

Glazed Ceramics from Karakorum

The Distribution and Use of Chinese Ceramics in
the Craftsmen Quarter of the Old-Mongolian
Capital During the 13th–14th Century A. D.

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FOREWORD

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1. INTRODUCTION

This is a material based study aiming to supplement and extend the knowledge about daily life in the first Mongolian capital, Karakorum, during the 13th and 14th century with a focus on the city's connections within the Mongol Empire.

The materials analyzed are glazed ceramics excavated from the centre of Karakorum during summer campaigns in the years 2000–2005. Recorded for this study are 21164 fragments which constitute approximately 70% of all the glazed ceramics found. The excavations are part of the Mongolian German Karakorum Expedition (henceforth: MDKE) conducted by Prof. Dr. H. Roth and Dr. E. Pohl. In order to establish a stratigraphy and to do research on chronological and structural questions concerning Karakorum, H. Roth and E. Pohl selected an area at the main road for their excavations. This is the location where the Chinese craftsmen quarter of Karakorum is presumed to be located (Pohl 2010, 64). Concerning the stratigraphy, E. Pohl (2010, 126–134) published a basic outline including three settlement periods and up to six building phases which is used in the present research and outlined in the chapter on the excavations. Detailed questions referring to e. g. the structure of Karakorum remain as subjects of research. The preliminary results of the research at the main road in Karakorum are best subsumed in Roth et al. 2002 and Bemmman et al. 2010.

During the field campaigns, the excavated ceramics are divided into two groups that are interpreted differently concerning their origins. Glazed ceramics are categorized as “Chinese ceramics” – which are presumed to be imported wares – whilst ceramics without glaze are categorized as “Mongol ceramics” – which are considered to be locally produced wares. Therefore, there are two main groups of ceramics from Karakorum available for research:

Group I: glazed ceramics = “Chinese ceramics” = “imported wares”

Group II: ceramics without glaze = “Mongol ceramics” = “local wares”.

According to the estimation of the excavator E. Pohl about two thirds of all ceramics from Karakorum are glazed and the remaining third is unglazed.¹ The unglazed, i. e. “Mongol”, ceramics are the subject of research of the Mongol colleague G. Nomguunsüren. The glazed, i. e. “Chinese”, ceramics are the subject of the present study.

Due to the given assumptions on the ceramics, the first subject of interest is a study on the origins of the glazed ceramics from Karakorum. As there is no pre-existing system of classification that can be applied to the entire assemblage of ceramics found, their distinctive features are defined according to methods of European standards for the study of medieval ceramics as e. g. Lüdtkke and Schietzel 2001 (see chapter 2). This implies reproducible definitions of e. g. body colors by using the Munsell Color Charts as well as drawings and definitions of shapes. Second to the definition of the criteria for the documentation of the glazed ceramics is their classification. This includes their presentation and the determination of their origin (see chapter 3). These determinations of origins are solely based on available publications as personal studies at the relevant kilns sites are not realizable in the course of the present study. Albeit these limiting factors, the classification via existing studies proves sufficient for the first comprehensive study on glazed ceramics from medieval Mongolia. More detailed studies for selected groups of ceramics may follow based on this overview.

Resulting from the classification of the glazed ceramics and their determination of origin is a chorological analysis of the routes of supply that are implied by the provenances of the wares (see chapter 4). This is of interest as the distribution of Chinese ceramics on continental routes is a subject of discussion. Ceramics are generally listed as trade goods on the maritime Silk Road but not on the traditional continental routes. Furthermore, Karakorum is located north of these

¹ Interview with E. Pohl in February 2013.

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routes and not naturally included in them. Although it is known that the Old-Mongolian capital is linked to the famous Mongolian postal relay system across Eurasia (cf. Makhdumi 2014, 264), the nature of other connections to the city and its supply throughout the political changes of the time is not fully researched yet. The nature of glazed ceramics as possible trade goods over land is analyzed through its use and distribution in Karakorum. Moreover, a comparison with the ceramics from contemporaneous sites is provided.

1. 1. HISTORICAL FRAMEWORK

The date of the foundation of Karakorum is not fully proven yet. According to a famed inscription from the year 1346 the decision for the erection of the Old-Mongolian capital is made by Chinggis Khan (r. 1206–1227) in 1220 (i. a. Hüttel / Erdenebat 2009, 8). However, building activities at the site are not historically documented before 1235 when Ögedei Khan (r. 1229–1241) rules the Mongol Empire (Pohl 2009, 513 with further references). Whether construction works are already underway during the reign of Chinggis Khan or the interregnum period of Tolui (r. 1227–1229) remains uncertain. Evidence for an early construction date has not been provided at the present state of research. Dated charcoals from the site of Karakorum and its surroundings indicate that the city is constructed from ca. 1235 on to the beginnings of the 1250s.² This correlates to historical sources according to which Möngke Khan (r. 1251–1259) is said to interrupt the construction of Karakorum and dismiss 1500 Chinese workers in the year 1251 (Barkmann 2002, 11).

The reason for the foundation of the Old-Mongolian capital in the Orkhon valley appears to be of political nature. As stated in the inscription from the year 1346, the capital is founded to serve as a base for the foundation of a state (Hüttel / Erdenebat 2009, 8). Its location is chosen according to stratigical and symbolical reasons. In this connection Franke / Twitchett (2007) state that the Orkhon valley is “the core territory of all previous nomadic polities of the eastern steppe. According to pre-Mongolian Turkic traditions, good fortune (*quṭ*) and imperial power [are] strongly associated with possession of these holy mountains.” (347). This symbolical value of Karakorum’s location is underlined by its proximity to the ancient Uighur capital Karabalgasun (744/45–840). The site of which is located approximately 35 km northwest of Karakorum (Hüttel / Erdenebat 2009, 18 + 23, Fig. 1). Relating to strategic considerations, the location of Karakorum in the Orkhon valley enables military access to the Ordos Desert and China (Franke / Twitchett 2007, 341). Furthermore, the city is “positioned like a keystone [...] at the major migration line, allowing the permanent control of every kind of travel and migration activities.” (Bemmann et al. 2010a, 307). These are migration and invasion routes that lead through the Altai to the western Eurasian steppes (Franke / Twitchett 2007, 341) as well as caravan routes (Franken 2012, 26).

Though the location of Karakorum is no doubt carefully considered, there are e. g. recurring problems with the supply of grain. Most of the plants consumed in Karakorum need to be imported (Rösch et al. 2010, esp. 233). Multiple attempts to cultivate crops in the surroundings of the city are carried out but do not seem to be successful (Barkmann 2002, 14). The dependency on the import of grain from China turns out to be especially fateful during the time of the double enthronement of Ariq Böke (r. 1260–1264) and Kubilai Khan (r. 1260–1294) in the years 1260–1264. The two khans are elected at different *khuriltai* with the support of rival leaders from the vast territories of the splintering Mongol Empire. While Ariq Böke reigns in the original Mongol territory with Karakorum as his capital, Kubilai Khan sets up his capital in Shangdu and wields power over northern China. Because Kubilai lays siege on Karakorum and bans all imports from China, the city suffers a great famine until Ariq Böke is finally defeated in 1264 (Pohl 2009, 514

² This information is based on an interview with E. Pohl and K.-U. Heussner in 2016. The charcoals are dated by K.-U. Heussner, German Archaeological Institute, but not published yet. They derive from excavations in and around Karakorum conducted by E. Pohl.

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with further references). This conflict simultaneously marks the end of a united Mongol Empire under the rulership of one supreme khan.

From 1264 on Karakorum belongs to the khanate of Kubilai Khan. It is thus part of the territory of the Yuan dynasty which Kubilai proclaims in 1271/72 (Franke /Twitchett 2007, 616; Langlois 1981a, 3). In pursuance of siding with the Chinese without abandoning the Mongols during the political shift to civic consolidation and empire building, Kubilai first chooses Shangdu and later the newly build Dadu (modern day Beijing) as his capital (Franke /Twitchett 2007, 419 + 454; McCausland 2014, 28). Both cities are located close to each other in the border region between the sedentary culture of the Chinese and the nomadic culture of the Mongols. Although Karakorum is no longer the capital of the empire, the city is of high political value for retaining power over the original Mongol territories. It is compulsory for the successors of the throne of the Yuan dynasty to reside in Karakorum (Barkmann 2002, 17). Furthermore, Kubilai founds new postal stations in favor of providing a strategic and commercial link between Karakorum and his capital Dadu (Franke / Twitchett 2007, 445). The importance of Karakorum for the Mongols is evident in recurring attacks on the city from Mongol rulers outside the Yuan Empire. Notably, Khaidu, a grandson of Ögedei, attempts to conquer Karakorum several times at the end of the 13th century. This includes the overrun of Karakorum in 1289 and 1299 (Pohl 2009, 514–515). A partial destruction of the city is likely to have resulted in connection to these assaults. However, the degree of which is unknown. During the first half of the 14th century no major attacks on Karakorum are documented. Still, the city faces problems in its supply. Under the reign of Temür Khaghan (r. 1294–1307) an edict is released that prohibits the production of alcohol in Karakorum for the sake of saving the resources of grain (Barkmann 2002, 19). Furthermore, disasters like the outbreak of the plague in 1313 and an earthquake in 1317 afflict the life in Karakorum (Pohl 2009, 515). In general, mentionings of Karakorum hardly find their way into the historical sources of the 14th century. Politically and historically the mid-Yuan time is characterized by a constant change of emperors in the capital Dadu and ongoing conflicts of power between potential successors to the throne (Franke / Twitchett 2007, 490–560; short overview in McCausland 2014, 178). The city of Karakorum does not appear to be of major importance to these politics. However, the restoration of postal relay routes to Karakorum under the reign of Khaishan (r. 1307–1311) and repairs on one of Möngke Khan's palaces in 1341 indicate that the city remains to be of value for the Yuan emperors (Barkmann 2002, 19–20). The importance of Karakorum to the Mongol rulers is evident again in 1368 when the last Yuan emperor Töghon Temür (r. 1333–1370) flees the army of the successive Ming dynasty. Although Töghon Temür first decides on fleeing from Dadu to Shangdu, he finally opts for retreating to Karakorum. The events of this flight and the political advice of the counselors to flee to Karakorum are historically documented by an official from the entourage of Töghon Temür (German translation by E. Haenisch, published in Olbricht 1969, 27–41). Unfortunately, this report neither includes the description of a straight connection between Dadu and Karakorum nor a portrayal of the city as Töghon Temür never reached it but died on the way. Still, the choice of Karakorum as the city for the withdrawal of the emperor reveals its relevance for the Mongol rulers. Two successors of Töghon Temür, namely Ayushiridara (r. 1370–1378) and Töghus Temür (r. 1378–1388), eventually govern the so-called Northern Yuan dynasty from Karakorum until the city is destroyed by the Ming army in 1380 or 1388 (Pohl 2009, 515). A bronze treasury seal of the year 1371 that belongs to the reign of Ayushiridara is of yet the latest dating finding from the site of Karakorum (Nagel 2002a).

Overall, the city of Karakorum lasts from its construction in 1220/1235 up until its destruction in 1380/1388, i. e. for 145–168 years. It is the capital of the Mongol Empire for a maximum of 44 years (1220–1264) and the capital of the Northern Yuan dynasty for another 18 years at most (1370–1388). Therefore, Karakorum functions as a capital for only about one third of its history. As a seat for the successors of the throne during the remaining time, the city is of political and strategic priority for the ruling Mongol emperors of the Yuan dynasty. Exercising control over Karakorum equates to sovereignty over the original Mongol territory. Relating to the geographical

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position of Karakorum in the Yuan Empire, the city is located at the northern margin of the realm (Fig. 1). Historically, connections to Karakorum inside the Yuan territory are documented through the establishment and restoration of postal relay routes between Karakorum and Dadu as well as in the supply of the city with grain (see above). In terms of trade and continental communication the role of Karakorum during the Yuan dynasty is largely unknown. Although migration lines and caravan routes are thought to cross the region of Karakorum during the time of its foundation (see above), the commonly known major trade routes under the Yuan dynasty run along the Silk Road and connect the capital Dadu with the Middle East. Trade with ceramics is *inter alia* assumed on these major routes in the 10th to 14th century (Medley 1989, 104). However, Karakorum is located north of their course and thus not naturally included (Fig. 2). Additionally, some Chinese scholars doubt the existence of a so-called “continental ceramic-road” (Chin. *lushang taoci zhilu*, 陆上陶瓷之路) for trade and argue that ceramics from southern Chinese production areas are transported to the north for the Mongol aristocracy only, i. e. not being traded in general via overland routes (Wang Xie 2008). In principle, southern Chinese ceramic production sites are located on the territory of the Yuan dynasty from the year 1279 on when Kubilai Khan defeats the last Song emperor and conquers southern China (Franke / Twitchett 2007, 435 + 432, map 31). Wares from these sites are commonly known as goods for sea trade with e. g. South-East Asia (cf. Heng 2009; Gipouloux 2011). The nature of ceramic production and ceramic trade during the Yuan dynasty is discussed in the following chapter. For the record, Karakorum is certainly well connected via postal relay routes and grain supply routes. The routes of supply of the city with glazed ceramics and the question whether the southern Chinese wares are luxury goods for the elite only remain a subject of research in the present study.

