

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<sup>3</sup> Frumkin, G. *Archaeology in Soviet Central Asia*. Leiden: Brill, 1970.

<sup>4</sup> Foucher, A. and E. Bazin-Foucher *La vieille route de l'Inde de Bactres à Taxila*. Mémoires de la Délégation Archéologique Française en Afghanistan 1. Paris. Les Editions d'Art et d'Histoire. 1942-1947; Schlumberger, D. "La prospection archéologique de Bactres (printemps 1947) Rapport sommaire," *Syria* 26, 173-190, 1949; Gardin, J.-C. *Céramiques de Bactres*. Mémoires de la Délégation Archéologique

‘Bactrian Mirage’, the belief that the ancient historical sources and Graeco-Bactrian numismatic material were not the tip of an iceberg of Hellenism in Central Asia, but rather a fluke.<sup>5</sup> The discovery of the site of Ai Khanoum, with its markedly Greek architecture, sculpture, inscriptions, and pottery, threw real doubt on this concept of the ‘Bactrian Mirage.’ This project shows that the most recent excavations of Bactra, which did reach Hellenistic period deposits, indicate that its ceramic traditions are not those of a city like Ai Khanoum, which consciously emphasized its Greek institutions and Greek material culture, but rather a city without a great need for the trappings of elite Greek culture.<sup>6</sup> Post-Hellenistic era Bactra shows a rich and continued growth of ceramic traditions through the Nomadic, Kushan, and Kushano-Sasanid periods that borrowed elements of exotic pottery, but remained fundamentally local. To lay the foundations for this work, in the remainder of this chapter I will define the geographical study area, provide a historical overview, and offer a survey of the ceramic data set. I conclude the chapter with an outline of the rest of the dissertation.

Bactria has figured in the western intellectual tradition as a distinct region since

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Française en Afghanistan 15. Paris: Klincksieck, 1957; Le Berre, M. and D. Schlumberger. "Observations sur les remparts de Bactres," in Bruno Dagens, Marc Le Berre and Daniel Schlumberger (eds.), *Monuments préislamiques d'Afghanistan*, 61-102. (Mémoires de la Délégation Archéologique Française en Afghanistan 19.) Paris: Klincksieck, 1964.

<sup>5</sup> Hellenism and Hellenization are problematic concepts because they assume certain power relationships between the peoples and cultures involved. Rachel Mairs has addressed some of the pitfalls of the use of these terms in: Mairs, R. "Hellenization," in (eds) Roger Bagnall, Kai Brodersen, Craig B Champion, Andrew Erskin, and Sabine R Huebner. *The Encyclopedia of Ancient History*. Oxford: Wiley-Blackwell, 2012; Among the first to point out the problems with this concept were: Sherwin-White, S. and E. Kuhrt. *From Samarkand to Sardis*. Berkeley: University of California Press, 1993; and Momigliano, Arnaldo. *Alien Wisdom: The Limits of Hellenization*. Cambridge: Cambridge University Press, 1975.

<sup>6</sup> Our understanding of the early architecture of Bactra is poor and thus far cannot be compared to other, more fully excavated cities such as Ai Khanoum. See Bernard, P., R. Besenval, and P. Marquis. "Du 'mirage bactrien' aux réalités archéologiques: nouvelles fouilles de la DAFA à Bactres." *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 1175-1254. 2007; Besenval, R. and P. Marquis. "Le rêve accompli d'Alfred Foucher à Bactres: nouvelles fouilles de la DAFA 2002-2007," *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 1797-1845. 2007; Besenval, R. and P. Marquis. "Les travaux de la Délégation Archéologique Française en Afghanistan (DAFA): résultats des campagnes de l'automne 2007-printemps 2008 en Bactrien et à Kaboul." *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 973-995. 2008.

at least the Archaic and Classical periods of Greece. The detailed travelogues of Zhang Qian, a 2<sup>nd</sup> century BCE envoy from the Han court, introduced Bactria to the Chinese.<sup>7</sup> Few literary sources come from Bactria itself, but much research has been done on the numismatics and material culture of the region, particularly its art and architecture, and it remains a source of interest for scholars of the Classical Mediterranean as well as those of South Asia, Central Asia, and East Asia. It is my intention to use the ceramic assemblage of Bactra to build on these traditions and provide tangible tools for future research.

## **Introduction to Bactria**

### *Ancient Written Sources*

Ancient literature and coins were the earliest sources for the study of Bactria. While limited in number, they are not inconsequential. Although few written sources relating to Bactria discuss ongoing events, several extant histories discuss events taking place several centuries prior to their writing. Some exceptions to this exist, particularly in the form of Aramaic missives. Below is a summary of extant written sources. Although these sources have been used for research on historical geography, cultural history, and occasionally ethnicity and identity, they do not inform on the quotidian aspects of life in Bactria, nor do they deepen our understanding of the relationship between the political province of Bactria and the zone of shared material culture extending northwards into southern Sogdiana. Nonetheless, it is these written sources combined with numismatics that inform much of the historical overview of Bactria presented below.

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<sup>7</sup> Hill, J. E. *Through the Jade Gate: China to Rome: Volumes I and II to Rome: A Study of the Silk Routes, 1st to 2nd Centuries CE*, Charleston, SC: Booksurge, 2015.

## *Greek, Aramaic, and Latin Sources*

The ancient sources in Greek, Aramaic, and Latin that specifically mention Bactria or are related to that area can be characterized as either epigraphic or literary. Useful inscriptions have been found in Babylon, Kandahar, Ai Khanoum, Dilberjin, Djiga- Tepe, Takht-i-Sangin, Reh, Bajaur, and Besnagar.<sup>8</sup> Classical authors, including those that make only brief mention of Bactria or Bactrians, include Aelian, Ammianus Marcellinus, the author of the *Periplus Maris Erythraei*, Appian, Arrian, Athenaeus, Curtius, Herodian, Justin, Megasthenes, Plutarch, Polybius, and Strabo.<sup>9</sup> These sources are key to our understanding of the Macedonian conquest and other Mediterranean connections.

Frank Holt, in his 1999 *Thundering Zeus: The Making of Hellenistic Bactria*, provides an appendix that contains a portion of the extant ancient sources related to the Hellenistic period.<sup>10</sup> Rachel Mairs, in her 2011 *The Archaeology of the Hellenistic Far East: A Survey*, supplemented this short list of sources, again mostly those that relate to the Hellenistic period, but also included some Achaemenid sources. G. Rougemont (ed) *Corpus Inscriptionum Iranicum Part II: Inscriptions of the Seleucid and Parthian periods and of Eastern Iran and Central Asia* (2012) and F. Canali De Rossi's 2004 *Iscrizioni dello Estremo Oriente Greco: Un Repertorio* and 2007 *I greci in Medio Oriente ed Asia centrale: dalla fondazione dell' Impero persiano fino alla spedizione di*

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<sup>8</sup> Ball, Warwick. *Archaeological Gazetteer of Afghanistan*. Éditions Recherche sur les civilisations. 1982.

<sup>9</sup> McCrindle, John Watson. *The Invasion of India by Alexander the Great*. AMS Press, 1972; McCrindle, John Watson and Ram C. Jain. *McCrindle's Ancient India: As Described by Megasthenes and Arrian*. New Delhi: Today & Tomorrow's Printers & Publishers, 1972; McCrindle, John Watson. *Ancient India As Described in Classical Literature: Being a Collection of Greek and Latin Texts Relating to India, Extracted from Herodotos and Other Works*. New Delhi: Oriental Books Reprint Corp, 1979.

<sup>10</sup> Holt, Frank. *Thundering Zeus: The Making of Hellenistic Bactria*. University of California Press, 1999. Appendix D: pp 174-184. In this appendix he gives sources that relate in some way to the three centuries between Alexander's rule and the Battle of Actium. At this point there is no publication that contains a complete corpus of the literary materials related to Bactria specifically or to the Hellenistic Far East generally.

*Alessandro Magno (550-336 a.C. circa)* provide the most complete collections of Greek inscriptions in Central Asia. Finally, the newest collection of primary sources relating to the period of Macedonian conquest was published in 2012. This is *Ancient Aramaic Documents from Bactria: 4<sup>th</sup> Century B.C.E (Studies in the Khalili Collection)*, edited by Joseph Naveh and Shaul Shaked. This publication sheds some light on the administrative workings of Achaemenid Bactria, in particular its relationship to the capital city.<sup>11</sup>

### *Indian Sources*

A number of Indian sources, many of which are Buddhist edicts, reference foreigners in Bactria. Most are written in Prakrit, but there is evidence of the use of Greek in northern India (modern-day Pakistan). Klaus Karttunen has collected and analyzed many of the Indian inscriptions and texts in the 1989 *India in Early Greek Literature*; and the 1993 “Easternmost Greek Epigraphy”; the 1994 “Yonas, Yavanas, and related matter in Indian Epigraphy”; the 1997 *India and the Hellenistic World* (1997); and the 1999/2000 “King Eucratides in literary sources.” Rachel Mairs supplements these sources in her 2011 publication.

### *Chinese Sources*

The most important Chinese source for ancient Bactria is the account of Zhang Qian, a mid-2<sup>nd</sup> century BCE Han dynasty imperial envoy.<sup>12</sup> Michael Kordosis collected many of the Chinese sources in his 1994 “China and the Greek World: An Introduction to Greek-Chinese Studies with Special Reference to the Chinese Sources”, and Rachel Mairs’ 2011 publication supplements this collection. Tasha Vorderstrasse has conducted

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<sup>11</sup> This is a controversial publication because of the unknown provenance of the documents.

<sup>12</sup> The most recent, and fully annotated, translation is Hill, J. E. *Through the Jade Gate: China to Rome: Volumes I and II to Rome: A Study of the Silk Routes, 1st to 2nd Centuries CE*, Charleston, SC: Booksurge, 2015.

research on Greek artifacts and textual evidence in China, and her forthcoming publication should shed light on this little-studied confluence.

## **Place and History**

### *Geography*

In ancient and modern literature the name “Bactria,” based on the Old Persian name *Bāxtriš*, and Hellenized as Βακτριανή, has been used to refer to a relatively small geographic area in Central Asia (Figure 1) that was the physical location of the Achaemenid and Hellenistic province. The same name was used by the Achaemenids to refer to a larger administrative area that included Bactria, Sogdiana, and Margiana. “Bactria” or the “Graeco-Bactrian Kingdom” refers to the larger area that the Graeco-Bactrian kings conquered in the post-Seleucid period outside of the original heartland or core of the Bactrian plain. At its greatest extent in the 2<sup>nd</sup> century BCE this covered Sogdiana, Bactria, and south of the Hindu Kush into Arachosia and Gandhara.

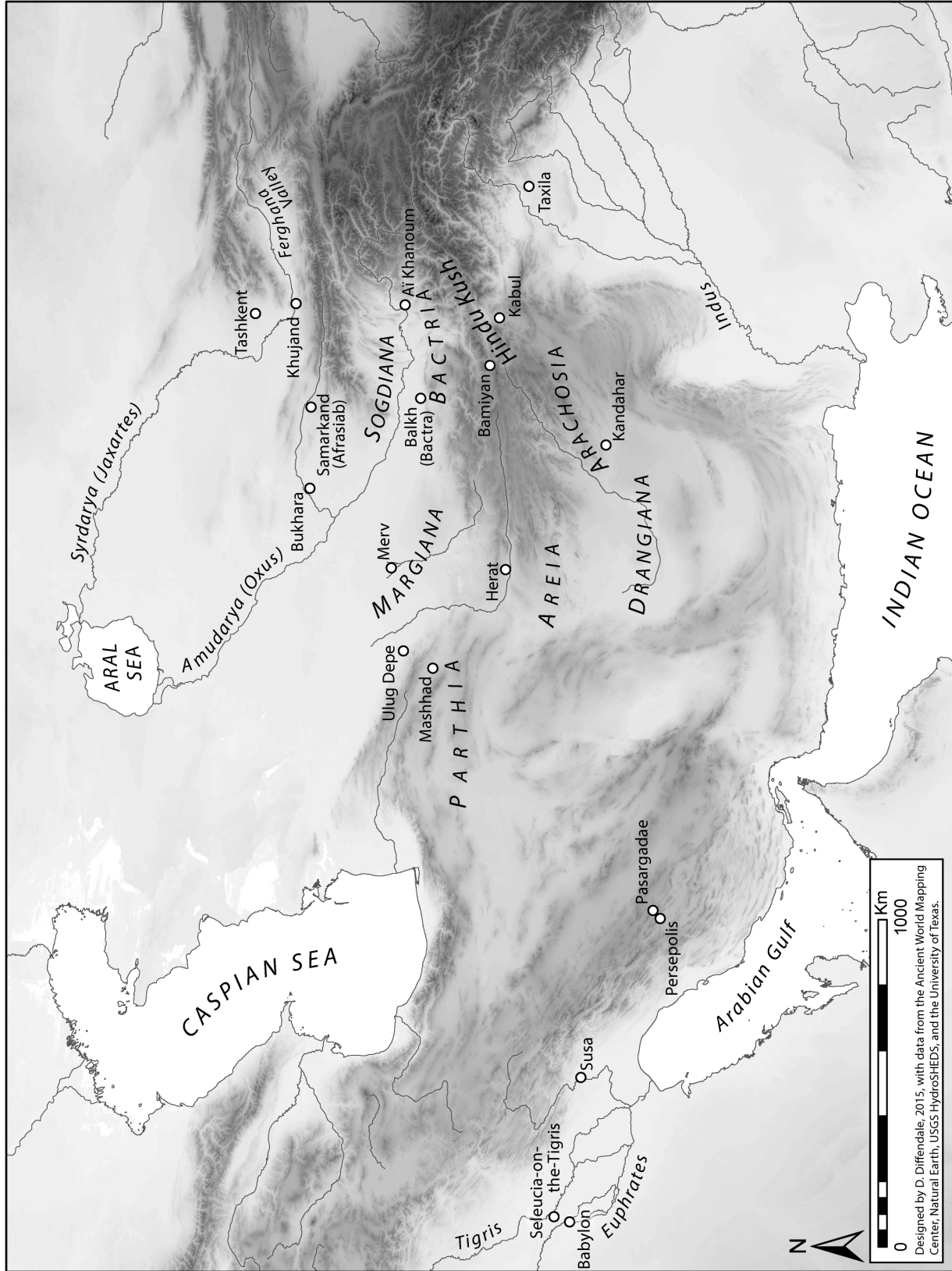


Figure 1: Map of Central Asia



For the purposes of this study I use the term Bactria to refer to the small area that was the Hellenistic province, placed roughly north and west of the Hindu Kush, and south and east of the Oxus River (Figure 2). The Oxus (modern Amudarya) River, running east to west, along with its subsidiaries, creates a plain whose southern portion was the Hellenistic political province of Bactria and whose northern portion belonged to the Hellenistic political province of Sogdiana. This physical description has some problematic aspects, which I address below.

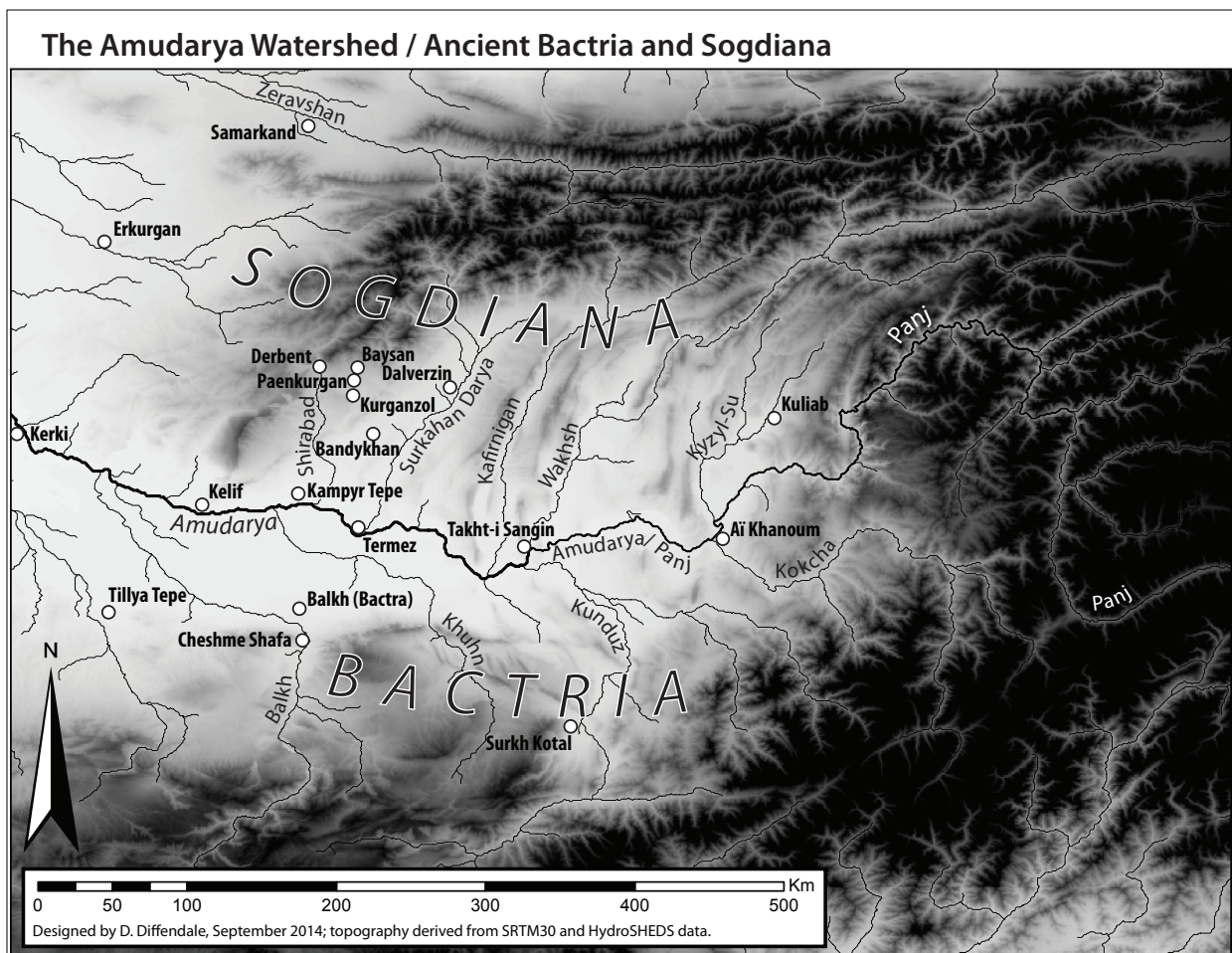


Figure 2: Map of Bactria and Sogdiana

*The Problem of “Northern Bactria”*

The precise location of the political boundaries of Bactria has long been argued,

complicated in part by the fact that these boundaries changed over time as various polities reorganized the region. In particular, whether or not the Oxus River defined the northern boundary during the Achaemenid and Hellenistic periods has been complicated by the conflation of terminology defining political boundaries and terminology defining cultural boundaries.<sup>13</sup> Political boundaries, however, are not the only, or even the most important, defining element of a region. Likewise, while ceramics cannot and should not be used to delineate the northern political border of Bactria, they can help us define the fluctuations of areas of shared material culture. In this dissertation, I use “Southern Sogdiana” to refer to the geographical area sometimes called “Northern Bactria.” I do this because I think it is historically more accurate and geographically more transparent to refer explicitly to the ancient political provinces.

In the 1950’s the Russian scholar M. D’iakonov used the term “Northern” Bactria in print for the first time to refer to the *cultural* zone north of the Oxus River and south of the Hissar Mountains, which he found to share similarities in material culture with the territory south of the Oxus River.<sup>14</sup> Although used initially to refer to a region defined by cultural similarity and not by political borders, over the next few decades D’iakonov’s original cultural concept of Northern Bactria became conflated with the hypothesized political entity of a greater Bactria. Scholarship then began addressing the possibility that the political border of the ancient administrative province of Bactria did indeed lie north of the Oxus River.

Although the term Northern Bactria may have at one time been useful to describe an area of shared material culture, it has become misleading. Specifically, it has come to

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<sup>13</sup> Strabo (11.11.2) states that the Oxus both separates Bactria from Sogdiana and separates the Bactrians from the Sogdians, seemingly addressing both political and ethnic boundaries.

<sup>14</sup> D’iakonov, M. M. 1954. “Rivers unite. Mountains divide.” *Soviet Archaeology* 19: 121-140. Дьяконов, М.М. 1954. Сложение классового общества в Северной Бактрии, *Советская археология* 19: 121-140.

denote an area of shared political control, which is much more problematic.<sup>15</sup> For those scholars intending to refer to shared material culture, using terminology so closely associated with political boundaries creates confusion about the historicity of those boundaries and does not address the nuances of material culture and political entities that were not always in temporal or geographical correspondence.

### *Climate and Resources*

In physical character and climate, Bactria is part of a fertile plain with hot, dry summers (+100 degrees F is common), moderate rainfall in the spring and autumn, and moderately cold winters (25-30 degrees F average). The Oxus River and its tributaries are fed by snowmelt from the Pamir Mountains and provide enough water for extensive irrigation, as has been documented from at least the Iron Age and likely earlier. The flora and fauna of ancient Bactria are known to have been extensive, though unfortunately we do not have much detail about species or varieties. Important mineral resources famously include lapis lazuli, found in the Badakhshan corridor in the

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<sup>15</sup> Most recently, the evidence used in support of a political border that incorporated the space of Northern Bactria has focused on the interpretation of the ancient sources. The identification and placement of the rivers and landmarks mentioned in the military exploits and itineraries of Alexander the Great is key. Also of strategic importance is the name of the city called “Marginia” or “Margania,” which sometimes has been regarded as different from the well-known Margiana of the Merv oasis rather than misspellings of that oasis. These issues are used in tandem, most recently by Claude Rapin, to reinterpret the chronology and itinerary of the Macedonian military campaigns of 328 BCE in order to accommodate a geographical understanding of the Oxus River valley that places the political boundary of the administrative province of Bactria not at the River Oxus, but as far north as the Hissar Mountains. This approach places the entire Oxus River valley within a single administrative province and encompasses a portion of the area earlier conceived as Northern Bactria. C. Rapin, C. “On the way to Roxane: the route of Alexander the Great in Bactria and Sogdiana (328-327 BC)”, in: G. Lindström, S. Hansen, A. Wieczorek, M. Tellenbach (Hrsg.), *Zwischen Ost und West – neue Forschungen zum antiken Zentralasien. Wissenschaftliches Kolloquium 30.09. bis 02.10.2009 in den Reiss-Engelhorn-Museen Mannheim*, Archäologie in Iran und Turan 14, Darmstadt 2013, pp. 43-82. Jeffrey Lerner has recently written on this issue and refutes Rapin’s argument in several important ways. Using research on the manuscript tradition of the misspelled name of Margiana that appears in Curtius as Marginia and Margania, linguistic analysis of the names of the rivers in question, and close readings of the military itineraries, Lerner has persuasively demonstrated that the territory north of the Oxus River was not included in the administrative province of Bactria. Lerner, J. “Which Way North? Retracing Alexander’s Route to Marakanda in the Spring of 328 B.C.E.” forthcoming.

easternmost part of Bactria, as well as gold, silver and tin, though these metals were also found south of the Hindu Kush.<sup>16</sup>

### *Political History*

The earliest period for which there is any evidence of polities with monumental architecture in Bactria is the Bronze Age, when the area was part of what has been termed the Bactria-Margiana Archaeological Complex (BMAC).<sup>17</sup> This archaeological tradition dates from circa 2200-1700 BCE and is defined by large centers and distinctive art, jewelry, and ceramics.<sup>18</sup> Long distance trade between Central Asia, the Far East, the Near East, and India grew during this time, with Bactria firmly a central node.<sup>19</sup> The Late Bronze Age and Iron Age saw the influx of populations from the north with their own pottery traditions and other material, some of which remained important until the Hellenistic period. Although Classical authors discuss a Bactrian kingdom

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<sup>16</sup> Law, Randall. *Inter-Regional Interaction and Urbanism in the Ancient Indus Valley: A Geologic Provenience Study of Harappa's Rock and Mineral Assemblage*. Research Institute for Humanity and Nature, Kyoto. 2011. Based on his dissertation of the same subject, he discusses some sources of lapis lazuli in Afghanistan, but deals primarily with material in modern Pakistan and India.

<sup>17</sup> There is evidence of habitation into the Paleolithic.

<sup>18</sup> The delayed publication of the archaeological reports has hindered scholarship on the economy and political connections of the BMAC. Most of the archaeological work, while conducted as early as the 1930's, was not published until the end of the Soviet period and very little is accessible in western languages. The following titles are good sources: Hiebert, F. T. *Origins of the Bronze Age Oasis Civilization of Central Asia*. Cambridge: Harvard University Press, 1994; Sarianidi, V.I. "Soviet Excavations in Bactria: The Bronze Age." In Ligabue, G. and Salvatori, S. *Bactria: an ancient oasis civilization from the sands of Afghanistan*. Venice: Erizzo, 1995, V. Sarianidi, 'Issledovanie pamiatnikov Dashlinskogo oazisa', *Drevniaia Baktriia* 1 (1976), 71. В. И. Сарианиди, Исследование памятников Дашлинского оазиса, *Древняя Бактрия*. М., 1976: 21-86; and D.W. Anthony, *The horse, the wheel, and language: how bronze-age riders from the Eurasian steppes shaped the modern world* (Oxford: Oxford University Press, 2007), pp. 421-427. The evidence for Late Bronze Age (ca. 3000 BCE-1000 BCE) and Iron Age (ca. 1000 BCE-600 BCE) Bactria is scant and while there was definitely heavy occupation during this period, the political orientation and cultures of Bactria are unknown at this point. Though ceramics of that period north of Bactria have been well studied, extensive work has not been done on Iron Age pottery in Bactria, so when it is found it is often unrecognized, which greatly inhibits site identification. See: Lhuillier, Johanna. *Les Cultures à Céramique Modèle Peinte en Asie Centrale Meridionale: Dynamiques Socio-Culturelles à l'Age du Fer Ancien (1500-1000 av. n.e.)*. Memoires de la Mission Archéologique Française en Asie Centrale Tome XIII. De Boccard, 2013.

<sup>19</sup> Stampolidēs, Nikolaos C, J.-Y Empereur, Larissa Bonfante, Antoine Hermary, Pierre Leriche, Gocha R. Tsetskhladze, Elizabeth R. Stone, Polymnia Athanassiadi, and Vassos Karageorghis. *The Greeks Beyond the Aegean: From Marseilles to Bactria: Papers Presented at an International Symposium Held at the Onassis Cultural Center, New York, 12th October, 2002*. New York: Alexander S. Onassis Public Benefit Foundation; USA, 2002.

contemporaneous with the Assyrians and present the story of a powerful polity siding with the Medes against the Assyrians, we have no direct or specific evidence.<sup>20</sup> It is not outrageous to assume that there was some well organized political power in Bactria that was known to the polities of the Near East, but there is no clear evidence that it was ruled from Bactra. To the contrary, there is no definitive evidence of large-scale occupation before the 6<sup>th</sup> century BCE.

Bactria became a province of the Achaemenid Empire in the mid-sixth century after the conquest by Cyrus in the 540s BCE, the date at which we have our earliest written sources.<sup>21</sup> It is possible that the city of Bactra was already a populated and fortified city at this time, but there is no clear material evidence to firmly establish an absolute date or determine the ethnicity or even existence of the early population.

Bactria remained under Achaemenid control until the Macedonian conquest.<sup>22</sup>

Administered along with Sogdiana, Bactria paid high tribute to the Achaemenid court, but there is debate about the degree and type of control the Achaemenids exercised over the region.<sup>23</sup>

Following the death of Alexander in 323 BCE and the period of the Diadochoi

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<sup>20</sup> Francfort, Henri-Paul. "Central Asian on the Eve of the Achaemenid Conquest," (ed) Boardman, John. *The Cambridge Ancient History* Vol. 4, pp.194; 2008. The narrative of an expansionist Median empire has been questioned since the 1980s and not only is there no clear evidence for Median occupation, or indeed presence at all, in Bactria, but the historical sources should not be taken at face value. See: Brown, Stuart. "Media in the Achaemenid Period: The Late Iron Age in Central West Iran. In (eds) Heleen Sacisi-Weerdenburg and Amelie Kuhrt. *Achaemenid History IV: Centre and Periphery, Proceedings of the Groningen 1986 Achaemenid History Workshop*. Leiden, 1990; Lanfranchi, G.B., M. Roaf, and R. Rollinger (eds) *Continuity of Empire(?) Assyria, Media, Persia*. Padua: SARGON, 2003.

<sup>21</sup> The Achaemenid period in Central Asia is often called the Late Iron Age, even in areas that were under Achaemenid political control. This does cause some confusion, but the continuity in ceramic traditions from the Early and Middle Iron Age makes this a useful and valid distinction.

<sup>22</sup> The recent Aramaic documents inform us on the administrative powers of the satrap, the governor, and local authorities, but it is unclear exactly what territory each of those offices was in charge of. See Fried, Lisbeth S. "The Role of the Governor in Persian Imperial Administration" in (ed) Alejandro Botta *In the Shadow of Bezalel. Aramaic, Biblical, and Ancient Near Eastern Studies in Honor of Bezalel Porten*. Leiden, Boston: Brill, 2013.

<sup>23</sup> Wu, Xin *Central Asia in the Context of the Achaemenid Persian Empire (6<sup>th</sup>-4<sup>th</sup> centuries B.C.)* Dissertation at the University of Pennsylvania, 2005.

(323-311 BCE), Bactria briefly became the easternmost satrapy of the Seleucid Empire until Diodotus I seceded from it in c. 248/7 BCE and proclaimed himself king. By the early 2<sup>nd</sup> century BCE, Demetrius I, who had inherited the kingdom from his father Euthydemus I (c. 230-190 BCE), ruled an area that included Bactria, Sogdiana, and Margiana. Moreover, he launched military campaigns south of the Hindu Kush into territory held by the Mauryan Empire of India (ca. 321-185 BCE). Ultimately, his kingdom stretched from India, in areas of modern India and Pakistan, to the northern regions of Bactria, Sogdiana, and Margiana.<sup>24</sup> This large area of control did not last long, however, and after he returned to Bactria from his Indian campaign, Demetrius was killed by Eucratides, possibly one of his generals (shortly after ca. 170 BCE). Eucratides then usurped his kingdom and led campaigns into India to establish his own authority. The extent of his success in acquiring land is unknown, but when he died, murdered by one of his sons, the lands south of the Hindu Kush were lost, and the Graeco-Bactrian kings following Eucratides were not able to re-establish authority in the Indian territories. However, the Indo-Greek kings did maintain control of the lands south of the Hindu Kush, and for far longer than those to the north, ruling over a mixed population that included Greeks and Indians.<sup>25</sup> For the next two centuries, the territories of these elusive kings expanded and contracted, but never again included

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<sup>24</sup> We do not know exactly where Demetrius went, how long he was gone, or how any of these areas were administered. Much of what we know is derived from numismatic information, the chronology and dynastic order of which is still uncertain. Useful is: Lerner, Jeffrey D. *The Impact of Seleucid Decline on the Eastern Iranian Plateau*. Stuttgart: Franz Steiner Verlag, 1999. Hannestad, L. "A Comparative Study of the Cultural Dynamics in Two Cities of the Eastern Seleucid Kingdom: Uruk and Ai Khanoum." In *Zwischen Ost und West Neue Forschungen zum Antiken Zentralasien*, edited by G. Lindström, S. Hansen, A. Wieczorek, M. Tellenbach, 99-114. Darmstadt: Verlag Philipp von Zabern, 2013; Mairs, R. *The Hellenistic Far East: Archaeology, Language, and Identity in Greek Central Asia*. Oakland, California: University of California Press, 2014.

<sup>25</sup> Neither the Graeco-Bactrian kings nor the Indo-Greek kings would have self-identified with that terminology. Rather, these are modern historical constructs for those rulers of, respectively, territories north of the Hindu Kush and south of the Hindu Kush.

Bactria and Sogdiana, which came under the control first of nomadic tribes, then of the Kushans. The last Indo-Greek king, Strato II, was overthrown in c. 10 CE by the Scythian satrap Rajuvula from Mathura.

We know that Greek, Prakrit, Aramaic, and Bactrian were spoken and written in a variety of scripts. However, determining which languages were spoken and written by whom and for what audience during this period requires much more evidence, both literary and epigraphic, and we will likely never have data sufficient to accurately define them.<sup>26</sup> And indeed, it is probable that Bactria was always a cosmopolitan region, whose inhabitants spoke multiple languages from often distantly related language families.

In the early 3<sup>rd</sup> century BCE, the Mauryan King Ashoka converted to Buddhism and incorporated the Buddhist concept of *dharma* as part of his administrative policy to encourage loyalty and a specific behavioral code. He commissioned over fifty carved stone edicts proclaiming his adherence to the faith throughout his kingdom, including Arachosia, where a large population of Greeks lived.<sup>27</sup> Eventually, Buddhism spread northward into Gandhara, Arachosia, Bactria, and Sogdiana, where it was practiced widely until the advent of Islam in the region beginning in the 7<sup>th</sup> century CE.<sup>28</sup> Buddhism continued to be practiced alongside Islam until at least the 8<sup>th</sup> century CE, and perhaps far later.

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<sup>26</sup> Rachel Mairs has written several articles addressing these issues: Mairs, R. R., “Ethnicity and funerary practice in Hellenistic Bactria”, in *Crossing Frontiers: The Opportunities and Challenges of Interdisciplinary Approaches to Archaeology*, H. Schroeder, P. Bray, P. Gardner, V. Jefferson and E. Macaulay-Lewis (eds.), 111 – 124, Oxford; School of Archaeology, 2007; and Mairs, R. R. “Greek Identity and the Settler Community in Hellenistic Bactria and Arachosia,” *Migrations & Identities* 1, 19 – 43, 2008.

<sup>27</sup> These edicts are in a variety of languages, mostly Prakrit, but two Greek edicts have been found in Afghanistan. One of these, found in Old Kandahar, is a bilingual Greek/Aramaic inscription. For a broader discussion, see Falk, Harry. *Asokan Sites and Artefacts - A Source-book with Bibliography*. Mainz, 2006.

<sup>28</sup> Gaulier, S., R. Jera-Bezard, and M. Maillard. *Buddhism in Afghanistan and Central Asia*. Leiden; Brill, 1976; Neelis, J. *Early Buddhist transmission and trade networks: mobility and exchange within and beyond the northwestern borderlands of South Asia*. Leiden, Boston; Brill, 2010.

Graeco-Bactrians lost control in Bactria and Sogdiana in the mid-2<sup>nd</sup> century BCE during a historically elusive period of nomadic incursions by the Sakai and Yuezhi. The Chinese chronicles inform us that after their conquest of Sogdiana and Bactria in the middle of the 2<sup>nd</sup> century BCE, the Yuezhi expanded southward into Gandhara and the Punjab under the hegemony of Kujula Kadphises, the chieftain of the Kushan clan.<sup>29</sup> The subsequent Kushan Empire enabled the region to flourish economically and enjoy a period of peace until the 3<sup>rd</sup> century CE when the Sasanids of Iran overthrew the Kushans. During this time, Gandharan art—with its heritage of Greek and Buddhist traditions—flourished south of the Hindu Kush in northwestern Pakistan. North of the Hindu Kush, Bactria became a major hub on the Silk Road.

The Sasanids retained power over Bactria until the mid-4<sup>th</sup> century when Turkic-speaking tribes from the east challenged their hegemony. The Sasanids did maintain control of some pockets of territory, but no longer administered the entire region. The Hephthalites, also known as the White Huns, emerged as the rulers of Bactria and the majority of Central Asia in the 5<sup>th</sup> century and remained in power until they were defeated in the late 6<sup>th</sup> century CE by the Sasanid armies of Kosrow I Anoshirvan and the Turkic tribes recently arrived from Mongolia. At this juncture, the Hephthalites took control of the lands north of the Oxus River and the Sasanids took control of the lands south of the Oxus River.<sup>30</sup>

The Arab conquests following the death of Muhammad and the four caliphs

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<sup>29</sup> Much of our information for this period comes from the chronicles of Zhang Qian, a Chinese envoy/diplomat from the Han Court. Also useful is Benjamin, C. “The Yuezhi: origin, migration, and the conquest of northern Bactria,” *Silk Road Studies*, 14, Turnhout: Brepols, 2007.

<sup>30</sup> This is a broad generalization and there is some evidence that the Hephthalites controlled some areas south of the Oxus River. See the six volume series *History of the Civilizations of Central Asia*, particularly Volume 2: Harmatta, J. ed. *The Development of Sedentary and Nomadic Civilizations: 700 B.C. to A.D. 250*; and Volume 3: Litvinsky, B.A. ed. *The Cross-roads of Civilizations: A.D. 250 to 750*.



eventually reached Bactria by the end of the 7<sup>th</sup> century. While this represents the introduction of Islam to the region, other religions, Buddhism in particular, continued to be practiced in some parts of the region for several centuries.<sup>31</sup>

### *Religion*

There is clear evidence of diverse religious practices throughout the region, including Zoroastrianism, Buddhism, Brahmanical practices/Hinduism, and traditional Greek practices to name a few, but these need not be equated with firm religious identity and it is likely that there was a degree of fluidity. Bactria has been suggested as the birthplace of Zoroastrianism.<sup>32</sup> This religion spread quickly and widely, and there is clear evidence of fire temple practices from the Achaemenid period through the end of the Kushan period and likely later. Other religions were practiced at the same time. This is at least true for Buddhism, which spread through Bactria in the 3<sup>rd</sup> century BCE, as evidenced by the edicts of Ashoka, and Greek religion. The presence of many large monasteries and stupa compounds in Bactria attests to the lengthy life of Buddhism there, but the archaeological evidence does not allow us to date these with certainty. Most of these are dated to the 3<sup>rd</sup> through 5<sup>th</sup> centuries CE, although they likely began being constructed much earlier and probably continued into at least the 8<sup>th</sup> century CE in some areas.<sup>33</sup>

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<sup>31</sup> The excavations of Tepe Narenj in Kabul province seem to show remarkably late evidence of Buddhist practice, perhaps late 9<sup>th</sup> or 10<sup>th</sup> century. This is currently unpublished.

<sup>32</sup> Winkelmann, Sylvia. "Trading Religions' from Bronze Age Iran to Bactria," in (eds) Peter Wick and Volker Rabens. *Religions and Trade: Religious Formation, Transformation and Cross-Cultural Exchange between East and West*. Leiden: Brill, 2014.

<sup>33</sup> Leriche, Pierre, and Sh R. Pidaev. *Termez Sur Oxus: Cité-capitale d'Asie Centrale*. Paris: Maisonneuve et Larose, 2008; Leriche, Pierre, and Daniel Schlumberger. *Art et Civilisations de l'Orient Hellénisé: Rencontres et Échanges Culturels d'Alexandre aux Sassanides: Hommage à Daniel Schlumberger: [colloque International, Paris, Unesco, 28-30 Septembre 2009]*. Paris: A. et J. Picard, 2014.

## *Economy*

We can identify many of the imports that appear in Bactria and some of the country's exports, but there is no measurable information on how much was exported or imported. Lapis lazuli is a very good indicator of how far exports traveled from the geographic borders of Bactria. Lapis lazuli sources exist in several areas outside of Bactria, but only those in Bactria were known and mined in the ancient periods, so when lapis lazuli appears in the archaeological record, it is a clear indicator that it was brought in from Bactria. Lapis has been found throughout China and Egypt, as early as the pre-dynastic period, as well as Mesopotamia and the Mediterranean.<sup>34</sup> The Bactrian mines are known only from the Badakhshan region, which is in eastern Bactria. It is unknown at this point if these mines made eastern Bactria wealthier than the rest of the region, but the prominent sources of gold and tin in western Bactria might have helped balance the economic resources.

Aperghis has suggested that because the climate of the geographic region of Bactria – which he identifies as the Oxus watershed area, the plain between the mountains and the desert – is so uniform, there would have been widespread similarity in agricultural production. He further states that this similarity obviated the need for intra-regional trade in foodstuffs.<sup>35</sup> Until reliable botanical analysis is conducted from well-excavated sites, it is impossible to make definitive statements about agricultural production in Bactria, but this region is likely among the many areas in Eurasia

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<sup>34</sup> Georgina Herrmann posits an active lapis lazuli trade by 3500 BCE. See Herrmann, G. "Lapis Lazuli: the Early Phases of its Trade," *Iraq* 30 (1968) pp. 21-57.

<sup>35</sup> Aperghis, G. G. *The Seleucid Royal Economy: The Finances and Financial Administration of the Seleucid Empire*. Cambridge University Press, 2004.

depending on wheat, barley, goat, and sheep.<sup>36</sup> It is likely that due to the amount of irrigation infrastructure throughout Bactria and other non-mountainous/desert areas of Central Asia, there would have been the potential to grow similar staple crops. But it is possible that the inhabitants of Bactria specialized in different products in different cities and towns, as is common elsewhere.

## **Bactra**

### *Background Information*

I now turn to the history and excavations of the capital city Bactra, modern-day Balkh, from earliest excavations through the present, with particular attention to the newly excavated ceramic corpus that is the focus of my research. Also known in Persian sources as Zariaspa, Bactra is located approximately 30 kilometers south of the Oxus River in central Bactria and was the capital of the satrapy of Bactria during the Achaemenid period and a hub on the east-west trade routes from at least this early. Being the seat of the satrap, the city was heavily fortified during this period.<sup>37</sup> It was also a city of religious importance, reputedly the birthplace of Zoroastrianism, with important shrines attested into the Kushan period.<sup>38</sup>

Throughout the Hellenistic period, encompassing the short Macedonian reign, the Seleucid period, and the many Graeco-Bactrian kingdoms, Bactra remained a seat of the ruler. The mint at Bactra produced a large amount of coinage during the period, as did the mint at Ai Khanoum, although at this time, the political and economic relationships between the two cities are unclear. Bactra continued to be an important

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<sup>36</sup> Frachetti, Michael D. *Pastoralist Landscapes and Social Interaction in Bronze Age Eurasia*. Berkeley: University of California Press, 2008.

<sup>37</sup> It is unclear at this point if there were any earlier fortifications at the site.

<sup>38</sup> Aveda 1.7 and Frank Holt, *Alexander the Great and Bactria: the Formation of a Greek Frontier in Central Asia*. Leiden, pp 22-26, 1988. Baumer, Christoph. *The History of Central Asia: Volume One*. London: I.B. Tauris, 2012.

city along the east-west trade routes during this period.<sup>39</sup>

There is architectural and ceramic evidence of large-scale Kushan occupation at Bactra, though its nature is unknown. Some Han sources suggest that the Kushans used Bactra as their capital city for a short time before relocating to Kapisa and Pushklavati.<sup>40</sup> After this early Kushan period, Begram was used as the summer capital and Mathura as the winter capital.<sup>41</sup> The city contained garrisons of various sorts since the Achaemenid period, and it is probable that it continued to play a military and defensive role during the Kushan period.

#### *History of Excavations and Previous Study of Bactra*



Figure 3: View of Inner Citadel looking North within the Citadel Walls of Bactra. Author's photo

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<sup>39</sup> Yang, Juping. 2014. "Hellenistic world and the Silk Road". *Anabasis*. 73-91.

<sup>40</sup> Specht, Edouard. "Etudes sur 'Asie centrale, d'après les historiens chinois," in *Journal Asiatique*, Ser. 8, Vol. 2, pp. 321, 1883.

<sup>41</sup> Rosenfield, John M. *Dynastic Arts of the Kushans*. 1993



Figure 4: Aerial View of Bactra, N<sup>4</sup>, Walls 1.5km in width, Google Earth

Study of the physical remains of Bactra began in 1886 with a survey conducted by Charles Edward Yate (Figures 3-5). While Bactrian numismatics were actively studied in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, archaeological work did not resume until Alfred Foucher, under the auspices of the Delegation Archéologique Française en Afghanistan (DAFA)<sup>42</sup>, conducted surveys and dug sondages in 1924-1925.<sup>43</sup> Daniel Schlumberger, also under the auspices of the DAFA, continued digging sondages in 1947-48.<sup>44</sup> In 1953 Rodney Young of the University of Pennsylvania conducted small-scale excavations in

<sup>42</sup> Yate, C.E. *Northern Afghanistan, or Letters from the Afghan Boundary Commission*. Edinburgh & London, 1888.

<sup>43</sup> For a fairly comprehensive overview of numismatic work in Bactria, see Holt, Frank. *Thundering Zeus: The Making of Hellenistic Bactria*. Chapter 3: “An Elusive Dynasty.” University of California Press, 1999. The reports for the 1924-25 DAFA excavations can be found in Foucher, Alfred. “The French Archaeological Delegation in Afghanistan (October 1922- November 1925).” *Indian Art and Letters*, 1928. By all accounts these seasons were grueling and did not produce the desired results.

<sup>44</sup> Schlumberger, Daniel. “La prospection archéologique de Bactres (printemps 1947).” in *Syria*, XXVI, 1949, pp. 173-190.

Bactra, and in 1955-1956, Marc Le Berre, under the auspices of the DAFA, focused his study on the city walls.<sup>45</sup> In 1960 M. Hayashi and M. Sahara of Kyoto University conducted a survey of the city and its environs.<sup>46</sup>



Figure 5: Photo showing the height of the Bala Hissar citadel next to the surrounding plain. Author's photo.