Historical documents that include Karakorum in the extensive Eurasian network are known from the capital-times of the city only. By and large these are the 13th century travel reports of John of Plano Carpini and the Franciscan Friar William of Rubruck. The travel routes of both are i. a. published by Shepherd (1926). With the relocation of the capital to Dadu in 1264, the commonly described travel routes between Europe and Asia run along the Silk Road to Dadu and do not make a detour across Karakorum. Most of the contemporaneous European reports are subsumed in Yule (1966). Travel reports into the other direction, i. e. from China to Europe, are e. g. published in Toepel (2008).

Relating to trade and networks during the Yuan dynasty it is noteworthy that long-distance trade specifically is associated mostly with Muslim merchants who formed partnerships with the aristocracy via merchant associations, the so-called *orthogh* (Franke / Twitchett 2007, 600 + 612; McCausland 2014, 15 + 19). The Yuan society itself is classified into four ethnic groups: people from Western and Central Asia (incl. the Muslim merchants), the so-called *Se-mu jen*; people from northern China (“Cathay”), the so-called *Han-jen*; people from Southern China (“Manzi”), the so-called *Nan-jen* and the Mongols themselves (Rossabi 1981, 259; McCausland 2014, 10). Within this society, the Muslim merchants often live in rather self-contained quarters that are separated from those of the Chinese population (Rossabi 1981, 259). They tend to reside mainly in cities located in the northwest and southeast of the Yuan territory (Franke / Twitchett 2007, 460). Muslim communities that live in China and engage in foreign trade businesses are known from southern Chinese port cities like Quanzhou during pre-Yuan times (cf. Clark 2001, 51 and further works by the same author). Concerning Karakorum, the existence of a Muslim quarter is described in the itinerary of the Franciscan Friar William of Rubruck who resided in the city in 1254, i. e. under the reign of Möngke Khan, when Karakorum is the capital of the Mongol Empire. According to Rubruck, many merchants gather at the markets of this Muslim quarter because of its proximity to the court. It is furthermore the quarter where foreign envoys are housed (Leicht 2012, 169). In addition to the Muslim quarter there is a quarter of the so-called Cathay, i. e. northern Chinese people, who are said to be craftsmen for the most part. Beyond these quarters are large houses that belong to the secretaries of the court (Leicht 2012, 169). The religious diversity of the inhabitants of Karakorum is expressed in the existence of several Buddhist

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temples, two mosques and a Nestorian church (Leicht 2012, 169). Rubrucks' short description of Karakorum is the most extensive report on the outline of the city that is known. Although he mentions specific markets at the gates of Karakorum, there is e. g. no reference on trade with ceramics at any of these places. Whether the structure and the markets in Karakorum remain the same after the relocation of the capital to Dadu is unknown from historical sources. Since large parts of Karakorum are not yet excavated, many questions about the precise outline of the city and its development during the Yuan dynasty remain subjects of ongoing research.

1. 2. CHINESE CERAMICS IN THE 13TH–14TH CENTURY

The materials selected for the present study are fragments of glazed ceramics that are pre-classified as “imported Chinese ceramics” during the course of the excavations in Karakorum. Due to the settlement history of the city, these findings can be dated from ca. 1235 to ca. 1388. In terms of Chinese history, the ceramics derive from three successive dynasties. This is the late Song dynasty (960–1279), the entire Yuan dynasty (1279–1368) and the early Ming dynasty (1368–1644).

Generally, Chinese ceramics of this time are well-known from various collections. They are described and displayed in standard works about Chinese ceramics such as Medley (1989), Li Zhiyan (1996), He Li (1996), Vainker (1991) or Valenstein (1989). All of which are treatises that mainly rely on art historical research, referring to fully preserved vessels from museum collections and their classification. Relating to Chinese publications the most comprehensive overview on Chinese ceramics throughout all times is rendered in the 16 volumes of the “Complete Collection of Ceramic Art Unearthed in China” (Chin. *zhongguo chutu ciqi quanji*, 中国出土瓷器全集) edited by Zhang Bai (2008). Included in this collection are fully preserved vessels from all periods. The volumes are subdivided according to the Chinese provinces where the ceramics were found. Nonetheless, the most extensive study on the history, technology, production and development of Chinese ceramics is provided by Kerr / Wood (2004). This includes remarks on historical documents about the ceramics as well as detailed descriptions of the kilns used and e. g. analyses of the glazes.

Albeit the vast amount of (art history) research on Chinese ceramics, archaeological studies on the ceramics from Karakorum cannot be conducted without encountering problems. It needs to be understood that research on Chinese ceramics is influenced by historical literature on the material; i. e. scholars are often searching for specific wares and/or researching at kiln sites that are described in historical records (Kerr / Wood 2004, 38). It is common practice that site locations are linked with historical references and that ceramic wares are named after their historically described counterpart (Kerr / Wood 2004, 39). This practice hinders consistent definitions and classifications that are necessary for a comparable standard when conducting archaeological work with the material. Due to this, the definition of some Chinese wares is extremely diversified. An example is the so-called Cizhou ware, resp. Cizhou type, which is a very common ware in 13th–14th century northern China. Vessels of this type are part of just about any treatise on Chinese ceramics and partly published in monographies about them (i. a. Mino 1980). A workshop site at Guantai, Cixian, Hebei province “is the largest and best-preserved known production site of Cizhou ware, so named because the region in which it was produced was under the jurisdiction of the Cizhou (Ci prefecture) during the Song and Yuan period.” (Xiaoneng Yang 2004, 503) The excavations from this site are published by the Beijing University Archaeology Department et al. (1997) in an extensive monography that includes a stratigraphy and detailed descriptions of findings and features. It is evident that the definition of Cizhou ware is not as uniform as definitions of medieval ceramic wares in Europe are (cf. Lüdtkte / Schietzel 2001). The production range of the Guantai kilns includes amongst other ceramics for domestic use with varying glazes and décor, e. g. white, brown or black glazed wares which are high-fired

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as well as low-fired wares with a turquoise or green lead glaze. In addition, architectural components as well as imitations of other Chinese wares such as the so-called Ding or Jian wares are manufactured at the site and subsumed as Cizhou ware (cf. Beijing University Archaeology Department et al. 1997 or in short Xiaoneng Yang 2004, 503–507). Furthermore, several firing methods are used simultaneously (esp. Beijing University Archaeology Department et al. 1997, 590). That explains why Cizhou ware from the Guantai kiln is not distinctly definable in just about any of its characteristics. Cizhou ceramics may vary in their body features, glaze, décor, shape and use. This is also evident in the broad range of ceramics that are published as Cizhou ware or Cizhou type (cf. any of the treatises on Chinese ceramics listed above). In relation to archaeological research in Europe it is important to understand that Chinese terminology of a specific ware may include a range of wares according to European archaeological standards. For the most part, these wares are produced at more than one manufacturing site in an associated kiln system that is eponymous for them. Some ceramics that are characteristic for a specific kiln system can be copied or produced in other systems as well, e. g. Ding and Jian wares at Cizhou (see above). This is to be considered when referring to the Chinese classifications during the outline of their history in the 13th–14th century.

Chinese ceramics are generally subdivided into two broad categories: northern Chinese ceramics and southern Chinese ceramics. The line dividing these production regions is the Nanshan-Qinling-divide which marks an important geographical, cultural and historical border within China (Kerr / Wood 2004, 49–51; Wood 2011, 27). Kerr / Wood (2004) state that “[o]ne of the most important later +20th-century discoveries concerning Chinese ceramics has been the identification of the profound differences in composition that exist between ceramics made above and below this divide.” (50). Due to geological aspects, the clay types of both areas differ from each other (cf. Kerr / Wood 2004, 49). Depending on the different environmental conditions and chemical compositions of the clay, the firing of the ceramics also differs from northern and southern production sites. Relating to Chinese ceramics during the 13th–14th century, the so-called *man-thou* kilns are considered to be characteristic for northern China. The prime fuel of these kilns is coal. Their outline, development and functioning is e. g. described in detail by Kerr / Wood (2004, 314–334). The distribution of the *man-thou* kilns is adherent to coal deposits which are more prevalent in northern China than in southern China (Kerr / Wood 2004, 329, Fig. 78). Characteristics for southern Chinese production sites include the so-called dragon or *lung* kiln that is mainly fired with wood (Kerr / Wood 2004, 347–357). Both kiln types – *man-thou* and dragon kilns – are high-temperature kilns with large firing chambers. Although they are characteristic of a specific region, their distribution is not strictly limited to these areas. Additionally, further kiln types exist but are far less common in their use. In northern China as well as in southern China ceramics are produced at a large scale. The Song dynasty is especially considered to signal a flourishing period in the history of Chinese ceramics as the production becomes more and more industrialized and commercialized (Kerr / Wood 2004, 29; Krahl 2009, 11; Pierson 2009, 19; Medley 1989, 171). A detailed map of Song and Ming dynasty kiln sites is provided by Mino / Wilson (1973). As many of the published maps are limited to the main kiln sites, this is one of the most extensive overviews available so far. Kiln sites and systems that are of relevance for the present study are discussed in the corresponding chapters on the wares.

The time of the Song dynasty is sometimes referred to as the ‘Classical Period’ in the history of Chinese ceramics (cf. Vainker 1991, 88). During this period, the degree of specialization at the different kiln sites rises and the demand for particular wares begins to arise in specific social classes (Vainker 1991, 91). This is especially evident in the existence of the so-called ‘Five Classic Wares’ (Kerr 2004, 26), resp. ‘the five great wares of China’ (Vainker 1991, 93), of the Song dynasty; namely Ding, Ru, Jun, Guan and Ge ware. These wares are defined by Chinese literati of the Ming and Qing (1644–1912) dynasties who ranked the ceramics of the Song dynasty in order of preference (Kerr 2004, 24, note 4; Vainker 1991, 93). This categorization is widely used up until today and leads i. a. to distinctions between ‘Classic Wares’ and ‘Popular Wares’

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(cf. Medley 1989) or 'imperial wares' and 'non-imperial wares' / 'popular wares' (Kerr 2004, 26). However, these distinctions are misleading as the eponymous kilns of the five Classic Wares are not necessarily under imperial patronage, resp. imperially selected, neither are these ceramics solely produced for the use at the court (Kerr 2004, 24, note 4; Vainker 1991, 93). Additionally, other wares than these are used at the court as well although the Ming literati do not include them as 'Classic Wares' (Kerr 2004, 24, note 4). The historically determined distinctions and classifications of Chinese ceramics and their problematic are especially evident in one of these wares. Although the Classic Ware Ge is described in several historical sources "[t]he difficulty with Ge is that no one knows quite what it looked like, nor where it was made, nor even for whom it was made. The dates for Ge ware are also a matter for discussion." (Wood 2011, 87) Again, it needs to be stressed that current knowledge about Chinese ceramics and their development is influenced by historical sources on the matter and the search for famous kilns, resp. wares. Therefore, common distinctions of the ceramics are easily misleading for researchers that are not familiar with the subject. Although the Classic Wares of the Song are not as 'imperial' or exclusive as one might assume, their sample clearly shows that ceramics from this time are specialized and partly associated with status and wealth. Evidently, there are popular and widely distributed wares as well as rather exclusive ceramics that are available only for a limited part of the society. Related to the production and distribution of ceramics for the court, it is known that "[b]y the Sung dynasty a number of kilns supplied the court with tribute wares [...]. Porcelain warehouses [...] in several locations stored assembled tribute wares, before they were sent to court." (Kerr / Wood 2004, 185 with reference on Chinese historical sources from the Song dynasty). One of these production sites is Jingdezhen in Jiangxi province (southern China) which nowadays is renowned as "China's porcelain capital" (Gillette 2016). Concerning the development and trade of Chinese ceramics during the 13th–14th century the site of Jingdezhen is of major importance. It is well known from Chinese historical sources and furthermore several excavation campaigns have been conducted at the site throughout the past years (Kerr / Wood 2004, 184–215; Jiangxi Provincial Institute of Cultural Relics and Archaeology and Jingdezhen Kiln Museum 2007). The major development in Chinese ceramics during the Yuan dynasty is associated with the Jingdezhen kilns. This is the invention of the famous blue-and-white porcelain (cf. Pierson 2009, 30; Krahl 2009, 14). Due to the favorable position of Jingdezhen it is taken as a sample for the administration of the production and trade with Chinese ceramics in the 13th–14th century. According to the *Yuan Shi*, the historical record of the Yuan dynasty, a 'Porcelain Bureau' is set up at Jingdezhen in 1278. The supervision of the ceramic production includes the control of quantities, design, color and use. Most of the officials that are in charge of the administration are from the "Islamic West" (Kerr / Wood 2004, 186 with reference on the *Yuan Shi* and further Chinese sources). For the most part, the same applies to many of the merchants who are said to be Muslims (see above or i. a. Medley 1989, 170; Gillette 2016, 16). It is thus not surprising that the invention of blue-and-white porcelain is sometimes connected to the taste and demand of the Near Eastern market (Medley 1989, 177–178; Carswell 2000, 17). The cobalt that is needed for the blue paintings is imported from Persia to Jingdezhen via southern Chinese trade ports like Quanzhou (Gillette 2016, 16; Wood 2011, 63). However, the invention of blue-and-white porcelain for the export market is not without controversy. While e. g. Liu Xinyuan "suggests that Jingdezhen blue-and-white began its production as a true imperial ware" (Wood 2011, 63), Gillette (2016) states that "Jingdezhen's main market for underglaze blue ceramics was outside China." (16). Overall, specific motifs such as five-clawed dragons and phoenix designs are prohibited on popular ware (Kerr / Wood 2004, 202). Ceramics with these designs are thus assumed to be produced for imperial use only. In contrast, e. g. dragons with less than five claws on blue-and-white stemcups are considered to be a décor applied on ceramics that are made for the domestic use at e. g. family altars (Medley 1989, 186–187). Further types such as e. g. large plates with foliated rims are included as export wares for the overseas market (Medley 1989, 178–180). Without going deeper into the discussion, it is to be noted that even the interpretation