Due in part to the Soviet invasion of Afghanistan and the decades of Taliban control, the site was left untouched by scholars for over forty years.<sup>47</sup> It was only with the defeat of the Taliban in 2003 and the seemingly short-lived stability provided in part by the occupation of foreign militaries and civilians that archaeological research was

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<sup>45</sup> Young, Rodney S. "Afghan Reconnaissance," in *Archaeology* 7, 1954; Young, Rodney S. "The south wall of Balkh-Bactra," in *AJA* 59: 11-34, 1954; and Le Berre, Marc and Daniel Schlumberger. "Remparts de Bactres," in *Monuments preislamiques d'Afghanistan*. MDAFA 19, 1964.

<sup>46</sup> Hayashi, M. and M. Sahara. "Archaeological Sites of Northern Afghanistan," in *Haibak and Kashmir-Smast*, ed. Seiichi Mizuno, 1962.

<sup>47</sup> Some illegal excavations took place during this time, but no legal documented excavations were conducted.

resumed in 2004.

### *Recent Excavations*

In 2004 DAFA again began full-scale excavations of the site, directed first by Roland Besenval and, starting in 2006, by Philippe Marquis. These ongoing excavations have focused on two main areas of the site, the Bala Hissar (Figures 5, 6) and Tepe Zargaran (Figures 6-8). They have uncovered habitation deposits from the Islamic period back through the Iron Age, with large deposits of Hellenistic and Achaemenid era material, periods that previously had not been documented at Bactra (Figure 6).<sup>48</sup>

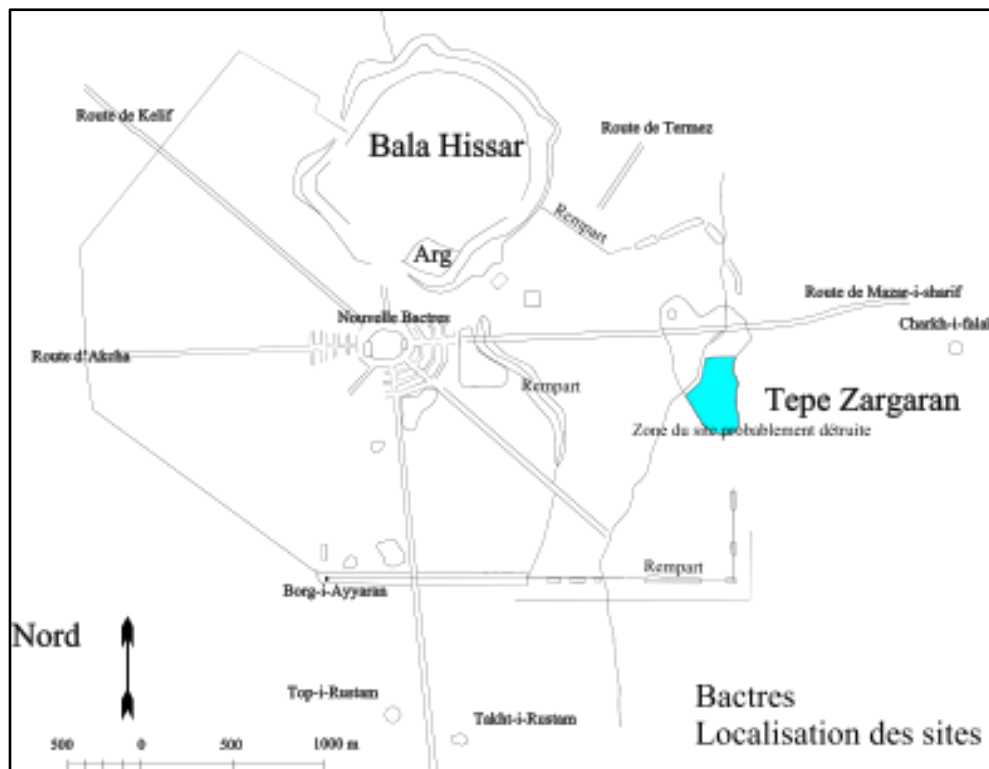


Figure 6: Plan of Bactra showing the Bala Hissar and Tepe Zargaran, unpublished DAFA report, with permission of Philippe Marquis.

<sup>48</sup> Bernard, P., R. Besenval, and P. Marquis. "Du 'mirage bactrien' aux realites archaeologiques: nouvelles fouilles de la DAFA à Bactres." *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 1175-1254. 2007; Besenval, R. and P. Marquis. "Le rêve accompli d'Alfred Foucher à Bactres: nouvelles fouilles de la DAFA 2002-2007," *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 1797-1845. 2007; Besenval, R. and P. Marquis. "Les travaux de la Delegation archéologique française en Afghanistan (DAFA): resultats des campagnes de l'automne 2007-printemps 2008 en Bactrian et à Kaboul." *Comptes-rendus de l'Académie des inscriptions et belles-lettres*. 973-995. 2008.

Unfortunately, the majority of the small finds and ceramics from all but the 2004-2008 excavations have been lost or are inaccessible, due in large part to the conflict in the region. Jean-Claude Gardin published a study of the ceramics recovered from Bactra in Foucher's and Schlumberger's excavations, but very little pre-Kushan material was found during those projects, and none well-stratified.<sup>49</sup>



Figure 7: View from the citadel walls looking East at the walls extending out to Tepe Zargaran. Author's photo.

While Foucher was able to give some descriptions of wares and identify a handful of Achaemenid shapes at the site, the most recent excavations have led to a radical reassessment of the stratigraphy of the site, most importantly the much earlier dating of the citadel walls to the Achaemenid period based on architectural techniques and

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<sup>49</sup> Gardin, J.-C. *Céramiques de Bactres*. MDAFA XV, Paris, 1957.



ceramic finds.<sup>50</sup> This new understanding of the stratigraphy has led to the need for a thorough reassessment of the ceramic material, one that incorporates the newly discovered pre-Kushan layers in full.



Figure 8: 2004-2008 Excavation Area of Tepe Zargaran. Author's photo.

### *The Ceramic Corpus*

The primary ceramic assemblage that is the subject of this study is from these most recent DAFA excavations at Bactra and is stored at the DAFA compound in Kabul. The entire assemblage, which comprises material from the Iron Age through the Islamic period, weighs approximately 30 tons and is ca. 30 cubic meters in volume (Figures 9,

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<sup>50</sup> Unpublished excavation reports.

10).<sup>51</sup> About a third of this is post-Kushano-Sasanid material, and of the remaining material, about 60-70% comes from stratified contexts. The Achaemenid, Hellenistic, Nomadic, Kushan, and Kushano-Sasanid period materials come from the two areas of the on-going excavations of the site, Bala Hissar and Tepe Zargaran. Both public and private buildings and installations have been excavated in these areas, and a wide range of vessels has been noted.<sup>52</sup> While the DAFA team had drawn some of this material, until 2010, when I began my research, there had been no study of fabrics or shapes, nor had a ceramic chronology been established.



Figure 9: Pottery Bags and Trunks on the DAFA grounds, 2010. Photo: Olivier Bordeaux.

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<sup>51</sup> This approximation was arrived at by measuring the volume in cubic meters and calculating that by an average weight of ceramics by volume. This was done quickly and without the benefit of scales, so it is at best an educated guess.

<sup>52</sup> Marquis 2007, unpublished conference paper.



Figure 10: Pottery Bags and Trunks on the DAFA grounds, 2010. Photo: Olivier Bordeaux.

For comparative purposes, I have also studied the ceramics from several other sites, most importantly Cheshme Shafa and Ai Khanoum. Cheshme Shafa is located about 20 kilometers south of Bactra, and from recent archaeological work appears to have been occupied only during the Achaemenid and Islamic periods. Excavated from 2006 to 2009 by DAFA, the Achaemenid ceramics provide valuable insight into trade and production. The ceramics from Ai Khanoum, currently stored in the Kabul Museum, are under study for final publication by Bertille Lyonnet, and the imported pottery from this collection, markedly different from that seen at Bactra, is particularly illuminating. I will consider those ceramics as comparative material in subsequent chapters.

### **Outline of Dissertation**

In this chapter I have introduced the research subject and the geography and history of Bactria. For the remainder of the dissertation, I provide the following: Chapter Two reports on the method of collection of the corpus of pottery, its size and

organization, and the challenges associated with its study. Theoretical and methodological concerns for the assessment of fabric, shape, and chronology are then provided, and the statistical analysis used to determine the chronology is detailed. Chapter Three discusses fabrics, decoration, and forms. I first provide formal macroscopic descriptions of each major fabric found at Bactra. I then discuss all forms of surface treatment and decoration that occur and provide a concordance of which decorations occur with each fabric. I then give the complete typology of shapes present at Bactra. Chapter Four develops the relative and absolute ceramic chronology of Bactra in as fine-grained detail as possible with the available data. Chapter Five places the ceramic sequence of Bactra in its larger Central Asian context and addresses questions of chronology as well as cultural exchange and political control. Chapter Six provides a summary of results, identifies the lacunae of knowledge in the typology and chronology, and discusses avenues and possibilities of future research.

## **CHAPTER TWO**

### **MATERIAL AND METHODOLOGY**

#### **Introduction**

This chapter provides a description of the ceramic corpus from Bactra and its treatment and analysis. First I will provide an assessment of the on-site collection and recording methods, transportation, and storage at the DAFA facility in Kabul, and then turn to the state of and my access to the supporting paperwork and the stratigraphic record. I will discuss the theoretical and practical considerations of the methodology that I used for creating an overview of the fabrics overview, followed by a discussion of how I produced the catalogue of decorative techniques and the shape typology, and finally the ceramic sequence. The overviews and typology appear in Chapter Three, while the ceramic sequence itself appears in Chapter Four.

#### **The Ceramic Corpus: Origin and Handling**

The nature of the on-site collection, organization, transportation, and storage of the ceramic corpus that forms the body of this dissertation has had great bearing on the methodologies used in the study and on the overall assessment of the material. It is necessary to detail this treatment in order to understand the strengths and limitations of this project.

The pottery was collected during the DAFA excavations of Bactra that were conducted annually from 2004 through 2008. During this time, Roland Besenval was the director of DAFA and Philippe Marquis the deputy director. In 2004 and 2005,

Roland Besenval was the project director and field director and in 2006, 2007, and 2008 Philippe Marquis was field director.<sup>53</sup>

Pottery was collected, bagged, and tagged on site according to excavation date, excavation area, and stratigraphic unit.<sup>54</sup> Much of it was subsequently washed before being transported to DAFA headquarters in Kabul via truck.<sup>55</sup> Several dozen whole pots were deposited at the National Museum of Afghanistan and remain in its collections. The remainder of the pottery was stored at the DAFA headquarters. The majority of the material from 2004 and 2005 was bagged in cotton bags and stored in large metal trunks. The cotton bags were tagged using markers with relevant stratigraphic information and usually contained redundant paper tags. Much of the pottery from these years was individually marked; the contextual information was written directly on the sherds in black ink. The majority of the material from 2006, 2007, and 2008 was placed in large plastic bags and stored in stacks in an unroofed, outdoor storage area. These bags were also tagged with markers with relevant stratigraphic information and often contained redundant paper tags.

### **Dissertation Fieldwork**

I analyzed the Bactra ceramics on-site in Kabul over the course of four field seasons. In October and November of 2010 I received permission to work on the pottery and began organizing and undertaking a preliminary assessment of the material.

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<sup>53</sup> They excavated with the assistance of other French and Afghan archaeologists, conservators, and topographers working under the auspices of DAFA: Nicolas Engel, Farad Ahmadi, Paul Bernard, Mohamad Naim Djelanzai, Thomas Lorrain, Stephanie Nisole, Anne Chaillou, Mohamad Sharif Ghaznawi, Assadullah Nabizadeh, Remy Marichal, and Pascal Monge, Thomas Creissen, Mir Abdul Rauf Zaker, Fariduldin Haidari, Shamsia Sadozai, Vanina Houlette, Camille Amoros, Ahmad Ali, Claude Rapin, Mathilde Liacre, Yves Ubelmann, Anne-Laure Guillon, and Julien Cuny.

<sup>54</sup> The tags were marked first with TZ for Tepe Zargaran or BH for Bala Hissar, then Ch. or C. for “chantier” or area, then UF for “unité fouilles” or excavation unit. They were often tagged with the date of excavation, but not always.

<sup>55</sup> Some bags of pottery were not washed on site, but many were not.

I conducted the bulk of the analysis in the following three seasons: May-August 2011, June-July 2012, and July-December 2013. Funding for this fieldwork was provided largely by the US Embassy in Kabul.<sup>56</sup> In July of 2011 I was assisted by Justin Winger and Sharon Herbert. In the summers of 2011 and 2012 I was assisted by six students from Kabul University: Hafizullah Dawlatshahi, Zakaria Jahfari, Abdullah Hakimi, Abdul Jalil Mojadidi, Mohammed Raouf, and Maseullah Raoufi.

I began assessing and organizing the ceramic material in October of 2010. By this time, many of the metal trunks had become bent or broken and there was significant water, mold, insect, and animal damage to the cotton bags and paper tags. Consequently, some bags of pottery were missing tags; other bags had disintegrated and thereby caused some trunks to have a mixture of multiple stratigraphic units. The plastic bags with paper tags stored in stacks outside were similarly damaged (Figure 11). Water, insect, and animal damage erased some of the marker tags and many of the paper tags were rendered illegible or had completely disintegrated. Although some of the sherds that had been individually labeled could still be deciphered, water had obscured the majority of these labels. The damage to the labels and bags rendered approximately ten to twelve metric tons of pottery, or roughly a third to a quarter of the total corpus, without context.<sup>57</sup> Of the remaining circa 25-30 tons, approximately two-thirds is pre-Islamic material, which is the focus of this study.

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<sup>56</sup> A contract was signed between DAFA and the US State Department that provided funds directly to DAFA stipulating that I analyze and publish the ceramics that chronologically belong to the Achaemenid period through the Kushan period.

<sup>57</sup> Lack of sufficient permanent storage space is not a problem unique to DAFA.



Figure 11: Ceramic Storage at DAFA in Kabul, Afghanistan. Author's photo.

During the process of finding, organizing, and analyzing the pottery, I re-bagged and re-tagged the pottery using 4mm polyurethane bags or military grade sandbags, Tyvek tags, and Sharpies. Sherds that were drawn by me and students from Kabul University in 2011 and 2012 were labeled as follows: a layer of clear nail polish was applied, the drawing number was then written on it, and then another layer of clear nail polish was applied. All drawn sherds were then placed in bags according to the context information and stored in a separate area from the undrawn ceramics. Copies of drawings were left at the DAFA facility.

I then purchased new tin trunks in which to store the ceramics. They are currently organized by excavation year, excavation area, and excavation unit (Figure 12). The drawn sherds are in separate trunks organized by the same criteria. Each trunk is



numbered and I provided a concordance of trunks and ceramic units to the director of DAFA. These are stored outside on heavy shelving units made of I-beams in the DAFA compound in Kabul.<sup>58</sup> While this is not a permanent solution, it is my hope that the collection provenance information will be retained until such time that a permanent solution for curation can be implemented.



Figure 12: Sample of Current Ceramic Organization. Photo by Jamie Fraser.

## Supporting Paperwork and Stratigraphic Data

When I began working on the ceramic material in 2010, Philippe Marquis, at that time the acting director of DAFA, gave me access to several unpublished preliminary

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<sup>58</sup> Despite the weight of the trunks, sometimes over 200kg, the shelving units are German made I-beam construction and should not collapse.

excavation reports, though not from all the excavation years. These reports detail trench locations, deposits, stratigraphy, and finds as well as hypotheses about the chronology of the material excavated. When discussing soil deposits, reports usually provide information on soil color and matrix and mention any significant pottery finds, such as whole pots, but they are only rarely discussed in terms of their excavation unit number.<sup>59</sup> This number, listed “UF” on the pottery tags, along with the excavation year and excavation area, is the primary means of associating the ceramic finds with the soil deposit and the relevant stratigraphic information. During excavation, deposits were not recorded on context sheets or standardized day-books/excavation journals. Although I was not able to talk to every archaeologist who participated in the project, those with whom I did communicate did not have day-books or context sheets in addition to the preliminary reports. There were some lists of excavation units with brief descriptions of soil deposits, but they were not sufficiently detailed so as to correspond reliably with deposit descriptions given in the preliminary excavation reports.

In addition to preliminary excavation reports, over the course of my fieldwork, Philippe Marquis provided me with lists of *unité fouilles* containing stratigraphic information in order to allow me to create a series of Harris matrices for some of the Tepe Zargaran material, while Nicolas Engel provided me with similar material for some of the Bala Hissar material.<sup>60</sup> Unfortunately, I was provided with information for only half of the relevant units. Additionally, there are some irreconcilable problems with some of the stratigraphy that I was given. Although I have information about the deposition order of some of the units, it is not reliable. Furthermore, I usually cannot

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<sup>59</sup> Authorship is usually not noted on these reports, but reports of a few areas in some years contain UF numbers.

<sup>60</sup> The 2005 excavations at Bala Hissar were conducted in part by Remy Marichal, who has since passed away. I have not been able to find or access any of his notes.

reliably link this information to the more detailed data in the preliminary excavation reports.

## **Fabric And Decoration**

In creating the ceramic classification, I have developed an overview of ceramic fabrics<sup>61</sup> and decoration techniques present at Bactra that allows every sherd to be described fully, but does not require assigning all sherds to a particular ware. This is necessary at a site with such large amounts of pottery that I cannot presently confidently assign to wares.

### *Classification System*

In my study, I used macroscopic identification techniques to establish color of paste at surface and core; color, size, shape, and frequency of inclusions; size, shape, and frequency of voids; and break patterns.<sup>62</sup> Information about the sources of clay used in ceramic production is useful because of what it can tell us about ceramic production and trade. The information provided by macroscopic study is inherently less definitive than microscopic or chemical analyses, but for large samples and preliminary research it remains an invaluable and essential tool for ceramic taxonomy.<sup>63</sup> Future finer scale analyses of a small subset of materials using chemical and mineralogical methods should help confirm and refine this research.

I also recorded detailed information about ceramic decoration. Decorative

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<sup>61</sup> Throughout this study, I make a distinction between fabrics and wares, following the terminology of Sharon Herbert. *Fabric* refers to the fired clay, its color, inclusions, voids, texture, and other distinguishing features. A *ware* refers to a group of vessels with an established, shared repertoire of fabrics, decorations, and shapes.

<sup>62</sup> Future research could include both microscopic and chemical studies. Microscopic analysis of ceramic fabrics can provide geological and geographical information about clay sources as well as production techniques. Composition of ceramic fabrics can be established by microscopic, petrographic study and/or chemical analysis, techniques that can firmly establish mineral content levels and firing temperatures.

<sup>63</sup> Several minerals, for instance, look like mica macroscopically, but in macroscopic descriptions, the word “micaceous” is typically used to describe all of these minerals.

techniques, from simple surface treatments like slips or burnishing, to more complex painted and incised patterns and figures or plastic appliques, are taxonomically useful and commonly change more quickly than shapes and fabrics. Because of this, decoration can assist in creating more refined chronological sequences. In addition, decoration can be a cultural marker or indication of cultural contact, imitation, or appropriation. Macroscopic identification is not only as useful as microscopic, but is often preferable to microscopic and chemical analysis of decoration. Microscopic and chemical analysis can sometimes be useful in determining the chemical composition of slips and paints, but fine, thin slips are often not able to be distinguished from the fabric of the vessel in the microscope.

I began establishing the fabric typology by sorting through several large *décapage*, or site cleaning, units of pottery, approximately 1500 kilograms.<sup>64</sup> This provided a sample of most, though not all, ceramic fabrics from the site. Sorting in diffuse natural sunlight, I first divided the sherds into coarse and fine fabrics. I then sorted them according to color of sherd exterior, interior, and core using a Munsell chart and took into account factors such as surface texture, weight in the hand, and sound (clinky when dropped on table, etc). I used these intuitive methods to sort the large units, then systematically used a small 10x magnifier to record details of inclusions, voids, and noted break tendencies and relative hardness. Though I did not use the Mohs hardness scale, I distinguished between fabrics that could be scratched with a fingernail and those that were notably harder and rarely scratched with metal.<sup>65</sup>

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<sup>64</sup> These units consisted of thick layers of mixed pottery, though not necessarily of surface pottery. As a result, much of it was not necessarily worn and was thus useful for the task at hand.

<sup>65</sup> I was limited in my analysis of the fabrics and decoration; I was unable to undertake proper petrographic analysis in large part because no labs make samples for petrographic analysis in

Using these methods to establish a baseline, over the course of the four-month field season I established the parameters of various fabrics, expanded and contracted ranges of attributes, and successfully worked with other archaeologists using this developing system.<sup>66</sup>

I approached the decorations in a similar manner using the same large décapage units, first sorting slips and paints according to color, sheen, flakiness, and application method. I later recorded these using a Munsell chart. I recorded and photographed examples of every type of incised, burnished, impressed, and plastic decoration I came across during the 2011 field season and supplemented these every field season.

### **Typology of Vessel Shapes**

Many shape typologies currently in use for Central Asian ceramics (and elsewhere) are informed by scholars working with whole vessels or complete profiles, but with an assemblage as fragmentary as the one here studied, such a system was not achievable.<sup>67</sup> Although it is possible to make educated guesses about the whole shape of a pot based on fragments and knowledge of other assemblages, I approached the Bactra corpus conservatively and did not make assumptions about the precise details of complete shapes based on partial profiles.<sup>68</sup> Due to the smaller amount of ceramic scholarship on Bactria compared to the Mediterranean and the Near East and the possibility of far more ceramic variety than what is present in published material from

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Afghanistan. I was not able to remove ceramic sherds legally from the country to England, where the analysis would have taken place; hence I was restricted to macroscopic identification techniques.

<sup>66</sup> Sharon Herbert and Justin Winger came to Kabul and worked with me in the DAFA compound on the Bactra corpus during the summer of 2011. Michael Rakotozonia also assisted in sorting.

<sup>67</sup> Some scholars are certainly working with material as fragmentary. Some of the ceramics at Merv, for instance, analyzed by Puschnigg are in similar condition to those at Bactra and it is similarly difficult to make assumptions about whole vessels.

<sup>68</sup> Whallon, Robert Jr. "A New Approach to Pottery Typology." *American Antiquity* 37, no. No. 1 (1972): 13-33.

other sites,<sup>69</sup> I created my shape typology only with the preserved portions of the profiles.

### *Classification System*

I established the shape typology by using attribute analysis and created parameters that define the range of each type.<sup>70</sup> Traits of ceramic sherds can be divided into discrete and continuous categories. Discrete categories are those that are mutually exclusive to each other and would include traits such as inverted, everted, or vertical rims; convex, concave, or vertical necks and bodies; or rounded and angular lips.<sup>71</sup> Continuous categories are traits that are distributed on a spectrum and include diameter of rim and base and thickness of fabric. Any tree typology or descriptive system must be designed to categorize by prioritizing some trait categories over others. Because discrete categories are less open to interpretive decisions on the part of the observer, I chose to prioritize discrete categories over continuous categories when producing my shape typology. In some cases bimodal distribution, or two distinct modes, of some continuous traits, particularly rim diameter, led to later subdivision of types.

Assessing the meaningfulness of the typological categories is challenging. I have privileged practicality and usefulness in the field over other concerns and have evaluated the coherence of my typologies by assuring the following: 1) when using the fabric and decoration typologies, patterns of recurring shapes, sizes, and decorations appear and 2) when using the shape typology, patterns of recurring fabrics, decorations, and sizes appear. Where bimodal size distribution indicated function difference, types

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<sup>69</sup> Many sites remain unpublished or without final publications, so a site's published material need not reflect the recovered corpus.

<sup>70</sup> At all stages I consulted: Sinopoli, Carla. *Approaches to Archaeological Ceramics*. New York: Plenum Press, 1991.

<sup>71</sup> Discrete vs. continuous types of traits are my own definitions.

were split into large and small varieties. Ceramic production is not random in how potters combine fabric, decorations, shape, and size, so clear patterns of these combinations serve to indicate meaningfulness of the type categories, though it is not always clear whether these are the categories of the producers or those of the scholars/viewers.<sup>72</sup> My goal for this typology was to capture temporally significant variability in ceramics; other researchers asking different questions would likely arrive at different classifications. However, it is my hope that this classification does capture significant variability in Bactra's ceramics that will be useful for future research at the site and in the larger Bactrian region.

### **Field Methodology**

In the summer of 2011 I spent four months sorting and recording whole units of pottery, first according to the fabric groups I had established, then into shape groups. I worked with six students from the Archaeology Department of Kabul University to draw profiles of over 2000 sherds.<sup>73</sup> I analyzed approximately nine metric tons of ceramics and recorded them by fabric type, decoration, weight, and shape group, though a formal shape typology had not been established. Analyzing pottery from pre-Islamic periods at the site, I was confident that examples of most, if not nearly all, shapes present on site had been drawn.

To develop morphological categories, I first sorted my drawings according to mutually exclusive attributes. I began with closed, open, and vertically walled vessels and made attribute "trees" according to presence or absence of neck, shape of neck and

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<sup>72</sup> Arnold, D. E. *Ceramic theory and cultural process*, New studies in Archaeology. Cambridge: Cambridge University Press, 1985; Cowgill, G. L. "Models, methods and techniques for seriation," in (ed) Clarke, D.L. *Models in archaeology*. pp. 381-424. London: Methuen, 1972.

<sup>73</sup> I personally checked and, where necessary, corrected every drawing.

rim, shape of lip, and any information about the bodies of the vessels.<sup>74</sup> Because there were so few whole profiles, I decided to make two typologies: one for rims and upper vessels and one for bases and lower vessels, a literal top-down and bottom-up approach. I established an initial typology composed of 147 rim/upper types (several originally had further subdivisions) and 44 base/lower types.

When I returned to the material in Kabul in 2012 and 2013, I used this initial typology to record every diagnostic sherd in the pre-Islamic corpus.<sup>75</sup> In the process of using the typology in the field, I made several adjustments, either subdividing or combining types. Many types had only minor differences and could perhaps be combined in the future, but during my fieldwork, I decided to retain them, with the possibility of combining them later if further analysis supported it; so although unwieldy and often not intuitive to use, this typology proved invaluable both in the field and during data analysis.

Upon returning from my final season of fieldwork in 2013, I reorganized and renumbered the initial shape typology. While organizing according to mutually exclusive attributes was a necessary first step, this did not always yield groups of shapes that would be commonly classed together by function, so in the efforts to make this typology useful as a field reference, I created classes of shapes that more accurately reflected primary vessel function: closed utilitarian jars, open utilitarian vessels, closed

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<sup>74</sup> Taylor, Walter. *A Study of Archaeology*. Carbondale: Southern Illinois University Press, 1964.

<sup>75</sup> In the summer of 2012, DAFA decided that for issues of space and a possible facilities move, all non-diagnostic body sherds were to be separated and discarded. I sorted every unit of tagged pottery and kept rims, bases, handles, lids, decorated, and glazed sherds. I also kept all body sherds of thin walled, fine slipped fabrics, initially in the hopes that a conservator could reconstruct some whole table vessels, though this has not yet happened. I sorted all pottery, pre-Islamic and Islamic, according to these guidelines. Non-tagged sherds and non-diagnostic tagged sherds were reburied on site in the spring of 2013.



table vessels, and open table vessels.<sup>76</sup> Each of these groups was further subdivided and descriptions of these are provided in the following chapter.

### **Ceramic Sequencing**

The methods of constructing the ceramic sequence presented in Chapter Four were at the same time intuitive and rigorously quantitative. As commonly happens in the pot shed, I developed a familiarity with the pottery that led to intuitive hypotheses of the sequence. Although this helped me construct a preliminary framework, I have relied entirely on quantitative data and statistical analysis to build the final ceramic sequence.

All diagnostic sherds were analyzed and recorded by me, thus mitigating observer bias. In the process of the field sorting and recording, I had the occasion to observe whole assemblages together and consistently note patterns of worn and clean breaks in particularly fabrics and shapes. This familiarity with the assemblages allowed me to make preliminary hypotheses about the chronological sequence and I informally constructed a schematic framework based on these observations.<sup>77</sup>

I attempted to use the stratigraphic information provided to me to construct a ceramic sequence. Unfortunately, as discussed earlier, this information had many lacunae and was unreliable, so I was unable to draw firm conclusions or establish common patterns that would allow for a refined ceramic sequence from stratigraphy alone.<sup>78</sup>

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<sup>76</sup> Adams, W.Y. "Archaeological Classifications: Theory Versus Practice." *Antiquity* 62, (1988): 40-56.

<sup>77</sup> Carver, M.O.H. "Theory and practice in urban pottery seriation," *Journal of Archaeological Science*, 12 (5), pp. 353-366, 1985. Ericson, J. E. and Stickel, E. G. "A proposed classification system for ceramics," *World Archaeology*, 4 pp. 357-367, 1973. Gilboa, A. Karasik, A., Sharon, L. and Smilansky, U. "Towards computerized typology and classification of ceramics," *Journal of Archaeological Science* 31 (6), pp. 681-694, 2004. Hendrickson, E.M. and McDonald, M.A. "Ceramic form and function: an ethnographic search and archaeological explanation," *American Anthropologist*, 85, pp.630-643, 1983. Plog, S. "Social interaction and stylistic similarity: a reanalysis," in (ed) Schiffer, M.B. *Advances in archaeological method and theory* 1, New York: Academic Press, pp.143-182, 1978.

<sup>78</sup> The stratigraphic information provided to me can be found in Appendix A.

In light of the rather peculiar corpus I available to me, one so large and stratified, yet with no decipherable record of the order of deposits, I decided to adapt statistical methods not ordinarily used in classical assemblages, but more common in anthropological assemblages, particularly those resulting from surveys.<sup>79</sup> Specifically, I have largely followed the methodology laid out by Keith Kintigh in his 2006 article “Ceramic Dating and Type Associations,” which analyzes co-occurrence frequencies using multi-dimensional scaling to help construct a sequence, supplemented with extensive dendritic clustering techniques.<sup>80</sup> Because of the differences in our data sets, I have had to adapt certain parts of his methodology and supplement with other exploratory statistical methods.

I began my quantitative analysis with data sheets compiled from my observations of sherd counts of shape type frequencies in each deposit.<sup>81</sup> I used this basic information to create a symmetrical matrix of co-occurrence frequencies between types, based on presence-absence data of sherds in each level. It was not possible to compare raw numbers due to the large discrepancies in sherd counts of shape types, so it was necessary to standardize these numbers. Like Kintigh, I found that Jaccard Coefficients did not allow me to sufficiently compare type co-occurrence, so I used his proposed methodology and created binomial Z-score type co-occurrence numbers based on co-

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<sup>79</sup> Aitchison, J. A. *The statistical analysis of compositional data*. London: Chapman and Hall, 1986; Baxter, M. J. *Exploratory Multivariate Statistics in Archaeology*. Edinburgh: Edinburgh University Press, 1994; Bech, J.-M. “Correspondence analysis and pottery chronology. A case study from the late Roman Iron Age cemetery Slusegard,” in (ed) Madsen, T. *Multivariate Archaeology*. Jutland Archaeological Society 21: pp. 29-35, 1988; Tyers, P.A. and Orton, C. R. “Statistical analysis of ceramic assemblages,” in (eds) Lockyear, K. and Rahtz, S.P.Q. *Computer Applications and Quantitative Methods in Archaeology 1990*, British Archaeological Reports International Series 565. Oxford: Tempus: Tempus Reparatum, pp. 117-120, 1991.

<sup>80</sup> Kintigh, Keith. “Ceramic Dating and Type Associations,” in (eds) Jeffrey.Hantman & Rachel Most *Managing Archaeological Data: Essays in Honor of Sylvia W. Gaines*, Arizona State University Anthropological Research Papers 57, pp. 17-26, 2006.

<sup>81</sup> The data sheets were compiled from the information presented in Appendix F.

occurrence frequencies.<sup>82</sup> These numbers can be either positive or negative and they show how much closer or farther apart each pair of types is from the distance expected based purely on chance. Thus, the higher the Z-score, the closer the types are temporally, and the lower the Z-score, the farther apart they are temporally.

These Z-score numbers, now statistically comparable, were uploaded into multi-dimensional scaling analysis software,<sup>83</sup> producing two-dimensional graphs showing each type as a single point along an arc. I then used these scaling data to help create a relative chronology that allows for chronological overlapping of types. In essence, this methodology allows for the comparison and ordering of the ceramic assemblages present at Bactra and through the ordering of assemblages, individual types can be sequenced.

A simplified explanation is presented here with a small hypothetical data set: if there are three assemblages with types A, B, and C, 4 assemblages with types B, C, and D, and 5 assemblages with types C, D, and E, the original matrix of sherds of types per level would look something like Table 1 or Table 2.

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<sup>82</sup> The Jaccard Coefficient (or Index) is a measure of similarity between two groups of observations, each group having a number of characteristics, but with some overlap. Some observations in each group possess one or more characteristics that observations in the other group possess, but the observations in each group possess a number of other characteristics that observations in the other group do not possess. For example, the two groups of observations may be ceramic sherds from two separate locations. The sherds of these two hypothetical groups have decorative designs and firing characteristics in common, but they both have a number of other characteristics unique to each location, such as average rim diameter and body thickness. The Jaccard Coefficient would measure the similarity of the two groups of sherds as the number of sherds that possess the characteristics in common, divided by the total number of sherds.

<sup>83</sup> Rabinowitz, George. "An Introduction to Nonmetric Multidimensional Scaling." *American Journal of Political Science* 19 No. 2, (1975): 343-390.

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Level 1	1	1	1		
Level 2	1	1	1		
Level 3	1	1	1		
Level 4		1	1	1	
Level 5		1	1	1	
Level 6		1	1	1	
Level 7		1	1	1	
Level 8			1	1	1
Level 9			1	1	1
Level 10			1	1	1
Level 11			1	1	1
Level 12			1	1	1

Table 1: Sample Matrix 1

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
Level 1	4	1	1		
Level 2	1	3	1		
Level 3	1	1	10		
Level 4		2	11	5	
Level 5		2	1	3	
Level 6		2	4	1	
Level 7		1	1	1	
Level 8			3	9	4
Level 9			1	1	1
Level 10			2	6	1
Level 11			8	1	2
Level 12			1	9	1

Table 2: Sample Matrix 2

Because this type of co-occurrence frequency analysis is based on presence/absence of a type in a given assemblage, not the frequency of a type within an assemblage, the symmetrical co-occurrence frequency matrix for either of the previous charts would be Table 3, despite the different amounts of types in the assemblages above:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	3	3	0	0
<b>B</b>	3	--	7	4	0
<b>C</b>	3	7	--	9	5
<b>D</b>	0	4	9	--	5
<b>E</b>	0	0	5	5	--
Total # of occurrences in assemblages	3	7	12	9	5

Table 3: Co-occurrence matrix

As demonstrated above, co-occurrence is calculated based on presence or absence of a type in an assemblage, not the number of examples of a type, hence the co-occurrence matrix is the same for both Table 1 and Table 2. Thus calculated, the percentage of the time that each type appears in the total number of assemblages is as recorded in Table 4:

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
25%	58%	100%	75%	41%

Table 4: Table of % that each type appears in the total number of assemblages, as calculated from simple co-occurrence matrix

The next step is to calculate the probability that each pair of types is expected to co-occur by chance (out of the possible total of 12). This is done by calculating the above percentages for each pair of types, e.g. A at 25% x B at 58% = 14%, or in real numbers, 1.6 co-occurrences. In real numbers, this step is recorded in Table 5:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	1.6	3	2.7	1.2
<b>B</b>	1.6	--	6.9	5.1	2.7
<b>C</b>	3	6.9	--	9	4.9
<b>D</b>	2.16	5.1	9	--	3.6
<b>E</b>	1.2	2.7	4.9	3.6	--

Table 5: Number of times each pair of types would co-occur by chance

The same data, calculated as a percentage, is shown in decimal form in Table 6:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	.14	.25	.18	.10
<b>B</b>	.14	--	.58	.43	.23
<b>C</b>	.25	.58	--	.75	.41
<b>D</b>	.18	.43	.75	--	.30
<b>E</b>	.10	.23	.41	.30	--

Table 6: Percentage of times each pair of types would co-occur by chance

The percentage of the time that each type pair *actually* co-occurs, calculated from the first matrix of co-occurrences, is seen in Table 7:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	.25	.25	0	0
<b>B</b>	.25	--	.58	.33	0
<b>C</b>	.25	.58	--	.75	.41
<b>D</b>	0	.33	.75	--	.41
<b>E</b>	0	0	.41	.41	--

Table 7: The percentage of times each pair does co-occur

Then the numerical difference between the actual and expected co-occurrence is calculated in Table 8:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	.	+1.4	0	-2.7	-1.2
<b>B</b>	+1.4	.	+1	-1.1	-2.7
<b>C</b>	0	+1	.	0	-1
<b>D</b>	-2.7	-1.1	0	.	+1.4
<b>E</b>	-1.2	-2.7	-1	+1.4	.

Table 8: The difference of the actual co-occurrence from the expected co-occurrence

In order to standardize the percentages, for each co-occurrence the standard deviation of the expected percentage of co-occurrence needs to be calculated by determining  $\sqrt{Np(1-p)}$  if N is the number of assemblages (in this case 12) and p is

the expected proportion of co-occurrences.<sup>84</sup> This standard deviation is recorded in

Table 9:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	1.2	1.5	1.33	1.04
<b>B</b>	1.2	--	1.7	1.71	1.45
<b>C</b>	1.5	1.7	--	1.5	1.7
<b>D</b>	1.33	1.71	1.5	--	1.58
<b>E</b>	1.04	1.45	1.7	1.58	--

Table 9: Standard deviation of each co-occurring pair

The difference between the actual and expected co-occurrences is then divided by the standard deviation of the expected percentage of co-occurrence, or, written as a

formula:  $Z_{AC} = \frac{o-Np}{\sqrt{Np(1-p)}}$ . The outcome of this equation is recorded in Table 10:

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>A</b>	--	1.1	0	-1.62	-1.15
<b>B</b>	1.1	--	0.02	-.68	-1.9
<b>C</b>	0	0.02	--	0	.047
<b>D</b>	-1.62	-.68	0	--	.88
<b>E</b>	-1.15	-1.9	0.047	.88	--

Table 10: Z-score matrix

Using multi-dimensional scaling to analyze the Z-scores and place them on a two dimensional graph, the output map is seen in Figure 13:

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<sup>84</sup> Adapted from Kintigh 2006 p 22.

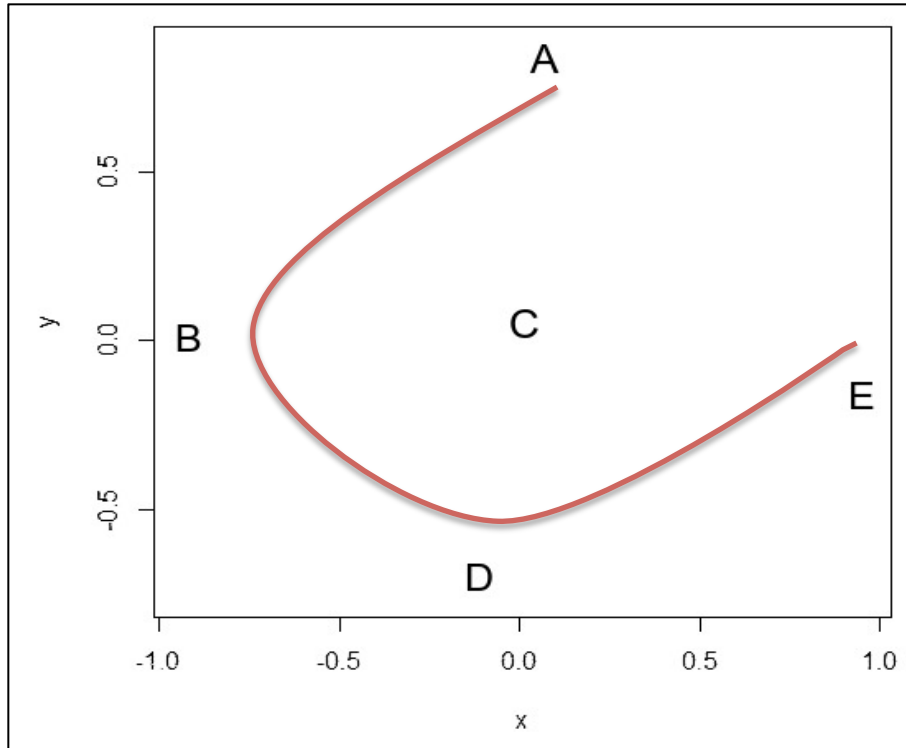


Figure 13: Two-dimensional map made using multi-dimensional scaling in R

Multi-dimensional scaling (MDS) maps using this technique provide information about temporal relationships in the form of U-shaped arcs, but these arcs do not have a fixed directionality. If there was no known stratigraphic information about the assemblages that produced the above map, one could determine that type C occurred for the entire range of time and could then assess the temporal relationship of the other variables as beginning with any of the types and going either clockwise or counterclockwise.

In order to interpret the temporal relationships depicted in the MDS map, it is necessary to have some toehold on the temporal sequence from another source. For this hypothetical data set, if we know that Type A is the earliest of the types that are not present in all assemblages (as Type C is) and that E is the latest, types B and D have a clear temporal relationship within this matrix. Thus a schematic representation of the



ceramic sequence is seen in Table 11.

Type C			
Type A			
	Type B		
		Type D	
			Type E

Table 11: Ceramic sequence of sample data

The aforementioned example data set has 5 shape variables in 12 deposits. Each symmetrical matrix used in these calculations contains 10 (or when mirrored, 20) numbers that result from different components of the analysis. Although useful for demonstrating the technique I used on the Bactra data set, the difference in scale does lead to some differences in methods of interpretation. The Bactra data set has 221 shape variables in 245 deposits, yielding a symmetrical matrix that contains 24,310 (48,620 when mirrored) numbers resulting from each component of the analysis.

What this co-occurrence method does not calculate is how many times each variable is present in the assemblages that contain at least one example. For instance, if A appears 10 times in deposit 1 and 12 times in deposit 2 and B appears 20 times in deposit 1 and 0 times in deposit 2, we would calculate that out of a total possible number of co-occurrences of 2, A and B only co-occur 1 time, however when they do co-occur, the relatively larger number of each shape variable does make a difference in interpretation. I dealt with this problem by testing each cluster of shape variables produced in a multi-dimensional scaling map using dendritic clustering methods, which do account for the number of times a shape variable is present, but do not have the advantage of producing a temporal arc.<sup>85</sup>

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<sup>85</sup> Shennan, Stephen. *Quantifying Archaeology*. Iowa City, University of Iowa Press, 1988. Chapter 11: Classification and Cluster Analysis, pp. 216-264; Baxter, M. J. *Exploratory Multivariate Analysis in*

Using these two statistical analytical tools, I was able to create a relative chronology that is both refined and defensible, albeit with caveats due to the nature of the material. Less certain are the absolute dates, but I have used external ceramic chronologies as well as basic historical information about the founding and occupation of Bactra to propose some absolute dates.

After describing all the types present at Bactra in Chapter Three, in Chapter Four I present a ceramic sequence that was constructed from the statistical methods described above so that analysis of single sherds or shape types will yield a relative chronological range, but that analysis of deposits with multiple shape types will yield more refined chronological information.

## **CHAPTER THREE**

### **FABRICS, DECORATIONS, AND SHAPES**

#### **Introduction**

This chapter contains overviews of the fabrics, decorations, and shapes that occur in the Bactra corpus. It begins with a detailed survey of commonly occurring fabrics divided into two groups: fine and coarse. This is followed by a concise compendium of uncommon fabrics. Photographs and a concordance of shapes and decorations associated with each fabric accompany every description. An overview of decorations grouped into seven groups is then provided: slips; painted designs; incised decoration; burnishing and patterned burnishing; impressed, roulette, and stamp designs; plastic decorations; and mold made decoration. Specific subgroups of these decorations are detailed, each accompanied by a series of photographs. Next is a brief overview of what is known about ceramic production locations. Finally, I provide a shape typology of all pre-Islamic vessel shapes found at Bactra arranged by whether they are closed or open, and whether they are designated as utilitarian or table vessels. An outline of this chapter is as follows:

- Macroscopic Fabric Descriptions
  - Fine Fabrics
  - Coarse Fabrics
  - Miscellaneous Fabrics
- Typology of Decorations and Surface Treatments

- Wares and Traditions
- Production Locations
- Shape Typology
  - Introduction
  - Organization
  - Shape Groups
  - Type Presentation
  - Upper Profiles
  - Lower Profiles
  - Lids
  - Handles
  - Lamps
  - Spouts and nozzles

## Macroscopic Fabric Descriptions

Descriptions of common fabrics are presented below; the four fine fabrics are presented first, followed by the nine coarse fabrics (Figure 14).<sup>86</sup> Occasionally, sherds were found in unidentified fabrics, but these were not usually fully catalogued on site. Common shapes made in each fabric and decorations used with each fabric are introduced in this section as well to provide better overall orientation.

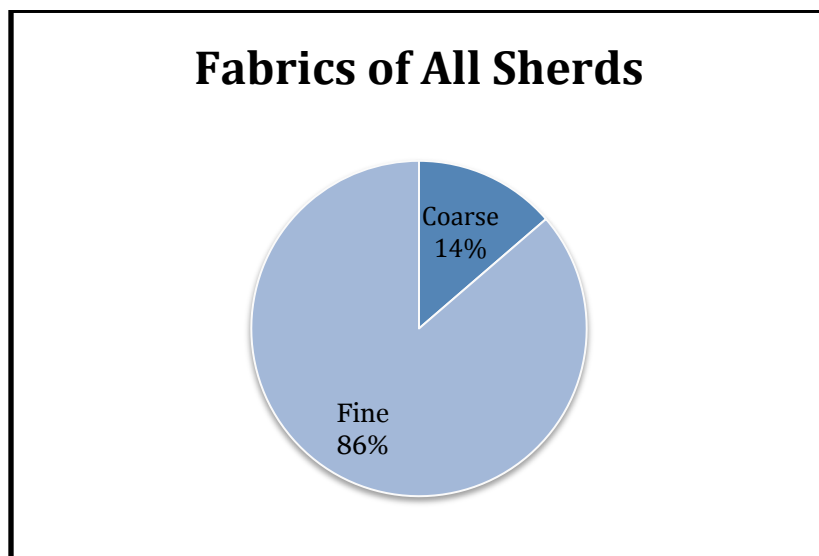


Figure 14: Percentages of fine and coarse fabrics by sherd count

### Fine Fabrics

Four fabrics fall into this category, ranging in color and oxidation from pink and buff colored to peach, orange, and gray. These are (1) Pink/Buff A and B, which together represent the overwhelming majority of this corpus with ca. 13,000 diagnostic sherds; (2) Peach Cream, which dominates in the earliest material, with ca. 1200 diagnostic sherds, but completely drops out of use sometime in the Hellenistic period;

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<sup>86</sup> The graph in Figure 14 does not account for the bias of sherd counts as it affects coarse and fine fabrics. These counts are of diagnostic sherds, not total number of sherds, so it does not reflect the different ratios of diagnostic vs. body sherds for fabric types. Whereas coarse vessels, often large jars, can have ca. 12 diagnostic sherds to 100 body sherds, many fine vessels might have 12 diagnostic sherds to only 12-20 body sherds.

(3) Gray fabric, which is more rare, with fewer than 100 sherds; and (4) Orange fabric, which is also rare with fewer than 100 sherds. These last two fabrics and are quite distinct from the other, more common fabrics. All of these are often slipped and are used for serving vessels as well as other larger, utilitarian vessels. I present them in order of relative frequency at Bactra, the most common presented first (Figure 15).

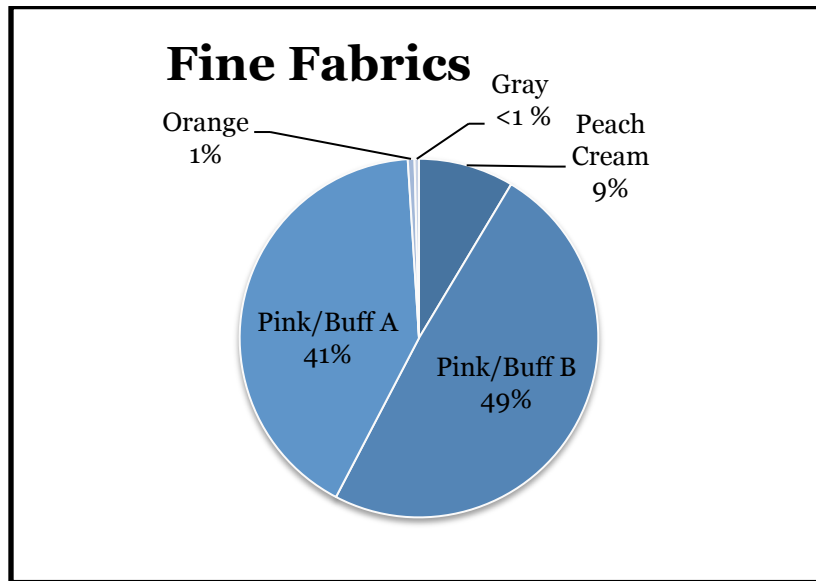


Figure 15: Percentages of fine fabrics by sherds count

### 1. Pink/Buff A and B Fabrics

The buff and pink fabrics are likely made from the same clay sources and levigation methods. The differences in color are probably the result of slight firing variations. It is unknown if these differences are intentional, but charting the fabrics separately in the field has provided more chronological data than would have been attained from combining these into one category. Pink/Buff A fabric is the pink colored end of the spectrum and is most common in the earlier material. Pink/Buff B fabric is the buff colored end of the spectrum and is most common in the later material.

### *Pink/Buff A Fabric*



Figure 16: Exterior, core, and interior surfaces of Pink/Buff A fabric

There were 6012 diagnostic sherds of Pink/Buff A fabric. It is fired reddish yellow to red to pink to light reddish brown throughout (5YR 7/6, 6/6, 2.5YR 5/6-5YR 7/4, 6/4), with occasional darker streaks near the exterior in thick-walled vessels (Figure 16). There are some very small to medium round and squamous shaped voids and frequent very small white to gray rounded and subrounded inclusions. There are infrequent very small micaceous inclusions.<sup>87</sup> Used for both thin and thick-walled vessels, this fabric tends to be slightly finer in thin walled forms.

*Decorations:* Vessels in Pink/Buff A fabric are frequently slipped with light red to dark red (2.5YR 6/6-2.5YR 3/6) slips. Less frequently, this fabric is decorated with reddish black (eggplant) colored (2.5YR 2.5/1) slips, but this color is far more common on Pink/Buff B fabric vessels. These slips are sometimes pattern burnished, though not as frequently as appears on Pink/Buff B fabric. This is usually in the form of vertical stripes in closed vessels and more complex sunburst designs in open shapes with

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<sup>87</sup> As discussed in Chapter Two, p. 35, I use “micaceous” to refer to particles in the fabric that look sparkly and reflective, but could be either mica or a host of other minerals. Without a microscope it is not possible to definitively identify mica. Although it is a commonly used catch-all term for sparkling inclusions, it is not always accurate and can lead to incorrect geographic assessments of clay sources.

pattern burnishing.

*Shapes:* Neckless jars of rolled and pinched rim varieties are found in Pink/Buff A fabric, although they are more commonly found in Peach Cream fabric. This fabric was also used for small toilet and oil jars, short-necked utility pitchers, neckless jars of all varieties, and large open curving-walled bowls. The more fine iterations of this fabric were used for table vessels, including pitchers, small and large table amphorae, open deep bowls, large open sloping-walled serving bowls, small shallow table bowls, small hemispherical and carinated table bowls, and straight-walled drinking and serving vessels. The common shapes in this fabric overlap significantly with Pink/Buff B fabric.

*Pink/Buff B Fabric*

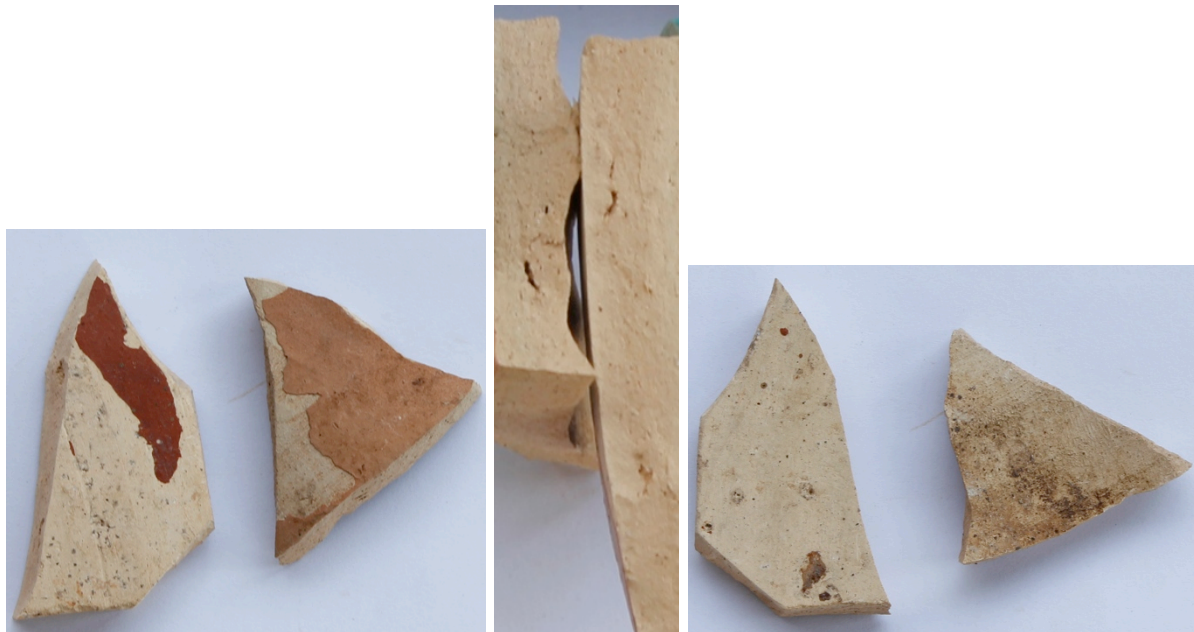


Figure 17: Exterior, core, and interior surface of Pink/Buff B fabric

There were 7136 diagnostic sherds of Pink/Buff B fabric. It is fired very pale brown (10YR 8/3, 8/4, 7/3, 7/4) to very pale yellow and pale yellow (2.5YR 9/2-8.5/2) throughout (Figure 17). There are frequent, very small subrounded and squamous shaped voids in the core, occasionally visible on the unslipped exterior surfaces. There



are often, but not always, some very small rounded gray, red, and white inclusions. Used for both thin and thick-walled vessels, this fabric tends to be slightly finer in thin walled forms.

*Decorations:* Vessels are regularly partially or wholly slipped with matte to lustrous light red to dark red (2.5YR 6/6-2.5YR 3/6) to reddish black (eggplant) colored (2.5YR 2.5/1) slip that flakes off easily. These slips are frequently pattern burnished, usually vertical stripes on closed vessels and more complex sunburst designs in open shapes with pattern burnishing. The entire range of color variations of the slip can appear on the same vessel and are likely indicative of oxygen levels in the kiln.

*Shapes:* Pink/Buff B fabric exhibits the same range of shapes as Pink/Buff A, with several exceptions. It is not found in neckless rolled and pinched rim jars or large open pans.

## 2. Peach Cream Fabric



Figure 18: Exterior, core, and interior surfaces of Peach Cream fabric

There were 1250 diagnostic sherds of Peach Cream fabric. It is fired pink, light reddish brown, or reddish yellow both at the core and at the interior surface (5YR 7/3, 7/4, 7/6, 6/4) (Figure 18). While there is some variation in fabric color between vessels,

it is usually fired one color throughout a single vessel. There are infrequent small round voids in the core and interior surface. There are occasional very small rounded white inclusions and very infrequent very small micaceous inclusions. This fabric tends towards planular breaks. Used for both thin and thick-walled vessels, Peach Cream fabric tends to be slightly finer in thin walled forms.

*Decorations:* This is always self-slipped with Peach Cream Slip. There are rare examples of traces of brushed on matte red slip on table vessels. There are very rare examples of concentric tool assisted incised decorations.

*Shapes:* Although most shapes in the Bactra corpus appear in multiple fabrics, some appear almost exclusively in Peach Cream fabric: large rolled and pinched rim neckless jars, thickened rim storage jars, and the straight walled drinking and serving vessels with low carinated shoulders. When these shapes appear in another fabric, it is almost always Pink/Buff A fabric. Peach Cream fabric was also used for small toilet and oil jars, neckless jars of large rolled and pinched rim varieties, thickened rim storage jars, large open sloping-walled serving bowls, small shallow table bowls, small hemispherical and carinated table bowls, and straight walled drinking and serving vessels.<sup>88</sup>

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<sup>88</sup> See discussion of slip and firing style in Lyonnet, B. *Prospection Archéologiques en Bactriane Orientale (1974-1978). Volume 2: Céramique et Peuplement du Chalcolithique à la Conquête Arabe*. Paris 1997. pp. 82-83. See also Lyonnet 2012, pp.147, 155.

### 3. Orange Fabric



Figure 19: Exterior, core, and interior of Orange fabric

There were only 88 diagnostic sherds of Orange fabric. It is fired reddish orange throughout (2.5YR 5/6-5/8) (Figure 19). There are some very small rounded and subrounded white or gray inclusions and infrequent very small round shaped voids visible at the core and at portions of the surface where the slip has flaked off.

*Decorations:* Most examples of this fabric are slipped with either a lustrous orange-red slip that is very similar in color to the fabric itself or more rarely, semi-glossy red slip. There are frequently brush marks visible in the lustrous red slip.

*Shapes:* This fabric was used exclusively for open table vessels, including large open sloping-walled serving bowls, small shallow table bowls, small hemispherical and carinated table bowls, and rarely straight walled drinking and serving vessels.

#### 4. Gray Fabric



Figure 20: Exterior and interior surfaces of Gray fabric

There were only 57 sherds of Gray fabric. It is fired gray to grayish green (GLEY 6/N-5/N) throughout (Figure 20). There are some very small rounded and subrounded light gray inclusions and some very small round shaped voids. This fabric is not well represented in the Bactra corpus, and is usually unslipped.

*Decorations:* There are very infrequent examples of black slip, usually matte and slightly flakey (GLEY 2 1.5/1) and very rare examples of dark gray slip, usually matte, though all examples are badly worn (GLEY 4/N).

*Shapes:* This fabric was used exclusively for table vessels, including rare examples of small table amphorae, but more commonly small shallow table bowls and plates, particularly fishplates. There are occasional examples of straight walled drinking vessels.

#### Coarse Fabrics

Nine fabrics fall into this category. These range widely in color and inclusions and many of these fabrics are used for only narrow categories of shapes. These fabrics are used primarily for storage and utilitarian vessels. These are presented in

approximate relative order of frequency: Light Brown Gritty fabric; Hard Gray fabric; Muddy Jar fabric; Soft Gray fabric; White Grit Brown fabric; Pink Gritty fabric; Pink Storage fabric; Sandy Red Jar fabric; and Gritty Black fabric.

There were 2356 diagnostic sherds. For reasons of expediency in the field, after determining that the coarse fabrics were used for a fairly limited range of shapes and that these shapes did not change frequently, all sherds in coarse fabrics were simply called “gritty” in the final recording of diagnostic sherds. Because of this, relative frequencies are approximate. Shape ranges, however, are firm (Table 12).<sup>89</sup>

	F.1 Light Brown Gritty	F.2 Hard Gray	F.3 Muddy Jar	F.4 Soft Gray	F.5 White Grit Brown	F.6 Pink Gritty	F.7 Pink Storage	F.8 Sandy Red	F.9 Gritty Black
1.Small Toilet and Oil Jars		X							
2.Short-neck utility pitchers	X				X	X			
3.Short and pinch neck jars	X	X	X	X	X	X		X	X
4.Neckless jars	X	X	X	X	X		X		X
5.Hole-mouth jars	X			X	X				
6.Thick Rim Jars*	* Thickened rim storage jars are found only in Peach Cream fabric, but have a utility function								
7. Large straight wall storage jars	X	X			X		X		
8. Large open pans	X			X	X				
9. large open curving walled bowls					X				

Table 12: Table of shape groups commonly found in coarse fabrics

Some utility vessel groups come in a wide range of fabrics, particularly short,

<sup>89</sup> When looking at the raw data of contextual diagnostic sherds, some types seem rare, when they were in fact more prevalent, but the units in which they were stored were untagged and, therefore, not useable to glean an accurate assessment of the ceramics for chronological purposes. All type examples presented here are vessels that appear multiple times in the corpus.

straight or pinch neck jars<sup>90</sup> and neckless jars, which are the most frequently found utilitarian vessels from Bactra. Small toilet and oil jars are found in fine fabrics as well as Hard Gray. Utility pitchers are only found in Light Brown Gritty, White Grit Brown, and Pink Gritty fabrics. Pink Storage fabric is the only fabric not attested in short or pinch neck jars. Pink Gritty and Pink Storage fabrics are the only fabrics not attested in neckless jars. Hole-mouth jars are only found in Light Brown Gritty, Soft Gray, and White Grit Brown fabrics. Thickened rim storage jars are found only in Peach Cream fabric, a fine fabric. Large straight walled storage vessels are found in Light Brown Gritty, Hard Gray, White Grit Brown, and Pink Storage fabrics. Large open pans are found only in Light Brown Gritty, Soft Gray, and White Grit Brown fabrics. Large open curving walled bowls are found primarily in fine fabrics, but are also attested in White Grit Brown fabric.

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<sup>90</sup> I use “pinch neck” to refer to vessels with a somewhat restricted neck, leading to a biconical shaped profile of the upper portion of the vessel.

## 1. Light Brown Gritty Fabric



Figure 21: Exterior and interior surfaces of Light Brown Gritty fabric

This coarse fabric is fired gray (5YR 6/1) at the core and light reddish brown (5YR 6/4) on the interior and exterior surfaces (Figure 21). There are frequent medium squamous shaped voids in undulating irregular patterns. There are frequent small to medium angular white and gray inclusions in the core and visible on the interior surface, less frequently the exterior surface.

*Decorations:* Necks of jars in this fabric frequently have herringbone impressions around the neck. Wavy incised lines on the shoulders are not uncommon and applied dots of clay occur infrequently on the neck.

*Shapes:* This fabric is used exclusively for utilitarian vessels, including short-necked utility pitchers, more commonly closed short straight or pinch neck jars, neckless jars, hole-mouth jars, large straight-walled storage jars and large open pans.

## 2. Hard Gray Fabric



Figure 22: Exterior, core, and interior surfaces of Hard Gray fabric

This coarse fabric is fired gray to dark gray at core (GLEY 1 5/N-4/N). It is fired gray to dark gray (2.5YR 4/1-5/1) and occasionally pale brown (10YR 6/3) at the surfaces, with pale brown being more prevalent on the external surfaces on the rims and necks of jars (Figure 22). There are some small voids in the core and frequent large irregular voids on the interior surface, which is markedly rough and bumpy. This bumpy texture is present to a lesser degree on the exterior surface. There are some small to medium angular gray inclusions, some small to medium subrounded and angular white inclusions, and very few medium angular red and yellow inclusions. This fabric was likely fired at high temperatures and is very hard and clinky when dropped on a table.

*Decorations:* Occasionally this is slipped with a reddish brown (2.5 YR 4/4) matte brushed slip.

*Shapes:* This fabric is used for exclusively for utilitarian vessels, most commonly closed short straight or pinch neck jars, neckless jars, and large straight-walled storage jars, but there are rare examples of small toilet and oil jars as well.



### 3. Muddy Jar Fabric



Figure 23: Exterior and interior surfaces of Muddy Jar fabric

This coarse fabric is fired reddish yellow to strong brown (7.5YR 7/6, 6/6, 5/6) on the external surface and occasionally throughout, especially when very thin. It usually has a gray to light gray (7.5YR 7/1, 6/1) core and interior surface (Figure 23). There are frequent small to large round and squamous shaped voids in the core on the interior surface. There are many medium to large angular white and gray inclusions and some small red and yellow inclusions. Because of these frequent voids and inclusions, the internal surface often has a bumpy, cracked, moon-cratered appearance.

*Decorations:* Vessels in this fabric occasionally have incised wavy lines at the shoulder and infrequently have herringbone impressions at the neck.

*Shapes:* This fabric is quite specialized and is used exclusively for closed short straight or pinch neck jars and neckless jars, likely both storage and cooking varieties. The repertoire of shapes is similar to that of the Gritty Black fabric.

#### 4. Soft Gray Fabric



Figure 24: Exterior and interior surfaces of Soft Gray fabric

This coarse fabric is fired gray to light gray (5Y 7/1, 6/1) on surfaces and throughout, occasionally with a thin, grayish-brown core (2.5Y 5/2) (Figure 24). There are some small to medium squamous shaped voids, many visible on interior surface. There are many small to large angular white and gray inclusions and some small to medium angular reddish brown inclusions, all of which are visible at the surface.

*Decorations:* Necks of jars in this fabric frequently have herringbone impressions around the neck. Wavy incised lines on the shoulders are not uncommon. Rows of incised dots on the neck or shoulders are also not uncommon.

*Shapes:* This fabric is used exclusively for utilitarian vessels, including short straight or pinch neck jars, neckless jars, hole-mouth jars, and occasionally large open pans. All vessels in this fabric are shapes likely produced for cooking, transport, and storage.

## 5. White Grit Brown Fabric

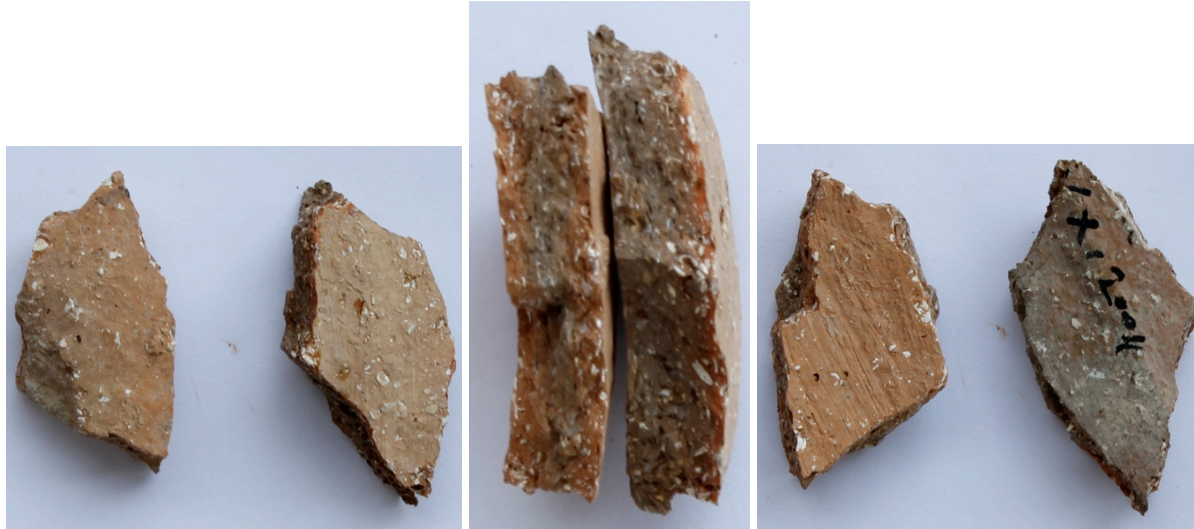


Figure 25: Exterior, core, and interior surfaces of White Grit Brown fabric

This coarse fabric is fired light brown to pink (7.5YR 6/4, 7/4) on the surface and occasionally throughout. It sometimes has a gray (7.5 YR 6/1) core and interior surface (Figure 25). There are many small to medium squamous shaped voids in undulating patterns in the core, some visible on surface. There are many small to large angular white inclusions visible throughout and on surface and some small to medium angular gray inclusions visible in core and occasionally on the surfaces. This fabric has rough surfaces and might have a thin wash.

*Decorations:* Jars frequently have herringbone impressions around the neck or rows of incised dots on the shoulders. There are rare examples of applied plastic decoration, usually scallop or coil shaped clay strings of the same fabric as the vessel.

*Shapes:* This fabric is used for utilitarian vessels in all groups except small toilet and oil jars and thickened rim jars. These include short-necked utility pitchers and more commonly closed short straight or pinch neck jars, neckless jars, hole-mouth jars, large straight-walled storage jars, large open pans, and large open curving walled bowls.

## 6. Pink Gritty Fabric



Figure 26: Exterior, core, and interior surfaces of Pink Gritty fabric

This coarse fabric is fired light red at the core (2.5YR 7/6, 6/6) and has a light red or light gray-gray interior (5Y 7/1, 6/1, 5/1) (Figure 26). When unslipped, the external surface fires light red as well. There are some irregular and squamous shaped voids in the core, frequently visible on the interior surface, sometimes visible on the exterior surface. There are many large angular and subrounded white inclusions, and some small-medium angular gray inclusions, all of which are highly visible on the interior and exterior surfaces.

*Decorations:* Jug forms made with this fabric are sometimes slipped with an uneven, matte pale yellowish pink (7.5YR 9.5/2), probably brushed on.

*Shapes:* A relatively sparsely used fabric, this only occurs in short-necked utility pitchers and short straight or pinch neck jars.

## 7. Pink Storage Fabric



Figure 27: Exterior and interior surfaces of Pink Storage fabric

This coarse fabric is fired light red (10R 7/6, 6/6) at the core and the interior surfaces, sometimes pale red (10R 7/3) on the interior surface (Figure 27). There are frequent small to medium squamous shaped voids. There are many small to large angular gray to dark gray inclusions, some small to large subrounded and angular white inclusions, many small to medium angular reddish brown inclusions, and many very small rounded white inclusions. All inclusions are visible on the interior surface; some are visible on the exterior surface through the slip.

*Decorations:* Slipped with a thin, matte very pale yellow to pale yellow (2.5Y 9/2-2.5Y 8.5/2) slip (possibly self-slip), which rarely flakes off.

*Shapes:* This fabric is used exclusively for neckless jars and thick walled large straight walled storage jars.

## 8. Sandy Red Jar Fabric



Figure 28: Exterior, core, and interior surfaces of Sandy Red fabric

This coarse fabric is fired light red to red (10R 6/6, 6/8, 5/6, 5/8) at the core with occasional darker streaks and lighter fading on the interior surface (Figure 28). Some small to medium rounded and squamous shaped voids visible in core and at surfaces. There are frequent small to medium angular red inclusions, some very small white and gray inclusions, and infrequent small micaceous inclusions.

*Decorations:* It is slipped with a thin, flaky, matte black (5YR 2.5/1) on the exterior surface.

*Shapes:* This fabric is used exclusively for closed short straight or pinch neck jars, particularly the smaller varieties used for cooking.

## 9. Gritty Black Fabric



Figure 29: Exterior, core, and interior surfaces of Gritty Black fabric

This coarse fabric is fired from very dark gray to light brown (7.5YR 3/1, 7.5 YR 5/1) on the exteriors of the same vessel. The exteriors of the vessels are often blackened (7.5YR 2.5/1) with use (Figure 29). Much of the darker coloration is likely the result of use for cooking. Usually gray (GLEY 5/5-6.5) at the core, there are some squamous shaped voids at the core and on the interior surface. There are many medium to large angular white and gray inclusions in the core and visible on interior and exterior surfaces.

*Decorations:* The only decorations present on vessels of this fabric are rare patterns of impressed dots in diagonal rows on the shoulder.

*Shapes:* This fabric is fairly specialized and is used exclusively for closed short straight or pinch neck jars and neckless jars, likely both storage and cooking varieties. It has a similar repertoire of shapes as Muddy Jar fabric.

## Miscellaneous/Unique Fabrics

Several sherds in the Bactra corpus are in unique fabrics, but I do not discuss them here with two exceptions. The first macroscopically appears similar to a catalogued coarse fabric from Cheshme Shafa. The second has no known provenance, but appears in one of the rare whole profiles in the corpus.

### Uncommon Coarse Fabric #1

This coarse fabric is fired light reddish brown to reddish yellow (5YR 6/4-6/6) at the core and interior surface and light reddish brown (2.5YR 7/3) on the exterior surface, perhaps a self-slip (Figure 30). There are frequent small rounded and large white and gray subrounded and subangular inclusions, many of which are visible at the surfaces. There are occasional very small round voids visible at the core. The interior surface is very rough. No signs of wheel-made construction are seen. This fabric is microscopically similar to a fabric found at Cheshme Shafa.<sup>91</sup> Only 3 sherds have been found in the Bactra corpus.



Figure 30: Exterior, core, and interior surfaces of Speckled Storage fabric from Cheshme Shafa

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<sup>91</sup> I was able to analyze some of the material from DAFA's excavations at Cheshme Shafa in 2011 and I created a fabric overview of the material. Uncommon Coarse Fabric #1 appears to be what I identified as "Cheshme Shafa Speckled Storage Fabric."



## Uncommon Coarse Fabric #2

This coarse fabric is fired greenish gray (GLEY 5GY 5/1) at the core and on the interior and exterior surfaces with a patchy light reddish brown patina (5YR 6/3) on the exterior and interior surfaces (Figure 31). There are some small and very small black, gray, and white subrounded and subangular inclusions in the core and visible on the surfaces. There are occasional very small narrow squamous shaped voids apparent in the core. The surface is rough and shows no evidence of wheel-made production, but the base shows some evidence of paddle formation.



Figure 31: Exterior, core and interior surfaces of unknown coarse fabric #2

## **Typology of Decorations and Surface Treatments**

A wide range of surface treatments and decorations are present in the Bactra corpus. Some decorated vessels were surely produced locally, others imported, but provenance has been established with certainty only occasionally. As discussed above, exceptions are due to the presence of wasters on site with identifiable shapes and decorations.

- Slips and Paints
  1. Semi-glossy Red and Eggplant Slip
  2. Peach Cream Slip
  3. Thin Matte Red and Eggplant Slip
  4. Lustrous Slips
  5. Black Slip
  6. Matte Brown Slip
  7. Black and Red Mixed Slip
  8. Gray Slip
- Painted Designs
  1. Red on Black Hypotrochoid
  2. Brown on White Crosshatch
  3. Geometric Red on Buff
- Burnished Decorations
  1. Hand-drawn Pattern burnishing
  2. Compass or Stencil-assisted Pattern burnishing
  3. Whole Vessel Burnishing
- Incised Decoration

1. Simple Freehand Utility
  2. Complex Table Vessel Freehand
  3. Wheel or Tool-assisted Concentric Circles
- Impressed Decorations: Tools, Stamps, Roulettes
    1. Coarse Decoration
    2. Stamped Decoration
    3. Rouletting
  - Affixed/Plastic Decoration
  - Moldmade Decoration

## Slips

Many vessels in this corpus have surfaces treated with either slips or paints. A slip is a surface treatment made from a suspension or solution of ceramic particles, normally finer than the paste of the vessel, in water.<sup>92</sup> Slips usually fire a different color than the fabric, though not always. They can be used for decoration as well as for lowering the level of porosity of vessels, thereby improving their function as liquid containers.<sup>93</sup> Paint is a surface treatment composed of any substance that can be used for color—ceramic particles as well as minerals and organic substances. They are applied in order to change the color of part or the entire vessel. Slips are a type of paint, but not all paints are slips. Because of the lack of petrographic analysis, chemical analysis, or re-firing tests, slips could not always be definitively distinguished from other types of paint. Despite this, the consistent spectrum of pink, red, purple, and brown surface treatments suggests true ceramic slips whose colors are purposefully manipulated through firing techniques.<sup>94</sup>

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<sup>92</sup> Shepard, Anna. *Ceramics for the Archaeologist*. Carnegie Institute, 1985, pp. 169.

<sup>93</sup> Usually vessels that do not lose any of their contents are ideal. There is ethnographic evidence of certain water jugs (Aegean hydria) that are left unslipped precisely so that the vessel's walls become waterlogged and are, therefore, more susceptible to air-cooling, making for colder drinking water in the hot months.

<sup>94</sup> At a rudimentary level, paints and slips can be classified as solutions or suspensions. Solution or soluble paints are thinner and composed of minerals that “sink into the body [of the vessel] without disturbing the arrangement of [the] surface particles,” whereas suspension paints are thicker and the color agents do not “sink” in to the vessel, but create a separate layer on the surface of the vessel. Solution paints are recognizable in their preservation of the original surface texture of the undecorated vessel. The clay itself will appear colored and can be worn away, but does not flake. Suspension paints, on the other hand, produce a different surface texture and thereby cover the original surface texture of the vessel. They bind with the vessel, but do not sink in to the vessel, so they can often flake off. Paints that have a very smooth texture are usually identifiable as suspension paints unless the vessel itself is of very fine material and has been physically smoothed or polished. Cf. Shepard 1985, pgs. 169-171. Each is defined by physical properties and techniques of creating and is recognized by its attributes on a fired vessel. Depending on the surface treatment of the pre-decorated vessel, whether or not it has been well-polished, both solutions and suspensions can appear lustrous or semi-glossy. This is because solutions allow one to see the polished vessel beneath and suspensions create a smooth and separate surface themselves. There are few vessels at Bactra that are fine and sufficiently well-polished to allow solutions to appear lustrous, so lustrous vessels typically have suspension surface treatments.

Seven slip groups are found at Bactra. I present them here in order of relative frequency (Figure 32): 1. semi-glossy red and eggplant colored slip (7201 sherds); 2. peach cream slip (1250 sherds); 3. thin matte slip (351 sherds); 4. black slip (27 sherds); 5. lustrous slips (16 sherds); 6. matte brown slip (4 sherds); and 7. black and red mixed slips (4 sherds).

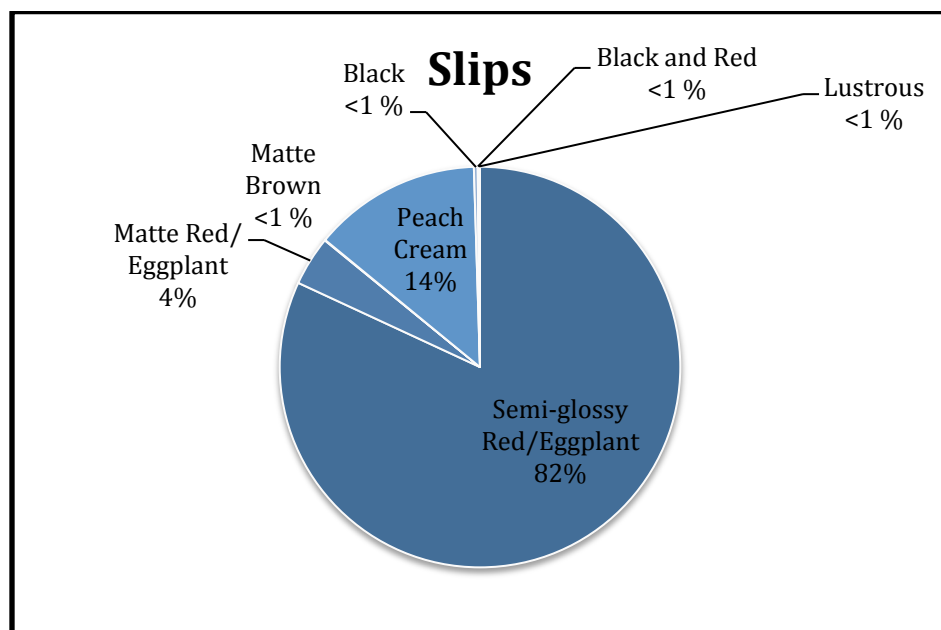


Figure 32: Percentages of slip types on slipped sherds

1. *Semi-glossy Red and Eggplant Slip*



Figure 33: (above left) Semi-glossy red slip on vessel exterior

Figure 34: (above right) Semi-glossy red slip on vessel interior



Figure 35: (above) Semi-glossy red slip on vessel interior

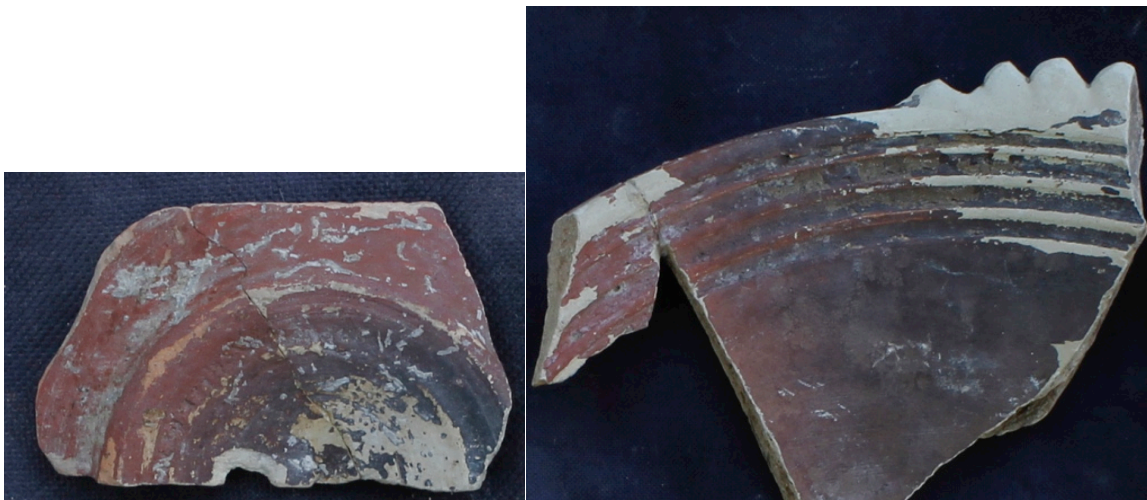


Figure 36: (above left) Semi-glossy eggplant colored slip on vessel interior with possible rouletting

Figure 37: (above right) Semi-glossy eggplant colored slip on vessel interior, note color variation

This group of slips is the most common of those found at Bactra. Ranging from light red to red to eggplant colored (2.5YR 6/8-7.5R 5/8-7.5R 3/3) (Figures 33-35), the full color range is sometimes seen on the same vessel, suggesting that a single slip formula was used to produce the entire color range of this slip type (Figures 36, 37).

Vessels frequently appear to have been dipped in this slip, as drips are common and no

brush marks are visible.<sup>95</sup> Larger open vessels perhaps had this slip ladled in, swirled around, then dumped and placed upright. This would account for the frequent drips on the exterior surfaces of these vessels. This type of slip is used on the majority of table vessels, although is fairly rare in deep bowls. When it degrades, it tends to flake off instead of becoming thin or powdery and some vessels only retain traces inside incised decoration, where present. It is smooth to the touch and does not provide “resistance to the tongue.”

Pattern burnishing is frequently applied in conjunction with this semi-glossy slip. Stamped or incised decoration is also frequently paired with this slip. These decorations are more useful for chronological purposes than the slip itself, as it appears to have been used for several centuries with no great changes that are discernable to the naked eye.

Several examples of decorated sherds have been found on site with color and sheen similar to this semi-glossy slip, but are of markedly higher quality. I include the higher quality slip in this semi-glossy category. Because of the poor preservation quality of many of the deposits, I suspect other sherds with this higher quality slip were not recognized in field sorts. There appears to have been a continuous spectrum of slip quality in the Bactra material. Production sites are uncertain, but due to the fairly small number of sherds of recognizable higher quality slip (i.e. six in total) I suspect these were imported or produced locally using higher quality materials than the other semi-glossy red and eggplant colored slips.

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<sup>95</sup> This has the traits of what Shepherd considers a suspension slip. See above, note 94.

## 2. Peach Cream Slip



Figure 38: Peach Cream slip on thickened rim jar

A powdery, fairly thick very pale yellow matte (2.5YR 9.5/2-9/2) surface treatment, almost certainly a self-slip, is almost always present on vessels made of Peach Cream fabric (Figure 38). It sometimes has brush marks, possibly from applying the self-slip with cloth.<sup>96</sup> This slip becomes this light color only in places exposed to oxygen in the kiln. Because of how they were stacked, likely rim-down with the next vessel resting on the lower body of the one below it, the interiors, lower bodies, and bases of these vessels almost always remain the color of the core. This is used exclusively on Peach Cream fabric vessels.

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<sup>96</sup> Lyonnet, B. *Prospection Archéologiques en Bactriane Orientale (1974-1978). Volume 2: Céramique et Peuplement du Chalcolithique à la Conquête Arabe*. Paris 1997. pp 82-83.



### 3. Thin Matte Red and Eggplant Slip



Figure 39: (above left) Matte-red slip on exterior of tureen

Figure 40: (above right) Matte-eggplant colored slip on interior of tureen, note dripping

This group of slips is fairly uncommon in the Bactra corpus. With a range of light red to dark red to eggplant colored (7.5R 5/8-4/8, 7.5R 3/1, 3/2-2.5/2-2.5/2) (Figures 39, 40), this slip is applied to most vessels by dipping, as is evidenced by the drip marks. With a matte appearance, the coverage is quite thin and the texture of the vessel fabric can be felt through the slip, unlike the smooth finish that the semi-glossy slip group provides.<sup>97</sup> Similar to the semi-glossy group of slips, red is more common than the darker colors. This matte slip group seems to be used exclusively on the tureen/bowl forms and is usually applied on the upper body of the exterior, the lip, and only the uppermost portion of the interior, though sometimes sherds show a more uniform coverage. Although common, no wasters have been found of the shapes this is commonly found in, so I cannot prove that it is a local production.

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<sup>97</sup> This quality points to solution slips, rather than suspension.

#### 4. Black Slip



Figure 41: (above left) Glossy black slip on all surfaces of incurved rim bowl

Figure 42: (above right) Matte black slip on interior of small bowl

This type of slip is found only rarely on material from Bactra, with 28 sherds. This true black color is probably a result of reduction firing. It occurs only on vessels made of gray fabric. Both glossy (Figure 41) and matte (Figure 42) varieties have been found, but many are quite degraded, so it is unclear if the differences are due to preservation or slip type. Two sherds of particularly shiny black slip are perhaps imitations of Attic wares. Although black slip is common in the Ai Khanoum corpus, it is quite rare at Bactra, and was probably not produced locally or imported regularly.

## 5. Lustrous slips



Figure 43: (above left) Lustrous orange on interior of large sloping walled bowl

Figure 44: (above right) Lustrous red slip on exterior of small bowl

A lustrous slip, this appears only occasionally in fine table vessels. Ranging from orange to light red to red (10R 5/8-4/8, 2.5YR 4/6-4/8-3/6) (Figure 43, 44), this relatively rare slip is only attested on Pink/Buff A fabric and Orange fabric and usually tends to be similar in color to the fabric of the vessel. All examples in this corpus have very visible brush marks that appear too irregular to have been applied on a fast wheel.<sup>98</sup> This has only been found on shallow table bowls, particularly upper profile types 122, 131, 141, 146, 148, 152, and 157 as well as lower profile types 14 and 32.

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<sup>98</sup> This slip appears to have been what Shepherd classifies as a suspension. Shepherd 1985 p 170.

## 6. Matte Brown Slip

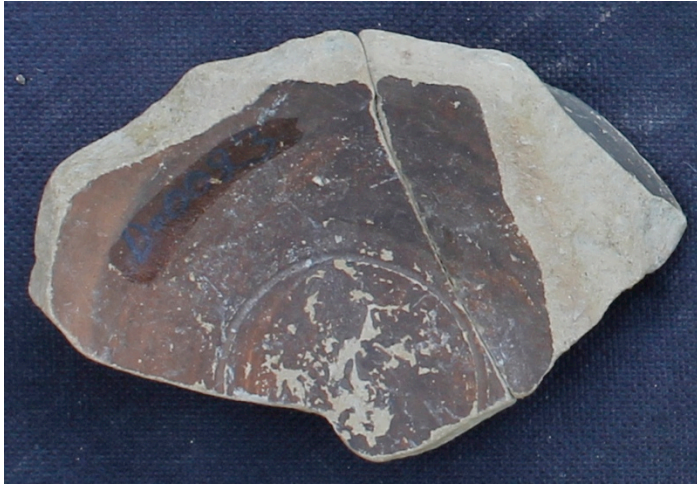


Figure 45: Matte brown slip on interior of small bowl with incised concentric circle

This relatively rare color of slip, (2.5YR 4/3, 4/4-3/3, 3/4, 5YR 4/3-3/3) (Figure 45), has only been found on a select number of table vessel forms. Usually uniform in color, some examples showed signs of dipped application and none showed signs of brush marks or finger marks.<sup>99</sup> The small number of extant sherds, however, makes a definitive type of slip unascertainable at this point. Due to the relatively rare nature, it is doubtful this was produced locally.

Brown matte slip is sometimes used in conjunction with black painted designs. These designs are similar to the patterned burnished designs common on semi-glossy red and eggplant bowl forms, particularly types 143 and 144, but in the place of burnishing are fairly thin, black lines. These appear to be applied with a brush.<sup>100</sup>

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<sup>99</sup> This is probably a suspension slip.

<sup>100</sup> One of the trench supervisors told me that many of the vessels seen on site in Bactra (in 2007), pre-washing, had this form of black slipped designs, but that many were scrubbed off. This is unsubstantiated, and I do not know to what extent this is true or how many vessels this might affect.

## 7. Black and Red Mixed Slip



Figure 46: (above left) red and black slip on exterior of small hemispherical bowl

Figure 47: (above right) red and black slip on exterior of amphora body with incised straight and wavy lines

This relatively rare decorative mix of red and black slip (2.5YR6/8-5/8 and 2.5Y 2.5/1) has only been found on table vessels, usually bowls, pitchers, and wide-mouthed table amphorae (Figures 46, 47). Many examples show signs of brush marks, more often with the black slip brushed on to the red base layer. This is sometimes seen in conjunction with incised decoration.

It is uncertain whether this is a purposeful type of decoration or an unintended consequence of firing variations.

## 8. *Gray slip*



Figure 48: Traces of light gray slip on interior of small bowl

This very rare type of slip occurs only a few times on Gray fabric small, shallow bowls. All examples of this type of slip are on very worn sherds and they are too degraded to determine the original luster or composition (Figure 48).

## Painted Designs

Painted designs are fairly rare in the Bactra corpus. One type is repeatedly found: black on red slipped/hypotrochoid designs. Two other styles of painted designs occur less frequently: crosshatched brown on white and geometric red on buff.

### *1. Black on red slipped/hypotrochoid designs*



Figure 49: Black on red hypotrochoid design on interior of shallow bowl

The most common type of slipped design is the black on red slipped designs in small shallow bowls (Figure 49), designs which mimic the burnished patterns more commonly seen on those forms.

### *2. Brown on White Crosshatch*



Figure 50: Brown on White Crosshatched design; BH 2005 UF 58

A slanted cross-hatch pattern in brown paint on cream colored slip appears on

two joining sherds (Figure 50). Similar to Iron Age comparanda at Tillya Tepe,<sup>101</sup> this is the only example of its kind at Bactra, and in fact the only definitively pre-Achaemenid vessel from the site. This is a fairly common type of decoration in Iron Age sites in Central Asia, but excavations at Bactra have yielded little evidence of Iron Age occupation at Bactra.