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of one of the most famous Chinese wares which is produced at a renowned and historically well described production place is to be considered carefully. Depending on its quality, décor and dating it may be interpreted as imperial ware, domestic ware or export ware. The same applies to other wares and production sites. Therefore, criteria like décor but also the shape need to be considered when analyzing Chinese ceramics.

Concerning trade with Chinese ceramics during the 13th–14th century the focus of research is clearly based on sea trade with e. g. South-East Asia (cf. Heng 2009; Gipouloux 2011) from ports in southern China like Quanzhou (cf. Schottenhammer 2001). Several findings of shipwrecks like e. g. the Sinan wreck (cf. Shen Qionghua 2012 or Bureau of Cultural Properties, Ministry of Culture and Information 1985) facilitate and enrich the research of maritime trade during the Yuan dynasty. Nonetheless, ceramic trade on overland routes is to be assumed as well. According to Rossabi (1981, 282) trade with inter alia ceramics is conducted by Muslim merchants via overland routes and via sea routes. As agents of (foreign) trade in general, Muslim, resp. Arab or Persian, merchants are repeatedly mentioned and can be considered the main actors in this business at the time (cf. Franke / Twitchett 2007, 600 + 612; McCausland 2014, 15 + 19; Clark 2001, 51; Medley 1989, 170; Kerr / Wood 2004, 729). However, the proportion of sea trade in contrast to overland trade is unknown. This refers especially to the transport of ceramics. Xinru Liu (2010) assumes that the “relative fragility [of ceramics] meant that it had to be packed in bulky and heavy containers, and its transport by ships was much more efficient than by caravans.” (110). In this, Kerr / Wood (2004) agree as they state that “[i]t was the ‘Maritime Silk Route’ that transported the bulk of ceramics westwards, by reason of their weight and fragility. [...] [Only a] small proportion of goods were carried overland through Central Asia” (728). In contrast to this, Wang Xie (2008) argues that there is no ceramic trade between southern Chinese production places and settlements in the north of the Yuan dynasty like Karakorum, Jininglu or Yanjialiang. According to this author, any of the southern Chinese ceramics that are excavated at these contemporaneous sites are made for the Mongol aristocracy only and cannot be considered to be regular trading goods. Traded ceramics for the general public in this area derive from northern Chinese production sites only (Wang Xie 2008, 55–56). Overall, the distribution of Chinese ceramics across the territory of the Yuan dynasty, i. e. from Southern China to Karakorum and possibly beyond, has not been fully researched. The economics of the Yuan dynasty are described in the *Yuan Shi* but do not explicitly refer to the distribution of or trade with ceramics (cf. Schurmann 1956 for a translation of the crucial chapters). Concerning foreign trade of the time, the use of maritime routes is considered more important than overland trade (see above and Schurmann 1956, 223). It is mainly Muslim merchants that are associated with this kind of trade (see above). From the year 1284–85 on the engagement of native merchants in foreign trade is even officially prohibited by the Yuan government (e. g. Schurmann 1956, 225). Generally, trade is promoted during the Yuan dynasty and improvements in the system of transport are made. This includes the construction of roads and especially the extension of the Grand Canal that connects the capital Dadu in the north with southern Chinese production sites and is used to facilitate the supply of grain (Franke / Twitchett 2007, 449–450 + 477, map 34; Schurmann 1956, 110–114).

In summary, the following aspects are important for the research on Chinese ceramics from the 13th–14th century: These ceramics are primarily classified in relation to historical sources about them. This classification mainly refers to eponymous kiln systems which are associated with the production of one or more wares. Wares from other eponymous kiln systems may be copied at some production sites. Therefore, terms like e. g. Cizhou ware do not refer to a specific ceramic ware in the sense of European archaeological standards but to a certain range of wares that is produced in a specific region. Two main production areas can be differentiated. This is northern China and southern China. Both are distinct in their clays and the main type of kiln used. The ceramics produced at these sites are partly distinguished by their use as domestic, export or imperial ware. However, this use is not specified to certain wares. Features like quality, décor and

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shape are to be considered for their interpretation. It is known that Chinese ceramics of the time are widely distributed and traded. Muslim merchants are regarded to be the main agents in this business. Despite the availability of various historical sources about the time, the manner of exchange, distribution or trade of ceramics from the southern borders of the Yuan dynasty to cities in the northern margin like Karakorum is to be discussed.

1. 3. EXCAVATIONS AT THE CRAFTSMEN QUARTER IN KARAKORUM

The site of Karakorum is located about 320 km southwest of the modern Mongolian capital Ulaanbaatar, close to the provincial capital Kharkhorin at the river Orkhon. It is adjacent to the Buddhist monastery Erdene Zuu which is founded in 1586 (Brandt / Gutschow 2003). Underneath this monastery is where the ancient palace area of Karakorum is assumed to be located (Hüttel / Erdenebat 2009, 13–14; Hüttel 2009a). Directly north of the monastic walls, a walled enclosure is recognizable in aerial pictures. This is the site that is equated with the city area of ancient Karakorum. It is contended whether it is first identified as the Old-Mongolian capital by Pozdneevs 1883 or Jadrincev 1889 (Franken 2012, 34–35). The evaluation of the Radloff-expedition in 1891 accounts as crucial for the interpretation of this site as ancient Karakorum (Franken 2012, 35; Becker 2010, 27).

The archaeological research history of Karakorum in general is repeatedly outlined in recent studies (i. a. Franken 2012, 34–45) and comprehensively revised by E. Becker (2010). The first excavations in the Old-Mongolian capital were conducted by the Russian scientist Dmitri Demjanovič Bukinič but remain unpublished until the revision of their documentation by Becker (2010, 85–100). The description of the ceramics found during Bukinič's campaign is scarce and lacks suitability for comparisons with recent findings (cf. Becker 2010, 92–93). Publications on further small-scale projects concerning Karakorum as e. g. an expedition led by the Mongolian archaeologist Chödöögijn Perleé in 1961 are hardly available and contain little information on ceramics as well (cf. Mania 1963, 857 + 879, Plate XX, Fig. 12–13 + 19). On a larger scale, archaeological research before the MDKE is conducted under the direction of the Russian scientist Sergej Vladimirovič Kiselov in the years 1948/49. In the course of Kiselov's research several sections at various sites in Karakorum are excavated. This includes parts of the assumed 'palace area', an area at the eastern gate and – most importantly for the present study – an area at the centre of Karakorum. The results of Kiselov's work are published posthumously in the compilation '*Drevnemongol'skie goroda*' ('Old Mongolian Cities') (Kiselov et al. 1965) which is the most extensive archaeological study about Karakorum before the MDKE. Included in this compilation is an article on the ceramics by Lidiia A. Evtiukhova (1965) that provides the broadest information about ceramics from Karakorum which are excavated before the MDKE. As Evtiukhova's study is of basic relevance for the present study it is described in detail in the chapter below. By and large the Russian research by Kiselov from the mid-20th century is the basis of archaeological studies in Karakorum. During the 1970s several small-scale campaigns are conducted by the Mongol archaeologist Ser-Ochav. These, however, are not fully published. Only preliminary reports in Mongol language without data on glazed ceramics from the city centre are available on this research (cf. Franken 2012, 44).

Recent excavations in Karakorum begin within the course of the MDKE which is founded in 1998 (Bemmann et al. 2010, 7–12). Included in this cooperation are two projects which are carried out independently from each other in the years 1999–2005. This is project 'KAR-1' with a focus on the research in the formerly assumed 'palace area' and project 'KAR-2' with a focus on the assumed 'Chinese craftsmen quarter'. The excavations in KAR-1 are conducted under the direction of Prof. Dr. Hans-Georg Hüttel from the German Archaeological Institute. As a result of this study the assumptions of Kiselev about the palace area of Karakorum are proved wrong. The

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area in the southwest of the city turned out to be a Buddhist temple which is now referred to as 'Great Hall' (Franken 2012).

The project KAR-2 is headed by Prof. Dr. Helmut Roth from the University of Bonn whose successor is Prof. Dr. Jan Bemann from the year 2005 on. In the course of KAR-2, excavations at the main road in Karakorum are conducted under the direction of Dr. Ernst Pohl, University of Bonn, whose main concern is the establishment of a stratigraphy for Karakorum. The chosen area of excavation is located close to one of Kiselev's excavation sections in order to reexamine his study. As a result, former stratigraphical thoughts of Kiselev are falsified because his excavations did not include the full time span up until the foundation of Karakorum (Pohl 2010).

In total, the studies within the course of the MDKE yielded several articles, preliminary compilations as well as doctoral theses which partly are finished and partly will be concluded in the near future. This is e. g. a booklet of Hüttel and Erdenebat 2009 as well as several articles by Hüttel concerning KAR-1. A doctoral thesis about the 'Great Hall' was recently published by Franken 2012. Furthermore, the research history of Karakorum by Becker 2007 is part of the project. Results from KAR-2 are mainly published in the compilations of Roth et al. 2002 and Bemann et al. 2010. The completion of several doctoral theses is pending. One of them is the present study which is the first work that gives an overview on the full range of glazed ceramics excavated at KAR-2.

Excavation Section KAR-2, 1999–2005

As stated above, the excavations that are of relevance for the present study are conducted under the direction of Dr. Ernst Pohl during summer campaigns from 1999–2005 within the course of the MDKE–project KAR-2. The following overview on this research is based on oral interviews with Dr. E. Pohl as well as on his publication concerning the excavation and its stratigraphy (Pohl 2010).

The beginning of the MDKE-research in 1999 is marked by the arrangement of a local network of measuring points. This is a grid system which is oriented along the main axes of Karakorum that are still visible in the field. Included in this system is the walled area of Karakorum and few parts of the surrounding area as well as the monastery Erdene Zuu. The structure of the grid system is described by Pohl (2010) as follows: "Both main axes of the system run west of the city wall and south of the south wall of the monastery, so that possible future excavations at or in the monastery can be integrated into the existing network. From the zero-point of both these axes the entire urban area is virtually divided into large quadrants of 100 m x 100 m, which are designated to the north and the east with ascending combinations of letters. The subdivision within these large areas occurred in smaller squares of 10 m x 10 m, each of which was numbered with Arabic digits, beginning in the northwest corner. The smallest unit with this system of measurements is the one-meter square within the large quadrants, with the enumeration also beginning in the northwest corner. The surface delineation thus attained was primarily intended to facilitate the later processing of the pottery; the huge amounts anticipated could not be measured singly and precisely according to the find location. [...] All height measurements are based on a relative system [...]. The depth, to which each excavated layer was made, depended upon the situation at hand in each trench." (64–66).