### 3. *Geometric Red on Buff*



Figure 51: (above left) Rim with red on buff painted design: TZ 2004 Ch.6 Fosse Kouchan

Figure 52: (above right) Neck of jar with rim with red on buff painted design; TZ 2005 Ch.6 UF 56

The second type of geometric slipped decorations is thin matte red slip in geometric patterns that appear on handmade coarse vessels. Only two examples have been found and they are not from contexts sufficiently stratigraphically secure to date (Figures 51, 52).<sup>102</sup> Given the rarity of this type, it is probably not locally made.<sup>103</sup>

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<sup>101</sup> Lhuillier, J. 2013 Planche 46.2.

<sup>102</sup> Charles Kolb found red on buff decorated sherds at Aq Kupruk, but this appears to be a different ware, personal correspondence.

<sup>103</sup> This type of decoration does not seem to be consistent with the Early and Middle Iron Age painted decoration.



## Burnished Decorations

Three types of burnished decoration occur at Bactra: hand-drawn pattern burnishing, stencil or compass-assisted pattern burnishing, and whole vessel burnishing. These are presented in order of relative frequency.

### 1. *Hand-drawn Pattern burnishing*

This occurs only on table vessels in fine fabrics: Pink/Buff B, Pink/Buff A, and Orange. It is only used on slipped vessels and is often used in conjunction with incised and/or stamped decoration. Likely using small bone or stone tools on slipped, leather hard vessels, the most common pattern burnishing is irregular and seems to be without the use of stencils or compass assistance.



Figure 53: (above left) burnished vertical wavy decoration over red slip on exterior of amphora neck

Figure 54: (above right) burnished hypotrochoid design over red slip on interior of shallow bowl

Patterns on closed table vessels are usually irregular vertical striations or loops on the neck and/or shoulder of the vessel (Figure 53). On open table vessels hand formed sunburst or radial designs are often found on the interior center of the vessel (Figure 54).



Figure 55: (above left) tall carinated bowl with burnished decoration

Figure 56: (above right) tall carinated bowl rims with burnished decoration

On the small, slightly carinated hemispherical table bowls, Upper Profile Type 165, there is a strict repertoire of decoration. Irregular vertical/diagonal striations are almost always present on the exterior rim below the two incised lines (Figures 55, 56).

One example (possibly from Afrasiab) has individual parallel vertical lines below the two incised lines (Figure 45).



Figure 57: Rim of tall bowl rim with two wide grooves and vertical burnished stripes, possibly import from Afrasiab/Samarkand. Note consistency of incised and burnished elements and variation in execution.

On Upper Profile Type 164, which does not have the two incised lines ubiquitous on 165, sloppy vertical striations are normally on the exterior rim (Figures 58, 59), but occasionally thin crosshatched burnishing is used instead (Figure 60).



Figure 58: (above left) squat bowl with burnished decoration

Figure 59: (above right) squat bowl rims with burnished decoration



Figure 60: Squat bowl rim with crosshatch burnished decoration



Figure 61: (above left) exterior of rim and upper body of slightly carinated shallow bowl with red slip and diagonal burnishing on exterior

Figure 62: (above right) interior of rim and upper body of slightly carinated shallow bowl with red slip and starburst patterned burnishing

On the small, shallow slightly carinated bowls/plates, Upper Profile Types 143, 144, and 145, there is a similar repertoire. On the exterior rim horizontal/diagonal

striations are typical, but occasionally crosshatch or squat crosshatch striations are used (Figure 61). This form usually has pattern burnishing on the interior of the vessel, either hand-drawn radial or sunburst designs, or tool-assisted sunburst designs (Figure 62).

## *2. Compass or Stencil-assisted Pattern burnishing*

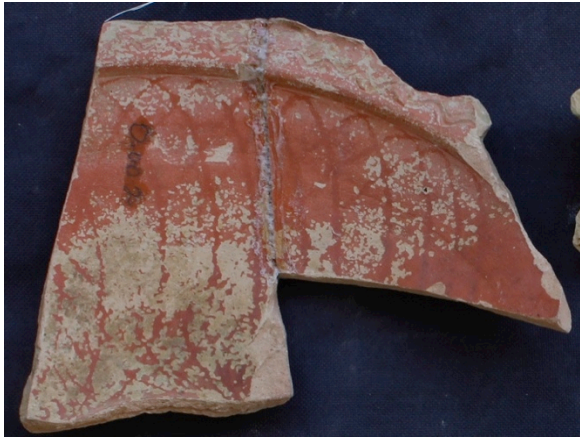


Figure 63: Body sherd of sloping walled bowl with semi-glossy red slip and compass assisted hypotrochoid burnished design on interior

Some burnished patterns are sufficiently regular to indicate the use of some geometric tool to create hypotrochoid/sunburst designs, though there is no evidence of what it might have been (Figure 63). These designs occur on shallow bowl/plate upper profile types 143, 144, and 145 and as well as many of the large open straight walled bowls (Group 13). These are sometimes used in conjunction with stamped, incised, and/or slipped decoration and can be very complex.<sup>104</sup>

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<sup>104</sup> There is no indication of what tools are used in making these hypotrochoid designs, but their regularity suggests a complex tool.

### 3. Whole Vessel Burnishing



Figure 64: Joining body sherd and base of small jar in dark gray fabric, a likely import, with whole vessel burnishing that produces a smooth luster

There is only one example of complete surface burnishing and it is likely an import (Figure 64). A small jar in very dark gray fabric, the surface shows evidence of burnishing with a small tool whose marks are visible on portions of the vessel. This created a lustrous surface. Neither the fabric nor the exact shape were present in other vessels at Bactra.

## Incised Decorations

Incised decoration is very common in the Bactra corpus. I divide them into three main groups: simple, coarse vessel freehand; complex, table vessel freehand; and wheel-assisted concentric circles.

### 1. Simple Freehand Utility



Figure 65: (above left) Rim and body of small pinch neck vessel with incised decoration on upper shoulder

Figure 66: (above right) Body sherd with bird's foot patterned incised decoration



Figure 67: (above left) Handle with short, deep, incised vertical lines

Figure 68: (above right) Rim and shoulder of pinch neck jar with deep bird's foot patterned incised lines



Figure 69: (above left) Exterior rim and upper body of open bowl with rough scalloped incised decoration

Figure 70: (above right) Exterior rim of large straight walled storage jar with messy incised wavy line



Figure 71: Rim of short necked jar with impressed herringbone decoration on exterior neck

A variety of fairly simple wavy, straight, and scalloped lines appear on coarse storage and cooking vessels (Figures 65, 69, 70). Short, diagonal “bird foot” lines are occasionally found (Figures 66, 68). These appear on the exterior rims and shoulders of closed vessels and often on the exterior rim and lip of open vessels. Handles are sometimes decorated with short, vertical lines (Figure 67). They are applied free-hand and often appear uneven and hastily incised. On coarse fabric storage vessels, herringbone impressions are sometimes found on the necks, either in one row or two (Figure 71). These are most common on Hard Gray fabric and White Grit Brown fabric

and probably made with a triangular shaped object.

## 2. Complex Table Vessel Freehand



Figure 72: (above left) Body sherd of amphora shoulder with matte eggplant colored slip and incised wavy and straight lines

Figure 73: (above right) Rim and neck of amphora/large jar with semi-glossy red slip, wavy incised lines, and leaf shaped stamps

Straight and wavy lines are found on a wide array of table vessels and are often used in conjunction with slips, stamps, or rouletting. Closed table vessels, including wide-mouthed table amphorae and pitchers, frequently have incised lines and pattern burnishing over slip on the necks and upper bodies (Figures 72, 73, 74). The wavy lines vary in height and angle.



Figure 74: (above left) Body sherd of amphora/large jar with traces of matte red and eggplant colored slip and diagonally tilted incised wavy lines

Figure 75: (above right) Rim and upper body of large sloping walled bowl with matte red slip and wavy incised lines



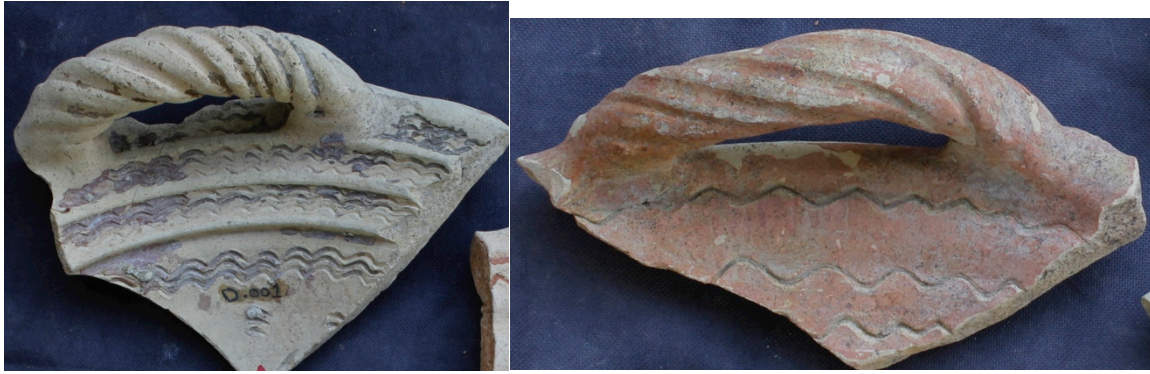


Figure 76: (above left) Rim, upper body, and rope handle of large sloping walled bowl with matte eggplant colored slip and close parallel incised wavy lines, probably made with a comb

Figure 77: (above right) Rim, upper body, and rope handle of large sloping walled bowl with matte red slip and shallow, loose, incised wavy lines



Figure 78: Rim of large sloping walled bowl with semi-glossy red slip and angular wavy incised lines

On large open bowls parallel wavy lines are frequently found (Figures 75, 76, 77), sometimes in conjunction with rope-shaped handles (Figures 76, 77). The wavy lines vary between rounded and angular and there is great variety in distance between the parallel lines. The close lines, almost surely made with a comb, (Figure 76) are perhaps from a different workshop than those further apart (Figure 77).



Figure 79: (above left) Scallop shaped rim of large open bowl with matte red slip and complex incised and patterned decoration

Figure 80: (above right) Rim and upper body of large sloping walled bowl with semi-glossy red slip, complex incised decoration, and small stamped decoration

Rare examples of more complex incised patterns have been found on table vessels, usually in conjunction with slip and sometimes other shaping methods (Figures 79, 80).

### 3. Wheel or Tool-assisted Concentric Circles



Figure 81: (above left) Interior of small bowl with matte red slip and one concentric circle

Figure 82: (above center) Interior of small bowl, unslipped, with two concentric circle

Figure 83: (above right) Interior of small bowl with matte eggplant colored slip and two concentric circles, possibly a spiral

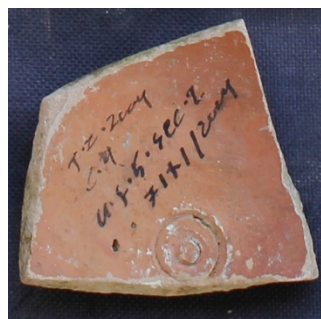


Figure 84: (above left) Interior of small bowl with matte red slip and two concentric circles

Figure 85: (above center) Interior of small, unslipped bowl with a single small incised circle

Figure 86: (above right) Interior of small bowl with matte red slip, one concentric circle, and small circular impression



Figure 87: (above left) Interior of small bowl with matte red slip, one concentric circle, and large, deepened circular impression

Figure 88: (above center) Interior of small bowl with traces of semi-glossy red slip and five concentric circles

Figure 89: (above right) Interior of small bowl with matte red slip and deep, four distinct concentric grooved circles

Tool-assisted concentric circles appear most often on small, shallow table bowls (Figures 81-89). Perhaps an imitation of the central impression in fishplates, these circles range in size from 2 to 10 centimeters in diameters. There can be one to five concentric circles and they are usually used in conjunction with slipped decoration. These can be narrow, less than 1mm (Figure 88), or wider, approximately 2-3mm (Figures 82, 84). They can appear as a spiral or as individual circles. Single or multiple circles are sometimes used in conjunction with central impressed circles (Figure 87).

Occasional examples of deeply carved circles with a ridged appearance have been found (Figure 89).



Figure 90: Whole profile of large sloping walled vessel in Peach Cream fabric with concentric, possibly spiral circles, likely made on a wheel

There is only one known example on a large open walled platter, which is deep and appears wheel made, albeit not entirely evenly spaced (Figure 90). Vessels in Peach Cream fabric are otherwise entirely without incised decoration.

## Impressed Decorations: Tools, Stamps, and Roulettes

Impressed decoration is fairly common in both utility and table vessels at Bactra. There are four categories: 1. coarse decorations, 2. stamps, 3. roulettes, and 4. circles and points on buff

### 1. Coarse Decoration



Figure 91: (above left) Rim of large coarse jar with deep fingertip impressions

Figure 92: (above right) Rim of large coarse jar with shallow fingertip impressions



Figure 93: Rim and neck of small table amphora with matte red slip and impressed decoration in the form of rows of diagonal dots

It is common to find fingertip impressions, deep (Figure 91) or shallow (Figure 92), on the lip of storage vessels. These are common on Muddy Jar fabric and Light

Brown Gritty fabric and are made by pressing the freshly thrown vessel with the thumb. On some fine table vessels, patterned impressions are made with indeterminate tools, often on the necks of closed table jars (Figure 93).

## 2. Stamped Decoration



Figure 94: (above left) Shoulder of table vessel with semi-glossy red slip, stamped rosettes, and impressed, short vertical lines

Figure 95: (above right) Shoulder of table vessel with matte eggplant colored slip and stamped stars and leaves



Figure 96: (above left) Body sherd in Pink/Buf B fabric with matte dark red slip and stamped rosettes, perhaps made with a single straw, and impressed, short vertical lines

Figure 97: (above right) Rim and neck of small table amphora with semi-glossy red slip, stamped leaves, and incised looped lines

Used exclusively on fine fabrics, this appears mostly on table vessels, but some large utilitarian vessels of fine fabrics have some stamped decoration. Stamps are

usually in naturalistic or geometric patterns. Most common is the leaf stamp (Figure 97), but rosettes are also common (Figure 94), as are chevrons and diamond shapes. They are usually quite simple stamps, but are often used repeatedly on the same vessel, sometimes in rows, sometimes in less organized surface-covering patterns (Figure 97). Stamps are occasionally used to create repeated impressions on some closed vessels.<sup>105</sup> Stamps are usually used in conjunction with slip, but some examples appear to be unslipped (Figure 95). Given the flaky nature of much of the slip, it is likely that many of these were also originally slipped. They are often used in conjunction with patterned burnishing as well.

Stamps are usually used on the neck or shoulders of closed vessels (Figure 96), occasionally the handle. On hemispherical or deep bowls, stamps are usually on the exterior. On large straight walled open bowls, stamps are frequent on the decorative registers near the lip.

### 3. Rouletting



Figure 98: Upper body of large sloping walled bowl with matte eggplant colored slip, stamped leaves, and rouletted decoration

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<sup>105</sup> In a Mediterranean context this might be referred to as *horror vacui*.

Roulette decoration is rare in Bactra and only appears on large straight walled open bowls, usually in conjunction with slipped, stamped, and sometimes pattern burnished decoration (Figure 98).

#### 4. *Circles and Points on Buff*



Figure 99: Shoulder of closed vessel with circles, points, and combed decoration; TZ 2007; Ch. 14 UF 4



Figure 100: Rim of open vessel with circles and points decoration; TZ 2005 Ch.6 UF 54

This style of decoration is rare and appears on open and closed unslipped vessels in Pink/Buf B fabric. It consists of triangular, circular, and combed patterns of decoration (Figures 99, 100). Although the designs are usually complex, the execution



appears hastily made and not carefully measured.

### **Affixed/Plastic Decorations**



Figure 101: (above left) Rim and shoulder of small neckless vessel with vestigial bow shaped handle

Figure 102: (above right) Handle of large vessel with affixed squiggled plastic decoration

Affixed decoration appears infrequently at Bactra; most examples are unique.

Affixed vestigial bow-shaped handles sometimes appear on coarse fabric closed vessels (Figure 101).<sup>106</sup> A single example of affixed wavy rolls of clay appears on a large handle (Figure 102).

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<sup>106</sup> In the first ceramic publications of Bactra, similar sherds were noted. Some were similarly shaped, but worked to resemble a goat head. Gardin, J.-C. *Ceramiques de Bactres*. Mémoires de la Délégation Archéologique Française en Afghanistan Tome XV. Paris, 1957. Planche XV 4b.



Figure 103: Body sherd in Pink/Buff B fabric with small traces of eggplant colored slip and a large elephant stamped onto an affixed lump of clay

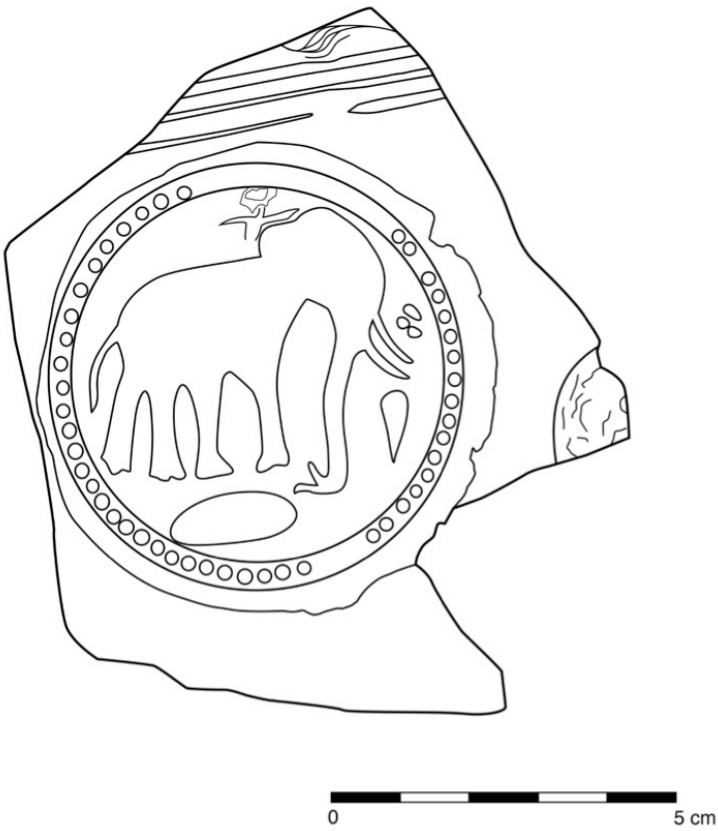


Figure 104: Line drawing of elephant stamp (drawn by Tina Ross and Lorene Sterner)

Only one example of a large stamped elephant has been found (Figure 103, 104), classified as affixed decoration because it is stamped upon an added lump of clay, making it markedly thicker than the rest of the walls of the vessel.<sup>107</sup>



Figure 105: (above left) Rim of Upper Profile Type 165 with red slip and an affixed and molded animal head or rosette, direct view

Figure 106: (above right) Rim of Upper Profile Type 165 with red slip and an affixed and molded animal head or rosette, profile view

A single example has been found of an animal head or rosette affixed to the upper exterior rim of form 165 (Figures 105, 106).<sup>108</sup>

### **Moldmade Decoration**

One example of possible mold made decoration appears on a sherd of Upper Profile Type 168. A simple design of clusters of four small circles (2mm) in a diamond configuration is on the lower walls of the interior. This is used in conjunction with semi-glossy red slip (Figure 107). It is likely that at least part of this type of decoration was

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<sup>107</sup> The stamp appears to show a mahout with spear atop the elephant. There are parallels for elephants in seals and coins in Bactria and Gandhara, as well as northern India, but thus far there are no exact parallels. A Bactrian elephant stamp can be seen in: Lerner, Judith, and Nicholas Sims-Williams. *Seals, Sealings and Tokens from Bactria to Gandhara (4<sup>th</sup> to 8<sup>th</sup> century CE)*. Studies in the Aman ur Rahman Collection Volume 2; Vienna, 2011.

<sup>108</sup> Interesting to note that although affixed animal heads are more characteristic of krater decoration in the Hellenistic period, this sherd is a type that is produced in the ca. 4<sup>th</sup> century CE.

created when the vessel was already in a leather hard state because there are indentations on the outside as well as raised areas on the inside. It would not be possible to create these raised areas using a typical Hellenistic mold because these are used by turning clay on the wheel *inside* the mold, thus creating a relief design on the exterior and a smooth interior surface.

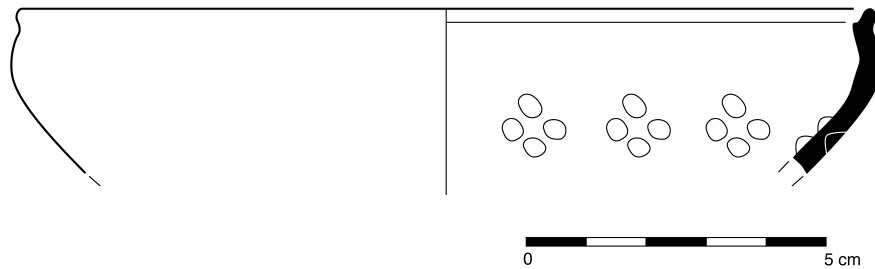


Figure 107: Drawing of a small bowl with semi-glossy red slip and mold made decoration of raised bumps on the interior and impressed bumps on the exterior

## **Wares/Traditions**

A ware is a group of vessels with a shared repertoire of fabrics, decorations, and shapes. I can only identify one ware with confidence at Bactra, a repertoire of shapes consistently made in Peach Cream fabric with Peach Cream self-slip that I have called Stack-fired Ware.<sup>109</sup> This has a very limited range of shapes and is completely consistent in fabric and decoration. It is found in the early phases on site and is likely produced during the Achaemenid period and the very beginning of the Hellenistic period. At Bactra there is a preponderance of table vessels in Pink/Buff fabric with semi-glossy slips and pattern burnished decoration, often combined with other decorative techniques. These certainly represent a regional tradition of ceramic techniques and preferences, but not enough is known about their production trends to distinguish specific wares within this tradition. The many variations of swollen sided deep bowls in Pink/Buff fabric with matte slip comprise another tradition of vessel preference and decoration, but are likely part of a larger ware that is thus far unidentified. Black slipped and lustrous slipped table vessels represent two other traditions found at Bactra. They were likely produced elsewhere and imported in small amounts.

### *Stack-fired Ware*

This group is formed from Peach Cream fabric and always shows evidence of Peach Cream slip (Figure 108). Other forms of decoration are rare, though occasionally incised decorations (as on platter form 117) or traces of thin matte red slip have been found. Utilitarian vessels include small jars, pinched/rolled rim jars, and thickened rim

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<sup>109</sup> The evidence for the firing method of Stack-fired Ware is primarily the consistent bi-chrome surface coloration, likely due to oxygen exposure in the kiln.

jars. Table vessels include vertical walled drinking vessels, open straight walled platters/bowls, and open shallow bowls. Carinations are very common on all vessel types, usually on the lower body of the vessel.



Figure 108: Assemblage of Stack-fired Ware vessels, including a storage jar ((lower right), a tall carinated beaker (lower left), and small table bowls (above)

#### *Semi-glossy Slipped Pattern burnished Tradition*

This group is formed from Pink/Buff A fabric and Pink/Buff B fabric. Decorated with red to eggplant colored semi-glossy slip on part or the entire vessel, this is often used in conjunction with pattern burnishing, incised wavy lines, stamps, or a combination of all three. Primarily a table vessel tradition, table amphorae and pitchers are very common, and most large straight walled open bowls are made in this fabric. Vertically burnished carinated bowls and shallow pattern burnished plates are part of this tradition, though on the finer end of the spectrum.

These vessels were in production for a long period of time, perhaps several centuries. The earliest vessels in this tradition are in Pink/Buff A fabric with multiple incised, wavy lines. These might have been produced as early as the Hellenistic period. This tradition fully developed in the Kushan period (or perhaps earlier during the

Yuezhi hegemony) and continued to be used throughout the Kushano-Sasanid period and perhaps later. Decorations tend to become more complex, varied, and busy (horror vacui, is seen on occasion) over time and Pink/Buf B fabric tends to be used more frequently than Pink/Buf A fabric.

The most well developed style in this tradition is seen on small plates and carinated hemispherical bowls, particularly Upper Profile Types 143, 144, 145, 164, and 165 (Figures 109, 110).



Figure 109: (above left) Interior of small shallow bowl/plate with semi-glossy red slip and starburst patterned burnishing

Figure 110: (above right) Tall and squat carinated bowls with semi-glossy red slip and vertical burnishing

#### *Matte Slipped Pink/Buf Open Bowl Tradition*

These vessels are formed from Pink/Buf fabric A and Pink/Buf B fabric. They are all open, deep bowls with slightly swollen walls and articulated rims (Figure 111). They often have one or two handles affixed just below the rim of the vessel. They are usually, but not always, slipped with matte red or eggplant colored slip. This is usually done by dipping the vessel in the mixture just past the rim, often leaving haphazard drip

marks on the exterior and interior of the vessel.

The many variations of this shape indicate that its basic form was popular at Bactra. Although the articulated rims show variety and evolution, the decorative materials and techniques remain the same for all variations.



Figure 111: Rim, body, and handle of tureen in Pink/Buff A fabric with matte red slip

#### *Lustrous Slipped Serving and Dining Tradition*

Few examples of lustrous slipped vessels have been found at Bactra. They are likely imports and make up part of a ware not produced locally, but the full repertoire of vessels is unknown. All lustrous slipped vessels at Bactra are table vessels, both serving and dining (Figure 112). They are usually wholly slipped, not partially slipped like many of the more common vessels from Bactra.



Figure 112: Mostly whole vessel with lustrous slip



### *Black Slipped Table Vessel Tradition*

Few examples of black slipped vessels have been found at Bactra and they are likely regional imports.<sup>110</sup> They probably derive from Hellenistic Black Gloss and represent part of a repertoire that was common throughout the Mediterranean and Near East, but regional variations in shape assemblages exist. All black slipped vessels from Bactra are small shallow table bowls (Figure 113), but as these are very common, I cannot determine provenance.



Figure 113: Rim of small bowl in Black slipped Gray fabric

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<sup>110</sup> They do not appear to be as high quality as some of the black slipped vessels from Ai Khanoum.

## **Production Locations**

No kilns or production areas were found in the Bactra excavations and there has been no petrographic analysis, so the clay provenance is unknown.<sup>111</sup> Wasters of fourteen types have been found, however, suggesting that there were local workshops and that some, if not all, of those types were produced locally. Fabrics are both coarse and fine, but usually too misfired to identify. The shapes of wasters are examples of Upper Profile Types 79, 113, 120, 123, 124, 130, 153, 157, 160, and 167 as well as Lower Profile Type 27 (Figures 114-124). A single waster of two fused forms is the only example of misfired vessels that provides clear chronological information of co-production: Upper Profile Type 165 fused with Upper Profile Type 173/Lower Profile Type 20 (Figure 125).<sup>112</sup> All wasters in identifiable fabrics have been found in Pink/Buff A and B fabrics, but the fabric of the overfired examples cannot be determined, only that it is fine.

There is also indirect evidence of regional or local production in the form of well-standardized storage vessels. Taken together they indicate fairly robust local production and it is probably that a large proportion of the vessels in the Bactra corpus were produced locally.

### **Direct Evidence for Production Location: Misfires and Wasters**

Although some of the misfired sherds are slipped, the burnt or otherwise misfired nature makes identifying the particular type of slip impossible.

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<sup>111</sup> Although petrographic analysis was not conducted on this material, there have been several petrographic studies on material from archaeological sites in southern Uzbekistan. These would likely prove to be useful comparanda should samples from Bactra be studied.

<sup>112</sup> Further information on the implications of these misfires is found in the type descriptions.

*Misfired Upper Profile Types*

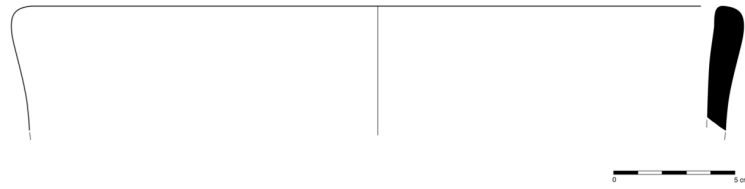


Figure 114: Upper Profile Type 79- large straight walled storage jar

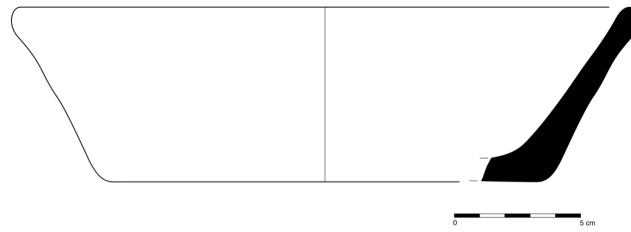


Figure 115: Upper Profile Type 113—large open sloping sided bowl

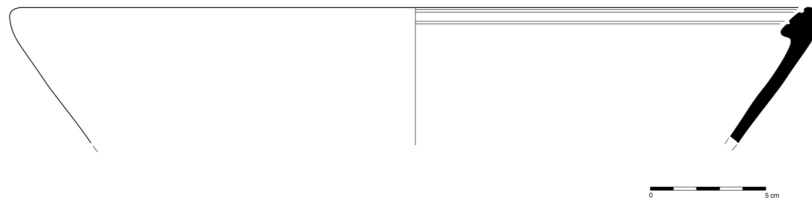


Figure 116: Upper Profile Type 120—large open sloping sided bowl

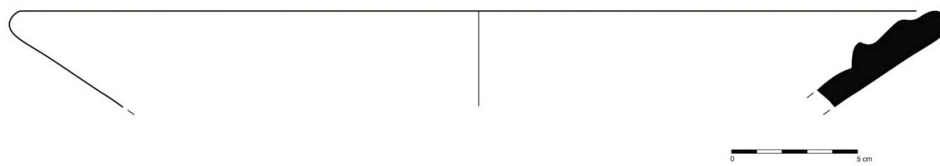


Figure 117: Upper Profile Type 123—large open sloping sided bowl

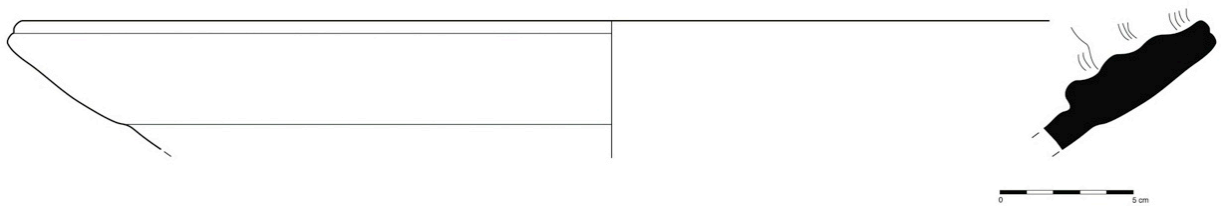


Figure 118: Upper Profile Type 124—large open sloping sided bowl

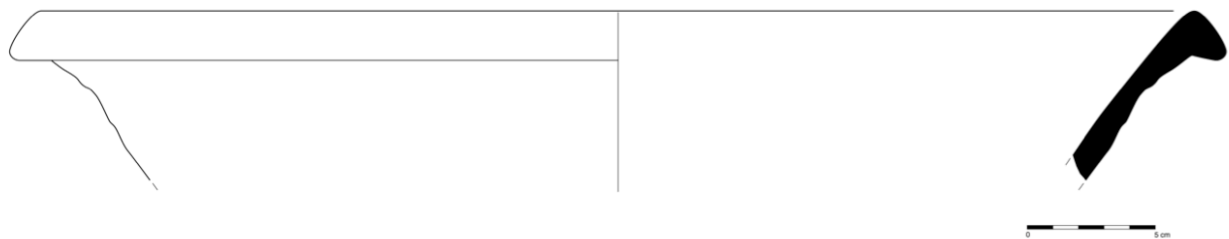


Figure 119: Upper Profile Type 130—large open sloping sided bowl

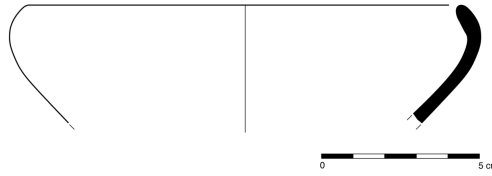


Figure 120: Upper Profile Type 153—large open sloping sided bowl

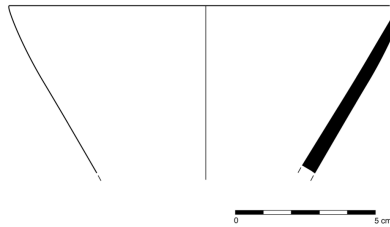


Figure 121: Upper Profile Type 157—upper body of pedestaled goblets or bowls

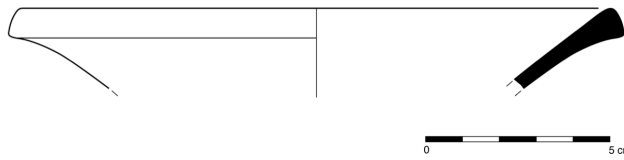


Figure 122: Upper Profile Type 160—small shallow bowl

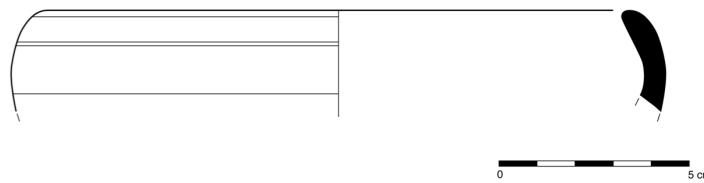


Figure 123: Upper Profile Type 167—small bowl

*Misfired Lower Profile Types*

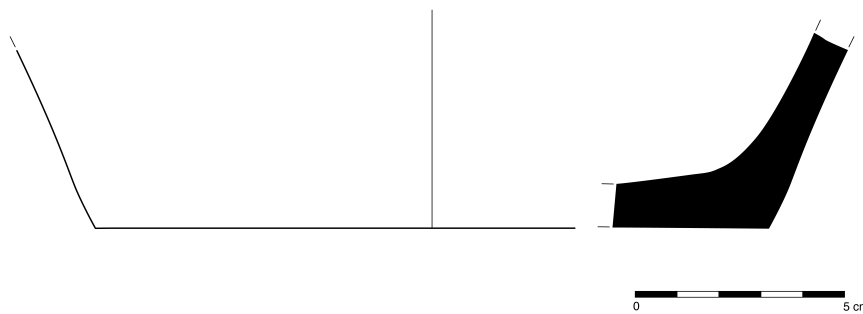


Figure 124: Base of misfired Lower Profile Type 27—plain base

### *Misfired and Fused Types*

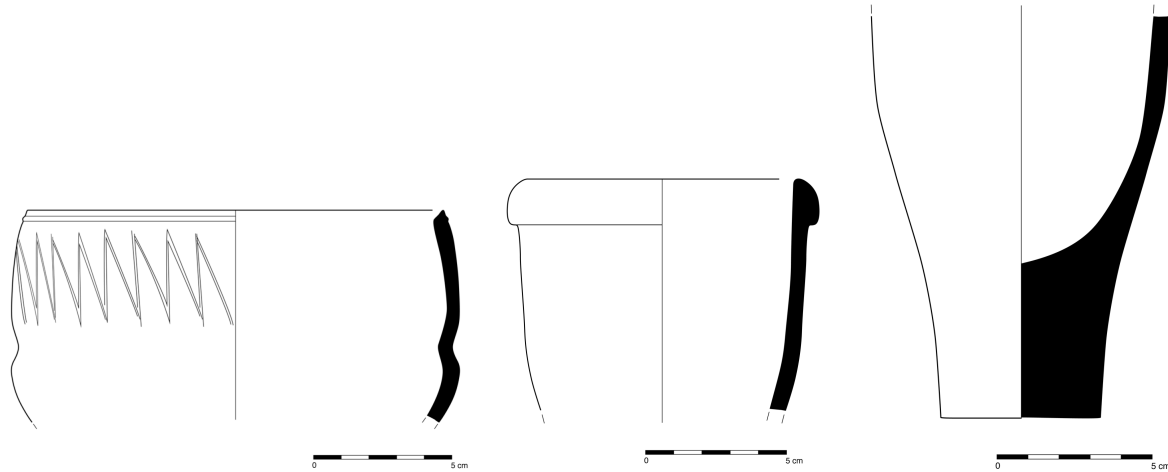


Figure 125: Fused rims of Upper Profile Types 165 and 173/Lower Profile Type 20

### **Indirect Evidence for Production Locations**

Many of the Achaemenid vessels produced in the Peach Cream fabric discussed above are homogenous and similar to others found in the region. Their exact production location, whether local or regional, is unknown, because no wasters or misfires have been found on site. However, the high frequencies of wide mouthed storage jars, which are unsuitable for transportation, suggest a short distance between the production and use locations.

The production sites of the typical Hellenistic era vessels are more difficult to pinpoint. Because of the rarity of gray vessels in Bactra, it is unlikely that reduced/gray vessels were produced locally and the place of import is unknown. It is possible that some of the incurved rim bowls and fishplates in Pink/Buff A and Pink/Buff B fabrics were produced locally. The relatively low quality of these vessels suggests they are not long distance imports, but whether they were produced at Bactra or elsewhere in the Oxus River basin is unknown.

Some decorative techniques on later table vessels, Upper Profile types 164, 165

(carinated bowls), 143, and 144 (vertical rim plates), have been found at other sites in the region, but the large number of those forms and their consistency in fabric, size, and decoration, suggest at least some local production (Figures 126-129). For the most part, though, the production sites of the majority of the vessels found at Bactra are uncertain.

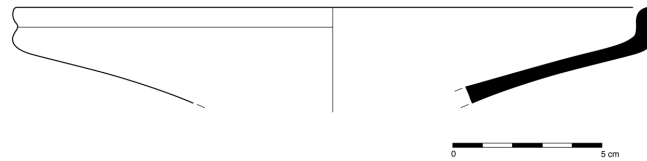


Figure 126: Upper Profile Type 143



Figure 127: Upper Profile Type 144

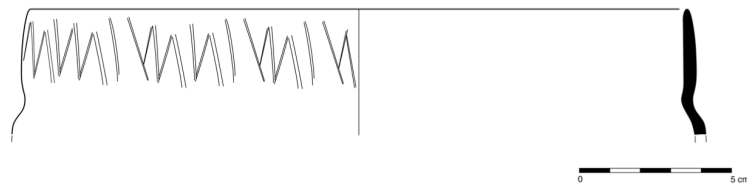


Figure 128: Upper Profile Type 164

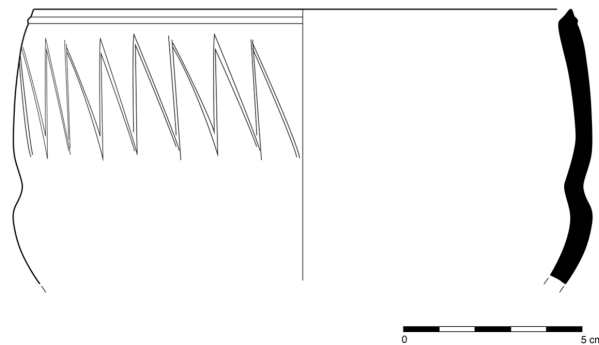


Figure 129: Upper Profile Type 165

## **Shape Typology**

The purpose of this section is to provide a shape typology based on analysis of the morphological aspects of the vessels that make up the ancient corpus of ceramics at Bactra. Because assigning ceramic types to chronological periods at this point is uncertain, possibly misleading, all types represented in the pre-Islamic corpus are included in this chapter and arranged by morphological traits. They are organized by functional shape. Evidence for chronology and assemblages is presented in Chapter Four.

## **Organization**

As noted earlier, in Chapter Two, the ceramic corpus of Bactra is particularly fragmentary, more so than other sites of similar size and excavation history, and due to difficult transportation conditions, in worse condition when analyzed in Kabul than when collected at the site. Because of this fragmentary nature and the likelihood of future researchers working with almost exclusively broken sherds,<sup>113</sup> I established separate typologies for rims and upper profiles and bases and lower profiles. While some whole profiles show specific upper profiles joined with specific lower profiles, a sufficient number is not present to conduct statistically supportable attribute analysis that would allow for the establishment of a reliable whole-profile typology.<sup>114</sup> This top-down and bottom-up approach is admittedly unwieldy, but more accurate than producing speculative whole profiles.<sup>115</sup>

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<sup>113</sup> There are thirteen whole or reconstructible contextualized profiles extant in the corpus held on DAFA grounds. Several dozen more whole small toilet and utility jars—assigned by the excavators to the Kushan period—are in storage at the National Museum of Afghanistan, but I was not able to fully analyze them.

<sup>114</sup> These whole profiles appear both in the upper and lower profile typologies.

<sup>115</sup> I established the range and definitions of the ceramic types by separating forms according to mutually exclusive traits (inverted vs. everted, concave vs. flat. vs. convex, etc.) and I sorted in the field using a set of type numbers that I later changed upon further analysis and regrouping by vessel function.

## Shape Groups

Shape types are presented in two categories, rims/upper profiles and bases/lower profiles. The upper profiles proved to be on the whole more diagnostically useful. They are presented first. Bases/lower profiles are presented second. Only a portion of these are diagnostically useful, so these are broadly grouped by vessel shape. Those that are not diagnostic of vessel form are presented last. Use

I have identified 177 upper profile types. These fall into four broad categories, or clusters, of vessels: A. closed utilitarian vessels; B. open utilitarian vessels; C. closed table vessels; and D. open table vessels.<sup>116</sup> I have further divided these into sixteen groups of shape types according to very general, function-based descriptions.<sup>117</sup> Group Cluster A can be subdivided into six shape groups: I. short-necked utility pitchers; II. short, straight and pinch neck jars; III. neckless closed jars; IV. hole-mouthed jars; V. thickened rim storage jars; and VI. large straight-walled storage jars. Group Cluster B can be subdivided into two shape groups: VII. large open pans; and VIII. large open curving-walled bowls. Group Cluster C can be subdivided into three shape groups: IX. small toilet and oil jars; X. pitchers and small table amphorae and XI. wide-mouthed serving jars/table amphorae. Group Cluster D can be subdivided into five shape groups:

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<sup>116</sup> “Open” and “closed” are somewhat problematic terms, but despite some ambiguity, their utility outweighs other possible categorical distinctions. “Restricted” and “unrestricted” could be used interchangeably. I use “open” to describe vessels whose interiors were meant to be seen such as mixing bowls or dinner bowls, whose interiors would be both seen as well as touched by either bread or an eating utensil. I use “closed” to refer to vessels whose interiors are inaccessible to the eye or hand, such as table amphorae with very small necks, or vessels that are significantly taller than they are wide. In general, open vessels tend to have more smoothly finished interior surfaces than “closed” vessels. It is possible to find many exceptions to the rules of these terms, but for the purposes of intuitive organization, they function well.

<sup>117</sup> These groupings could be generally described as functional, but it would be problematic to assume that we know the function of many of these vessels, particularly the coarse fabric vessels, as we currently lack residue analysis, textual references, or artistic representations of their use. As such, by assigning types to groups, I am not claiming *a priori* knowledge of use categories, but rather have attempted to create practical delineations to allow for greater ease when using this typology as a reference in the field.



XII. open deep bowls; XIII. large open sloping-walled serving bowls; XIV. small shallow table bowls; XV. small hemispherical and carinated table bowls; and XVI. straight-walled drinking and serving vessels.

I have identified 40 lower profile types. Some of these types can be associated with upper profile shape groups, and in fact many are associated with multiple upper profile shape groups, but they cannot reliably be associated with specific upper profile types. Many of the lower profile types can be associated with a potentially large number of upper profile types and are thus neither diagnostic of overall vessel shape nor chronologically useful. These conditions do not allow for an organization of the lower profile types that is parallel with that given for the upper profile types.

I have created two categories, or clusters, of lower profile types: Lower Group Cluster A, diagnostically useful forms, and Lower Group Cluster B, non-diagnostically useful forms. All forms in the first group can be linked to table vessels. Forms in the second group do not have specific parallels with upper profile groups. I have further divided Lower Group Cluster A into four groups: I. closed small jars; II. carinated straight walled vessels; III. small shallow and deep table bowls; and IV. pedestaled drinking and serving vessels. I have further divided Lower Group Cluster B into two groups: V. plain, non-diagnostic bases and XI. articulated, non-diagnostic bases.<sup>118</sup>

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<sup>118</sup> I use “articulated” to describe intentionally tooled shape elements or intricately wheel-turned shape elements. For instance, ring bases are an articulated shape element, as are the thickened and grooved rims of many table amphorae.

## **Type Presentation**

The upper profile types are presented first. Within the four clusters of groups, the typology is presented according to shape group. An overview of each shape group is provided before the individual types are presented. Each type is presented by number, described, and illustrated.<sup>119</sup> Type drawings are labeled with stratigraphic context information.<sup>120</sup> A concordance of the fabrics and decorations extant for each type is provided, as well as their relative frequency where available and a histogram showing the full range of rim or base diameters as well as the most common size range or ranges. The lower profile types are presented after this, organized first by those diagnostically useful and those not diagnostically useful, then according to general shape group.

Thus the outline of the typology presentation is as follows:

### ***Upper Profiles***

#### *Upper Group Cluster A: Closed Utilitarian vessels*

- Shape Group I: Short-necked Utility Pitchers, Upper Profile forms 4-5
- Shape Group II: Short, Straight and Pinch neck Jars: Upper Profile Types: 6-15, 18, 22-23
- Shape Group III: Neckless Closed Jars: Upper Profile Forms 19-21, 81, 83-84, 54-57, 59-60
- Shape Group IV: Hole-mouth Jars, Upper Profile Types 16-17, 58, 80, 85
- Shape Group V: Thickened rim Storage Jars, Upper Profile forms 61-65
- Shape Group VI: Large Straight-walled Storage Jars, Upper Profile forms 67-79

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<sup>119</sup> The sherd counts given in the type descriptions are the number of contextualized sherds. There were larger numbers of many types in the unmarked material, but as described in Chapter Two, this material was not recorded like the contextualized sherds.

<sup>120</sup> Context information is labeled by site area (BH for Bala Hissar, TZ for Tepe Zargaran), trench (Ch. for chantiers 1-18), and stratigraphic unit (UF for unité fouille).

*Upper Group Cluster B: Open Utilitarian vessels*

- Shape Group VII: Large Open Pans, Upper Profile forms 66 and 82
- Shape Group VIII: Large Open Curving-walled Bowls, Upper Profile forms 49-53

*Upper Group Cluster C: Closed Table Vessels*

- Shape Group IX: Small Toilet and Oil Jars, Upper Profile forms 1-3
- Shape Group X: Pitchers and Small Table Amphorae, Upper Profile forms 86-103
- Shape Group XI: Wide-mouthed Serving Jars/Table Amphorae, Upper Profile forms 104-112, 176

*Upper Group Cluster D: Open Table Vessels*

- Shape Group XII: Open Deep Bowls, Upper Profile forms 24-48, 177
- Shape Group XIII: Large Open Sloping-walled Serving Bowls, Upper Profile forms 113-134
- Shape Group XIV: Small Shallow Table Bowls, Upper Profile forms 135-155, 158-163, 167, 175
- Shape Group XV: Small Hemispherical and Carinated Table Bowls, Upper Profile forms 156-157, 164-166, 168
- Shape Group XVI: Straight-walled Drinking and Serving Vessels: Upper Profile Forms 169-174

***Lower Profiles***

*Lower Group Cluster A: Diagnostically Useful Forms*

- *Shape Group I*: Closed Small Jars, Lower Profile Types 1-3
- *Shape Group II*: Carinated Straight-walled Vessels, Lower Profile Types 4-6

- *Shape Group III: Small Shallow and Deep Bowls, Lower Profile Types 7-19, 39-40*
- *Shape Group IV: Pedestaled Drinking and Serving Vessels, Lower Profile Types 20-25*

*Lower Group Cluster B: Diagnostically Non-useful Forms*

- *Shape Group V: Plain Bases, Lower Profile Types 26-28*
- *Shape Group VI: Articulated Bases, Lower Profile Types 29-38*

## **Upper Group Cluster A: Closed Utilitarian vessels, Shape Groups I-VI**

This cluster contains fifty-three upper profile types separated into six groups. They are found in coarse fabrics as well as the more fine Peach Cream fabric and Pink/Buff A and Pink/Buff B fabrics. There is some incised and impressed decoration on these vessels, but excepting Peach Cream fabric, they are rarely slipped. Most vessels in this cluster were probably not meant for a dining or public setting.

- *Shape Group I*: Short-necked Utility Pitchers, Upper Profile forms 4-5
- *Shape Group II*: Short, Straight and Pinch neck Jars: Upper Profile Types: 6-15, 18, 22-23
- *Shape Group III*: Neckless Closed Jars: Upper Profile Forms 19-21, 81, 83-84, 54-57, 59-60
- *Shape Group IV*: Hole-mouth Jars, Upper Profile Types 16-17, 58, 80, 85
- *Shape Group V*: Thickened rim Storage Jars, Upper Profile forms 61-65
- *Shape Group VI*: Large Straight-walled Storage Jars, Upper Profile forms 67-79

Group I vessels likely held liquid and were used either by pouring or ladling. Group II vessels consist of both cooking and storage vessels, though without more use markings, it is difficult to distinguish between them. Group III and IV vessels were used for storage, likely of foodstuffs or liquids and were probably used with a ladle. Group V and VI vessels were probably used for storage of foodstuffs, perhaps dry goods like grains and legumes, and were meant to be used with a ladle. Vessels in these groups would be ideal candidates for lids, but none have been connected with them.<sup>121</sup>

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<sup>121</sup> Three lids were identified, two in coarse fabrics that were not preserved well enough to determine diameter and one in Buff/Pink A fabric with an 11cm diameter. It cannot be definitively linked to a specific vessel type.

## Shape Group I: Short-necked Utility Pitchers

### Upper Profile Types 4-5

These closed jar types have rims 18 to 25 centimeters in diameter (Figure 130). Rims are slightly everted and either rounded or angular and articulated. With rounded bodies, these usually have a single handle, but some could have two handles. Although no spouts have been found on rims of these vessels, it is possible that some had pinched spouts for pouring, while others were used with ladles. These were probably used for cooking or holding liquids in the kitchen or a casual setting. Bases in this group are unknown. If these were pitchers, they likely had plain or disc bases. If they were cook pots, they likely had globular bases.

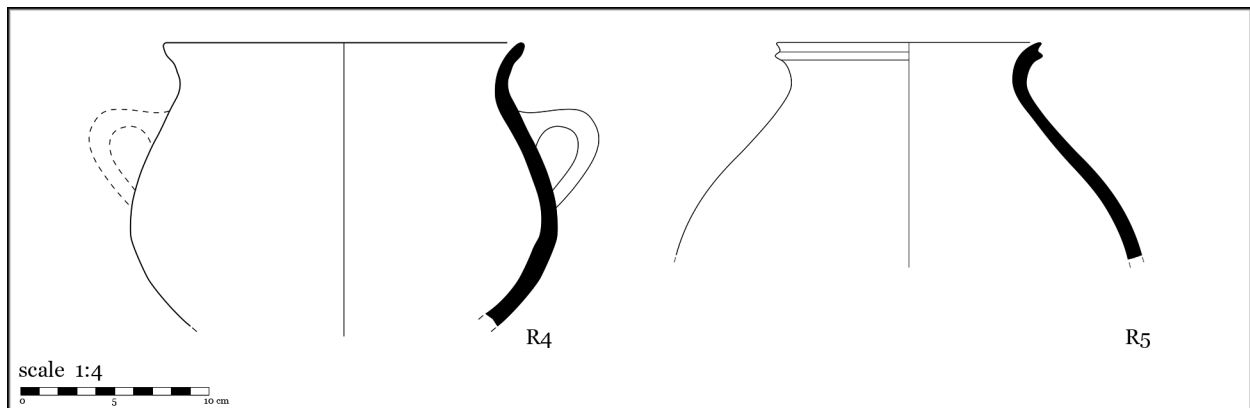


Figure 130: Compendium of Shape Group I vessels

*Upper Profile Type 4 (n=132)*

This utility jar type is a thick walled closed shape (Figure 131). It has a short, concave neck and a plain, everted rim with a rounded lip. Examples are preserved past the belly, which is rounded. Base forms are unknown. Some examples have a round loop handle, vertical in section, from the upper body to the belly.

It has a wide range of rim diameters, but most are between 10 and 30 centimeters. This type has been found in Pink/Buff B fabric (38 sherds), Pink/Buff A Fabric (23 sherds), Peach Cream fabric (26 sherds), several coarse fabrics (41 sherds), and an unknown/unique gray fine fabric (1 sherd). Decorations include occasional red and eggplant colored matte slip, usually on the rim and neck, perhaps applied by dipping, but there are unslipped examples. There is a single example of white slip with black slipped stripes.

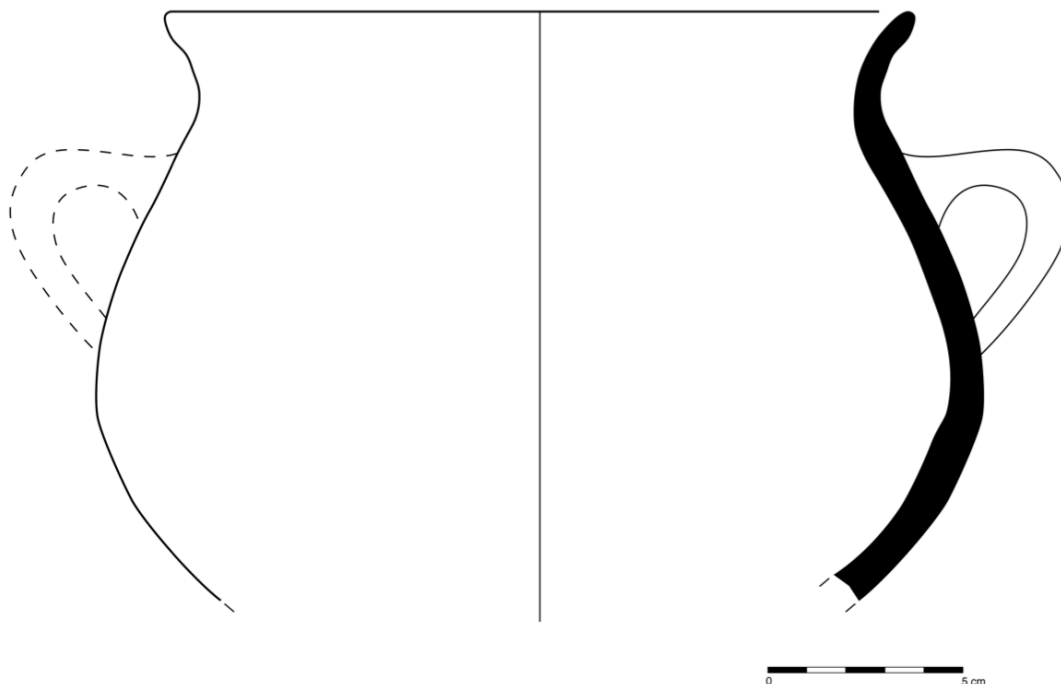


Figure 131: Rim, body, and handle in Pink/Buff A fabric with matte red slip on exterior body from belly-upwards and the top 1.5 cm of interior surface; TZ 2008 Ch.18 UF 15

*Upper Profile Type 5 (n=19)*

This pitcher or jar type is a thick walled closed shape with a rounded body (Figures 132, 133). It has a short, concave neck and an everted rim with a deep groove that creates two angular outcroppings. Examples are preserved to the belly, which is rounded, but base forms are unknown. No examples have handles, but it is possible that this form had a handle, similar to Upper Profile Type 4.

It has a wide range of rim diameters, with most between 10 and 20 centimeters. This type has been found in Pink/Buff B fabric (7 sherds), Pink/Buff A fabric (7 sherds), Peach Cream fabric (3 sherds), and coarse fabrics (2 sherds). Unslipped examples have been found. Decorations include occasional use of matte red and eggplant colored matte slip or shallow, impressed fingertip decorations on the rim.

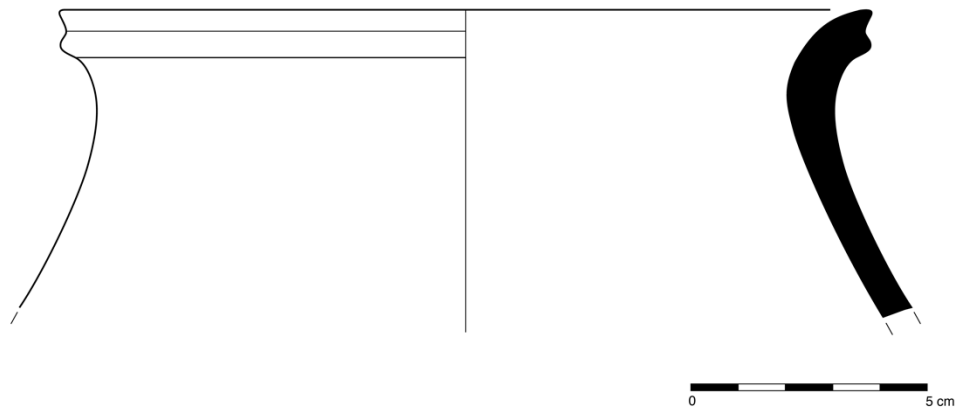


Figure 132: Rim in Pink/Buff A with matte red slip; TZ 2007 Ch.14 UF 625



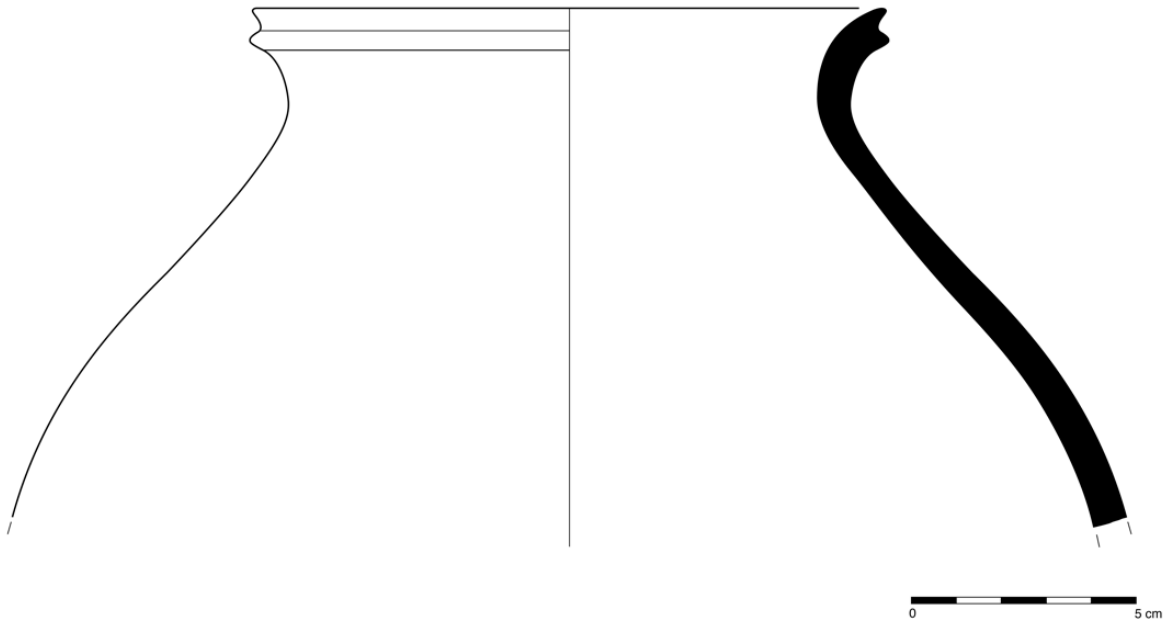


Figure 133: Rim in Pink/Buff B, unslipped; TZ 2007 Ch.14 UF 214

## **Shape Group II: Short, Straight and Pinch neck Jars**

### **Upper Profile Types: 6-15, 18, 22-23**

Closed vessels, these jar types were likely used for storage or cooking (Figure 134). With rims between 15 to 25 centimeters in diameter, these had swollen or globular bodies, as evidenced by those sherds that extend beyond the short neck. These jars have short necks, either straight or pinched. Rims range from plain to articulated, both straight and everted. Some of them probably had round, unarticulated bases that would be indistinguishable from body sherds, which would account for the unusually high number of rims found in certain fabrics that produced very few bases. Others had unarticulated, shallow bases. These occasionally have small, probably decorative, applique handles on the upper body.

Upper Profile Types 7, 9, and 10 are rare. Upper Profile Types 11 and 14 are very common.

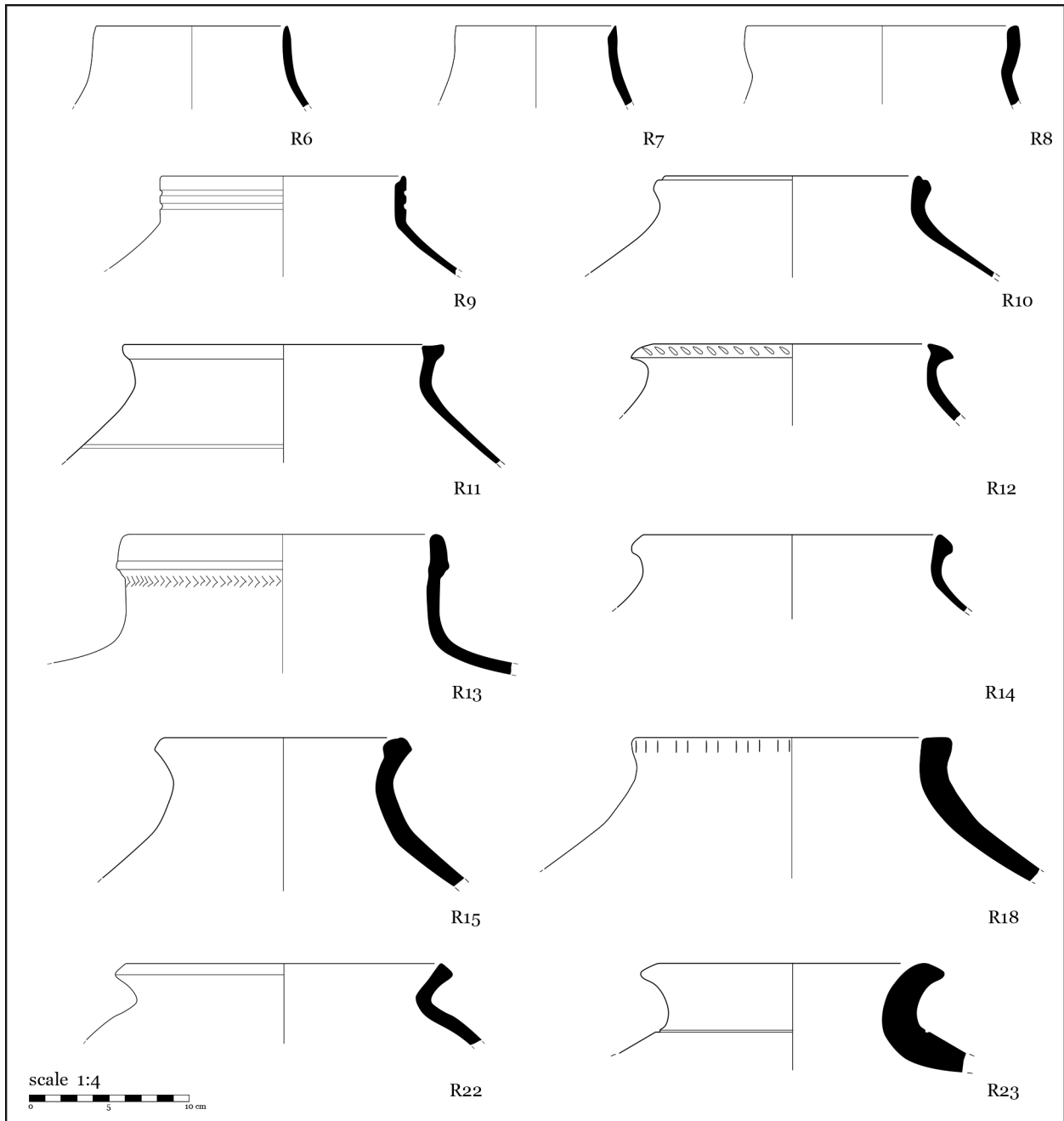


Figure 134: Compendium of Shape Group II vessels

*Upper Profile Type 6 (n=13)*

This straight-necked jar type is a thin walled closed form with a globular body (Figure 135). It has a short neck with a plain, unarticulated rim. No examples are preserved to the belly. Base forms are unknown. Some examples have a single handle.

It has rim diameters mostly between 15 and 20 centimeters, although smaller varieties have been found. Examples have been found in Pink/Buff B fabric (4 sherds), Pink/Buff A fabric (1 sherd), and several coarse fabrics (8 sherds). Most examples are unslipped, but several examples in coarse fabric have two or three shallow grooves incised in the exterior neck and there is one example with red matte slip.

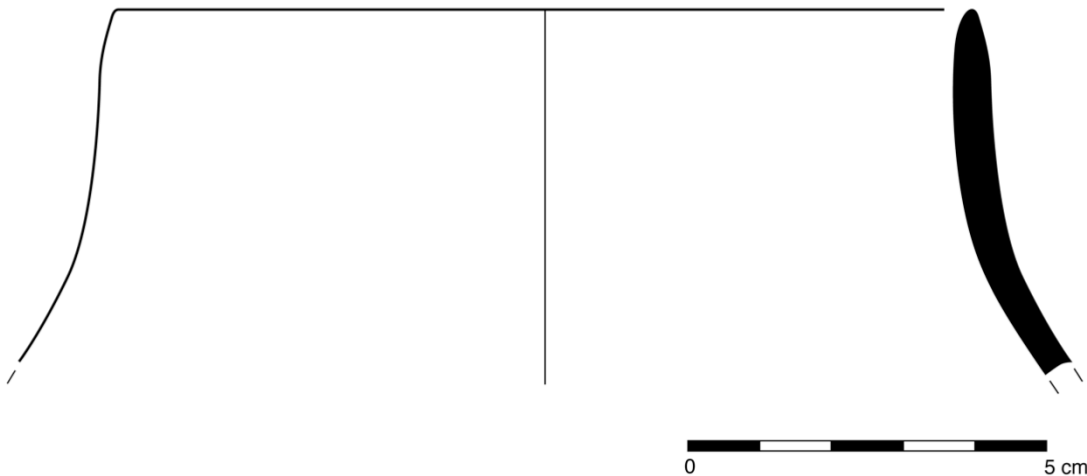


Figure 135: Rim in Pink/Buff B fabric with matte red slip and incised decoration; TZ 2005 Ch.6 UF 5

*Upper Profile Type 7 (n=4)*

This straight-necked jar type is a closed shape with walls of varying thickness (Figures 136, 137). It has a short neck and an angular, pointed lip. No examples are preserved to the belly. Base forms are unknown.

It has rim diameters between 10 and 17 centimeters. This type has been found in Pink/Buff B fabric (1 sherd) and coarse fabrics (3 sherds). All examples are unslipped, and decorations include two or three shallow grooves incised in the exterior neck.

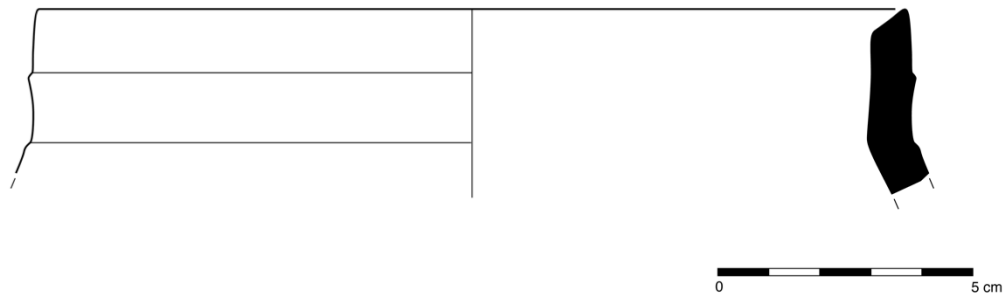


Figure 136: Rim in Pink/Buff B fabric, unslipped; TZ 2008 Ch.18 UF 29

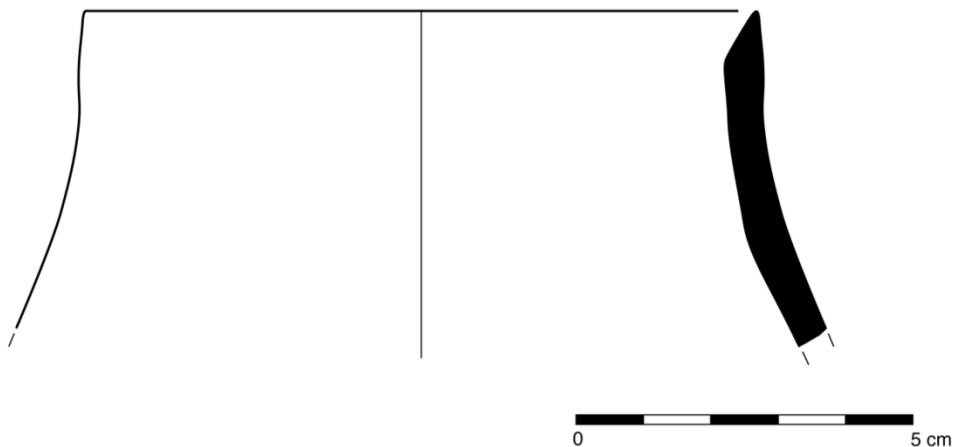


Figure 137: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 45

*Upper Profile Type 8 (n=9)*

This straight-necked jar type is a closed shape with walls of varying thickness (Figure 138). It has a short neck that is only slightly constricted at the bottom, and a flat lip. Examples are not preserved past the belly. Base forms are unknown.

It has rim diameters between 15 and 20 centimeters and is only found in coarse fabrics (9 sherds). All examples are unslipped and are frequently decorated with one to three incised grooves.

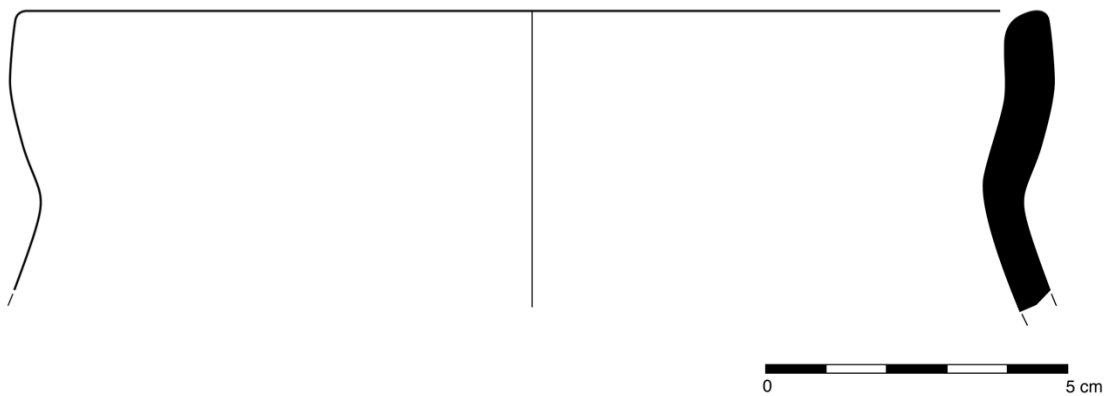


Figure 138: Rim in Soft Gray fabric; TZ 2007 Ch.6 UF 121

*Upper Profile Type 9 (n=3)*

This straight-necked jar type is a closed shape with walls of varying thickness and a globular body (Figures 139, 140). It has a short neck with deeply formed grooves on the exterior neck and a slightly angular beveled lip. Examples are not preserved past the belly and no examples have handles. Base forms are unknown.

It has rim diameters between 15 and 20 centimeters. This type has only been found in coarse fabrics (3 sherds), no decorated examples have been found.

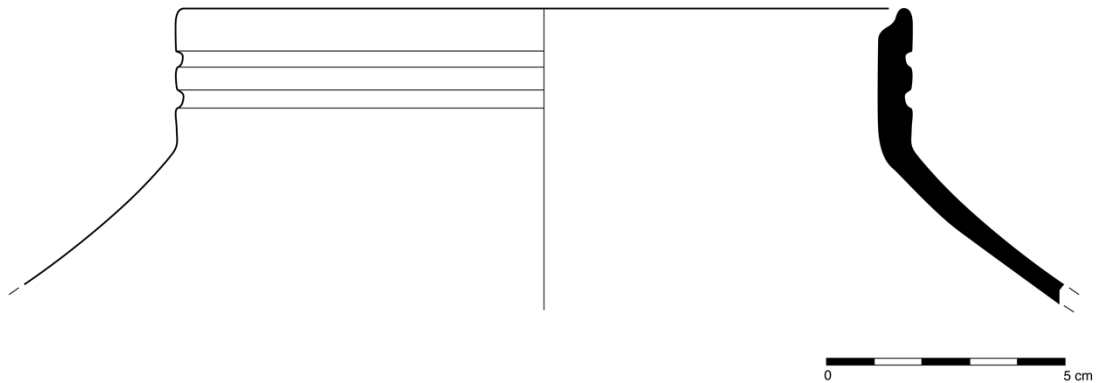


Figure 139: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 3

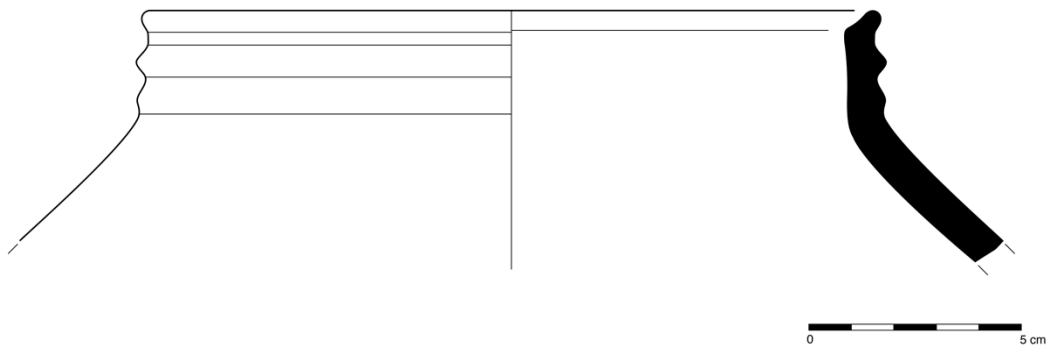


Figure 140: Rim in Hard Gray fabric; TZ 2005 Ch.6 UF 3

*Upper Profile Type 10 (n=4)*

This pinch neck jar type is a closed shape with walls of varying thickness and a globular body (Figure 141). It has a short, slightly outturned neck and a rounded rim with a groove in the center of the lip. Examples are not preserved past the belly. Base forms are unknown.

It type has rim diameters between 15 and 17 centimeters. It has been found in undecorated Hard Gray fabric (2 sherds) and Pink/Buff B fabric (2 sherds). Both sherds in Pink/Buff B fabric have been found with red slip and incised wavy lines on the exterior neck.

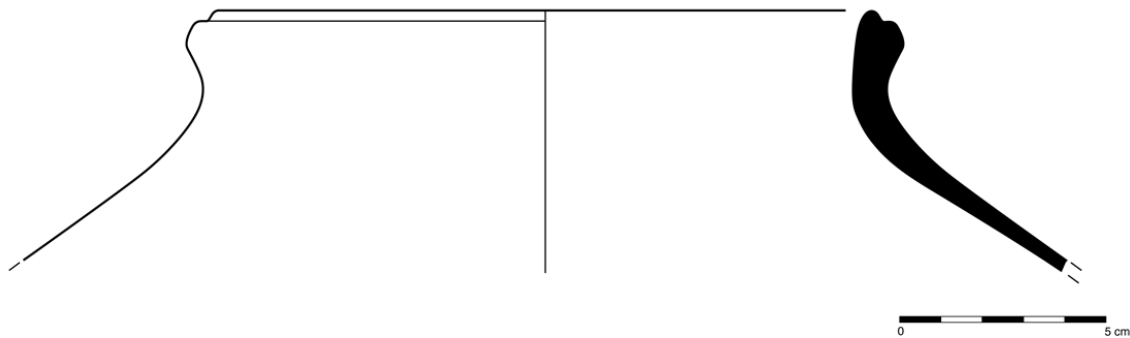


Figure 141: Rim in Pink/Buff B, unslipped; TZ 2005 Ch.6 UF 3



*Upper Profile Type 11* (n=965)

This pinch neck jar type is a closed shape with walls of varying thickness and a globular body (Figures 142-144). It has a slightly outturned, short neck and a flat rim that is widened at the lip. Examples are not preserved past the belly. No full profiles have been found, but it is a very common type and all examples were made in coarse fabrics. The stratigraphic units in which they were found also usually contained many examples of Lower Profile Type 27 in coarse fabrics. It is likely that Upper Profile Type 11 and Lower Profile Type 27 formed a fairly large vessel with a large, rounded body.

It has been found in coarse fabrics (965 sherds). Rim diameters normally range from 15 to 25 centimeters. Decorations include herringbone impressions on the exterior neck, fingertip impressions on the lip, and scalloped, straight, or wavy lines incised on the upper body.

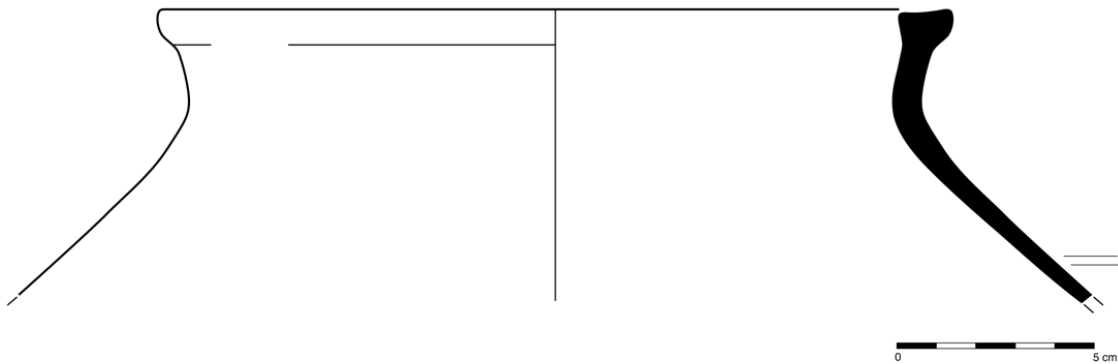


Figure 142: Rim in Hard Gray fabric; TZ 2004 Ch.2 UF 6

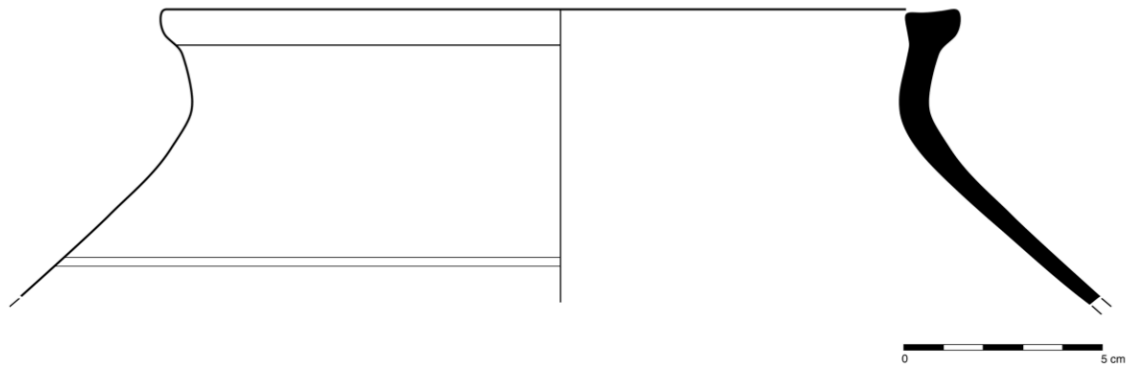


Figure 143: Rim in Soft Gray fabric; TZ 2004 Ch.2 UF 65

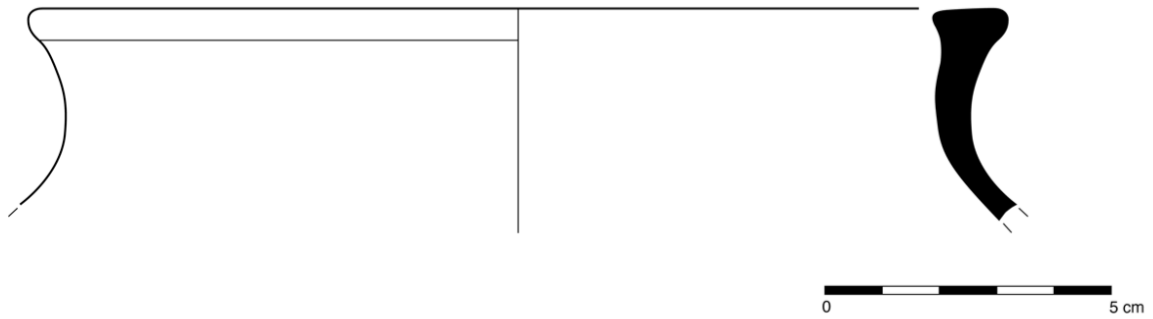


Figure 144: Rim in White Grit Brown fabric; TZ 2004 Ch.6 Fosse Kouchan

*Upper Profile Type 12 (n=80)*

This pinch neck jar type is a closed shape with walls of varying thickness and a globular body (Figures 145, 146). It has a short neck and a narrow hammerhead rim. Examples are not preserved past the belly. No full profiles have been found.

It has a wide range of rim diameters, but most are between 20 and 30 centimeters. Almost all examples of this type are made in coarse fabrics (79 sherds), but there is one example in Peach Cream fabric. There are no slipped examples, but incised and impressed decorations are frequent. Fingertip impressions and diagonal oval impressions are common on the top of the lip. Herringbone impressions are common on the exterior neck and straight incised lines are more infrequent.

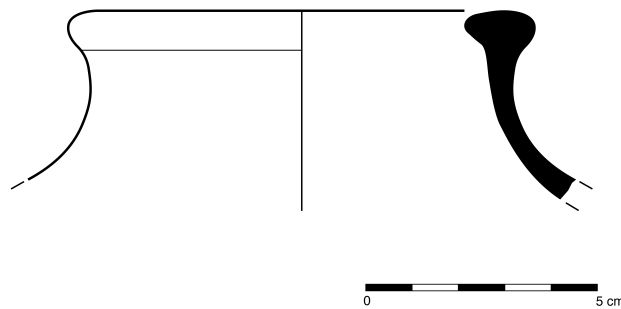


Figure 145: Rim in Muddy Jar fabric; TZ 2005 Ch.6 UF 10

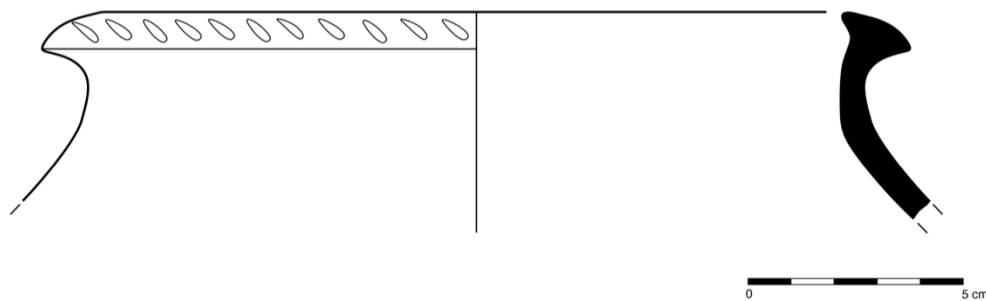


Figure 146: Rim in White Grit Brown fabric with oval impressions on neck; TZ 2007 Ch.14 UF 565

*Upper Profile Type 13 (n=14)*

This straight-necked jar type is a closed shape with walls of varying thickness and a globular body (Figures 147, 148). It has a short neck and a round, slightly elongated, and thickened lip. Examples are not preserved to the belly, but some examples show a convex upper body. Base forms are unknown.

It has diameters between 13 and 20 centimeters. It has been found only in coarse fabrics (14 sherds) and is never slipped. Decorations include herringbone impressions on the exterior neck and diagonal oval impressions on the exterior rim.

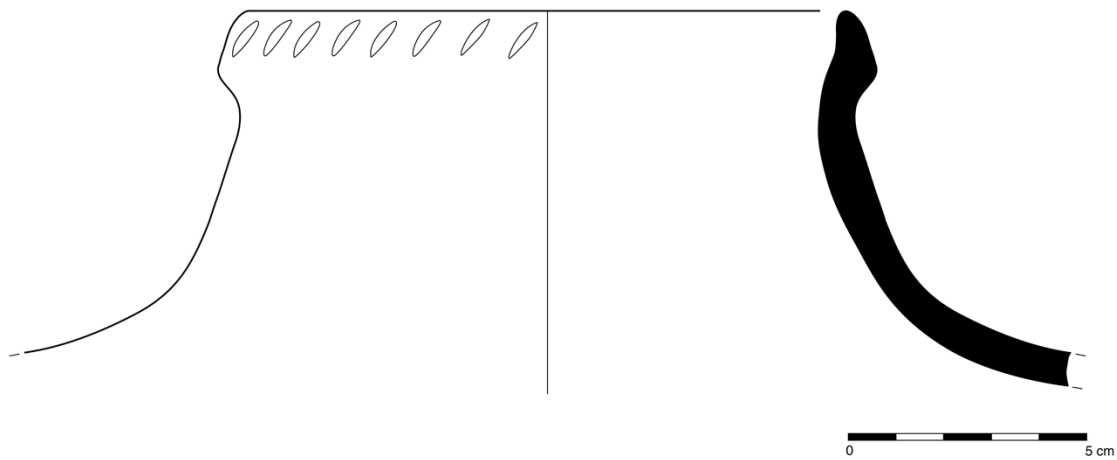


Figure 147: Rim in Muddy Jar fabric with oval impressions; TZ 2005 Ch.6 UF 3

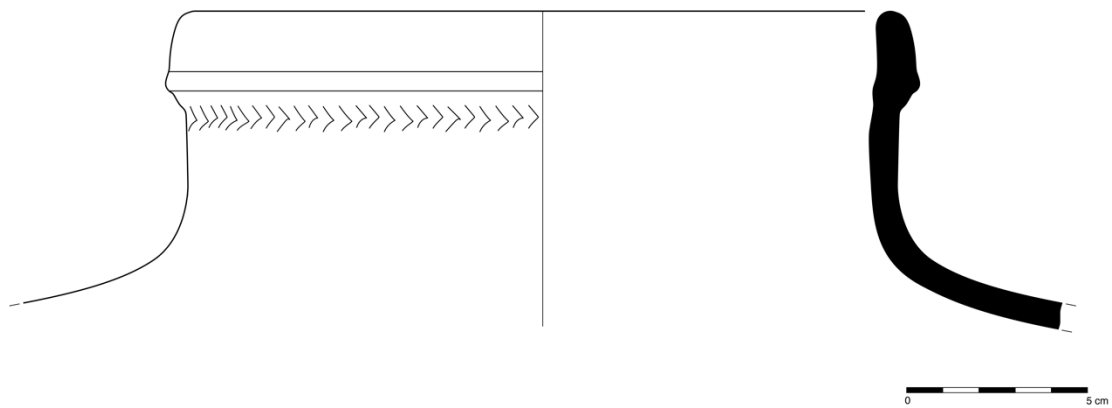


Figure 148: Rim in White Grit Brown fabric with herringbone impressions; TZ 2005 Ch.6 UF 42

*Upper Profile Type 14 (n=137)*

This slightly pinch neck jar type is a closed shape with walls of varying thickness and a globular body (Figures 149, 150). It has a somewhat outturned neck that is either a continuous curve from the body or has a very short, straight section. It has a rounded outward triangular rim and slightly angular lip. Examples are not preserved past the belly. Base forms are unknown. Some examples have a slightly larger triangular rim and these tend to have indented fingertip impressions on the external upper rim (Figures 151, 152). One example has affixed horn shaped handles.

It has a wide range of rim diameters, but most are between 20 and 25 centimeters. Almost all examples are in coarse fabrics (134 sherds), Muddy Jar fabric the most frequent, but there are rare examples in Pink/Buff B fabric (2 sherds) and Pink/Buff A fabric (1 sherd). The most common decoration is fingertip impressions on the rim, but incised wavy lines on the upper body have also been found.

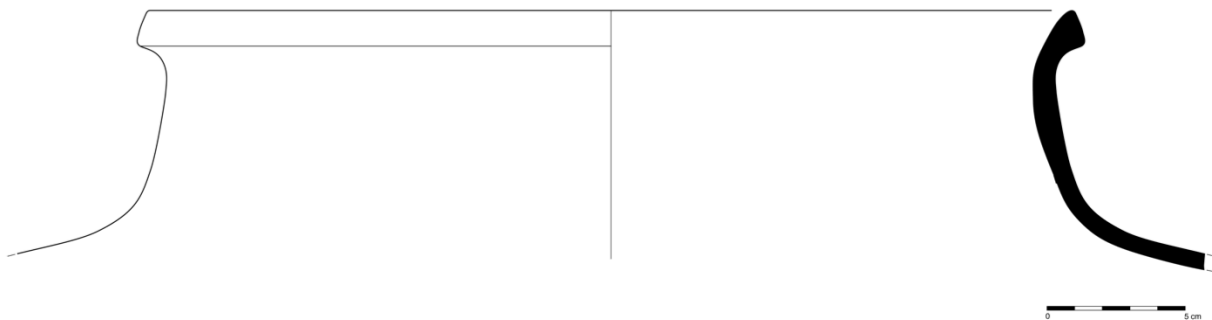


Figure 149: Rim in Muddy Jar fabric; TZ 2005 Ch.6 UF 17

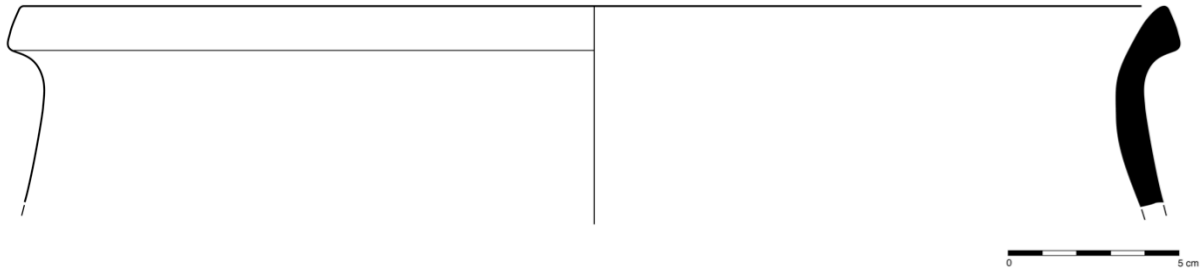


Figure 150: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 41

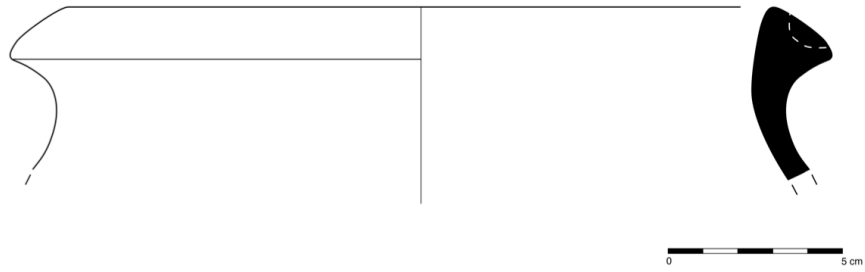


Figure 151: Rim in Muddy Jar fabric with fingertip impressions; TZ 2005 Ch.6 UF 35



Figure 152: Rim in Soft Gray fabric with small fingertip impressions; TZ 2005 Ch.6 UF 52

*Upper Profile Type 15 (n=10)*

This pinch neck jar type is a closed shape with walls of varying thickness and a globular body (Figures 153-155). It has an outturned neck and a rounded, irregular rim. Examples are not preserved past the belly. Base forms are unknown.