The area that is chosen for the excavations at the main road is located in the 100 m x 100 m quadrant LH. It includes the 10 m x 10 m squares LH 16–18, LH 26–28 as well as parts of LH 87–88. The decision for the location of the trenches is based upon surface structures as flat mounds of debris in the terrain indicate building structures (Pohl 2010, 66, Fig. 2). The excavation site includes parts of the North-South-street that crosses Karakorum as well as parts of buildings east and west of this main axis (Fig. 3). This refers to the main area of the excavations in section LH 16–28. Section LH 87–88 mainly includes parts of the street. Concerning the latter section, no stratigraphy is worked out yet. Stratigraphical data refers to section LH 16–28 only.

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The surface area of the excavations that are conducted from 2000–2005 measures about 700 m². Not all the trenches are excavated to the same depth, resp. to the geological substratum of the Orkhon valley. Mainly sections LH 16–18 are not fully excavated while most trenches in sections LH 26–28 are excavated up unto the natural substratum. Concerning the stratigraphy of Karakorum, the division of settlement periods is based upon the building layers of the street. The building layers of the areas east and west of the street are further subdivided and correlated to the building levels of the street (Chart 1). Overall, three settlement periods are worked out by Pohl (2010).

The first settlement period dates to approximately 1237/38 – second half of the 13th century (about 1280/90) (Pohl 2010, 126ff). Building activities during this time include a paved street and buildings that are oriented on this street (Pohl 2010, Supplement 2). Excavated from the first building level in the area east of the street is the first documentary evidence for Karakorum: a silver coin with Arabic script that is thought to be struck in Karakorum in 1237/38 (Heidemann et al. 2006; Pohl 2009, 511, Fig. 9; Pohl 2010, 84ff). The second settlement period in Karakorum is very short. It dates from about 1280/90 to the beginning of the 14th century (about 1300/1310) (Pohl 2010, 130ff). A historically documented event that might correlate to this period are reconstructions in Karakorum in 1299 (Pohl 2010, 133). The end of this building level might be connected to destructions in the city due to an epidemic in 1313 and an earthquake in 1317 (Pohl 2010, 133). Although this period is very short in time, much of the documented ceramics date to settlement period II. This is due to a road side ditch that belongs to building level 2 on the street (Pohl 2010, Supplement 4). Its filling includes large amounts of shards. The third settlement period dates from the beginning of the 14th century to the late 14th century (about 1372) (Pohl 2010, 133f). During this time, the street is reduced to a gravel track that is e. g. stabilized with pottery fragments. The building structures at both sides of the street still exist (Pohl 2010, Supplement 5). The latest coin from the excavation is found in this settlement period. It is a silver coin that is minted in 1319 (Pohl 2010, 133). The latest dating finding in general is a bronze treasury seal that dates to 1371/2 and is assigned to the so-called Northern Yuan dynasty (Nagel 2002a; Pohl 2009, 511, Fig. 10).

Overall, parts of the main street as well as buildings east and west of the street are documented throughout the three defined settlement periods in Karakorum in section LH 16–28. The excavated building structures are parts of houses/workshops. None of the buildings is fully excavated at the present state of research. The structures excavated in section LH 87–88 are not yet correlated to the stratigraphy of section LH 16–28. The archaeologically definable settlement periods of Karakorum roughly date as follows:

Settlement Period I	about 1235 to about 1280
Settlement Period II	about 1280 to about 1310
Settlement Period III	about 1310 to about 1380/88.

Interestingly, the building levels documented in Karakorum do not display the historically documented changes of the status of the city according to which the city is constructed from ca. 1220/1235–1250, used as a capital until 1264 and, again, a capital from ca. 1368–1388 (see above on the historical framework and e. g. Pohl 2009, 513–516; Roth 2002, 35, Fig. 4). It does, however, correlate roughly to political changes on a larger scale. During the first archaeologically documented settlement period, the Chinese Song dynasty is not fully defeated. The fall of this dynasty dates to the year 1279 when Kubilai Khan defeats its last emperor and finally conquers south China as well (Franke / Twitchett 2007, 435). From this perspective, the first settlement period of Karakorum thus dates to the Song dynasty while the second settlement period approximately corresponds to the Yuan dynasty reign of Kubilai Khan who dies in 1294. The end of the second and beginning of the third settlement period is the time of the mid-Yuan dynasty

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with its steadily changing emperors from 1294–1333 (Franke / Twitchett 2007, 490–560). The latter parts of the third settlement period date into the reign of the last Yuan emperor Toghön Temür from 1333 to the fall of the Yuan dynasty in 1368 and finally the retreat of the former Yuan emperors in Karakorum from about 1368–1388 (Franke / Twitchett 2007, 561–586). Relating to the common dating of Chinese ceramics according to the dynasties, ceramics from settlement period I date to the Song dynasty while ceramics from settlement periods II and III date to the Yuan dynasty, resp. the early Ming dynasty during the last 20 years of settlement period III.

	West of the Street	Street	East of the Street	Dating
Settlement Period 1	W. 1 + 2	Level 1 (a + b)	E. 1	approx. 1220/1235 – 1280
Settlement Period 2	W. 3 – 5	Level 2	E. 2 + 3	approx. 1280 – 1310
Settlement Period 3	W. 6	Level 3	E. 4	approx. 1310 – 1380/88

Chart 1: Building levels in Karakorum and their correlation subsumed according to Pohl 2010.

1. 4. GLAZED CERAMICS FROM KARAKORUM – CURRENT STATE OF RESEARCH

The first accessible articles on ceramics from Karakorum describe findings of the excavations conducted by the Russian researcher Sergei V. Kiselov in 1948–49. Because of Kiselov's death in 1962 his book '*Drevnemongol'skie goroda*' ('Old Mongolian Cities') is completed by his colleagues and published post mortem in the year 1965. The chapter on the ceramics is written by Lidiia A. Evtiukhova (1965) who already published an article on the subject in the Russian journal '*Sovetskaya Arkheologiya*' ('Soviet Archaeology') in 1959 (Evtiukhova 1959). By and large the contribution of Evtiukhova in 1965 is an extensified version of her article from 1959. Her work is the basis for further studies on the same material such as Meitoku / Ochir 2007 or Elikhina 2010. Generally, the availability of glazed ceramics from Karakorum is limited to findings from Kiselov's excavations and findings from the MDKE excavations.

Already on the first page of the chapter on the ceramics from Karakorum in '*Drevnemongol'skie goroda*' Evtiukhova (1965, 216) classifies them as dating into the Song, Yuan and Liao dynasties and being Chinese wares in large parts. This classification is based on comparisons with collections in the British Museum³ and in the Hermitage. As Evtiukhova hardly quotes any Chinese sources it appears like those are not available to her. The availability of Chinese archaeological sources on the topic remains problematic up until today. For the most part, research is not conducted on ceramics from excavations of Yuan dynasty sites but rather on vessels from museum collections. Archaeological literature is poorly accessible outside China.

The description of the ceramics by Evtiukhova is subdivided according to common Chinese wares (resp. types) and/or glaze colors of the time. Therefore, along with the first basic article on ceramics from Karakorum the analysis is interrelated to difficulties in the definitions of Chinese wares/types that are described in the introduction on Chinese ceramics above. Again, it needs to be emphasized that the determination of the ceramics from Karakorum according to the Chinese system does not necessarily imply that those wares are produced at their eponymous Chinese kiln sites. Evtiukhova herself already postulates that e. g. some of the findings that she determines as Chinese 'Cizhou type' might have been actually produced closer to Karakorum (Evtiukhova 1965, 222) and not at the Cizhou kilns in modern day Hebei province. Up until today

³ Namely the George Eumorfopoulos Collection which partly belongs to the British Museum and partly to the Victoria and Albert Museum (both London).

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this possibility can be neither proven nor excluded. In the surroundings of Karakorum kilns where such ceramics were produced are currently unknown.

The types of glazed ceramics that Evtiukhova identifies in the findings from the Kiselov excavations are as follows:

1. Jun ceramics (Evtiukhova 1965, 219–221)
These are ceramics with a thick blue glaze which are named after the Chinese Jun kiln system that is located in the modern-day province of Henan. Though the range of blue colors on these ceramics is broad, fragments of this type are easily identifiable as the glaze itself is rather unique (cf. Wood 2011, 118–119; Medley 1989, 118–122). According to Evtiukhova (1959, 180) this is the major ware found in Karakorum.
2. Cizhou ceramics (Evtiukhova 1965, 221–237)
This includes a range of popular ceramics of the Chinese ‘Cizhou type’. Eponymous is the Cizhou kiln system located in the modern province of Hebei. Ceramics of this type are widely produced and copied (see introduction above). Included in Evtiukhova’s Cizhou type ceramics are findings with varying shades of white glazes as e. g. milky, creamy, grayish or greenish glaze (Evtiukhova 1965, 222), some findings with brown and black glazes (Evtiukhova 1965, 222) and even some findings with a turquoise glaze (Evtiukhova 1965, 236). Décor and shapes on this type are manifold and include e. g. black underglaze paintings/ brown paintings (Evtiukhova 1965, 225ff), décor which is incised in the slip (Evtiukhova 1965, 231f) as well as red and green paintings (Evtiukhova 1965, 233f). The body colors vary widely, included are buff colors (Evtiukhova 1965, 222) and shades of gray (Evtiukhova 1965, 230). As mentioned above some of these ceramics could have been produced close to Karakorum (Evtiukhova 1965, 222). According to Evtiukhova this ware is the second most common ware in Karakorum following Jun ware (Evtiukhova 1959, 184).
3. Liao ceramics (Evtiukhova 1965, 237–239)
This is the only group of ceramics named after a dynasty. The Liao ruled from 907–1125 in a region that includes parts of modern day Mongolia and northern China. Their ceramics are characterized by a multicolored glaze which is mostly green and yellow (Evtiukhova 1965, 237).
4. Ceramics with a colored glaze of ‘Liuli type’ (Evtiukhova 1965, 239–240)
‘Liuli’ is a rarely used Chinese term for colored glazes which date from the Song dynasty onwards (Valenstein 1989, 96). In this sense, those ceramics are a successive type of the Liao ceramics.
5. Celadon, resp. ‘Longquan ceramics’ (Evtiukhova 1965, 241–245)
Depending on the term that is used these ceramics are named after their special type of glaze, i. e. celadon, resp. a Chinese kiln site named Longquan which is located in the modern-day province of Zhejiang and famous for the production of these glazes. The characteristic celadon glaze is made to imitate jade. Its color range includes various shades of green (cf. Gompertz 1980).
6. Porcelains from Jingdezhen (Evtiukhova 1965, 246–249)
Included in this type are findings with a pale blue glaze called ‘*qingbai*’ or ‘*yingqing*’ and blue-and-white porcelains. Both of which are assumed to be produced at the Jingdezhen kiln system located in the modern-day province of Jiangxi and famous for the invention of the Chinese blue-and-white porcelain (see above and Evtiukhova 1965, 247).

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7. 'Henan type' ceramics (Evtiukhova 1965, 250–257)
This includes a wide range of ceramics with brown, black, brown and green, olive green or similar glazes in all variations (Evtiukhova 1965, 250–251). The group is subdivided into e. g. black glazed ceramics that might derive from the Chinese Jian kiln located in the modern-day province of Fujian (Evtiukhova 1965, 250), wares with fine and coarse temper that might have been produced around Karakorum (Evtiukhova 1965, 253) and additional smaller groups.
8. Marbled Ware (Evtiukhova 1965, 258)
Only a few fragments of this ware were found. The body is two-colored and worked in a marbled pattern. This is the only ware named after its body appearance. Evtiukhova associates these ceramics with production sites of the Jun kiln system (see above) in the modern-day province of Henan (Evtiukhova 1965, 258).
9. Ceramics with dark green glaze and a red body (Evtiukhova 1965, 259–260)
These ceramics do not fit into any known Chinese type. They appear in lower layers of the excavation only. Concerning the Kiselov excavations these are layers X–XI (Evtiukhova 1965, 259). Evtiukhova (1965, 260) assumes that they are produced in the surroundings of Karakorum.
10. Miniature vessels with dark brown glaze (Evtiukhova 1965, 260)
The miniature bowls found are partly marked with red color. It is mentioned that vessels like this are found in other Old Mongolian towns as well (Evtiukhova 1965, 260). Some comparable findings seem to be collected by the Russian L. R. Kyzlasov in 1960 and stored in the archaeological museum in Moscow (Evtiukhova 1965, 260, note 240). The towns themselves remain unnamed. In total, the remarks on these findings are very short.
11. Large brown or green glazed vessels (Evtiukhova 1965, 262–263)
The rim of these vessels usually remains unglazed. Their diameter can measure up to 80 cm. They are not analyzed or classified in detail.

In her conclusion about the ceramics Evtiukhova (1965, 264) states that due to the short time span, there is no recognizable development in the ceramics from Karakorum. She considers the shapes to be standardized (Evtiukhova 1965, 268). Additionally, she identifies some of the unglazed ceramics as dating to Uighur times and therefore assumes an earlier settlement underneath Karakorum (Evtiukhova 1965, 271–273).