It has been found with rim diameters ranging from 15 to 25 centimeters and examples have been found in Pink/Buff A fabric (5 sherds), Pink/Buff B fabric (1 sherd), and coarse fabrics (4 sherds). These vessels are primarily unslipped, but three sherds are decorated with red semi-glossy slip with crosshatched burnished lines at the upper body.

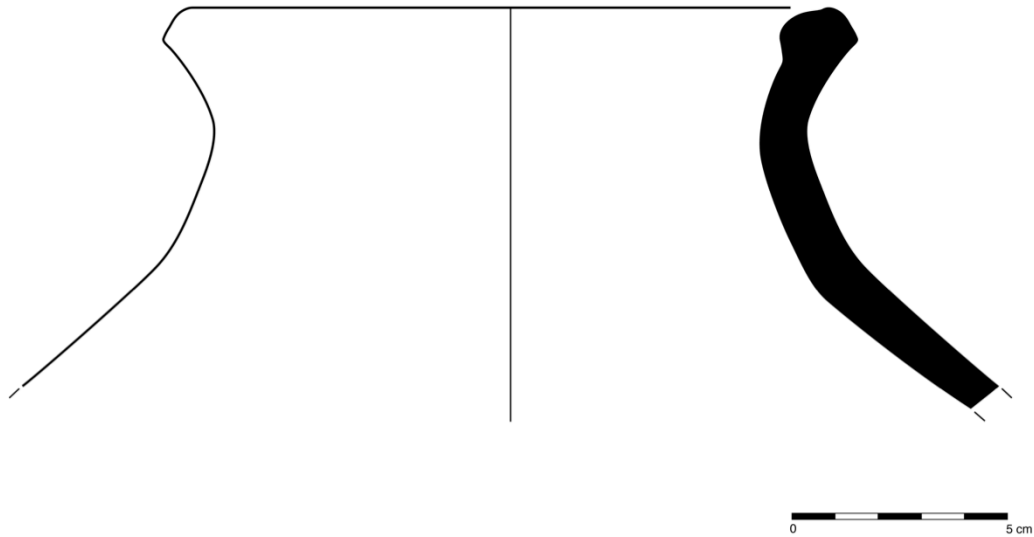


Figure 153: Rim in Pink/Buff A, unslipped; TZ 2005 Ch.6 UF 54

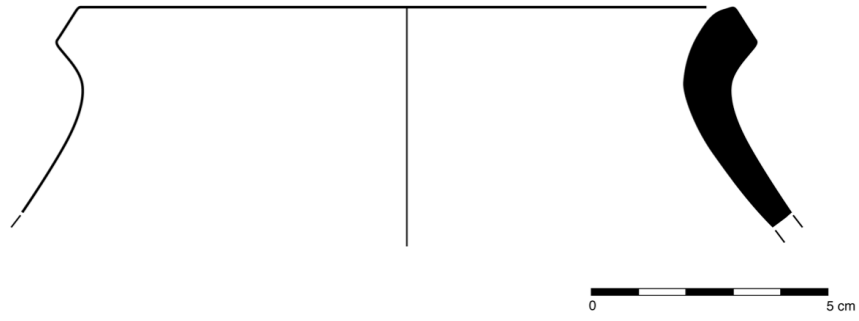


Figure 154: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 17

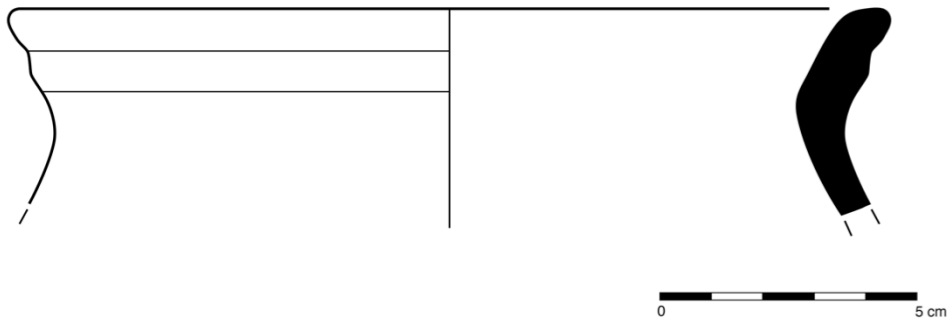


Figure 155: Rim in Pink/Buff A, unslipped; TZ 2005 Ch.6 UF 56



*Upper Profile Type 18 (n=8)*

This jar type is a thick walled closed shape with a globular body (Figures 156, 157). It has a short, straight neck and a flattened, plain or slightly thickened lip. Examples are not preserved past the belly, but some examples show a convex upper body. Base forms are unknown.

It has rim diameters between 20 and 35 centimeters. All examples have been found in coarse fabrics (8 sherds) and are decorated either with shallow fingertip impressions or short vertical incised lines on the exterior of the rim.

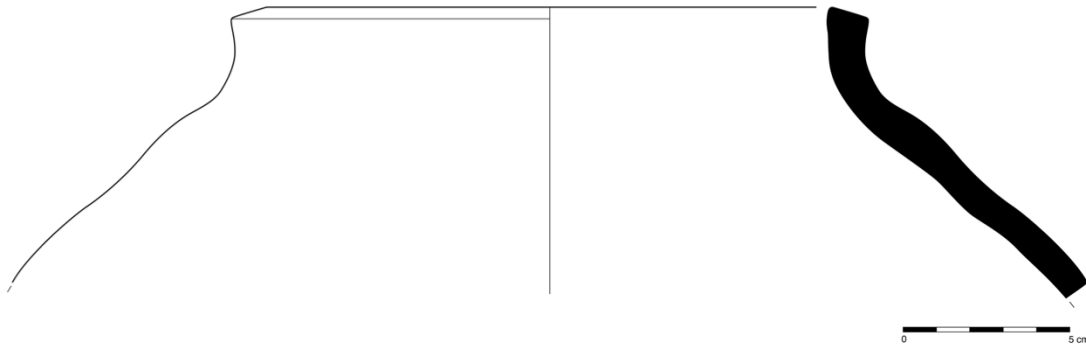


Figure 156: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 56

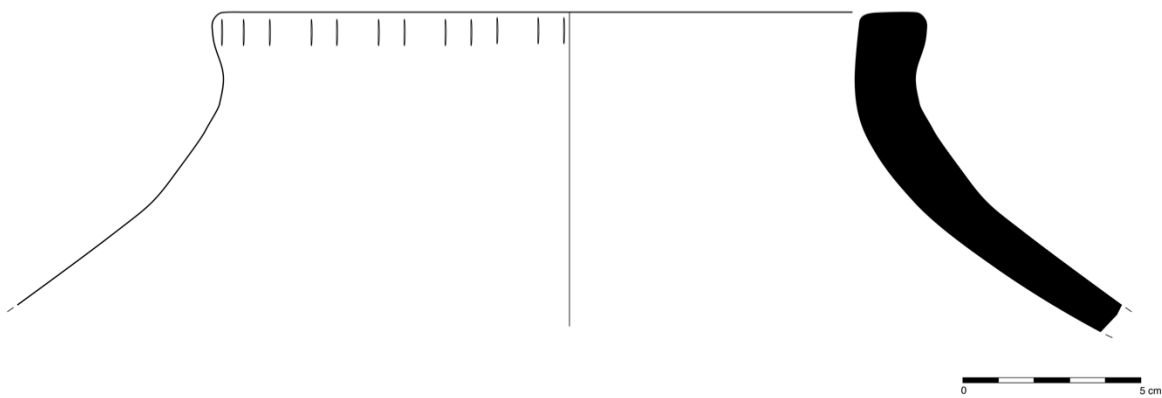


Figure 157: Rim in Muddy Jar fabric with vertical incised lines on rim; TZ 2005 Ch.6 UF 56

*Upper Profile Type 22 (n=7)*

This pinch neck jar type is a thin walled closed form with a globular body (Figures 158, 159). It has an everted rim with a squared lip. No examples are preserved to the belly of the vessel, but the shoulders suggest a rounded body. Base forms are unknown.

It has rim diameters between 10 and 21 centimeters. It has been found in Peach Cream fabric (1 sherd), coarse fabrics (2 sherds), Pink/Buff A fabric (3 sherds) and Pink/Buff B fabric (1 sherd). Excepting the Peach Cream example, these vessels are often unslipped, but there are three matte red slipped examples.

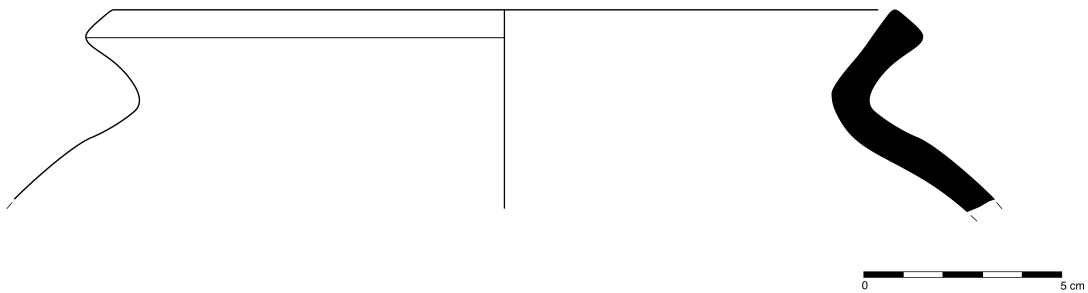


Figure 158: Rim in Pink/Buff B fabric with matte red slip; TZ 2005 Ch.6 UF 53

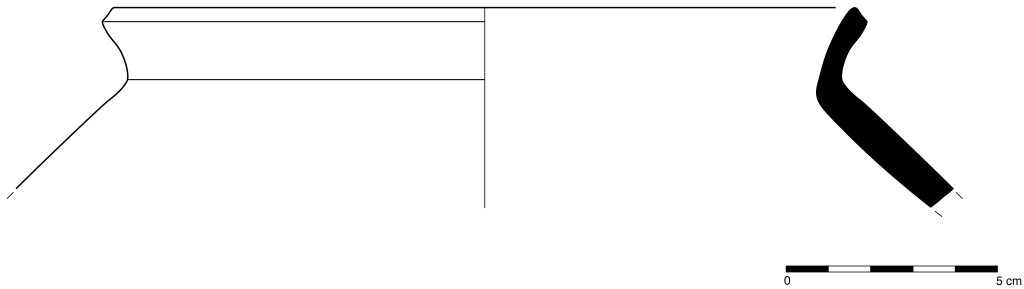


Figure 159: Rim in Peach Cream fabric; BH 2005 UF 24

*Upper Profile Type 23 (n=13)*

This pinch neck jar type is a very thick walled closed shape (Figure 160). It has an outturned neck and a rounded rim. Examples are not preserved past the belly. Base forms are unknown.

It has been found with a wide range of rim diameters, 10-30 centimeters, though all examples have thick walls, at least 15mm. This has been found in coarse fabrics (9 sherds), Pink/Buff B fabric (1 sherd), and Pink/Buff A fabric (2 sherds). There is one sherd in a coarse fabric that macroscopically looks like a fabric attested at Cheshme Shafa.<sup>122</sup> Most examples are undecorated. Extant decorations include shallow fingertip impressions in the upper lip.

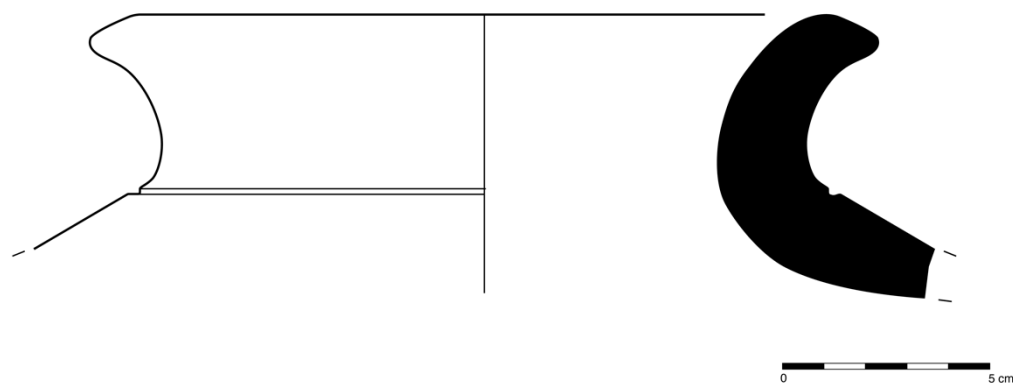


Figure 160: Rim in Pink/Buff B, unslipped; TZ 2005 Ch.6 UF 53

<sup>122</sup> DAFA conducted excavations at Cheshme Shafa, approximately 20 km south of Bactra, in 2007 and 2008. I was able to partially analyze this material at DAFA and photograph fabric samples.

### Shape Group III: Neckless Closed Jars

#### Upper Profile Forms 19-21, 81, 83-84, 54-57, 59-60

These vessel types have a wide range of rim diameter, from 15 to 45 centimeters (Figure 161). With narrowed rims and wide bodies, there are rolled and pinched rim varieties as well as rounded and thickened or flanged. This latter variety could have held a lid, but none have been found that would fit these vessels. The wide mouth diameter and round bodies of some vessels suggests storage, though some might have been used for cooking.

The rolled and pinched neckless jars (Types 54-60), almost all of which are in Peach Cream fabric, have attested whole profiles that show widened lower bodies and rounded, low carinations just above a completely rounded base.

Upper Profile Type 21 is rare. Upper Profile Type 83 is very common.

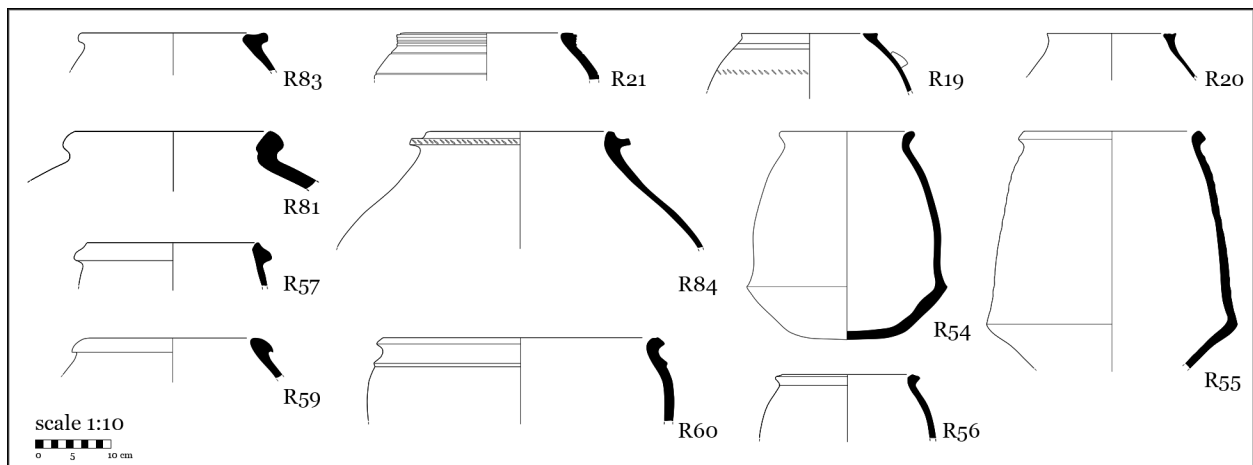


Figure 161: Compendium of Shape Group III vessels

*Upper Profile Type 19 (n=73)*

This hole-mouthed jar type is a thick walled closed shape with a globular body (Figures 162-164). It is neckless and has a flat, plain, thickened lip. Examples are preserved down to the belly, which is rounded. Base forms are unknown. Some examples have rounded handles that join the vessel on the upper body; other examples have small lug handles.

It has a wide range of rim diameters, between 10 and 25 centimeters. Almost all examples are in coarse fabrics (71 sherds), but there are rare examples in Pink/Buff B fabric (1 sherd) and Pink/Buff A fabric (1 sherd). Decorations include straight incised lines and diagonal oval impressions on the upper body.

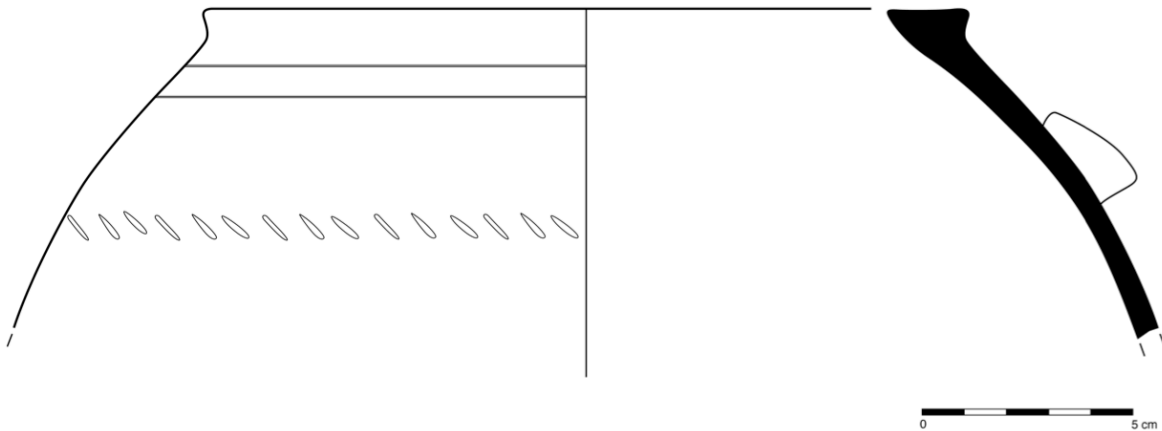


Figure 162: Rim and handle in Hard Gray fabric with incised grooves and impressed oval decoration; TZ 2005 Ch.6 UF 4

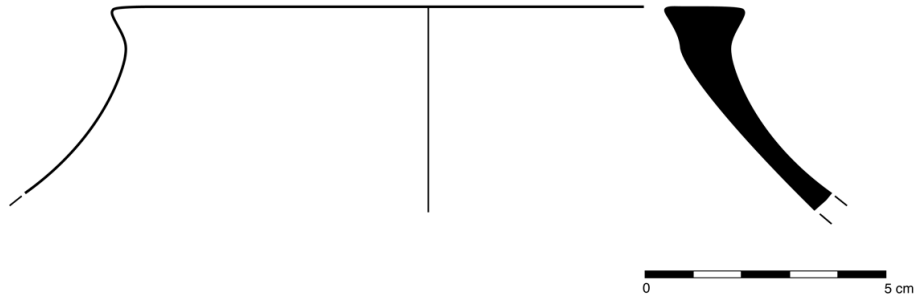


Figure 163: Rim in Light Brown Gritty fabric; TZ 2004 Ch.4 UF 12

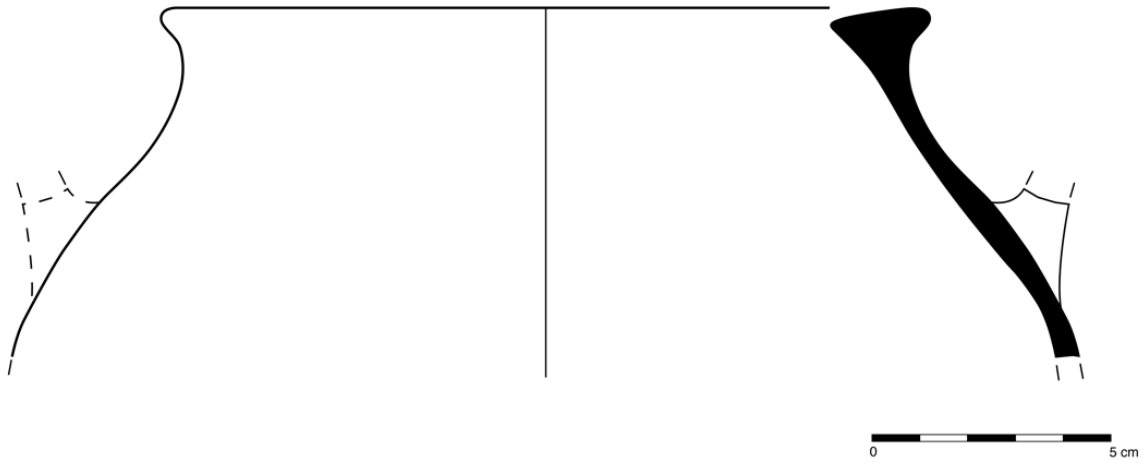


Figure 164: Rim in Light Brown Gritty fabric with small loop handles; TZ 2005 Ch.6 UF 53

*Upper Profile Type 20 (n=7)*

This jar type is a closed shape with a globular body (Figure 165). It is neckless and has a flat, thickened rim with grooves in the top. Examples are not preserved down to the belly. Base forms are unknown.

It has rim diameters between 13 and 20 centimeters. It has been found in coarse fabrics (4 sherds) and Pink/Buff B fabric (3 sherds). Two examples have matte eggplant colored slip on the rim and one has diagonal oval impressions on the upper body, but most are undecorated.

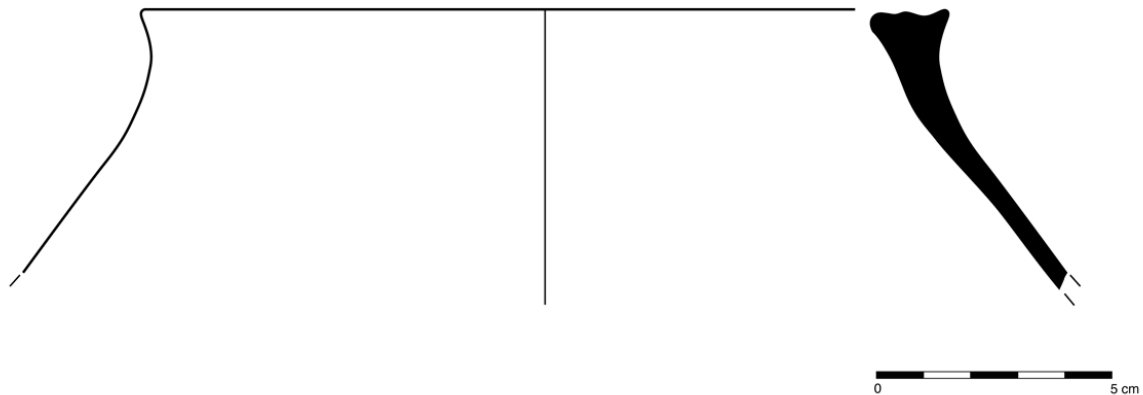


Figure 165: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 4

*Upper Profile Type 21 (n=4)*

This jar type is a thick walled closed shape (Figures 166, 167). It has a slight neck and an external articulation that is worked at the leather hard stage with multiple angles. Some examples have grooves in the neck and body, showing extensive detailed shaping on the wheel, probably in the leather hard state. Examples are not preserved past the belly. Base forms are unknown.

Rim diameters range between 25 and 29 centimeters. This type has been found in Pink/Buff B fabric (2 sherds) and Pink/Buff A fabric (2 sherds). These vessels are primarily unslipped example, but one has traces of matte red slip. Decorations occasionally include matte red slip in addition to the extensive grooved shaping.



Figure 166: Rim in Pink/Buff A with matte red slip; TZ 2004 Ch.2 UF 14

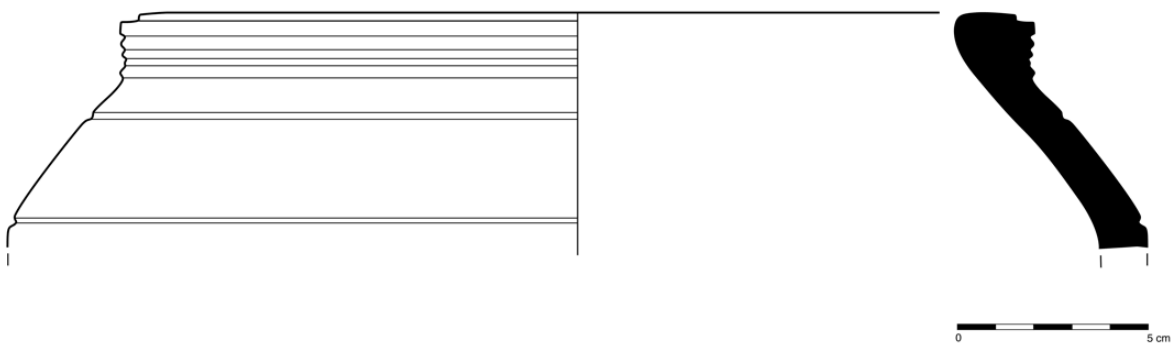


Figure 167: Rim in Pink/Buff B, unslipped; TZ 2004 Ch.4 UF 9



*Upper Profile Type 81 (n=10)*

This large closed jar type is a thick walled closed shape (Figures 168, 169). It has a slight neck and a rounded rim. The walls of this type are sometimes very thick, 3-4cm, and there is often a groove on the interior of the rim. Examples are not preserved past the belly. Base forms are unknown. Some examples appear handmade or have hand-formed rims.

It has rim diameters from 20-50 centimeters. It has been found in Peach Cream fabric (4 sherds), Pink/Buff B fabric (1 sherd), and coarse fabrics (5 sherds). Three sherds in coarse fabrics have fingertip impressions on the exterior of the rim.

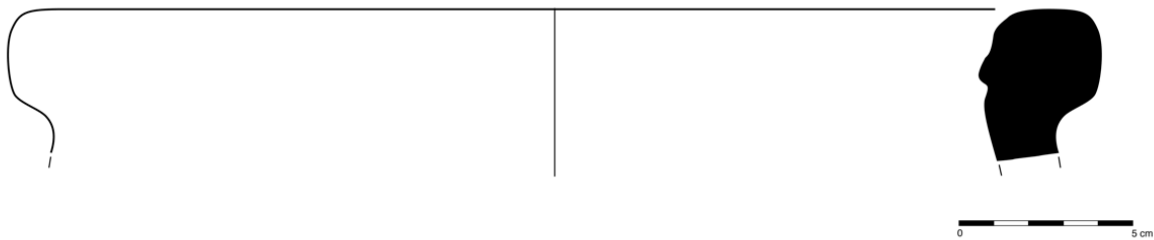


Figure 168: Rim in Pink/Buff B fabric, unslipped; TZ 2006 Ch.6 UF 13

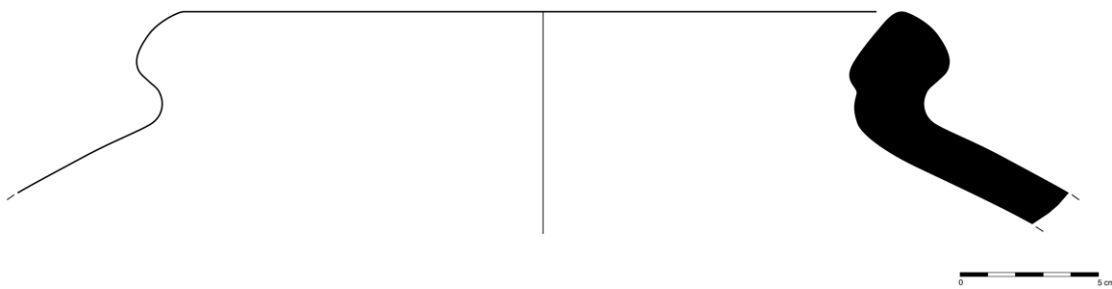


Figure 169: Rim in Peach Cream fabric; BH 2005 UF 24

*Upper Profile Type 83 (n=297)*

This large closed jar type is a thick walled closed shape (Figure 170). It has a slight neck and the rim is a large, worked flange with a rounded exterior, possibly to hold a lid. Examples are not preserved past the belly. Base forms are uncertain, but are probably unarticulated or completely rounded.

It has rim diameters between 20 and 45 centimeters. It has been found in a wide variety of coarse fabrics (297 sherds). There is no evidence of slipped decoration on this form, but fingertip or rope-like impressions are commonly found on the exterior edge of the rim ledge and there are occasionally wavy, incised lines on the upper body.

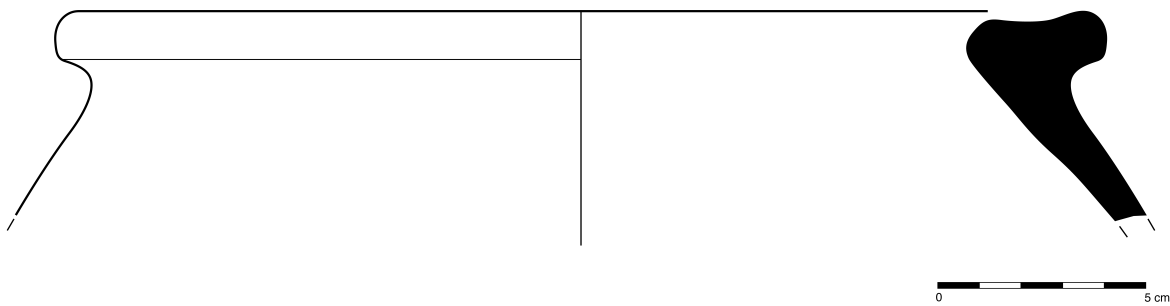


Figure 170: Rim in White Grit Brown fabric; TZ 2005 Ch.6 UF 3

*Upper Profile Type 84 (n=16)*

This large closed jar type is a thick walled closed shape (Figure 171). It has a slight neck and the rim is a large, worked flange with a squared exterior, possibly to hold a lid. Examples are not preserved past the belly. Base forms are uncertain, but are probably unarticulated or completely rounded. This is similar to form 83 in every aspect except the squared ledge. This is less common than the rounded ledge.

It has rim diameters between 25 and 45 centimeters. It has been found in a variety of coarse fabrics (16 sherds). Fingertip impressions are commonly found on the exterior edge of the rim ledge.

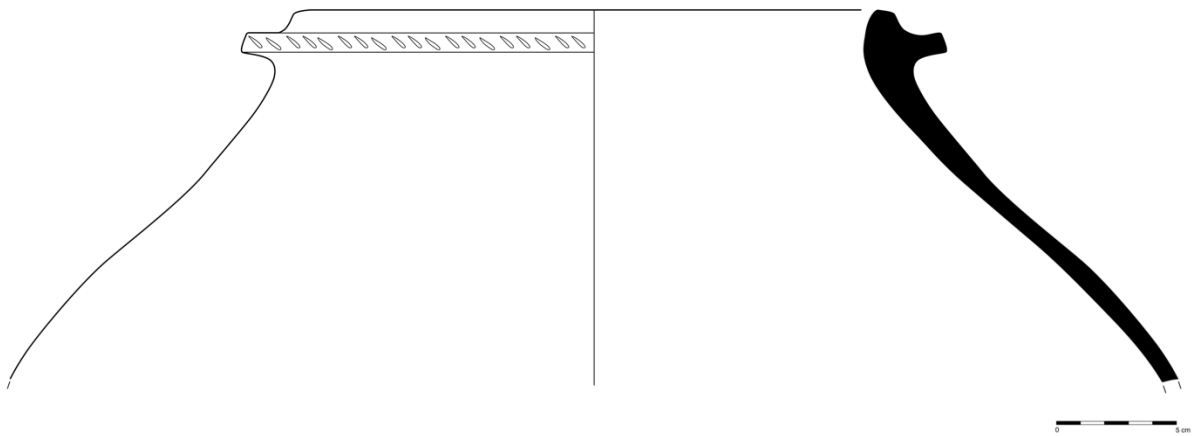


Figure 171: Rim in Hard Gray fabric; TZ 2008 Ch.6 UF 15

*Upper Profile Type 54 (n=57)*

This large jar type is a thick walled shape (Figures 172-174). It has a short, concave neck or constriction and a plain, slightly everted rim with a rounded, thickened lip. The body is pear shaped and there is a rounded carination at the lower body. The preserved whole profile shows a completely rounded base, perhaps meant to be set into a floor.

It has a wide range of rim diameters, but most are between 25 and 35 centimeters. This type is primarily found in Peach Cream fabric (52 sherds). Rare examples have been found in coarse fabrics (5 sherds), one with fingertip impressions on the rim, and there is one example in Pink/Buff A fabric with red slip.

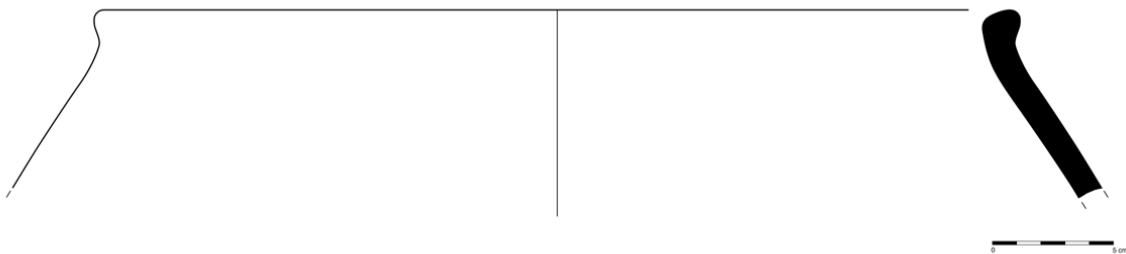


Figure 172: Rim in Peach Cream fabric; BH 2005 UF 24

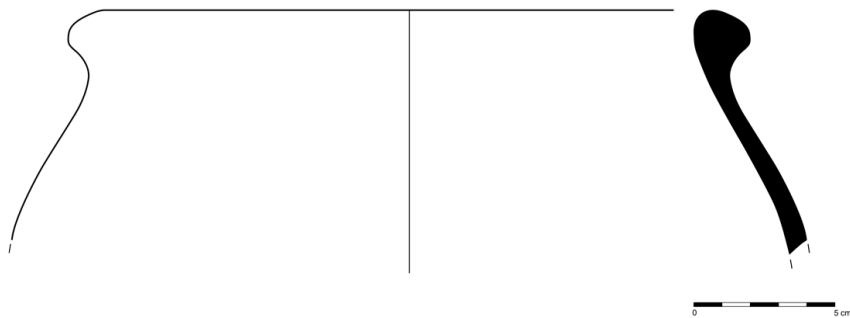


Figure 173: Rim in Peach Cream fabric; BH 2005 UF 26

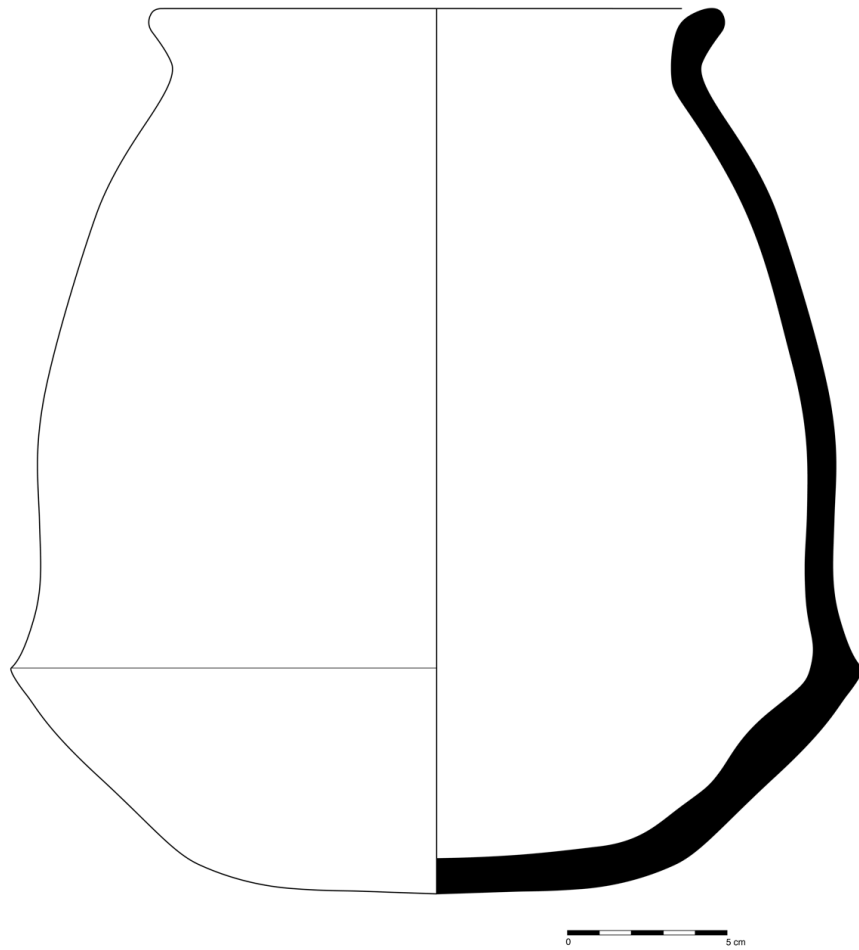


Figure 174: Whole profile in Peach Cream fabric; BH 2005 UF 33

*Upper Profile Type 55 (n=67)*

This large jar type is a thick walled shape (Figures 175-177). It has a slight neck or constriction and a triangular external articulation that is rounded on the top. Examples are rarely preserved past the belly, but those that are have carinations on the lower body. Base forms are unknown.

It has rim diameters between 15 and 55 centimeters. This type is primarily found in Peach Cream fabric (57 sherds). Rare examples have been found in coarse fabrics (3 sherds), most of which have shallow fingertip impressions in the upper rim, and some examples in Pink/Buff B fabric (7 sherds), all of which are unslipped.

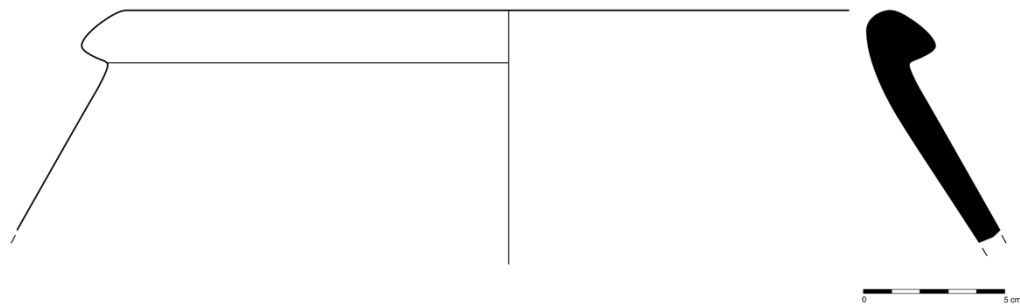


Figure 175: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 1

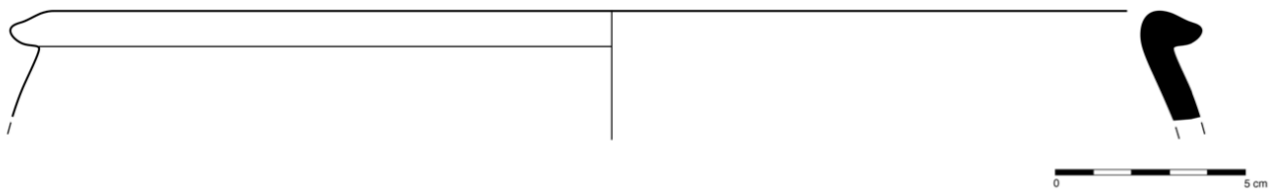


Figure 176: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 19

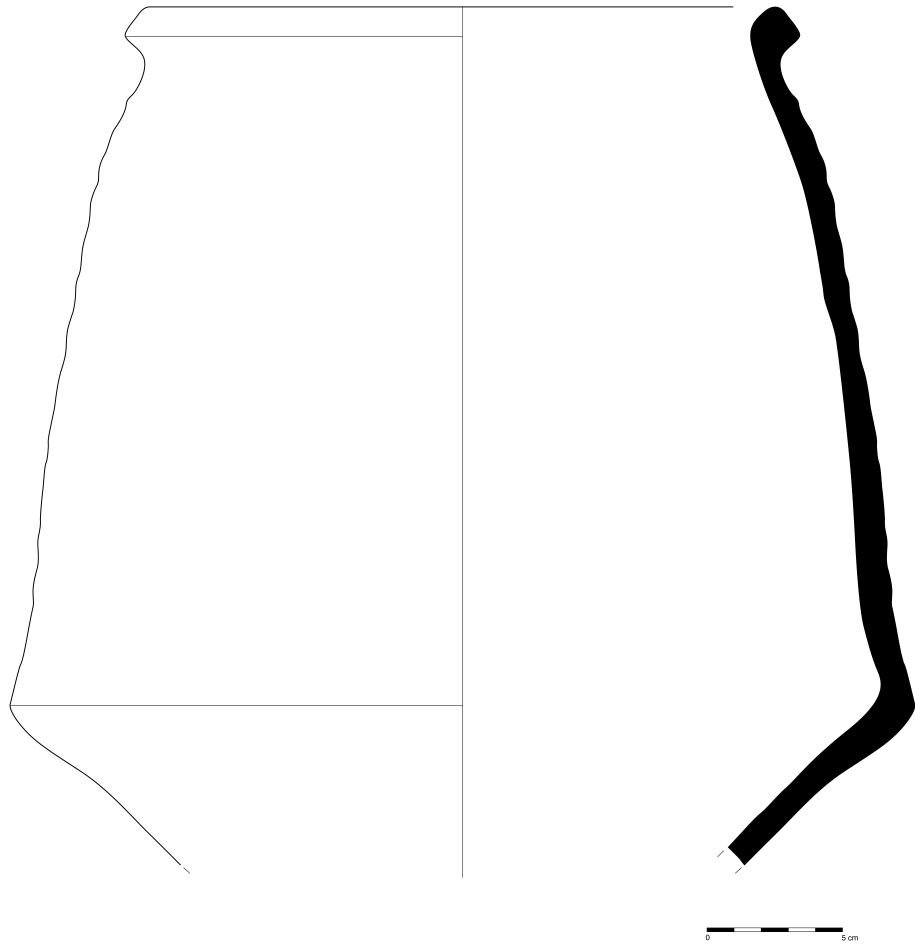


Figure 177: Rim and body in Peach Cream fabric; BH 2005 UF 37

*Upper Profile Type 56 (n=7)*

This large jar type is a thick walled shape (Figures 178, 179). It has a slight neck/constriction and a triangular external articulation that is rounded. The center of the top of the rim is raised. Examples are not preserved past the belly. Base forms are unknown.

It has rim diameters between 35 and 45 centimeters. It has been found in Peach Cream fabric (4 sherds), Pink/Buff A fabric (1 sherd), Pink/Buff B fabric (1 sherd), and a coarse fabric (1 sherd). Excepting the usual slip in Peach Cream fabric, no examples have decoration.

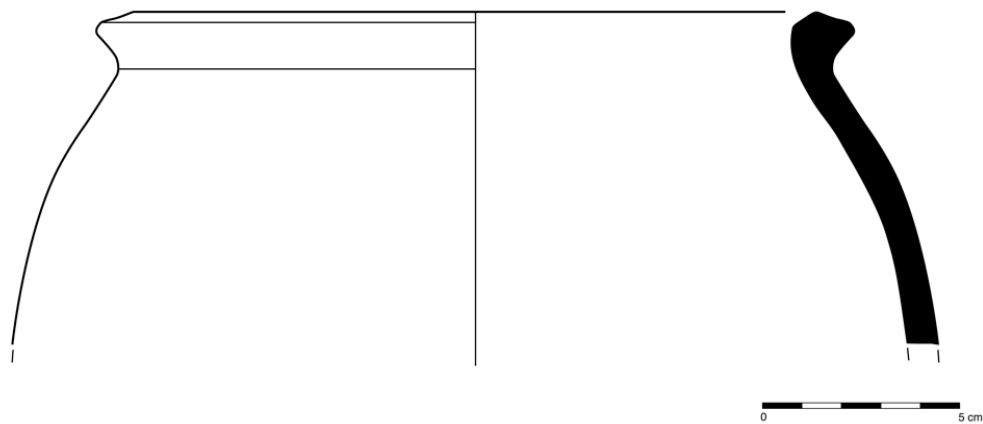


Figure 178: Rim in Peach Cream fabric; TZ 2005 Ch.6 UF 55

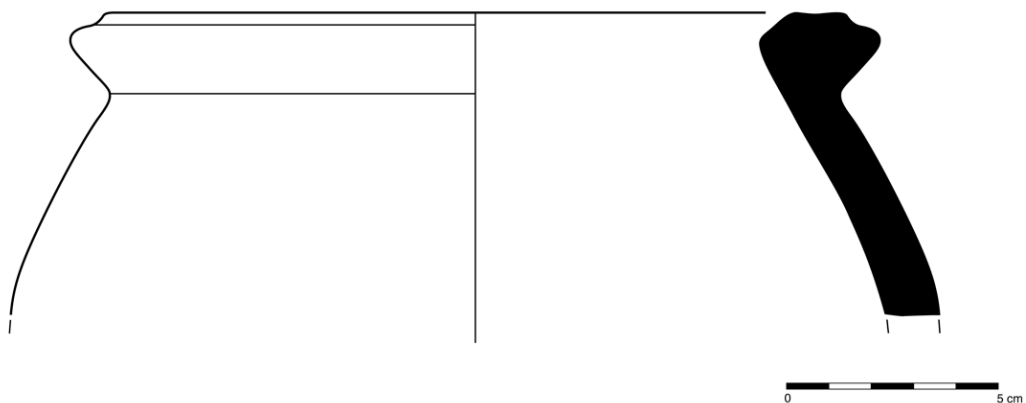


Figure 179: Rim in Pink/Buff B fabric, unslipped; BH 2005 UF 21



*Upper Profile Type 57 (n=27)*

This large jar type is a thick walled shape (Figures 180, 181). It has a short neck/constriction and a large triangular external articulation with a small ledge. Examples are not preserved past the belly. Base forms are unknown.

It has a wide range of rim diameters, but most are within 25-40 centimeters. It has been found in primarily in Peach Cream fabric (22 sherds), but there are several examples in Pink/Buff B fabric (3 sherds) and coarse fabrics (2 sherds). The Buff and coarse examples are smaller in diameter than others. The Buff examples have matte or semi-glossy eggplant colored slip. No other decorations have been found.

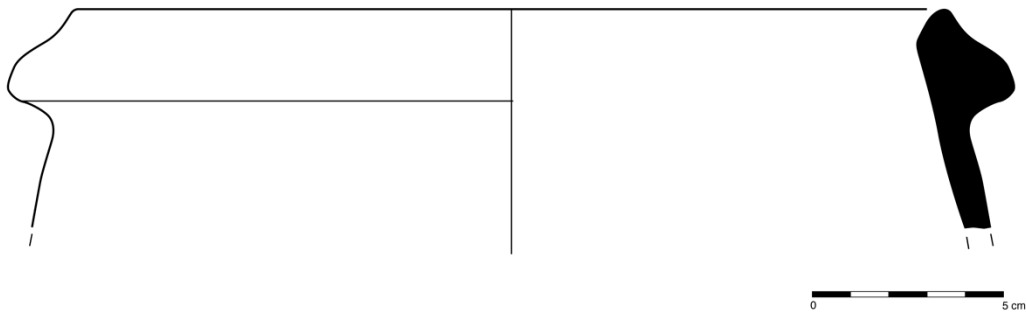


Figure 180: Rim in Peach Cream fabric; BH 2005 UF 37

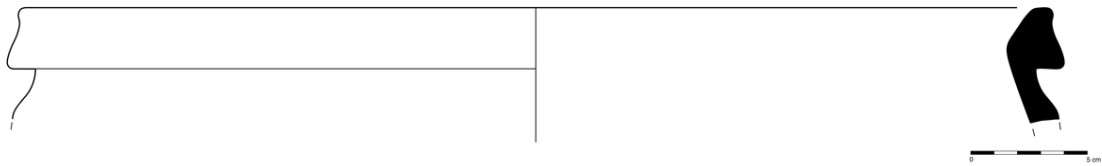


Figure 181: Rim in Peach Cream fabric; TZ 2007 Ch.6 UF 111

*Upper Profile Type 59 (n=7)*

This large jar type is a thick walled shape (Figures 182, 183). It has a slight neck/constriction and a triangular external articulation that is rounded. The lower external rim is pointed. Examples are not preserved past the belly. Base forms are unknown.

It has rim diameters between 15 and 30 centimeters. It has only been found in Peach Cream fabric (7 sherds).

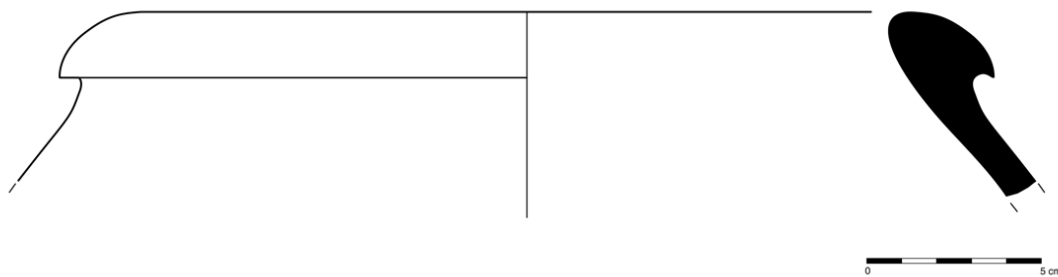


Figure 182: Rim in Peach Cream fabric; BH 2005 UF 37

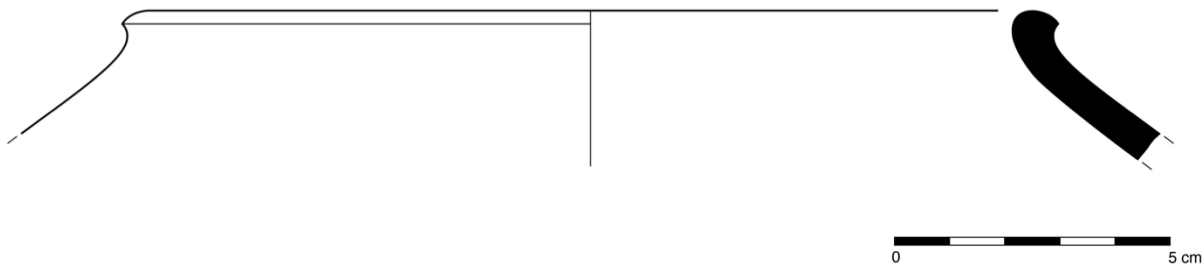


Figure 183: Rim in Peach Cream fabric; BH 2005 UF 27

*Upper Profile Type 60 (n=7)*

This large jar type is a thick walled shape (Figures 184, 185). It has a short, concave neck and a plain, everted rim with a rounded, frequently thickened lip. There is a rounded external articulation at the shoulder of the vessel. Examples are not preserved past the belly. Base forms are unknown.

It has a wide range of rim diameters, between 15 and 45 centimeters. It has only been found in Peach Cream fabric (7 sherds).

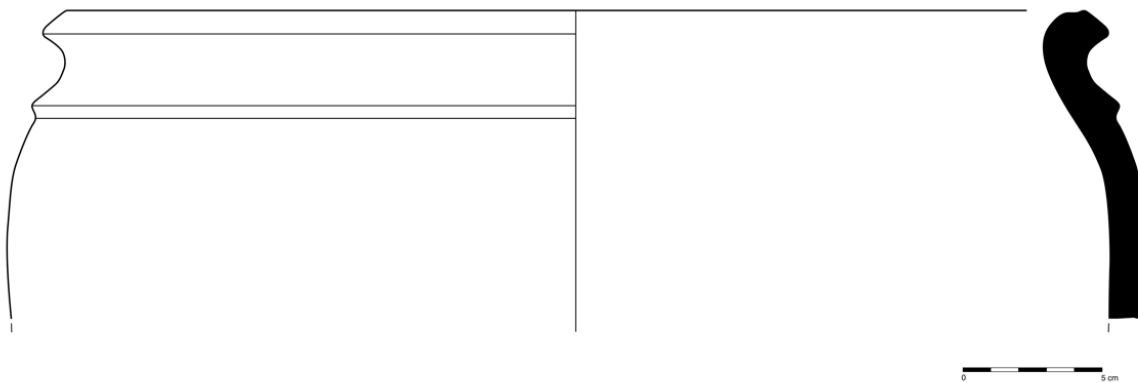


Figure 184: Rim in Peach Cream fabric; BH 2005 UF 21

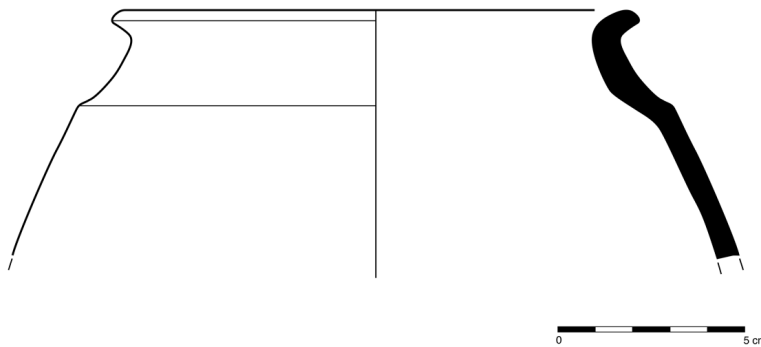


Figure 185: Rim in Peach Cream fabric; BH 2008 UF 409

## Shape Group IV: Hole-mouth Jars

### Upper Profile Types 16-17, 58, 80, 85

These fairly large, closed jar types tend to have wide mouths with no neck and little to no articulated rim (Figure 186). Rim diameters range from 15 to 25cm. As far down as the bodies are preserved, they are globular. Bases are unknown, but were probably globular and thus indistinguishable from body sherds, or plain. These were probably used for storage. Type 85 has a slightly flanged rim that could have held a lid, but no matching lids have been found.

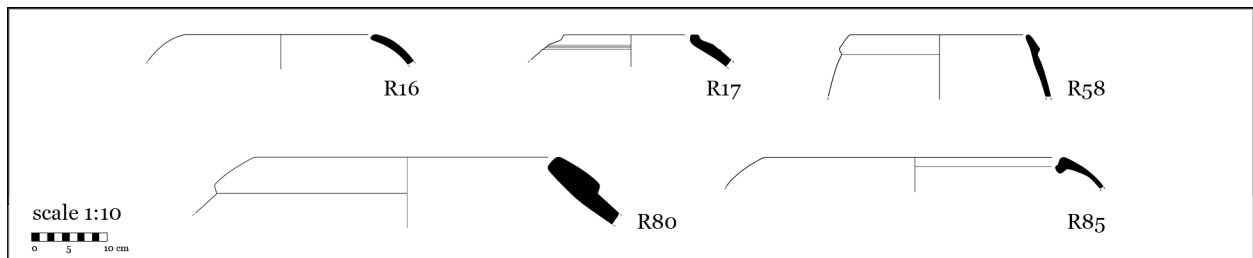


Figure 186: Compendium of Shape Group IV vessels

*Upper Profile Type 16 (n=6)*

This hole-mouthed jar type is a thick walled closed shape with a globular body (Figures 187, 188). It is neckless and has a rounded, plain lip. Examples are preserved down to the belly, which is rounded. Base forms are unknown.

It has rim diameters between 15 and 25 centimeters. It has been found mostly in coarse fabrics (6 sherds), with one example in Pink/Buff A fabric. No examples are decorated.

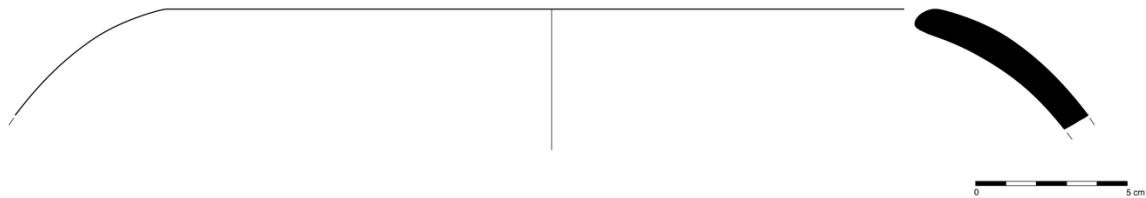


Figure 187: Rim in Pink/Buff A fabric, unslipped; TZ 2007 CH.6 UF 12

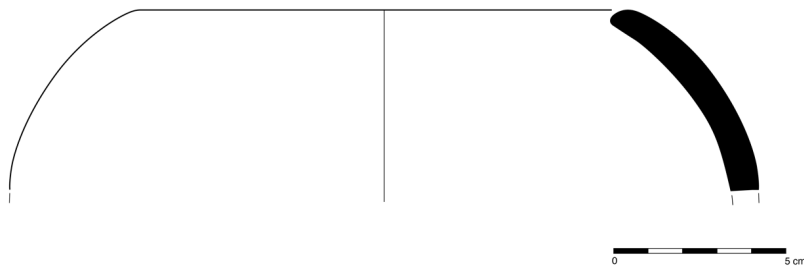


Figure 188: Rim in Light Brown Gritty fabric; TZ 2008 Ch.18 UF 23

*Upper Profile Type 17 (n=13)*

This hole-mouthed jar type is a thick walled closed shape with a globular body (Figures 189, 190). It is neckless and has a flat, plain lip. Examples are preserved down to the belly, which is rounded. Base forms are unknown.

It has rim diameters ranging mostly from 15-25 centimeters, though there are smaller outliers. It has been found in Peach Cream fabric (1 sherd), Pink/Buff A fabric (2 sherds), Pink/Buff B fabric (3 sherds), and coarse fabrics (7 sherds). These vessels are primarily unslipped, but there are two Pink/Buff A examples with matte red slip and the examples in coarse fabrics frequently have straight, incised lines on the upper body.

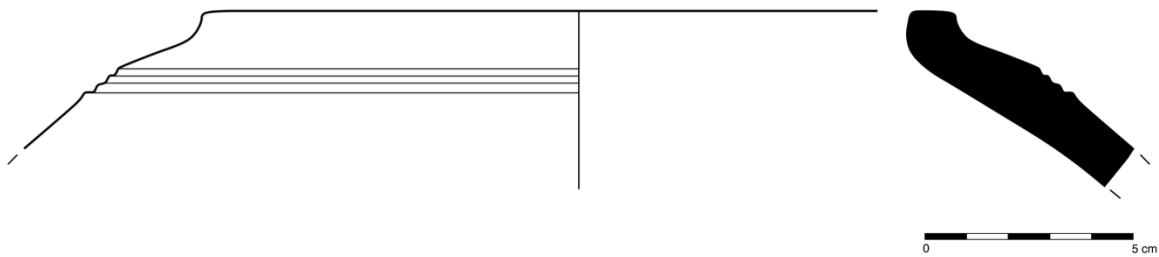


Figure 189: Rim in Peach Cream fabric with incised decoration; BH 2005 UF 27

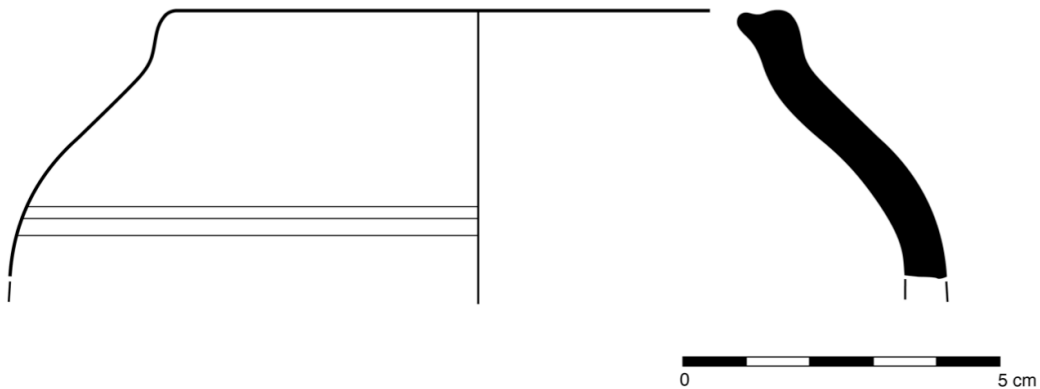


Figure 190: Rim in Pink/Buff B fabric with matte red slip and incised decoration; TZ 2008 Ch.18 UF 1

*Upper Profile Type 58 (n=31)*

This large jar type is a thick walled shape (Figures 191-194). It has a slight neck or constriction and a triangular external articulation that is elongated and sometimes has a slight knob at its lowermost point (Figures 193, 194). Examples are not preserved past the belly. Base forms are unknown.

It mostly has rim diameters between 25 and 45 centimeters. It is found primarily in Peach Cream fabric (30 sherds), but there is one example in a coarse fabric with a much smaller rim diameter. No decorated examples have been found.

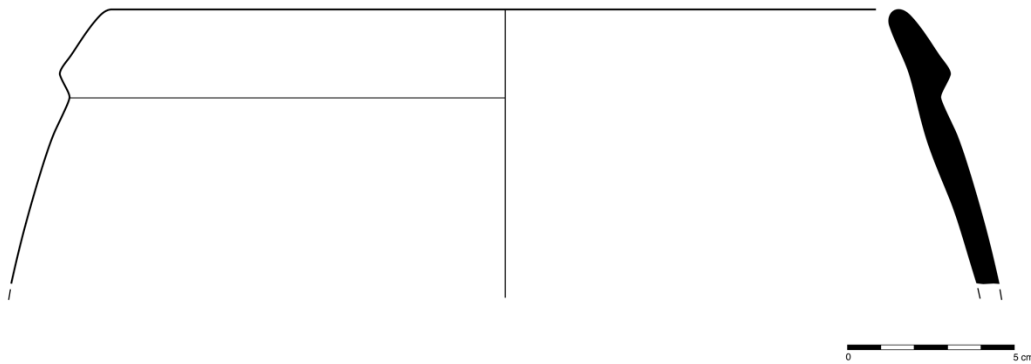


Figure 191: Rim in Peach Cream fabric; BH 2005 UF 37

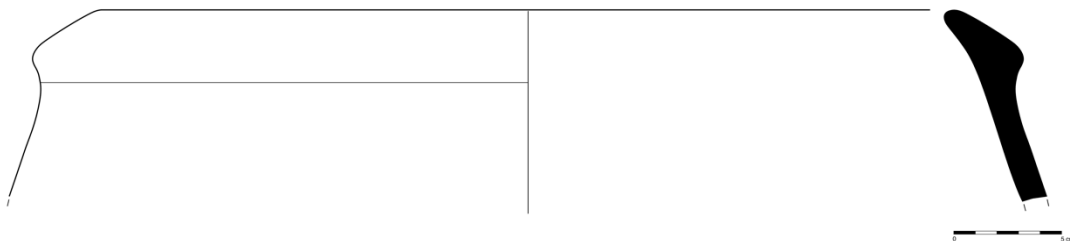


Figure 192: Rim in Peach Cream fabric; TZ 2007 Ch.6 UF 107

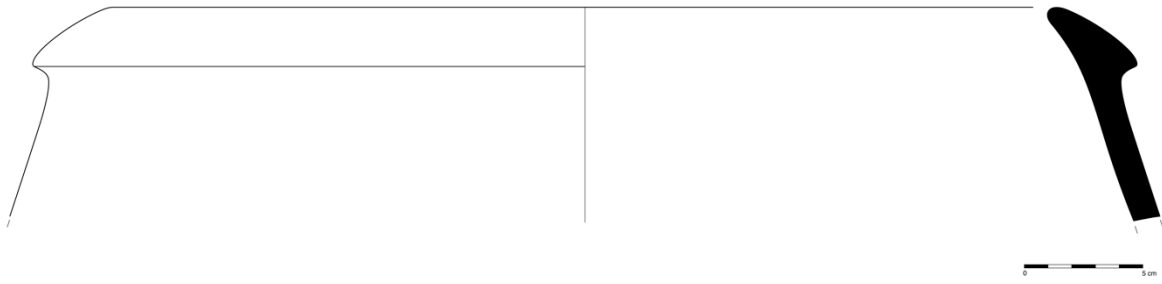


Figure 193: Rim in Peach Cream fabric; BH 2005 UF 44

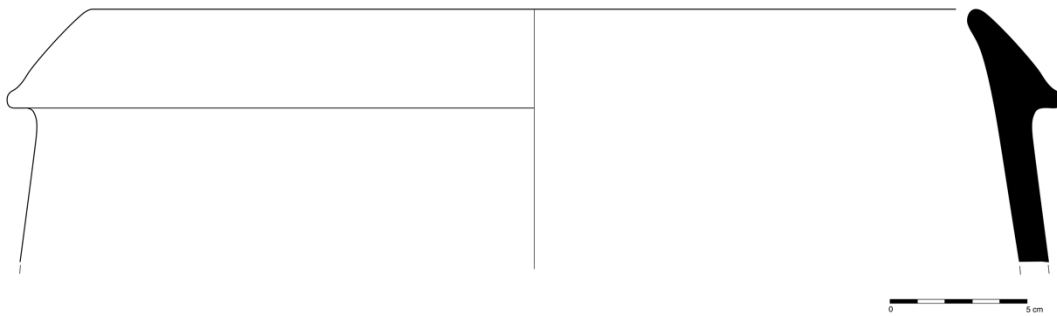


Figure 194: Rim in Peach Cream fabric; BH 2005 UF 57



*Upper Profile Type 80* (n=9)

This large closed jar type is a thick walled vessel with deeply inward sloping upper walls (Figure 195). It has a slightly articulated rim and a squared lip. There is an outer groove in the upper exterior wall. No examples are preserved to the base.

It has rim diameters between 30 and 45 centimeters. It has been found in Pink/Buff A fabric (8 sherds) and Peach Cream fabric (1 sherd). Excepting the usual slip on Peach Cream fabric, no decorated examples have been found.

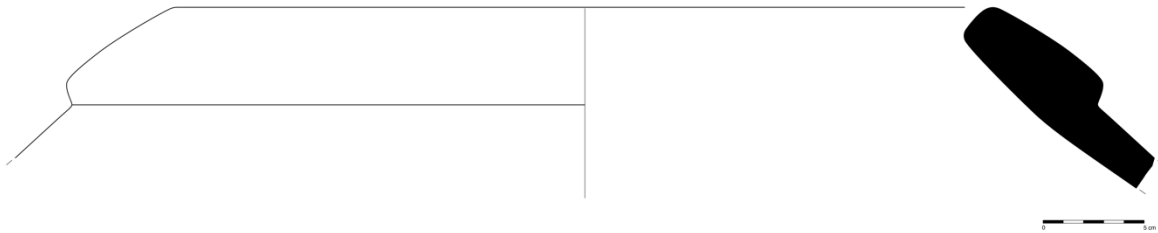


Figure 195: Rim in Pink/Buff A, unslipped; TZ 2007 CH.14 UF 62

*Upper Profile Type 85 (n=37)*

This large closed jar type is a thick walled closed shape (Figures 196-199). It is neckless and has a rounded rim with a large central groove that extends downwards into the vessel interior. The groove could hold a lid, but no matching examples have been identified. Examples are not preserved down to the belly. Base forms are unknown.

It has rim diameters mainly between 25 and 40 centimeters, though much smaller examples have been found. It has been found in a variety of coarse fabrics (37 sherds) and no examples are decorated.

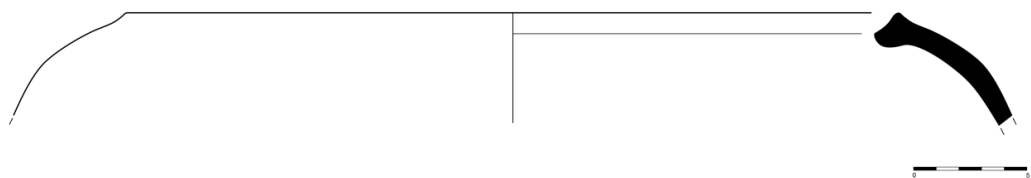


Figure 196: Rim in Black Gritty fabric; BH 2005 UF 53

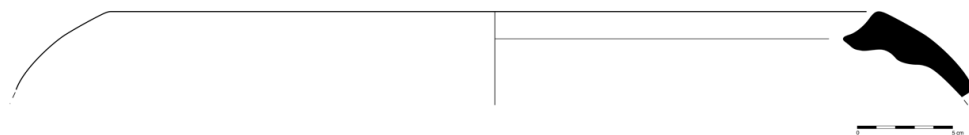


Figure 197: Rim in White Grit Brown fabric; BH 2005 UF 52

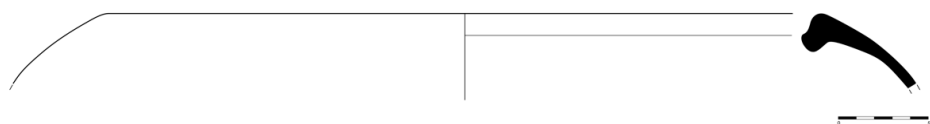


Figure 198: Rim in White Grit Brown fabric; BH 2005 UF 52

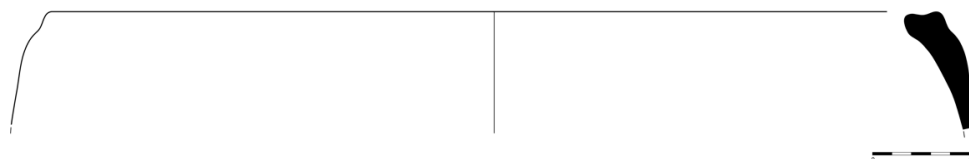


Figure 199: Rim in White Grit Brown fabric; BH 2005 UF 32

## Shape Group V: Thickened Rim Storage Jars

### Upper Profile Types 61-65

These vessel types have rim diameters from 25-45 centimeters (Figure 200). Known examples have fairly vertical walls and elongated, thickened rims that range from rounded to angular to articulated with ridges. Bodies occasionally have lightly undulated walls, probably finger marks from pulling upwards on a wheel. When they are preserved, lower bodies usually have a slight, rounded carination. The few examples with a whole profile have completely rounded, convex bases. These vessels are probably used for storage of dry goods and with wide mouths and no lids, were probably not used for transport.

Upper Profile Type 61 is rare.

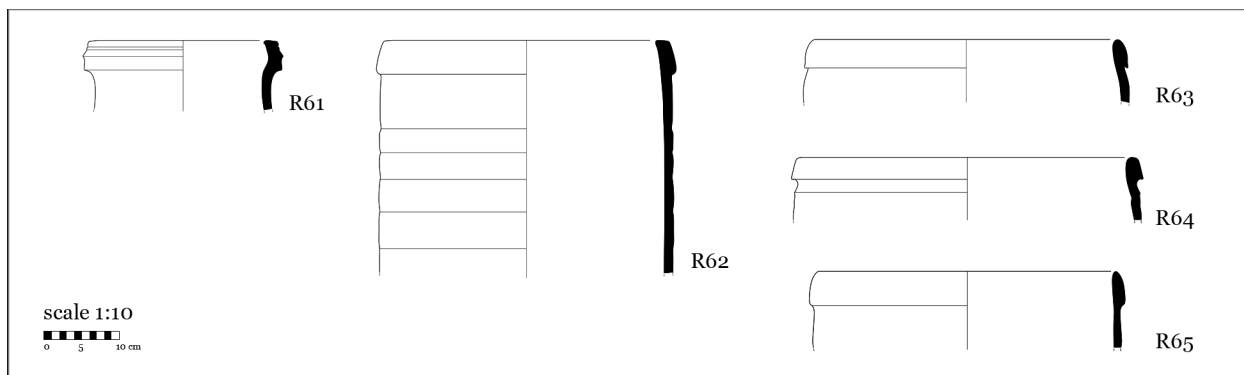


Figure 200: Compendium of Shape Group V vessels

*Upper Profile Type 61 (n=2)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 201, 202). It has an articulated, elongated, rectangular rim with a slightly rounded lip. There are raised or indented areas in the center of the exterior of the rim. No examples are preserved to the base.

This relatively rare type has rim diameters between 25 and 30 centimeters. It has only been found in Peach Cream fabric (2 sherds).

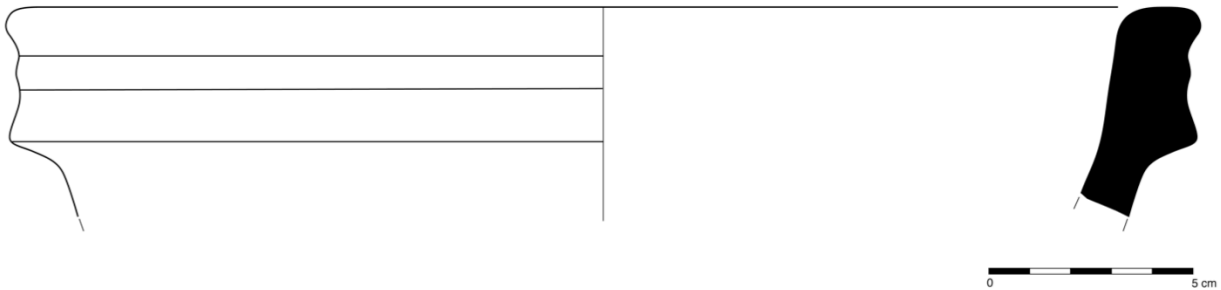


Figure 201: Rim in Peach Cream fabric; BH 2005 UF 27

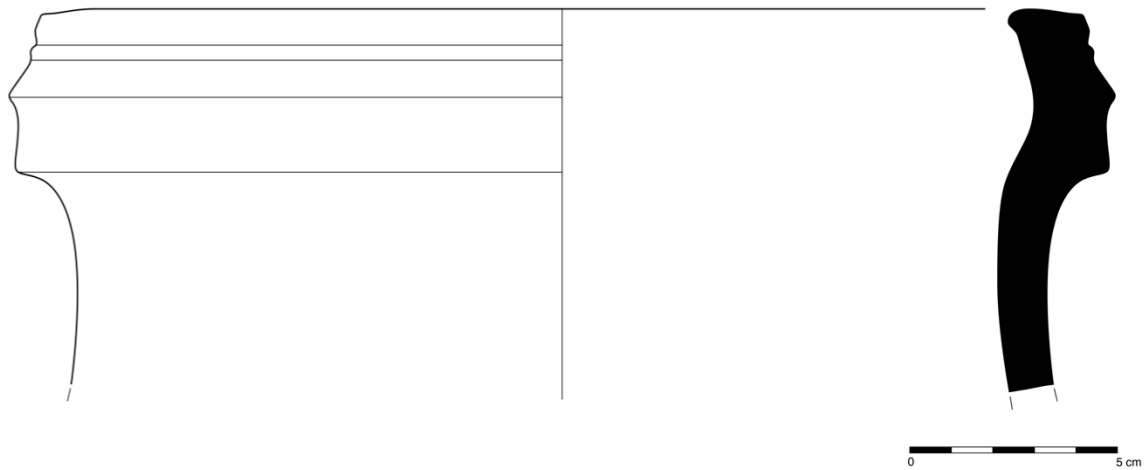


Figure 202: Rim in Peach Cream fabric; BH 2007 UF 219

*Upper Profile Type 62 (n=37)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 203-204). It has an articulated, elongated, rectangular rim with an angular lip. No examples are preserved to the base, though some profiles are preserved down to a low, carinated shoulder.

It has rim diameters between 30 and 45 centimeters. This is primarily found in Peach Cream fabric (34 sherds), with rare examples in Pink/Buff A fabric (2 sherds) and Pink/Buff B fabric (1 sherd). Excepting the usual slip on Peach Cream fabric, there are no decorated examples.

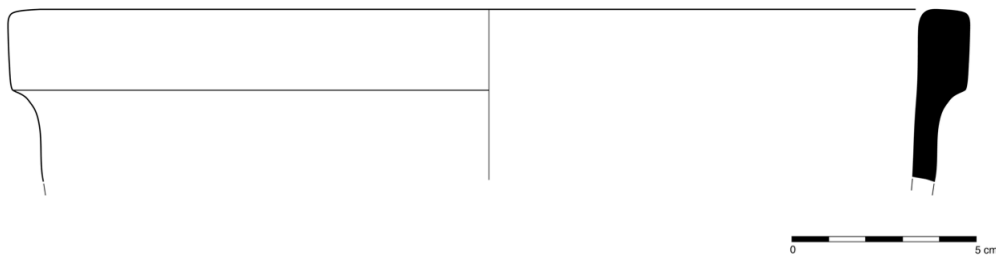


Figure 203: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 19

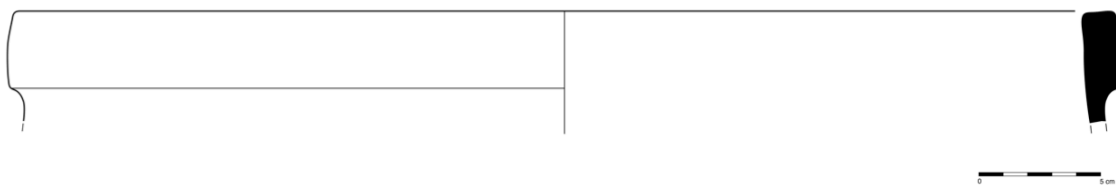


Figure 204: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 18



Figure 205: Rim and body in Peach Cream fabric; TZ 2007 Ch.14 UF 565

*Upper Profile Type 63 (n=22)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 206-208). It has an articulated, elongated, rim that is pinched at its lower end. It has a rounded lip. No examples are preserved to the base.

It has rim diameters between 30 and 50 centimeters. It has only been found in Peach Cream fabric (22 sherds).

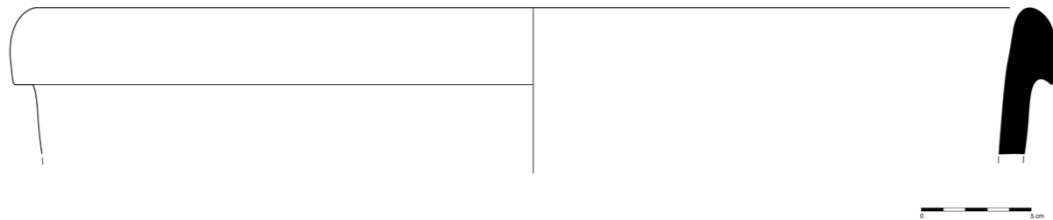


Figure 206: Rim in Peach Cream fabric; TZ 2005 Ch.6 UF 53

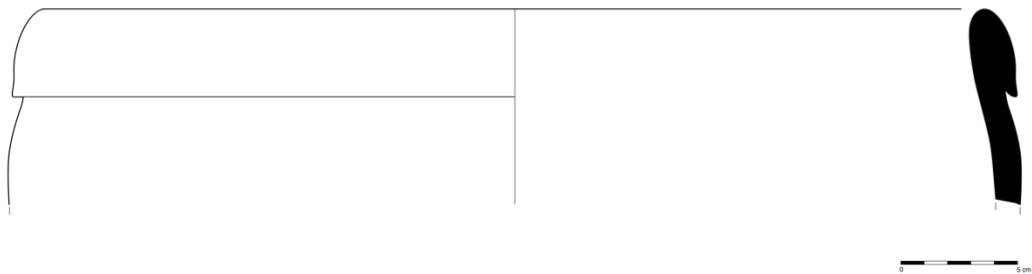


Figure 207: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 5

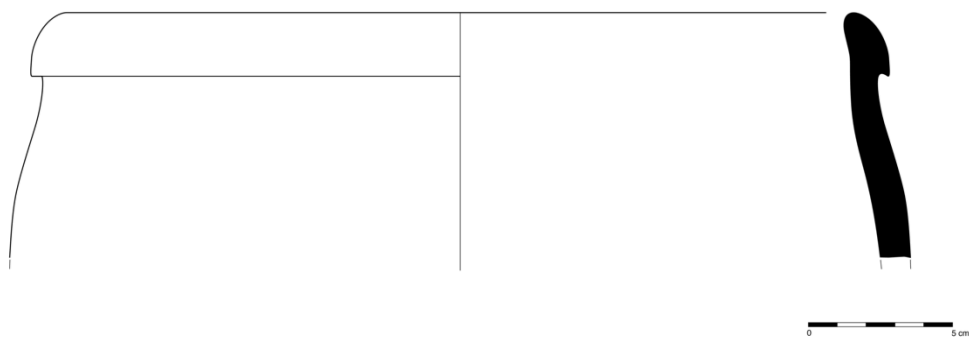


Figure 208: Rim in Peach Cream fabric; BH 2005 UF 24

*Upper Profile Type 64 (n=90)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 209-211). It has an articulated, elongated, rim that is angular at its lower end. It has a rounded lip. No examples are preserved to the base.

It has a wide range of rim diameters, between 20 and 50 centimeters. It has only been found in Peach Cream fabric (90 sherds).

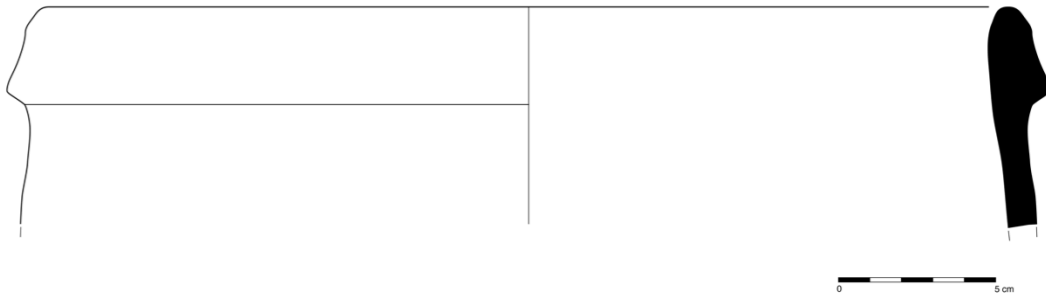


Figure 209: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 12

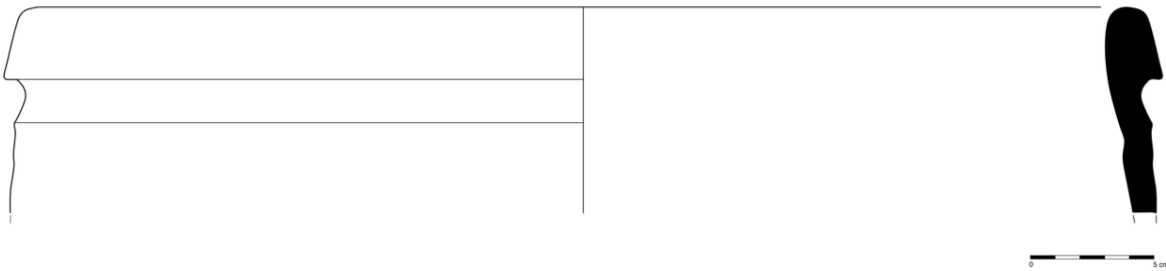


Figure 210: Rim in Peach Cream fabric; TZ 2008 CH.6 UF 5

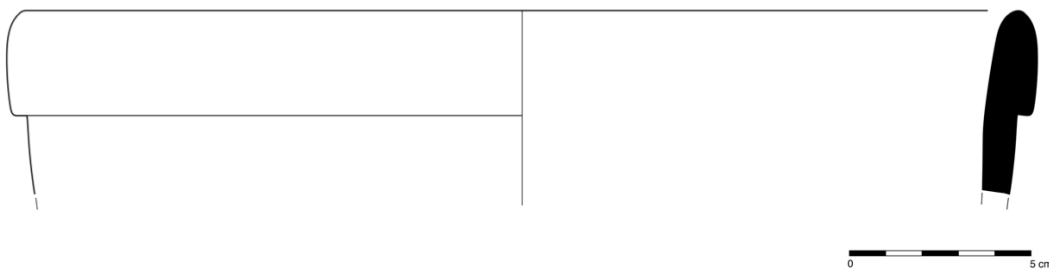


Figure 211: Rim in Peach Cream fabric; TZ 2005 Ch.6 UF 55



*Upper Profile Type 65 (n=93)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 212-214). It has an articulated, elongated, rim that is rounded at its lower end. It has a rounded lip. No examples are preserved to the base.

It has rim diameters between 30 and 50 centimeters. It has only been found in Peach Cream fabric (93 sherds).

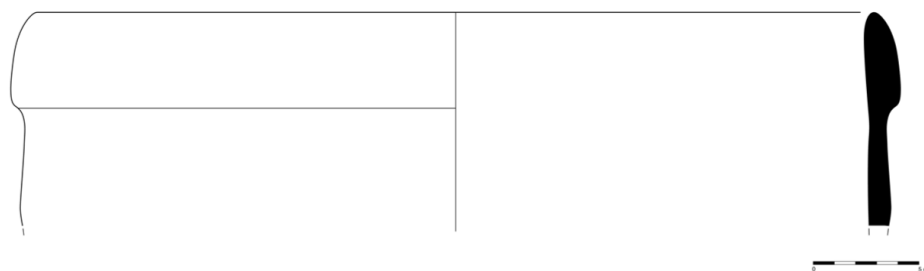


Figure 212: Rim in Peach Cream fabric; TZ 2005 Ch.6 UF 55

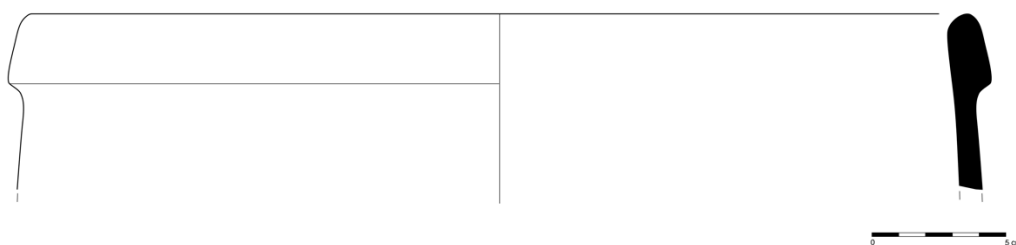


Figure 213: Rim in Peach Cream fabric; TZ 2007 Ch.14 UF 81

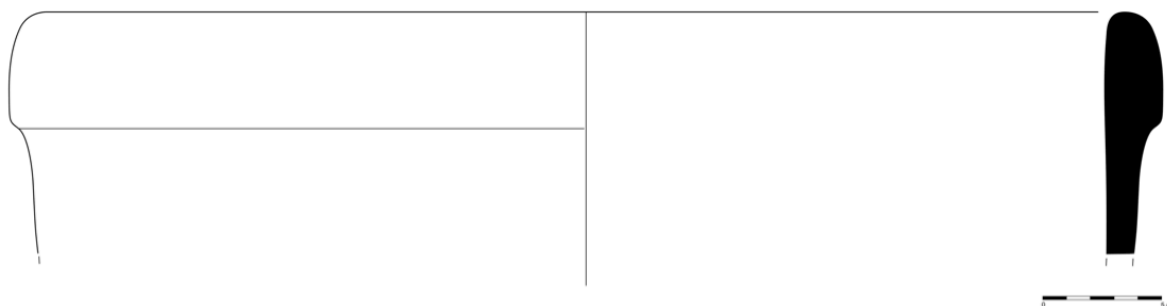


Figure 214: Rim in Peach Cream fabric; BH 2005 UF 52

## Shape Group VI: Large Straight-walled Storage Jars

### Upper Profile Types 67-79

Vertically or slightly inward sloping walled vessel types, these are usually 30-50 centimeters in rim diameter (Figure 215). With a range of plain and slightly articulated rims, the body shape and depth is unknown. Some of these rims could be indistinguishable from thick walled straight pan shapes if they are poorly preserved. Bases of these vessels are completely unknown.

Some of these vessels could be classified as open vessels, but are classified with closed vessels because they likely have a similar storage function and were treated similarly.

Upper Profile Types 74, 77, and 78 are rare.

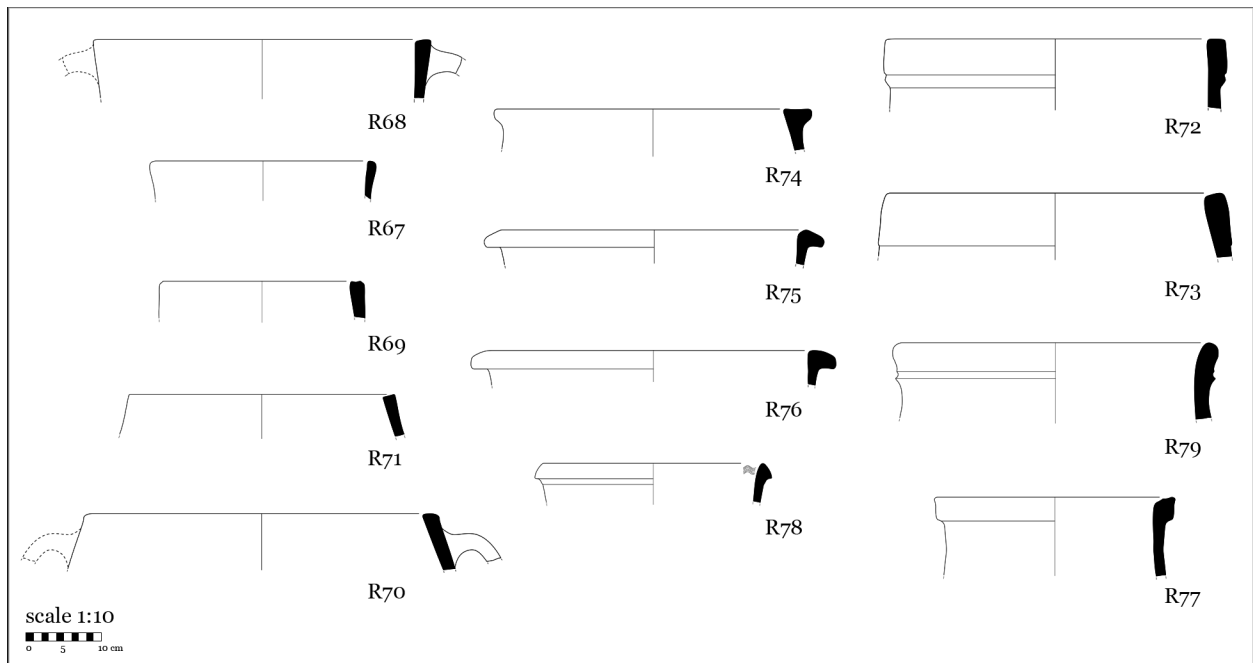


Figure 215: Compendium of Shape Group VI vessels

*Upper Profile Type 67 (n=60)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 216, 217). It has an unarticulated rim and a plain, rounded lip. A large lug handle is sometimes affixed just below the rim. No examples are preserved to the base.