Special features on the ceramics are writings and marks, most of which are written on Jun or Cizhou type vessels (Evtiukhova 1965, 258; Evtiukhova 1959, 189). Most of the marks seem to consist of family names (Evtiukhova 1959, 191). Only two out of 39 writings are identical (Evtiukhova 1965, 258). Some marks name the owner of a vessel, others consist of signs that Evtiukhova describes as being similar to the Mongol square script. Again, others are said to include e.g. dates or information about a vessel type (Evtiukhova 1965, 259). Unfortunately, only a few of the marks are depicted. Two published examples on Liao type ceramics are a mark that states the Chinese inscription “mine” (Evtiukhova 1965, 238 + Plate XXII, 5) and another mark that is translated as “old monk from the temple of heavens” (Evtiukhova 1965, 240 + Fig. 129; Evtiukhova 1959, 192).

The findings from the Kiselov excavations are currently stored at different locations as the collection is distributed between the National Museum of Mongolian History, the Mongolian Academy of Sciences (both Ulaanbaatar), the State Hermitage Museum (St. Petersburg) and the Russian Academy of Sciences (Moscow). Parts of the ceramics recently got republished. This includes a Japanese booklet by Kamei Meitoku and Aiuudain Ochir (2007) on the findings stored in Ulaanbaatar as well as publications by Iulia Elikhina (2010 + 2014) on the artifacts stored in the State Hermitage Museum.

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The classification of the ceramics by Elikhina follows that of Evtiukhova in large parts though Elikhina identifies 18 types in total, two of them being unglazed Uighur wares (Elikhina 2010, 45). Types which both, Elikhina and Evtiukhova, use are: Jun, Cizhou, Liao, Liuli, celadon and Jingdezhen. The short definitions that Elikhina provides correspond to those of Evtiukhova concerning the first five types listed above (cf. Elikhina 2010, 45; Elikhina 2014, 55–59). The last type, the Jingdezhen ceramics, are defined differently. While Evtiukhova includes fragments with a pale blue glaze and blue-and-white porcelains in this type (see above), Elikhina defines as Jingdezhen type “vessels with floral or meander ornament executed with thin needle” (Elikhina 2010, 45) and adds fragments with a pale blue glaze separately as ‘Ying ting’ type (Elikhina 2010, 45), resp. “Qinbay vessels” (Elikhina 2014, 59). Additionally, Elikhina adds the ‘Ru yao’ type which appears as fitting between the celadon and Jingdezhen ceramics defined by Evtiukhova. The definition given for ‘Ru yao’ is “blue or green-glazed vessels with a floral relief” (Elikhina 2010, 45) and crackles in the glaze are considered to be a characteristic of this ware (Elikhina 2014, 60).

Another difficulty in Elikhina’s types derives from her classifications of white glazed bowls. The Cizhou type described by Elikhina includes amongst others “white bowls, cream, grayish, yellowish [...]” (Elikhina 2010, 45) whilst the Ding type is defined as “bowls of ivory or cream colour” (Elikhina 2010, 45). The latter type is newly added compared to the classification made by Evtiukhova (1965). With these definitions, the criteria for sorting white glazed bowls to one type or the other remain irreproducible. The shades of white given above depend on a subjective perception of the color as well as to light conditions when examining the fragments and storage conditions that may lead to discoloring.

The group of ceramics that Evtiukhova describes as ‘Henan type’ is represented in three types given by Elikhina. First is the Jian type, which Evtiukhova includes as well (see above; Elikhina 2014, 58). Second are ceramics from the ‘Wu xing yao’ (Elikhina 2010, 45). As this kiln site is not part of the commonly used eponymous sites, this distinction is very special and not easily comprehensible. Third are “roughly made vessels covered with a dark green glaze, probably of local manufacture” (Elikhina 2010, 45) which Evtiukhova included in her Henan type ceramics as well (see above).

The ‘miniature vessels with dark brown glaze’ from Evtiukhova (see above) appear to be defined as “cups for diluting paint” (Elikhina 2010, 45). The category of large vessels additionally includes cups in Elikhina’s types. A completely new type listed by Elikhina is the ‘Pu zhou’ type which is defined as “dark turquoise glazed vessels” (Elikhina 2010, 45). As no body color is given in the definition, the distinction between these ceramics and turquoise Cizhou type findings as well as the correlation with Evtiukhova’s types remains unclear.

Concerning the dating both Evtiukhova and Elikhina assign the glazed findings to the Liao, Song and Yuan dynasties (Evtiukhova 1965, 216; Elikhina 2010, 45; Elikhina 2014, 53), i. e. the 10th–14th century.

The republication of the ceramics from the Kiselov excavations by Meitoku and Ochir in 2007 differs significantly from the publications subsumed above. It is a report of approximately 300 findings which today are stored in the National Museum of Mongolian History (Meitoku / Ochir 2007, ii–iii).

The ceramics are divided into two broad categories which are a) ceramics with determinable provenance and b) ceramics of uncertain provenance. Three types are listed in the first category. These include ceramics produced in the Chinese Jingdezhen kilns, the Longquan kilns and Korean Koryo celadon wares (Meitoku / Ochir 2007, iii). While the first two types are generally listed in the analyses from Evtiukhova and Elikhina, the latter one is a completely new classification within the material from Karakorum. It remains unclear how Evtiukhova classified the three fragments in question. Concerning Elikhina it seems likely that this kind of ceramics is not included in the collection that she examined.

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As far as ceramics classified as deriving from the Jingdezhen kilns are concerned, this determination is used differently by Evtiukhova and Elikhina already (see above). Meitoku / Ochir (2007) add a third interpretation of this type which is defined as “blue-and-white ware, underglaze red ware, egg-white glaze (*luanbai*) ware, and *ying qing* ware porcelains” (iii). According to this, ceramics from the Jingdezhen kilns as classified by Meitoku and Ochir include fragments that Evtiukhova did not mention (= underglaze red) or define (= egg-white glazed porcelain) and Elikhina explicitly excludes from her Jingdezhen ceramics (= *ying qing*).

The comparison of ceramics which Meitoku and Ochir define as deriving from the Longquan kilns is less complicated. All the authors mentioned above classify celadon. Apart from Elikhina, the other authors define parts of the celadon as deriving from the Longquan kilns. According to Meitoku / Ochir (2007) these are celadon fragments “with impressed and incised decoration, as well as the lotus-leaf lid type of jar” (iii). In total, the summary is that there is celadon found in Karakorum and that some of it is likely to derive from the Chinese Longquan kilns.

The second category by Meitoku and Ochir – namely ceramics of uncertain provenance – is subdivided into six types. The first type is “white-glazed stoneware [...] [which] includes undecorated ware, ware with black painting, ware with overglaze decoration, and ware with blue-green glaze.” (Meitoku / Ochir 2007, iii). This definition reflects the Cizhou type ceramics by Evtiukhova and Elikhina (see above). Next to other Chinese kiln sites, the Cizhou kiln is listed as a possible production site for some of the ceramics (Meitoku / Ochir 2007, iv).

The second type is “marbled ware” (Meitoku / Ochir 2007, iv) which is listed by Evtiukhova as well. No possible production sites are mentioned. Third is “three-color glaze ware” (Meitoku / Ochir 2007, iv) which is linked to Liao ware, i. e. it correlates to the Liao type which is used by Evtiukhova and Elikhina. As a possible production site “a kiln in the northern regions during the Yuan dynasty” (Meitoku / Ochir 2007, iv) is assumed. The fourth type, “green glazed ware/two color glazed ware” (Meitoku / Ochir 2007, iv), seems to correlate to the Liuli type mentioned in the other publications. Again, no likely production sites are listed. The fifth type, “moon-white (mottled opaque) glaze ware” (Meitoku / Ochir 2007, iv), is associated with the Jun kilns and thus appears to correlate with the Jun type which Evtiukhova and Elikhina use in their classifications. Last are “black-glazed stoneware[s]” (Meitoku / Ochir 2007, iv) which Meitoku / Ochir (2007, iv) associate with production sites in the modern-day provinces of Henan, Hebei, and Shanxi. This type is included in the Henan type ceramics by Evtiukhova and seems to include ‘Jian yao’ as well as ‘Wu xing yao’ ceramics according to Elikhina (see above).

The dating of the ceramics according to Meitoku and Ochir differs considerably from the assessment of Evtiukhova and Elikhina. While the latter two date the findings from Karakorum to the 10th–14th century (see above) Meitoku / Ochir (2007) state that the ceramics from their record “can be dated to the first half through the middle of the 14th century [and that] pieces made prior to or after that time were not found” (v).

Apart from the publications subsumed above, only single pieces of ceramics from the Kiselov excavations in Karakorum are published in exhibition catalogues where they are intermingled with findings from the recent excavations of the MDKE. This includes the catalogue from the exhibition ‘Genghis Khan and the Mongol Empire’ (Fitzhugh 2009), an exhibition catalogue on the permanent exhibition from the National Museum of Mongolia (Saruulbuyan et al. 2009) in Ulaanbaatar as well a booklet from the same museum on the temporary exhibition ‘Chinggis Khaan an Exhibition in Mongolia’ (Chinggis 2011) which was shown in 2011 in Ulaanbaatar. In the latter publication, it is interestingly stated that “It is identified that the ceramics were originally from China, Korea, Russia and other Central Asian neighbors.” (Chinggis 2011, 21). However, all of the pieces depicted are either correlated to Chinese kilns or remain without a note on their provenance.

Concerning the ceramics which were excavated during the works of the MDKE there is no publication which gives an overview on the full range of wares found. Articles on the ceramics are scarce and generally refer to parts of the findings only. This applies to all the excavation projects

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included in the MDKE as none of them have studied the ceramics in full detail yet. Few findings are parenthetically mentioned and depicted in general articles about the excavations (cf. Hüttel 2009b, 149, Plate 19.9; Hüttel / Erdenebat 2009, 33, Plate 27).

The most comprehensive reports on the ceramics from follower excavations to those of Kiselov are two contributions from M. Janssen-Kim which include the same objects in large parts. One is included in the exhibition catalogue of the 'Dschingis Khan und seine Erben' ('Genghis Khan and his heirs') exhibition which was shown in Bonn in 2005 and in Munich in 2006 (Janssen-Kim 2005). The other one is included in an article on a ceramic deposit which was found in 1978 in Karakorum (Erdenebat et al. 2010). Both contributions include findings from the deposit found in 1978 as well as findings from a reinvestigation of Kiselov's excavation at the main road. The latter research is part of the MDKE. Janssen-Kim uses Chinese types in her classification. She claims that the most common ware in Karakorum is of the so-called Qingbai type which is primarily produced in the Jingdezhen kilns (Janssen-Kim 2005, 186). It is the same type of ceramics that Meitoku / Ochir (2007, iii) refer to as deriving from Jingdezhen though classifying it as 'ying qing ware'. Evtiukhova classifies this ware as deriving from Jingdezhen as well while Elikhina separates it from her Jingdezhen ceramics and classifies this type as 'ying ting ware' (see above). Second in Janssen-Kim's catalogue description are wares defined as deriving from the Yaozhou and Longquan kilns (Janssen-Kim 2005, 186). Given as samples are Longquan type vessels only (Janssen-Kim 2005, 191–194, Cat.-No. 213–217; Erdenebat et al. 2010, 51, Fig. 2 a, b, c, e and k). Most of the other researchers define this type as celadon (see above). Following this is a short description on findings determined as Cizhou ware and Jun ware which Janssen-Kim interprets as simple domestic wares in Karakorum (Janssen-Kim 2005, 187–194, Cat.-Nos. 201–205 + 207–209). Furthermore, it includes a description of a group of ceramics which is classified as 'dark glazed wares' (Janssen-Kim 2005, 187). Unfortunately, none of these findings is depicted or described in more detail in any of the publications of Janssen-Kim. She claims this type as being comparatively rare in Karakorum and deriving from the Chinese Jian or Jizhou kilns (Janssen-Kim 2005, 187). Additionally, a new possible provenance for ceramics which Evtiukhova originally describes as 'Henan type' is provided. The explanations by Janssen-Kim are completed with a passage on blue-and-white wares from Karakorum to which she applies the Chinese term 'Qinghua' (Janssen-Kim 2005, 187). Additional types of ceramics that are later listed in the catalogue descriptions are Ding ware and Dehua ware; both are named after Chinese kiln sites (Janssen-Kim 2005, 194–195, Cat.-Nos. 220, 223–224). All the objects are white glazed vessels determined as stoneware (= Ding ware), resp. porcelain (= Dehua ware). Despite the descriptions on the objects the criteria for their classifications are hardly reproducible. Explanations on a bowl defined as Dehua ware refer to the Ding kilns as being most popular for producing white glazed wares (Janssen-Kim 2005, 194) while explanations on a pot with handles which is defined as Ding ware claim it as actually belonging to the Cizhou wares (Janssen-Kim 2005, 195). It is evident that these explanations in the classification of Chinese white wares are confusing.