It has rim diameters between 35 and 50 centimeters. It has been found mainly in Pink/Buff A fabric (19 sherds) and Pink/Buff B fabric (38 sherds), with rare examples in coarse fabrics (2 sherds) and Peach Cream fabric (1 sherd). Decorations include occasional use of thin matte slip, both red and eggplant colored. Wavy, impressed or incised lines are frequently found on the upper exterior of the rim.

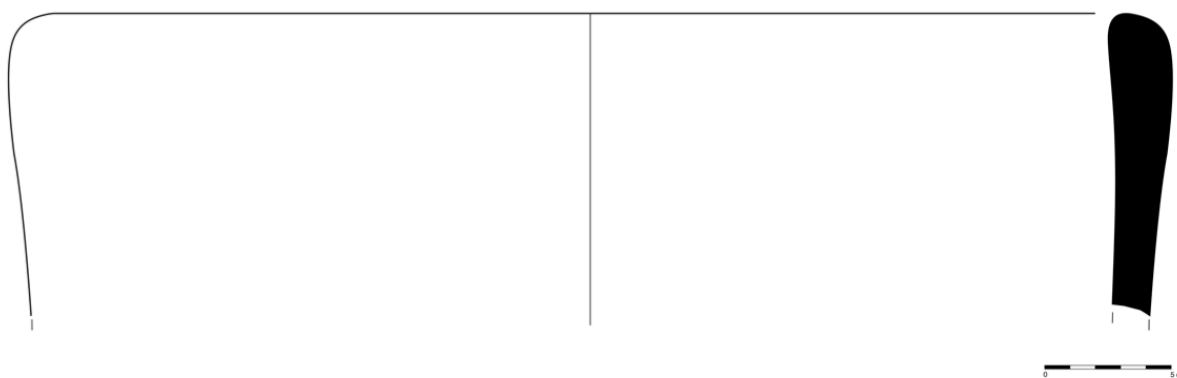


Figure 216: Rim in Pink/Buff B fabric, unslipped; TZ 2004 Ch.4 Sec.2 UF 12

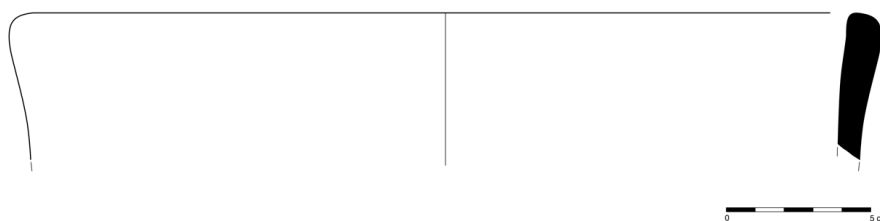


Figure 217: Rim in Pink/Buff A fabric, unslipped; TZ 2004 Ch.4 Sec.2 UF 18

*Upper Profile Type 68 (n=18)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 218, 219). It has an unarticulated rim and a plain, squared lip. Some examples have large lug handles or round handles, vertical in section, affixed just below the rim. Lower profiles are unknown.

It has rim diameters between 20 and 50 centimeters. It is found primarily in Pink/Buff B fabric (14 sherds), with only rare examples in Pink/Buff A fabric (2 sherds), Peach Cream fabric (1 sherd), and an unknown coarse fabric (1 sherd). Most are undecorated, but there is occasional thin matte red slip.



Figure 218: Rim in Pink/Buff B fabric, unslipped; TZ 2006 Ch.6 UF 13

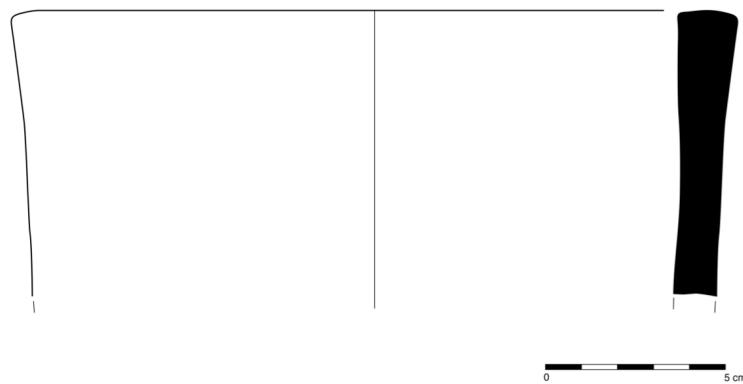


Figure 219: Rim in Pink/Buff A fabric, unslipped; TZ 2007 Ch.6 UF 116

*Upper Profile Type 69 (n=23)*

This large open jar type is a thick walled vessel with straight upper walls (Figure 220). It has an unarticulated rim and a rounded lip with a groove in the center of the top. No examples are preserved to the base.

It has rim diameters between 25 and 50 centimeters. It is found in Peach Cream fabric (1 sherd), coarse fabrics (2 sherds), Pink/Buff B fabric (11 sherds), and Pink/Buff A fabric (9 sherds). Unslipped examples have been found and thin matte eggplant colored slip is common on Pink/Buff B fabric varieties. Thin matte red slip appears on Pink/Buff B fabric and Pink/Buff A fabric varieties. Occasionally there are shallow, impressed grooves on the upper exterior just below the rim.

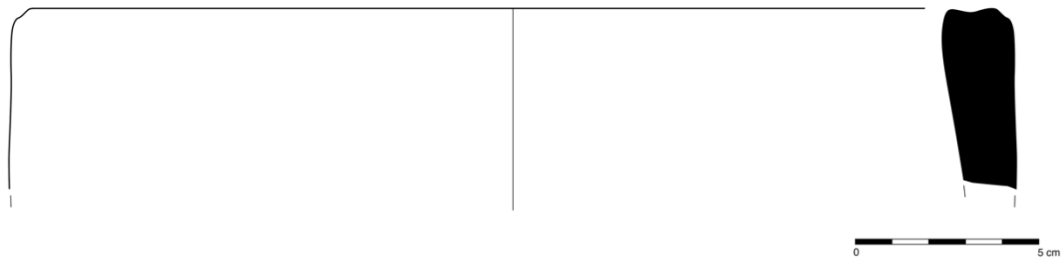


Figure 220: Rim in Pink/Buff A fabric with matte red slip; TZ 2005 Ch.6 UF 5

*Upper Profile Type 70 (n=23)*

This large open jar type is a thick walled vessel with slightly inverted upper walls (Figures 221, 222). It has an unarticulated rim and a rounded lip. No examples are preserved to the base. Some examples have a large rounded handle that is affixed to the vessel at the upper body.

It has rim diameters between 20 and 50 centimeters. It is found in Pink/Buff A fabric (7 sherds) and Pink/Buff B fabric (16 sherds). Thin matte red or eggplant colored slip is common, as are shallow impressed or incised straight or wavy lines on the exterior just below the rim.



Figure 221: Rim in Pink/Buff B fabric, unslipped; TZ 2005 Ch.6 UF 17



Figure 222: Rim in Pink/Buff A fabric, unslipped; TZ 2005 Ch.6 UF 20

*Upper Profile Type 71 (n=9)*

This large open jar type is a thick walled vessel with slightly inverted upper walls (Figure 223). It has an unarticulated rim and a squared lip. No examples have handles or are preserved to the base.

It has rim diameters between 20 and 45 centimeters. It has been found in Peach Cream fabric (1 sherd), a coarse fabric (1 sherd), Pink/Buff A fabric (5 sherds) and Pink/Buff B fabric (2 sherds). Some examples are undecorated, but all examples in Pink/Buff A fabric have thin matte red slip is.



Figure 223: Rim in Pink/Buff B fabric, unslipped; TZ 2005 Ch.6 UF 53

*Upper Profile Type 72 (n=92)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 224, 225). It has a slightly articulated rim and a plain, squared lip. There is a deep groove in the upper exterior wall. Some examples have large round handles affixed just below the rim. No examples are preserved to the base.

It has a wide range of rim diameters, between 25 and 60 centimeters. It has been found primarily in Pink/Buff A fabric (30 sherds) and Pink/Buff B fabric (60 sherds), and Peach Cream fabric (2 sherds). Those in Pink/Buff A and Pink/Buff B fabrics are either undecorated or have wavy lines impressed or incised on the upper exterior rim. This is sometimes in conjunction with thin matte red or eggplant colored slip.

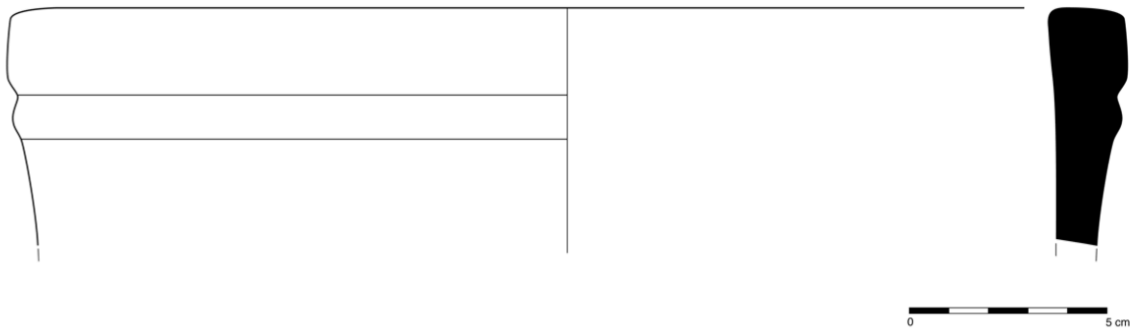


Figure 224: Rim in Pink/Buff B fabric, unslipped; TZ 2005 Ch.6 UF 3

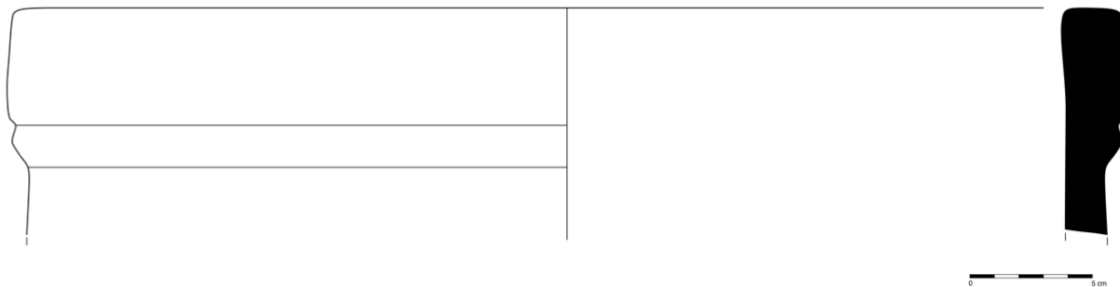


Figure 225: Rim in Pink/Buff A fabric, unslipped; TZ 2005 Ch.6 UF 5



*Upper Profile Type 73 (n=95)*

This large open jar type is a thick walled vessel with slightly inverted upper walls (Figures 226, 227). It has an unarticulated rim and a slightly squared lip. There is an outer groove in the upper exterior wall. Lug handles are not uncommon. No examples are preserved to the base.

It has a wide range of rim diameters, between 30 and 50 centimeters. Those with larger diameters tend to have markedly thicker walls. It has been found in Pink/Buff A fabric (33 sherds) and Pink/Buff B fabric (62 sherds). All examples are unslipped, but wavy or straight impressed or incised lines are common along the exterior rim and upper body of the vessel.

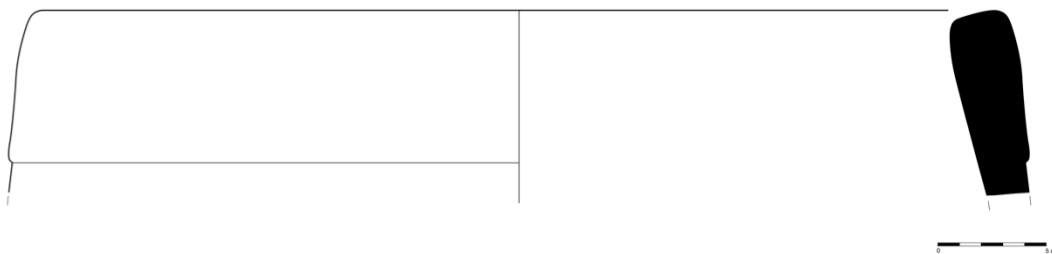


Figure 226: Rim in Pink/Buff A fabric, unslipped; TZ 2007 Ch.6 UF 114

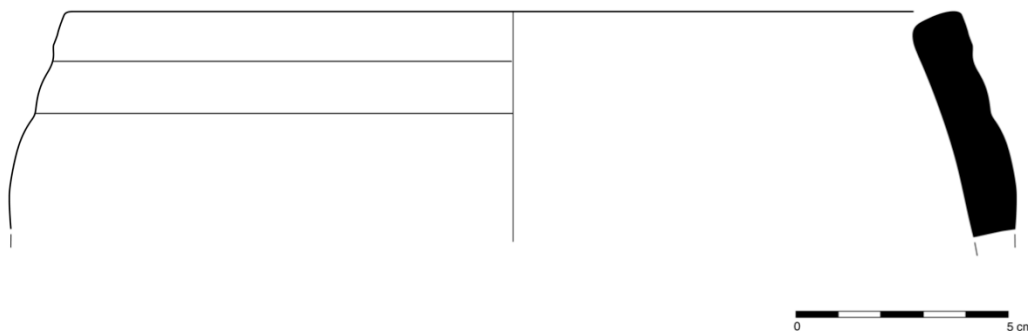


Figure 227: Rim in Pink/Buff B fabric, unslipped; TZ 2007 Ch.6 UF 122

*Upper Profile Type 74 (n=4)*

This large open jar type is a thick walled closed shape (Figure 228). It has a straight neck and a thickened rim with a flat lip. Occasionally this lip has a slight groove in the center, perhaps for a lid, although none have been found. Examples are not preserved to the belly, but some examples show a convex upper body. Base forms are unknown.

It has rim diameters between 30 and 50 centimeters. It has been found in coarse fabrics (3 sherds) and Pink/Buff A fabric (1 sherd). No decorated examples are present.

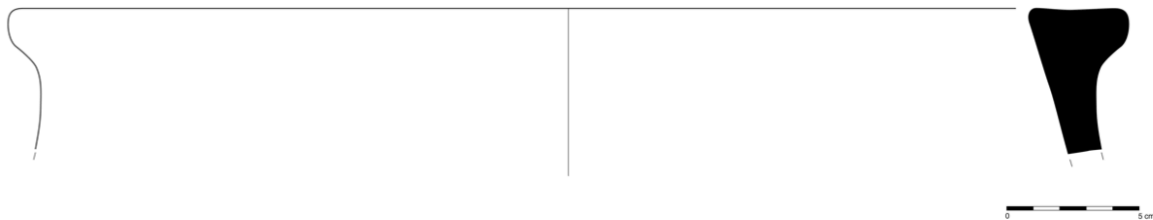


Figure 228: Rim in Light Brown Gritty fabric; TZ 2005 Ch.6 UF 52

*Upper Profile Type 75 (n=11)*

This large open jar type is a thick walled vessel with straight upper walls (Figure 229). It has an articulated, everted rim with a rounded lip. No examples are preserved to the base.

It has rim diameters between 40 and 50 centimeters. It has been found in Peach Cream fabric (5 sherds), Pink/Buff A fabric (3 sherds), Pink/Buff B fabric (2 sherds), and a coarse fabric (1 sherd). The only decoration found is a rare, cream colored slip on a Pink/Buff A example.

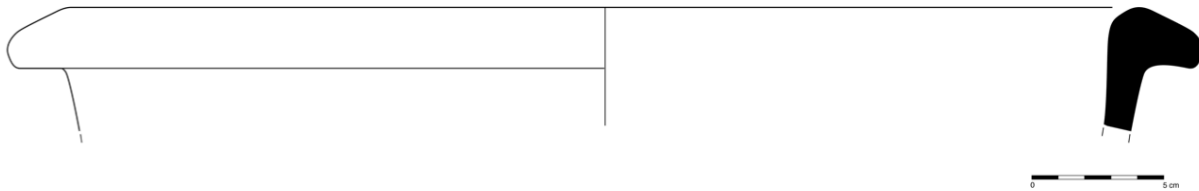


Figure 229: Rim in Pink/Buff A fabric, unslipped; TZ 2008 Ch.6 UF 15

*Upper Profile Type 76 (n=14)*

This large open jar type is a thick walled closed shape (Figure 230). Similar to Upper Profile Type 75, it has a straight neck and an everted rim, but it is squared at its external margin. Examples are not preserved to the belly. Base forms are unknown.

It has rim diameters between 25 and 50 centimeters. Found primarily in coarse fabrics (8 sherds), examples have also been found in Peach Cream fabric (2 sherds) and Pink/Buff A fabric (4 sherds). Almost all examples of this type have deep fingertip impressions in the top or exterior portion of the rim. No slipped examples have been found.

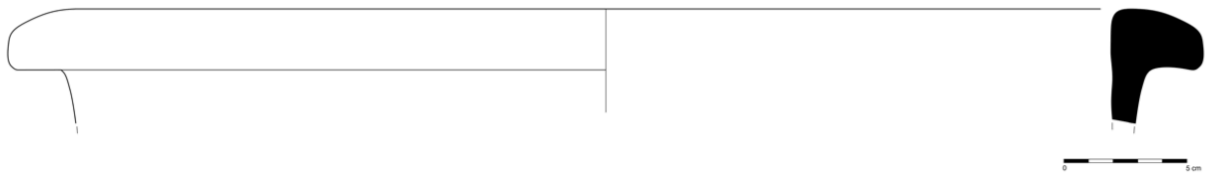


Figure 230: Rim in Muddy Jar fabric; TZ 2005 Ch.6 UF 53

*Upper Profile Type 77 (n=4)*

This large open jar type is a thick walled vessel with straight upper walls (Figure 231). It has an articulated, pinched rim with a slightly rounded lip. No examples are preserved to the base.

This type has rim diameters between 30 and 35 centimeters. It has been found in Pink/Buff B fabric (1 sherd), Pink/Buff A fabric (1 sherd), Peach Cream fabric (1 sherd), and a coarse fabric (1 sherd). No decorated examples have been found.

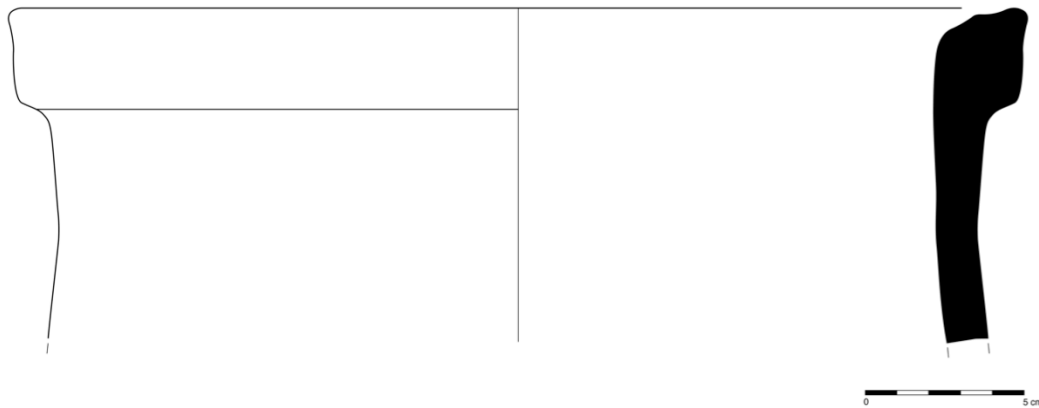


Figure 231: Rim in Pink/Buff A fabric, unslipped or pale self-slip; TZ 2005 Ch.6 UF 45

*Upper Profile Type 78 (n=4)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 232, 233). It has an articulated, triangular rim with a slightly angled lip. No examples are preserved to the base.

This relatively rare type has rim diameters between 25 and 30 centimeters. It has been found in Peach Cream fabric (1 sherd), Pink/Buff B fabric (2 sherds), and Pink/Buff A fabric (1 sherd) with thin matte red slip and incised decoration.

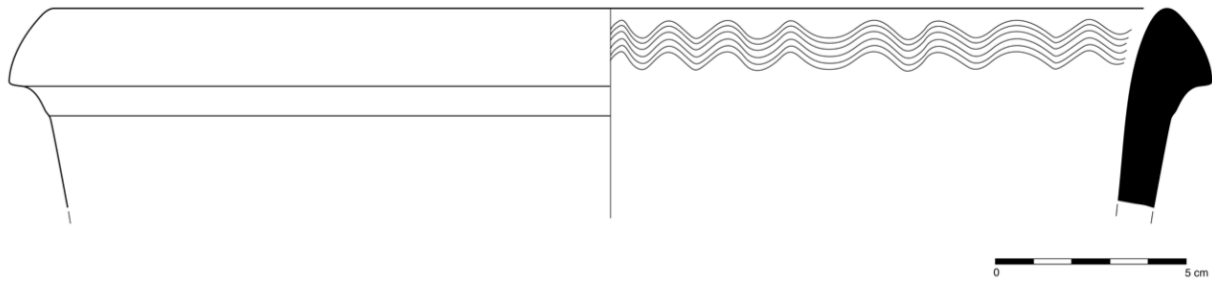


Figure 232: Rim in Pink/Buff fabric with matte red slip and combed incised decoration on interior of rim; TZ 2004 Ch.2 UF 9

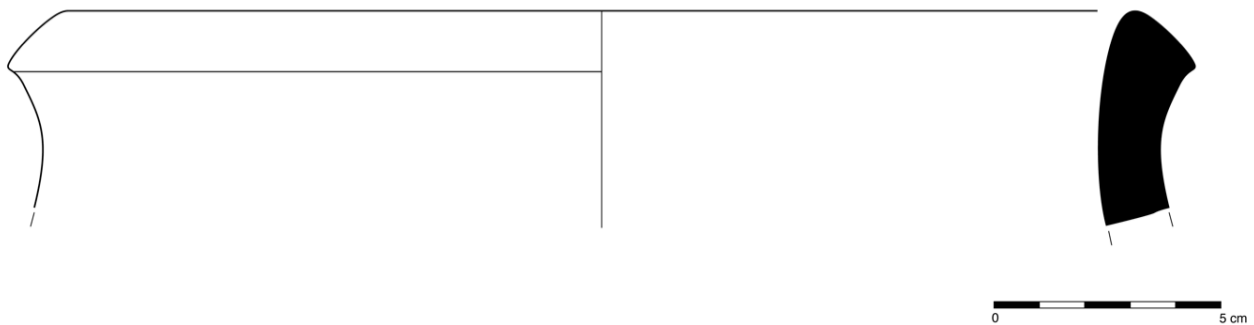


Figure 233: Rim in Peach Cream fabric; TZ 2008 Ch.18 UF 24

*Upper Profile Type 79 (n=30)*

This large open jar type is a thick walled vessel with straight upper walls (Figures 234, 235). It has an unarticulated rim and a plain, rounded lip. There is a groove in the upper exterior wall. Some large rounded handles have been found, affixed to the vessel just below the rim, placed horizontally, not vertically. No examples are preserved to the base.

It has a wide range of rim diameters, but most are between 35 and 45 centimeters. It is found in Pink/Buff A fabric (11 sherds) and Pink/Buff B fabric (19 sherds). Decorations are not common, but there are examples of thin matte red slip and more frequently, impressed or incised wavy lines or oval shapes on the exterior of the rim.

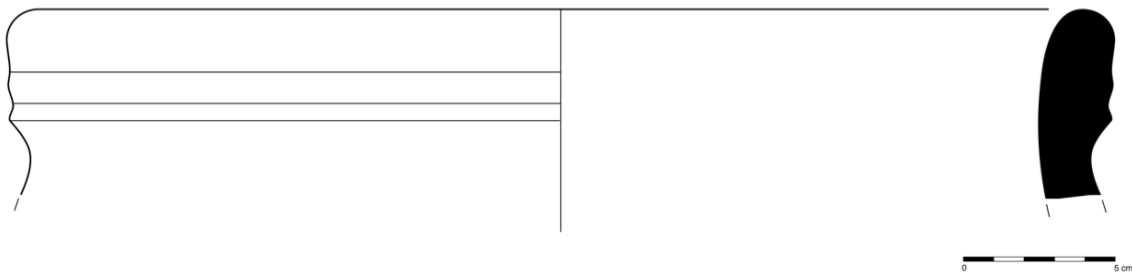


Figure 234: Rim in Pink/Buff A fabric, unslipped; TZ 2005 Ch.6 UF 39

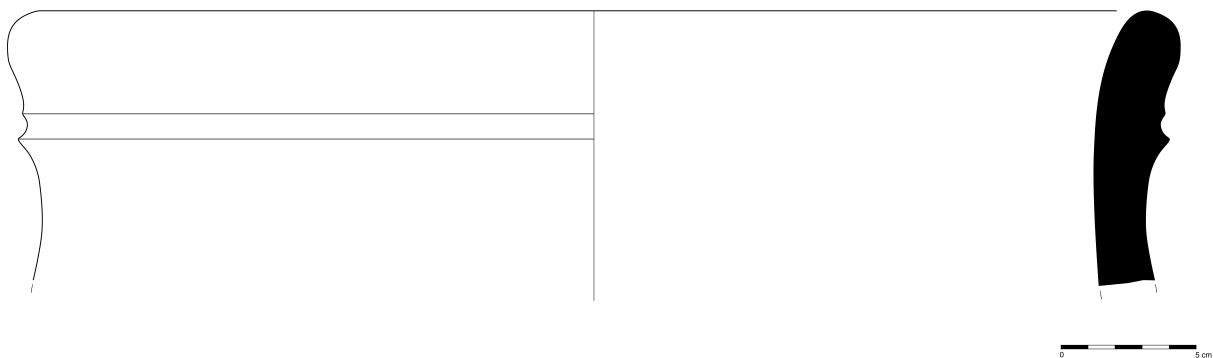


Figure 235: Rim in Pink/Buff B fabric with matte red slip; TZ 2005 Ch.6 UF 53

### **Upper Group Cluster B: Open Utilitarian vessels, Groups VII-VIII**

This cluster contains seven upper profile types separated into two groups. These are all open utilitarian vessels, found in a variety of coarse fabrics as well as Peach Cream, Pink/Buff A and Pink/Buff B fabrics. There is some incised and impressed decoration on these vessels, but they are only rarely slipped.

- *Shape Group VII*: Large Open Pans, Upper Profile Types 66 and 82
- *Shape Group VIII*: Large Open Curving-walled Bowls, Upper Profile Types 49-53

Group VII vessels are very rare, with a total of five sherds. They might have been used for bread baking. Group VIII vessels were probably used for food preparation.



## Shape Group VII: Large Open Pans

### Upper Profile Types 66 and 82

These vessel types are usually 30-40 centimeters in diameter at the rim and only slightly smaller at the base (Figure 236). They have short, vertical or open slanted, relatively thick walls and plain rims and plain, angular bases. They were probably used for cooking, and were perhaps molds for bread making. It is possible that other profiles from Shape Group 7 are pans, but unless the profile is preserved to the base it is indistinguishable because the upper walls and rims are similar in size and shape. The types in this group are rare.

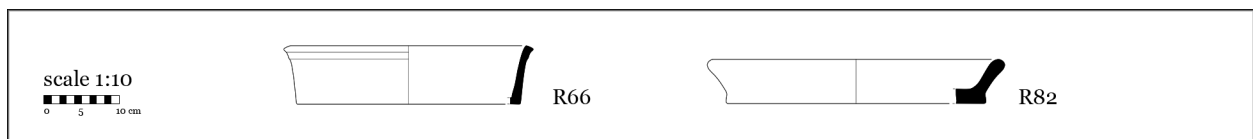


Figure 236: Compendium of Shape Group VII vessels

*Upper Profile Type 66 (n=3)*

This large open pan type is a thick walled vessel with straight upper walls (Figures 237, 238). It has an unarticulated rim and a plain, squared lip. Some examples are preserved to an unarticulated, angular base, creating a wide pan with short, straight walls. Although several profiles from rim to edge of base exist, the full profile including the large diameter of the base is not extant, so whether it is flat or articulated in any way is unknown.

It is present in coarse fabrics (1 sherd) and Pink/Buff A fabric (2 sherds). It has rim diameters between 30 and 40 centimeters, with the base diameter less than 5 centimeters smaller than the respective rim. One example in Pink/Buff A fabric has matte red slip decoration.

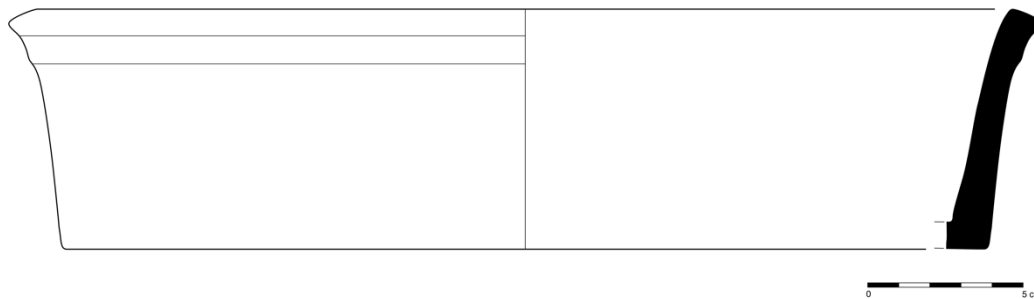


Figure 237: Rim to join of base in Pink/Buff A fabric with matte red slip; TZ 2007 Ch.6 UF 116

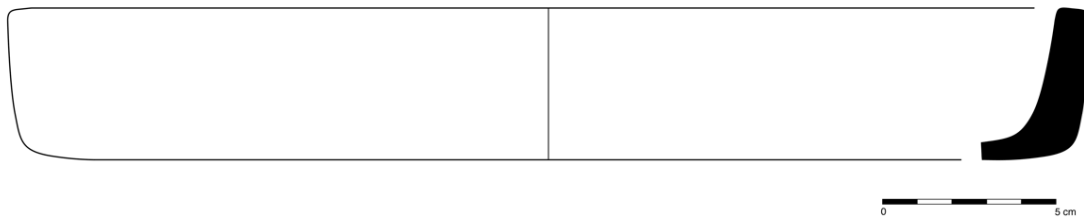


Figure 238: Rim to join of base in Soft Gray Jar fabric; TZ 2008 Ch.6 UF 28

*Upper Profile Type 82 (n=2)*

This large open pan type is a thick walled vessel with slightly flanged upper walls (Figure 239). It has an unarticulated rim and a plain, rounded lip. Some examples are preserved to a rounded base, creating a wide pan shape. Although several profiles from rim to edge of base exist, the full profile including the large diameter of the base is not extant, so whether the base is flat or articulated in any way is unknown.

It has been found in coarse fabrics (2 sherds). It has rim diameters between 30 and 40 centimeters, with the base diameter less than 5 centimeters smaller than the respective rim. No decorated examples have been found.

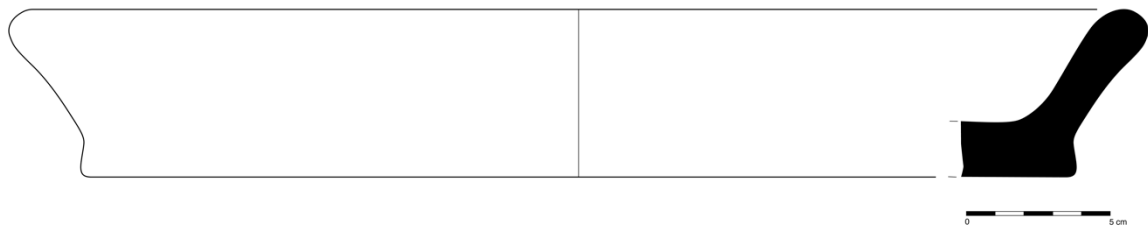


Figure 239: Rim to join of base in Soft Gray fabric; TZ 2008 Ch.18 UF 28

## Shape Group VIII: Large Open Curving Walled Bowls

### Upper Profile Types 49-53

These open vessel types have diameters ranging from 20 to 45 centimeters (Figure 240). With curved walls, extant profiles show depth that is often similar to rim diameter. Rims range from plain and rounded to lightly articulated. Base types are unknown, but plain or disc bases are probable. Decoration is rare, so they were perhaps utilitarian vessels used for food preparation.

Upper Profile Types 52 and 53 are rare.

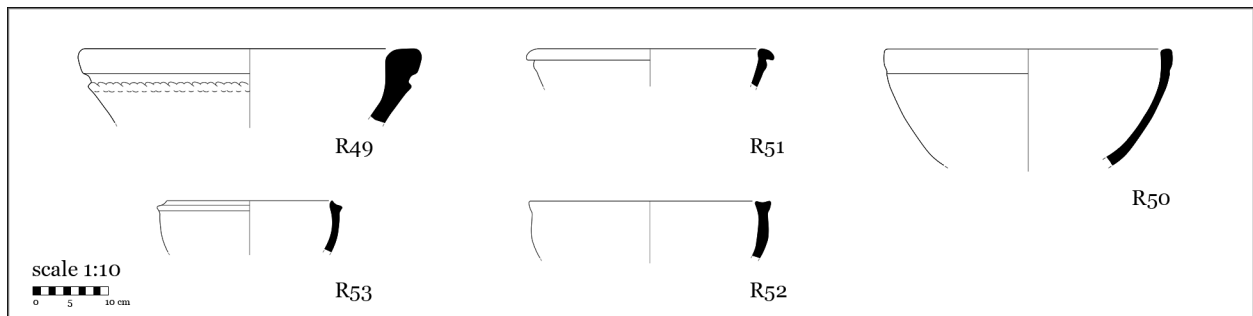


Figure 240: Compendium of Shape Group VIII vessels

*Upper Profile Type 49 (n=26)*

This large bowl type is an open, thick walled vessel with curved walls (Figure 241). The rim is thickened with a deep groove on the exterior. The lip is rounded. There are no examples with a handle or preserved to the lower body. Base forms are unknown.

It has rim diameters between 35 and 50 centimeters. It is most commonly found in Pink/Buff A fabric (14 sherds) and Pink/Buff B fabric (8 sherds), but there are rare examples in Peach Cream fabric (2 sherds) a coarse fabric (2 sherds). No slipped examples have been found in the Pink/Buff fabrics. Impressed designs of connected oblong pellets are sometimes found below the rim on the exterior of the vessel.

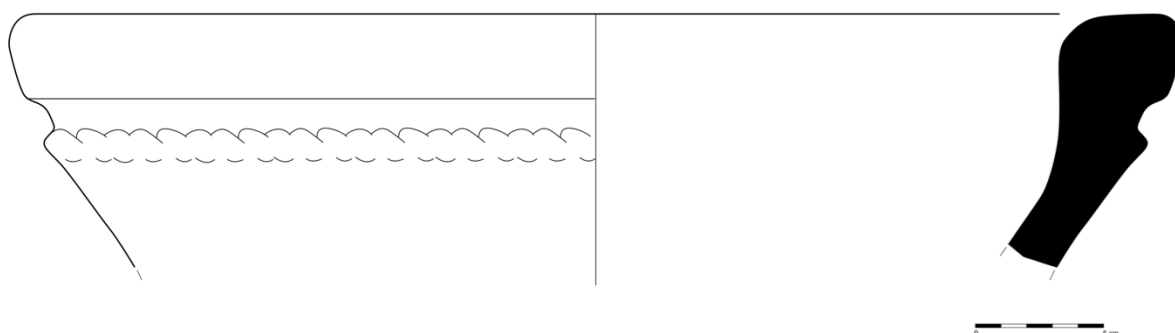


Figure 241: Rim in Pink Storage fabric with impressed rope design on rim exterior; TZ 2008 Ch.18 décapage

*Upper Profile Type 50 (n=15)*

This large bowl type is an open, thick walled vessel with curved walls (Figures 242, 243). The rim is thickened with a shallow groove on the exterior of the lower. The lip is fairly squared. No examples with a handle have been found. One full profile shows curving walls connecting to Lower Profile Type 27.

It has rim diameters between 25 and 45 centimeters. It has been found in Pink/Buff A fabric (8 sherds) and Pink/Buff B fabric (7 sherds). Eggplant colored or more commonly matte red slip is found on the upper exterior, but there are many unslipped examples with shallow, wide grooves, either straight or wavy, incised or impressed in the exterior of the rim.

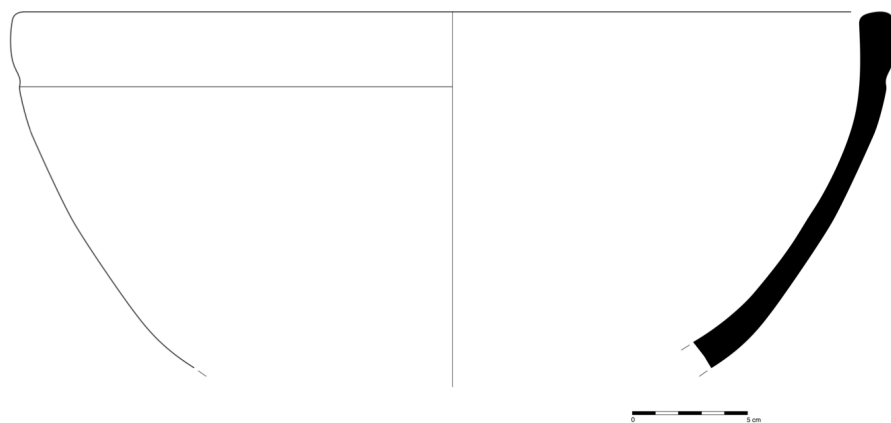


Figure 242: Rim and upper body in Pink/Buff A fabric with matte eggplant colored slip; TZ 2005 Ch.6 UF 45

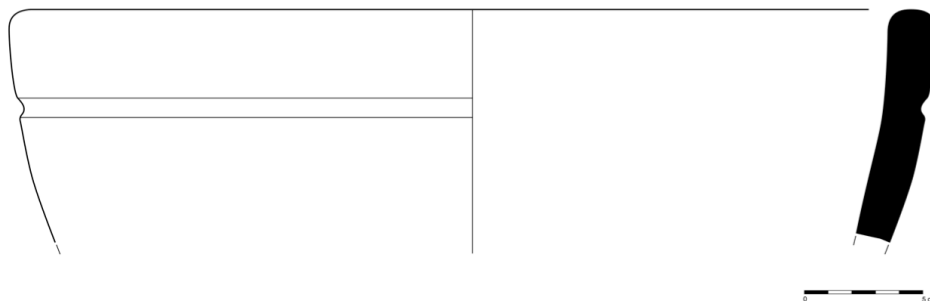


Figure 243: Rim and upper body in Pink/Buff B fabric, unslipped; TZ 2006 Ch.6 S.E.I.

*Upper Profile Type 51 (n=14)*

This large bowl type is an open, thick walled vessel with curved walls (Figures 244, 245). The rim is slightly thickened and everted, and the lip is rounded. There are no examples with handles or preserved to the base.

It has rim diameters between 20 and 45 centimeters. It has been found most commonly in Pink/Buff A fabric (8 sherds) and Pink/Buff B fabric (5 sherds), and there is one example in Peach Cream fabric. There are unslipped examples, but matte red or eggplant colored slip are equally common on the upper exterior and rim.

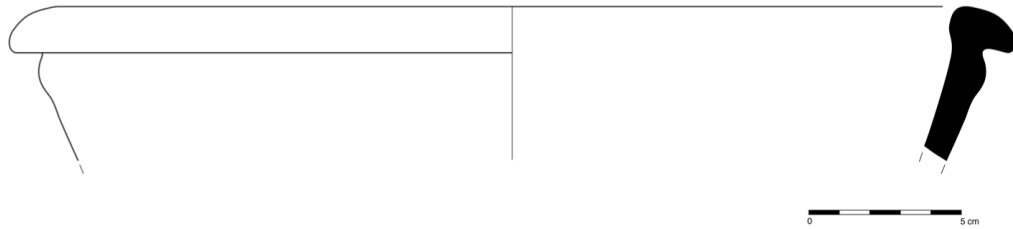


Figure 244: Rim and upper body in Pink/Buff B, unslipped; TZ 2004 Ch.4 UF 20

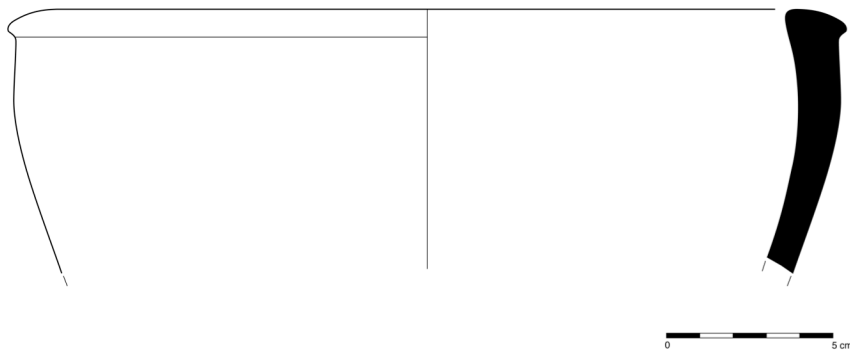


Figure 245: Rim and upper body in Pink/Buff B, unslipped, TZ 2008 Ch.6 UF 28

*Upper Profile Type 52 (n=4)*

This large bowl type is a thick walled vessel with convex upper walls (Figure 246). It has an articulated, slightly widened rim with a central indent in the lip. No examples have handles or are preserved to the base.

It has rim diameters between 20 and 35 centimeters. It has been found in Peach Cream fabric (2 sherds), a coarse fabric (1 sherd), and Pink/Buff A fabric (1 sherd). The Pink/Buff A example has matte red slip with shallow, wavy grooves impressed in the exterior of the upper body.

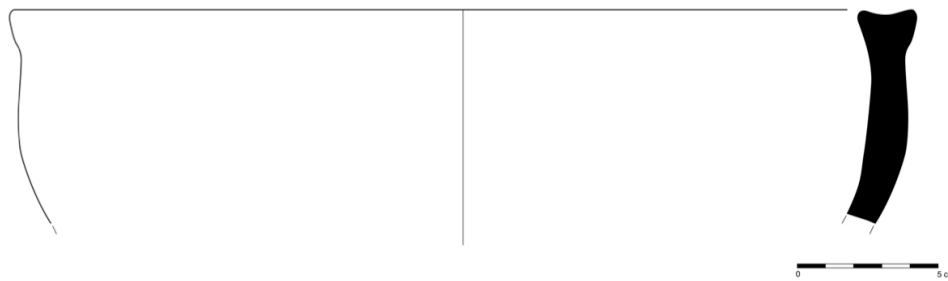


Figure 246: Rim and upper body in Peach Cream fabric; TZ 2008 Ch.6 UF 12



*Upper Profile Type 53 (n=5)*

This large bowl type is a thick walled vessel with straight upper walls that become convex (Figures 247, 248). It has an articulated, slightly widened rim with a pinched lip that is higher on the interior side of the vessel. No examples have handles or are preserved to the base. The smaller examples are similar to the bowls in Shape Group 12, but with more rough and porous interior surfaces.

It has rim diameters between 25 and 40 centimeters. It has been found in Peach Cream fabric (4 sherds) and coarse fabrics (1 sherd). There are no examples with decoration.

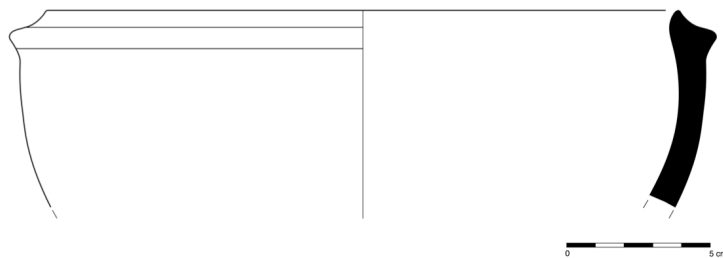


Figure 247: Rim and upper body in Peach Cream fabric; BH 2005 UF 27

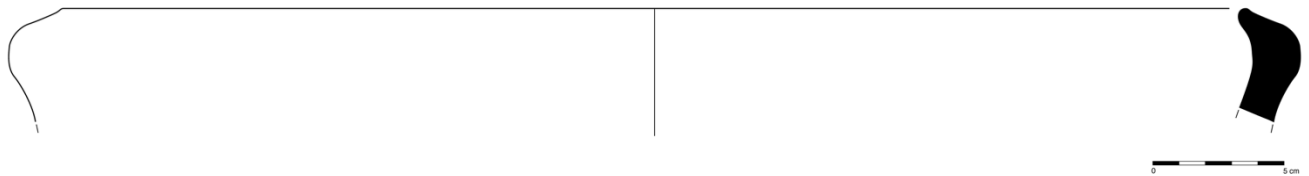


Figure 248: Rim in Peach Cream fabric; TZ 2008 Ch.6 UF 19