Another article from M. Janssen-Kim deals with blue-and-white wares excavated between 2000–2004 in the course of the excavations in the so-called 'palace area' (Janssen-Kim 2006). These excavations are part of the MDKE and were conducted under the direction of Prof. Dr. H.-G. Hüttel (Commission for Archaeology of Non-European Cultures (KAAK), Bonn). The findings are determined as Chinese import ware and hold a share of about 1% of the ceramics which were recorded until then (Janssen-Kim 2006, 83). All of them are consistently dated to the first half of the 14th century (Janssen-Kim 2006, 86). Included in the findings are a rim fragment which is labeled as being an incense burner, a body fragment with lion décor and two completely preserved bowls – one with a dragon décor and the other with an abstract auspicious décor (Janssen-Kim 2006, 86–89, Fig. 2–5). Furthermore, fragments of a bowl with characteristics that clearly differ from the other findings are included in the same category of wares. The body of the bowl is described as being gray (Janssen-Kim 2006, 90) – which is strikingly darker in color than any of the other findings. It is covered with a white slip (Janssen-Kim 2006, 90) – though none of

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the other findings are covered with a slip. The decorative pattern consists of blue stripes (Janssen-Kim 2006, 90, Fig. 6) – again, none of the decoration on any other finding in this category is as simple as these stripes. Though clearly being a ‘blue-and-white ware’ in a literal sense, this bowl is made in a completely different way than the other findings which Janssen-Kim describes. In total, Janssen-Kim (2006, 90) rates the blue-and-white wares from Karakorum as being pieces of middle class to basic quality which are intended for domestic use.

Very interesting special features on some of the ceramics from Karakorum are ink-inscriptions. These are outlined in a very short article from the sinologist E. Nagel (2002). Described in this article are findings from the excavations at the main road during the 2000–2001 campaigns, i. e. these findings are part of the present study as well. The meaning of the inscriptions remains to be discussed in detail in a later section. Concerning the general classification of the findings, Nagel refers to Chinese sources and determines the ceramics as “a surprisingly representative view on the glazed earthenware of Liao, Jin, Song and Yuan periods [...], porcellaneous stoneware included” (Nagel 2002, 99). Therefore, she adds yet another dynasty (Jin dynasty, 1115–1234) into the range of classifications in which provenance and dating of the wares are implied. Well known and comparatively uniformly defined in all publications is the blue glazed Jun ware which Nagel also identifies. Ceramics formerly classified as Liao type are defined as “Liao/Song sancai earthenware” by Nagel (2002, 99). In total, a basic knowledge about the Chinese classifications of ceramics is needed in order to be able to comprehend the termini used by Nagel. As the article is not about classifying the ceramics, only short notes on selected findings are afforded. Overall the results correspond to the classifications already stated above.

The articles and contributions subsumed above represent the current state of research on ceramics from Karakorum when the works on the present study started. A supsumption of the previous classifications is included in Chart 2. A detailed chart on the correlation of the old classifications with the classifications of the present study is inserted in Appendix A. In summary, the conclusion is that problems in the classification and analysis of the material arise from inconsistent determinations in former publications and from imprecision in the Chinese terms employed. The latter aspect leads to heterogeneous classifications as well as to misleading associations concerning production sites for parts of the ceramics.

The author of the present study tried to consider this when writing an essay about glazed ceramics that were collected beyond the eastern city wall of Karakorum during a survey in 2011 (Heussner 2012). The ceramics from this survey do not represent the full range of wares found in the course of the excavations at the main road. Still, the main types of wares are included. As the report on the ceramics is preliminary, a broad classification is used instead of a detailed one. The first group described consists of white (glazed) wares which make up about 50% of the recorded ceramics (Heussner 2012, 68). For the classification of these wares it is important to note that the findings from the survey almost exclusively consist of near-stonewares and stonewares. Included in the findings from the excavations at the main road are white glazed porcellaneous fragments as well. These are classified differently but not mentioned in the article on the ceramics of the survey as only stray finds of this ware occurred in this case. Parts of the findings are decorated with black or brown paintings, cut relief decoration or colored overglaze decoration. The group is considered to consist primarily of ‘Cizhou-type wares’ (Heussner 2012, 68). This is a classification that generally correlates to previous publications (see above). Concerning the second group of the article, which are black and brown (glazed) wares (Heussner 2012, 68–69), the determination is more complicated. As stated above, the classification of these ceramics differs widely. In a sense, the possibilities listed in earlier publications are subsumed, which results in possible Chinese production kilns as Cizhou, Ding, Jian and Jizhou (Heussner 2012, 69). In contrast to this is one the most homogeneously defined wares from Karakorum: Jun ware; which is also included in the findings from the survey (Heussner 2012, 69–70). Further wares included in the survey, which are rather comparatively defined in the previous publications, are celadons, ‘Qingbai’ and blue-and-white porcelain (Heussner 2012, 70–71). As a result of the study the

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rating of the material by Meitoku / Ochir (2007) is largely supported (Heussner 2012, 73); i. e. a dating into the 14th century for most of the findings from the survey. Additionally, few fragments of wares which date to later times are documented in the survey (Heussner 2012, 72–73). However, these wares are not recorded in the spectrum of ceramics from the excavations at the main road. All things considered, glazed ceramics from Karakorum are published in various articles with heterogeneous but somehow comparable classifications that are based on Chinese terms. For the most part, a provenance from known Chinese production sites is implied though local production of some of the wares may occur as well. Chinese kiln sites which are used in the description of the material are: Cizhou, Ding, Dehua, Jian, Jingdezhen, Jizhou, Jun, Longquan, Ru and Yaozhou. Terms used for specific glazes include: Liuli, Sancai, Qingbai, Qinghua, Yingting and Yingqing. All of which may be used as classification as well and partly describe the same type of glaze.⁴ The main criterion for the classifications is the outer appearance of the wares, i. e. the glaze. Periods/dynasties which are used as terms for dating the ceramics are Jin, Liao, Song and Yuan. The use of these termini partly implies a provenance from the territory of the given dynasty. The dating itself ranges from the 10th to 14th century. None of the studies includes the full range of glazed ceramics excavated in Karakorum. A descriptive and comparable classification of wares is a research desideratum.

⁴ This refers to Qingbai, Yingting and Yingqing. All of which are termini for a pale blue glaze.

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Evtiukhova (1965)	Elikhina (2010)	Meitoku / Ochir (2007)	Janssen-Kim (2005)	General Description
Jun	Jun	Moon-white glaze (Jun)	Jun	Thick blue glaze
Cizhou	Cizhou + Ding	White glazed ware	Cizhou + Ding (+ Dehua)	White glazed wares
	Cizhou	White glazed ware	Cizhou	White with black or brown décor
		/		White with colored décor
		White glazed ware (incl. blue-green glaze)	/	Brown and black glazes
Liao	Liao	Three-color glazed ware	/	Turquoise glaze (with black underglaze décor)
Liuli	Liuli	Green glazed ware/two color glazed ware	/	Multicolored glaze (green, yellow, brown)
/	Pu zhou	/	/	Colored glaze (green and blue)
Celadon	Celadon	Longquan / celadon	Yaozhou + Longquan	Dark turquoise glaze
/	Ru yao	/	/	Celadon glaze
Jingdezhen	/	Jingdezhen	Qinghua	Blue or green glaze with floral relief
	Ying ting		Qingbai	Blue-and-white porcelain
/	Jingdezhen	/	/	Pale blue glaze
/	/	Jingdezhen	/	Ornaments executed with thin needle
Henan type	Jian yao	Black glazed ware	Dark glazed wares (incl. Jian and Jizhou)	Dark glazes (brown, green, black)
	Wu xing yao			
	Local productions			
Marbled ware	/	Marbled ware	/	Marbled body
Dark green glaze and red body	/	/	/	Green glaze and red body
Miniature vessels with dark brown glaze	Cups for diluting paint	/	/	Dark brown glaze, miniature vessel
Large brown or green vessels	Local productions	/	Local productions	Brown or green glaze, large vessels
	Large vessels			
/	/	Koryo celadon	/	Gray with white décor

Chart 2: Simplified overview on ceramics classified in Karakorum.

1. 5. Method and Theory

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The present study is a material-based archaeological research on the glazed ceramics that are excavated in the so-called Chinese craftsmen quarter of Karakorum during the course of the MDKE 1999–2005. Working with these ceramics means establishing groundwork for archaeological research concerning medieval Mongolia because these are the first ceramics of this time and region that derive from a modern excavation with an elaborated stratigraphy. Several opportunities and limitations arise in the initial conditions of this study. First, there is no reliable consistent classification of the ceramics (see above). The full assemblage of wares found is neither fully described nor defined in any of the previous works on the subject. Furthermore, the previously used classifications partly differ from each other. Therefore, there is a need for a consistent, comprehensible and comprehensive presentation of the ceramics that serves as a basis for future studies. In the interest of avoiding confusion with previous approaches and to create a reproducible and reliable system, the material record is carried out deductively and descriptively. The criteria for the record follow European standards for the study of medieval ceramics with proven reliability such as Lüdtkke / Schietzel (2001) or Bauer et al. (1986). Their specific definitions for the present study are presented in the chapter on documentation. Through defining the criteria of the glazed ceramics by comprehensible means like the Munsell color charts for the descriptions of body colors, all the defined wares are kept comparable to other systems and descriptions. In order to provide comparability to previously applied Chinese classifications, the vast majority of the wares are sorted according to glaze colors. Exceptions are e. g. made when the same glaze colors are applied on different ceramics, i. e. on stonewares and earthenwares.

Second to the definition and description of the material is its classification and determination of origin. Given as an initial interpretation, all the glazed ceramics found in Karakorum are considered to be 'imported wares from China' (see above). There are quite a few difficulties and implications in this interpretation. One of them is the cultural implication given in the term 'Chinese ceramics'. Most of the ceramics indeed are produced on the territory of modern day China and fit traditions of Chinese ceramic productions, styles and wares (see the determinations of origin below). The term works for a simplified description. Still, as it concerns ceramics that are excavated in Mongolia and pre-classified as 'Chinese' in contrast to unglazed 'Mongol' ceramics, it is to be emphasized that this distinction is related to modern borders and societies. As Kubilai Khan defeated the last Song emperor in 1279, Karakorum as well as the 'Chinese' production sites of the ceramics belong to the same empire from this time forward (Franke / Twitchett 2007, 458 and introduction on the historical framework above). Regions in modern day northern China are conquered even earlier. Thus, ceramics from this region are produced on the territory of the same empire that Karakorum belongs to and can be considered domestic productions. This does not apply to wares from modern day southern China until 1279. Both production areas need to be differentiated in their interpretation although ceramics from both are labeled 'Chinese' (see the introduction on Chinese ceramics above). Thus, the distinction of 'Mongol' vs. 'Chinese' ceramics does not refer to inland products vs. foreign products. At the most, this designation roughly defines locally produced wares and wares that are imported into the city. In this, the latter category may include domestic productions and foreign productions. These interpretations depend on the dating of the wares.

Through the sample above it becomes apparent that the initial interpretation of the glazed ceramics as 'Chinese import wares' implies issues of trade, cultural contacts and routes of supply in their analysis. Notably, ceramics that are produced in southern China are well-known goods for maritime trade. Numerous findings and partly historical sources account for the trade of these wares to South-East Asia, the Middle East and even Africa (see introduction above and i. a. Miksic 2009; Heng 2009; Zhao Bing 2015; Ciociltan 2012; Tampoe 1989). Some of these ceramics are interpreted as products that are explicitly made for the export market, e. g. pale blue

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vessels with black spots for the South Asian taste (Crick 2010, 190 + 206–207; Wiesner 1977, 157–163). Thus, some particular Chinese ceramics of the 13th–14th century allow for specific interpretations. This applies to ceramics that are made for export as well as to ceramics that are made for domestic use or imperial use (see introduction above). It is to be elaborated whether such characteristic products are found in Karakorum. This analysis is important to get an impression on the mode of supply of glazed ceramics in Karakorum. Some scholars believe that southern Chinese ceramics are not regularly traded up unto the north but arrive there as goods from the aristocracy only (Wang Xie 2008). By comparing the findings from Karakorum with known Chinese ceramics and their interpretation, an analysis of the wares is consigned in the present study which contributes to the question of their character; i. e. whether they can be considered as e. g. regular trade goods or (partly as) luxury goods for the aristocracy only. Generally, ceramics are not considered to be a common trade good for long-distance trade over land as they are too heavy and too fragile (Perner 2005, 256; Xinru Liu 2010, 110; Kerr / Wood 2004, 728). Although the work is rather comprehensive, ceramics are e. g. not listed as trade goods for land trade on the Silk Road routes in the handbook ‘Practice of commerce’ that the Italian merchant Francesco Balducci Pegolotti wrote in the 14th century for i. a. trade between Azov and Beijing (cf. Yule 1966). Nevertheless, ceramics that are produced in China in the 14th century even reach Europe during the same century. One sample is a fragment of Chinese Yaozhou celadon excavated in Zaragoza, Spain and e. g. published in Heidenreich (2007, 448, Fig. 64). Further samples are listed by Whitehouse (1973) and e. g. include the famous Gagnières-Fonthill Vase as well as the Katzenelnbogen bowl. Whether these vessels reached Europe via land or via sea is unknown. Under the so-called Pax Mongolica, trade across all of Eurasia is possible as well as favored and protected by the Mongol rulers. Kubilai Khan supports trade by e. g. the introduction of paper money and the development of canals to facilitate transportation (Franke / Twitchett 2007, 449 + 599 + 613).

Although the analysis of origin and interpretation of the glazed ceramics from Karakorum aspires to extend the knowledge about the supply of the city and its daily life, the issue of trade itself cannot be researched in the present study as this subject is strongly connected to social interactions and cultural exchange. Basic notions of economics and sociology referring to works from e. g. Mauss, Polanyi and Wallerstein are to be considered in the matter (cf. Bauer / Agbe-Davies 2010; Garraty / Stark 2010). The study of the ceramics alone does not provide sufficient information on this topic. Still, it contributes to a basis for further studies. In methodical considerations on the study of trade in archaeology, e. g. Berta Stjernquist (1985, 66) includes three fields: the research on the origin of the goods, research on their distribution and the reconstruction of the exchange. Relating to this model, the present study provides information on the first aspect and parts of the second aspect while the exchange itself cannot be reconstructed on the basis of the material. Problems in the verifiability of trade from the analysis of ceramics alone are even more evident in the five factors that the German archaeologist Heiko Steuer (1985) includes in the research on the subject. These are: the agents of trade (e. g. craftsmen and merchants), the transport of the goods, the trade goods, the market places and the currencies (Steuer 1985, 118). Most of these factors are not traceable in the present study. Provided are the goods, i. e. the ceramics that can be analyzed. Their origin can be traced and partly precise interpretations on their use are to be expected. Research on market places for domestic trade with ceramics in the Yuan dynasty is unknown to the author. While foreign trade and sea routes are a common subject in the study of Chinese ceramics, trade via overland routes is not (see above). Relating to the agents of trade general information is available. This refers especially to renowned production sites like Jingdezhen where many historical sources on the production are available (cf. Kerr / Wood 2004, 184–213; Gillette 2016, 13–16). Concerning other production sites this information is missing. At large, craftsmen are valued under the reign of the Yuan emperors. “The court promoted, in particular, ceramic production, for it recognized the potential for revenue in this industry. [...] The Yüan potters, who were granted great flexibility by

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the Mongols and were not inhibited by the Sung canons of taste, could innovate” (Kerr / Wood 2004, 470). The trade during this time is generally associated with Muslim merchants (cf. introductions above and Franke / Twitchett 2007, 600 + 612; McCausland 2014, 15 + 19; Clark 2001, 51; Medley 1989, 170; Kerr / Wood 2004, 729). At the site of Karakorum neither potters nor merchants are traceable at the present state of research. The value of the ceramics in town is unknown. On the basis of production-distribution approaches (cf. Stark / Garraty 2010; Feinman / Nicholas 2010) a market exchange of glazed ceramics is to be assumed as these wares cannot be produced at a local scale and are widely available in the city. However, as stated above, neither the character of this exchange nor its agents are verifiable by an analysis of the ceramics only. Additionally, data on sites in the surroundings of Karakorum is not available at the present state of research. Thus, its regional network remains unknown. What can and will be given in the present study is an analysis on the production sites of the glazed ceramics and thus research on their distribution and (wide-scale) availability. This is a first step for studies on long-distance land trade of ceramics across the Yuan Empire and possibly beyond. Methodologically this is a chorological approach on the material (cf. Perner 2005). In contrast to research on trade, topics of social interaction and exchange are excluded. It is furthermore no spatial analysis in the sense of Clarke or Hodder who use mathematical-statistical approaches (cf. Clarke 1977; Hodder / Orton 1976 on these methods). Better references about the space surrounding Karakorum are needed to enable such studies. The same applies to research that refers to subjects of centre and periphery as applied by Champion (1995). The aim of the present study is the proof of long-distance distributions of ceramics from i. a. southern China to Karakorum that take place on overland routes. This is a new factor in the inclusion of Karakorum into the Eurasian network of routes existing in 13th and 14th century because ceramics are not considered to be traded this way on a large scale (see above). The origins of the ceramics contain information on the supply of the city as well as on the distribution of the ceramics themselves. As an indicator of connections maps that depict the provenances of the ceramics found in Karakorum are worked out and contrasted with maps showing routes across Eurasia. Methodically this is a chorological approach as chorology is defined as covering, describing and examining the horizontal distribution of archaeological findings and thus establishing relations and connections between spaces of varying dimensions (Perner 2005, 75). According to Perner (2005) “Chorological models include relationships, links, and causalities based on the individual aspects of position, distance, shape, structure, and density, which can be related to different dimensions and originate in different areas.

The fields of investigation of a chorological research concern on an abstract level

- Hierarchies (central locations, gravitational models)
- Locations (location analysis, branch models)
- networks (communication and trade routes, settlement systems)
- Lines (boundaries of different types)

Both in the construction of models as well as in the evaluation, it must be borne in mind that only partial comparisons are meaningful and methodically permissible due to the large number of elements.” (134; translated into English by the author). Concerning archaeology, the use of chorology implies results on:

- “- localization and “occurrence”
- distribution and distribution patterns
- demarcation.” (Perner 2005, 273; translated into English by the author)

1. 5. Method and Theory

The application of a chorological approach is considered to be the best meaning at the present state of research. It provides a valuable basis for future studies because the distribution patterns of the production sites of glazed ceramics found in Karakorum display connections of the city to regions that are used for its supply. Whether special shapes, décor or wares are traceable in the spectrum of findings from Karakorum, additional information on the daily life in the city are supplied through the comparison with known Chinese ceramics and their interpretation. Overall, the present study is a groundwork on glazed ceramics found in 13th–14th century Mongolia that provides rich information concerning their distribution, the connections implied in them as well as their daily use. Thus, routes across the Yuan Empire are displayed and the knowledge about Yuan economics, more precisely the inland distribution of ceramics, is deepened.

2. DOCUMENTATION

Apart from selected findings which are displayed in exhibitions, the glazed ceramics from the MDKE excavations are stored at the archive of the Mongolian Academy of Sciences in Ulaanbaatar, Mongolia. They are first sighted by the author in the autumn of 2010. The record for the present study is conducted from May to October 2011. During the preparations for the record in the beginning of 2011, literature on the subject, i. e. on Chinese ceramics and previous publications on the ceramics from Karakorum, is sighted. In the course of the MDKE, approaches to the classification of the ceramics are commenced beforehand. Unfortunately, the data from these approaches needs to be discarded as neither its sample collection nor written records on previous definitions of wares are available when works on the present study began. Due to the lack of data on previous approaches and the inconsistency in published classifications of the material (see introduction above), the documentation of the ceramics is started anew from the beginning. At first, attempts are made to prepare a documentation sheet that refers to a Chinese classification as known from studies on museums collections, i. e. a sorting by kiln systems (see introduction above). This system is i. a. used in archaeological studies on the comparable and contemporaneous city site of Jininglu, Inner Mongolia (cf. Chen Yongzhi 2004). However, the classification according to Chinese kiln systems partly lacks distinctly definable criteria as is common in European archaeological research (see introduction above and cf. Xiaoneng Yang 2004, 431 for a possible range of products from one kiln site). Furthermore, there is no consistent standard in Chinese archaeological studies. Recent research on another comparable and coeval city site in Inner Mongolia – namely Yanjialiang – is mainly based on a classification of the ceramics according to outward characteristics such as “thick white glazed ceramics”, “thin white glazed ceramics” or “black glazed, soy glazed ware” (Ta La 2010). To establish and provide a consistent basis for archaeological research on glazed ceramics found in mediaeval Mongolia a new classification is elaborated in the present study. It is based on a documentation that is oriented on European standards for the research on medieval ceramics like Lüttke / Schietzel (2001), i. e. documentation criteria are defined by means of reference tools and/or refer to defined standards. Methodologically this is decided to be carried out deductively and descriptively. The classification itself is sorted according to outward characteristics in to the interest of providing good comparability to other classification systems. Included in the documentation criteria of the glazed ceramics from Karakorum are the following technological features and reference tools:

- | | |
|-------------------------------|--|
| – color of the body | → Munsell Soil Color Charts |
| – temper of the body | → macroscopic analysis |
| – hardness of the body | → Mohs hardness scale |
| – glaze (color and thickness) | → macroscopic analysis,
colors: Pantone Color Chart |

- thickness → caliper gauge
- traces of production → macroscopically visible, e. g. stacking-marks.

The typological features include:

- shapes → rim, base, handle, spout, lid; incl. determination of the diameter (polar coordinates sheet, max. measurable diameter = 28 cm)
- décor → technique and motif as far as macroscopically visible

Furthermore, there are special features in the ceramics that are recorded:

- signs of repair → number, diameter of drill holes
- marks → description, photograph.

These criteria are described and defined in the following chapters before the classification of the material. Based on these characteristics and devices the glazed ceramics from Karakorum are recorded in a specifically designed MS Access database. During the record, preliminary wares are defined and included in the database. A collection of samples for the preliminary wares is compiled and analyzed in more detail for the sake of defining the wares. Under the given conditions in the archive in Ulaanbaatar – which is e. g. artificial light only as well as occasional power outages – 21164 fragments are recorded. This amounts to an estimated 70% of all glazed ceramics found in Karakorum. Fragments from the excavation section LH 28 are recorded with priority and deliberately because of their importance for stratigraphical analyses (see introduction above or Pohl 2010). Any of the available storage boxes are sighted for ceramics from this section. Thus, ceramics from LH 28 are recorded as thoroughly as possible. However, findings that haven't been available for whatever reason naturally could not be added to the database. These include currently missing objects as well as objects on display in exhibitions. Ceramics from any other excavation section are recorded box by box in a row but not checked for completeness. This results in a documentation of approximately 80–90% of the materials from excavation areas LH 16–18 and LH 26–27. These are the sections that are used by Pohl (2010) for his stratigraphy of the site. Excavation sections LH 87–88 are, in contrast, not yet included into the stratigraphy. Ceramics from these sections are recorded last in row without priority. Therefore, most of the findings that are not included in the present study derive from this area. Findings with missing finding sheets appear throughout the documentation. These are included in the record if they are considered to be valuable for the reconstruction and proof of specific shapes used in Karakorum, i. e. vessels with a completely preserved shape but without a finding sheet are recorded in the database.

During the record in the archive in Ulaanbaatar typological features (shapes, décor) as well as special features like marks are photographed. Due to time constraints, drawings of shapes are mostly made in Berlin using appropriate pictures and sketches made in Ulaanbaatar. Sketches from motifs are usually digitally drawn from photographs while working in Berlin. Motifs which are difficult to visualize in a photograph are hand drawn and afterwards digitalized. The definitions of wares, shapes and motifs resulting from the database as well as the sample collections and photographs are compiled in Ulaanbaatar and evaluated in Berlin.

In total 21164 fragments of glazed ceramics are recorded. This includes 12886 non-diagnostic shards (body fragments without décor) and 8278 diagnostic shards. Therefore, about 39,11% of

2. 1. Technological Features

the recorded shards from Karakorum are diagnostic. These shards are subdivided into 99 datasets (111 fragments) representing complete shapes (i.e. rim and base of a vessel is preserved and the whole vessel can be reconstructed), 4015 rim fragments, 1769 base fragments, 2290 body fragments with décor and fragments of lids, handles, spouts or figurines which are rather exceptional and sum up to 93 fragments in total. This number is composed of 30 fragments of lids, 53 fragments of handles, 9 fragments of spouts and one fragment of a figurine. There are 491 fragments with signs of repair (= 2,32%) and 144 fragments with marks (= 0,68%). While signs of repair are documented on otherwise non-diagnostic shards as well as on diagnostic shards, the clear majority of marks is documented on base fragments, i. e. diagnostic shards.

2. 1. TECHNOLOGICAL FEATURES

The definitions of the technological features are based on macroscopic analyses of the sample collection in daylight with widely available and common tools such as the Mohs Hardness Scale or the Munsell Color Charts. Scientific analyses of the material are unavailable throughout the present study.

The choice of criteria is based on European standards for the study of medieval ceramics which are applicable to the body criteria. Mainly these are Lüdtké / Schietzel (2001) as well as Bauer et al. (1986) and Rheinisches Landesmuseum Bonn (1986). The variations of glazed ceramics are not as extensive in the European material as they are in the ceramics from Karakorum. In this case the outer appearance of the glaze, i. e. the color, is generally defined via the Pantone Color Charts. This is considered the most comprehensible way to provide a basis for this criterion. Scientific analyses of the glazes are not provided. Therefore, the glazes cannot be determined concerning their chemical composition. Their main distinguishing feature which is macroscopically definable is their color.

2. 1. 1. BODY FEATURES

Distinguishing body features on the glazed ceramics from Karakorum are the color of the body, its temper, partly its temper particles as well as the hardness of the body, i. e. whether it is an earthenware, stoneware or porcelain. These features are defined in the following sections.

Color of the body

The determination of colors is conducted on the shards from the sample collection in daylight. Small parts of the samples are broken off to gain a clean surface with unaltered color. The tool for determining the color is the Munsell Soil Color Charts (Year 2000 revised washable edition). In most cases a color – i.e. rather a small spectrum – that is classificatory significant is represented best by a range of similar color shades from the Munsell Soil Color Charts. Colors used for the analysis of the present ceramics are named and defined as follows:

2. 1. Technological Features

Color name, Karakorum	Notation of color, Munsell (2000)
grayish white	GLEY 1 8/ – white GLEY 2 8/1 – light bluish gray
white	10 YR 8/1 – white
off-white	10 YR 8/2 – very pale brown
buff	10 YR 8/3 – very pale brown 10 YR 8/4 – very pale brown
beige	10 YR 7/3 – very pale brown 10 YR 7/4 – very pale brown
reddish yellow	5 YR 7/4 – pink 5 YR 7/6 – reddish yellow 7.5 YR 7/6 – reddish yellow
light brick-red	2.5 YR 6/6 – light red 2.5 YR 6/8 – light red
brick-red	2.5 YR 4/6 – red 2.5 YR 5/6 – red 2.5 YR 5/8 – red
pinkish	5 R 6/6 – light red
red	10 R 5/6 – red
light reddish brown	5 YR 6/3 – light reddish brown 5 YR 6/4 – light reddish brown 7.5 YR 7/4 – pink
brown	10 YR 5/3 – brown 10 YR 6/3 – pale brown
dark brown	10 YR 2/2 – very dark brown
reddish brown	2.5 YR 4/3 – reddish brown 2.5 YR 5/4 – reddish brown 5 YR 4/3 – reddish brown
dark reddish brown	2.5 YR 3/3 – dark reddish brown 5 YR 3/2 – dark reddish brown
light brownish gray	10 YR 6/2 – light brownish gray
grayish brown	10 YR 5/2 – grayish brown
light gray	GLEY 1 7/ – light gray GLEY 1 7/1 – light greenish gray light gray 2.5 Y 7/2 – light gray 10 YR 7/1 – light gray 10 YR 7/2 – light gray
gray	GLEY 1 5/ – gray GLEY 1 6/ – gray GLEY 2 5/1 – bluish gray 2.5 Y 5/1 – gray 10 YR 5/1 – gray 10 YR 6/1 – gray
reddish gray	10 R 5/3 – weak red 2.5YR 6/1 – reddish gray 5 YR 5/2 – reddish gray
dark gray	GLEY 2 3/1 – very dark bluish gray 10 YR 3/1 – very dark gray 10 YR 4/1 – dark gray 10 R 4/1 – dark reddish gray

Chart 3: Definition of body colors.

2. 1. Technological Features

Temper of the body

The analysis of the temper is conducted on fresh breaks on the shards of the sample collection by macroscopic means and the use of an illuminated handy microscope with 30x magnification. A scientific analysis is not provided. The criteria are the sizes of the temper particles and their appearance. The distribution of the temper particles is generally homogeneous in the glazed ceramics from Karakorum. It is not a distinguishing factor and therefore not defined.

The quantity of temper particles may vary from ware to ware. However, an absolute determination is neither possible by the means provided nor significant for the study. For comparisons, general terms – i.e. little, average, many – are employed. This application follows a suggestion of Bauer et al. (1986, 97).

Size of the Temper Particles

The size of the temper particles is classified according to Bauer et al. (1986, 96) who relies on a systematic used in geology that is widely referred to in German studies on ceramics. Concerning the ceramics from Karakorum the classification is complemented with the category “very fine”. Due to a lack of tools to be precise enough to measure a size of 0,63mm, the transition from medium to coarse particles is adapted to 0,7mm. The size ranges used in the present study are defined as follows:

very fine	→ no particles of visible size
fine	→ particles up to 0,2 mm
medium	→ particles from 0,2 mm to 0,7 mm
coarse	→ particles having a size of more than 0,7 mm.

These categories represent the average size of temper particles in a shard. Single particles may be larger or smaller.

Temper Particles

The determination of temper particles by macroscopic and microscopic means only requires practical experience by experts (Bauer et al. 1986, 97–98) that is not offered. Ergo, the particles are described and their given determination is an assumption that needs to be proven by scientific means in future studies. Temper particles that appear in the glazed ceramics from Karakorum are as follows:

(fine) black particles	→ charcoal, graphite or ferruginous particles
(fine) brown particles	→ presumably ferruginous particles
rounded brown to black particles	→ organic or ferruginous particles
irregularly shaped black particles	→ graphite or mica particles
irregularly shaped brown particles	→ quartz, quartzite or feldspathic particles
irregularly shaped transparent to white particles	→ quartz or quartzite particles
mat white particles	→ presumably lime particles.

Pictorial presentations of the various types of particles are presented on Plate 2.

2. 1. Technological Features

Hardness of the body and Fracture structure

The hardness is assessed on the shards of the sample collection by means of the MOHS scale of hardness. Though entailing problems of impreciseness, the MOHS scale is a widely accepted tool in archaeology. Concerning archaeological studies there are four groups of hardness according to the MOHS scale that are related to groups of ceramics (cf. Bauer et al. 1986, 102; Lüdtke / Schietzel 2001, 973) These are:

soft	→ MOHS 1–2	→ low-fired earthenware
hard	→ MOHS 2–4	→ earthenware
very hard	→ MOHS 5–6	→ high-fired earthenware, near-stoneware
extremely hard	→ MOHS 7 and more	→ near-stoneware, stoneware, porcelain

This scale cannot be transferred to the ceramics from Karakorum without adaption. Firstly, there is an inaccuracy in the determination of the hardness. The ceramics generally are glazed on both sides. Therefore, the hardness can be determined on the fracture of a shard only, i.e. space is limited and the test area is softer than the surface of the shard. Secondly, when comparing the whole fracture structure and analyzing the shard, the measured hardness according to MOHS does not correlate with the ceramic types as stated above. It is likely that this is due to the problems involved when measuring the hardness.

Based on the standards given and taking into account the difficulties attached to the ceramics from Karakorum, the following groups of hardness are defined for the present study:

soft	→ MOHS 2–3	→ porose and sandy fracture structure, little to medium sintered, earthenware
hard	→ MOHS 3,5–4,5	→ dense fracture structure, medium to highly sintered, near-stoneware
very hard	→ MOHS 5–6	→ very dense fracture structure, entirely sintered, stoneware if slightly translucent: porcellaneous ware, porcelain (usually MOHS 6)

Visual samples of these categories are presented on Plate 1.

Categories of Ceramics in Karakorum

Based on the grades of hardness and body structures, the glazed ceramics from Karakorum are subdivided in four major groups:

Earthenwares	→ soft body, porose fracture structure, little to medium sintered
Stonewares (incl. near-stonewares)	→ hard body, dense fracture structure, highly to entirely sintered
Porcellaneous Wares	→ very hard body, very dense fracture structure, entirely sintered, slightly translucent
Porcelain	→ very hard body, very dense fracture structure, entirely sintered, translucent.

2. 1. Technological Features

Porcelain as well as all porcellaneous wares are very fine tempered while all earthenwares are very fine to fine tempered. The temper of the (near-)stonewares varies from very fine to coarse. In order to facilitate the readability of the present work, near-stonewares and stonewares are subsumed as stonewares.

These categories basically refer to a European understanding of ceramics. In terms of Chinese categories there are two types of ceramics only: low-fired wares (Chin. *tao*, 陶) and high-fired wares (Chin. *ci*, 瓷). Included in the first category is earthenware and some stonewares while the latter category refers to stonewares, porcellaneous wares and porcelain (cf. Kerr / Wood 2004, 9–11; Krahl 2000, 13). In Europe, a tripartite system of classification into earthenware, stoneware and porcelain is most common. Therefore, the distinction of porcelain is the major difference between both systems (cf. Hamer / Hamer 1993, 247–48; Medley 1989, 13–14; Bauer et al. 1986, 101). According to a European understanding of porcelain, it is defined as containing kaolin and being high-fired (about 1.300–1.400°C; cf. Medley 1989, 13–14). Sometimes, the intentional mixture of the raw materials is included in the definition as well (cf. Bauer et al. 1986, 101). Only one ware from Karakorum can be defined as porcelain in a European sense. This is blue-and-white porcelain that is classified as ware 1. However, several wares are slightly translucent in their body. Thus, a high firing as well as some amount of kaolin can be assumed. These wares are clearly distinguishable from the common stoneware and defined as being porcellaneous.

Thickness of the Shard

The thickness of the shards is recorded in more than 80% of the datasets in the database. It is measured using a caliper gauge and the unit is cm. The average thickness of all shards is 0,71 cm. Categories of thickness are defined as follows:

very thin	→ up to 0,45 cm
thin	→ 0,45 – 0,6 cm
medium	→ 0,6 – 0,8 cm
thick	→ 0,8 – 1,0 cm
very thick	→ more than 1,0 cm.

The thickness of the shards partly corresponds to categories of ceramics and/or wares. Still, the thickness may vary on the different parts of a vessel and often is much thicker at the base than it is on the rim. It is a soft criterion of distinction in some wares.

2. 1. 2. GLAZE FEATURES

The characteristics of the glazes are conducted on the shards of the sample collection in daylight. Scientific analyses on their compositions are not offered in the present study. The main distinguishing feature is the color of the glaze. Additionally, the thickness of the glazes differs significantly. However, the latter criterion is often correlated to specific glaze colors and thus is not a distinguishing feature in itself. The glazes do not vary much in structure. There is one white craquelling glaze which is an exception. Another white glaze is characterized by its irregular coating. These peculiar specialties are considered in the definition of wares but not defined in detail. By far most glazes do not present distinguishing structural features. Thus, this criterion is considered as being insignificant in the present study.

2. 1. Technological Features



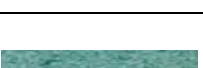
Glaze Color

In contrast to the determination of the body color, the Munsell Soil Color Charts cannot be used to determine the glaze color. Editions that are widely available and commonly used in archaeology do not cover most of the colors needed. To keep the descriptions and definitions of the glaze colors comprehensible and contrastable, the following color charts are used:

- RAL Classic Edition 2009
- Pantone Formula Guide Solid Coated 2010.

However, none of the color charts provide the full range of colors needed to define all of the glaze colors from Karakorum. While the Pantone Guide is by far the more detailed one, it does not include very weak and whitish colors. In the RAL color chart those colors are included yet it is very imprecise concerning most of the other colors. Both charts lack the depth and shading of real glaze. This problem applies to all printed color charts. Samples for a general color definition of glazes are not available. Furthermore, the color impression of a glaze is influenced by its underlying shard and the shades of a glaze vary according to its firing conditions. This ought to be considered when determining the glaze colors.

Concerning white glazes, it is to be noted, that those glazes generally are composed by using a white slip that is coated with a transparent glaze. The exception is a thin whitish lead glaze which is used on wares with multicolored glaze. Since in most cases the color of the glaze is not determinable solely on its own, the definitions of colors refer to the whole outer appearance of a shard. The definition includes the middle range of a color. The real color varies in shades around this range. Depending on the printing quality the color impression in the present study may differ slightly from the color charts. Details on the glaze itself are given where required in the classification of the wares. Names of colors are defined as follows:

Color Name, Karakorum	RAL Classic Edition	Pantone Formula Guide	Sample from Karakorum
Pure White	RAL 9010 "Pure White"	/	
Cream White	RAL 1013 "Oyster White" to RAL 1015 "Light Ivory"	/	
Mud Colored (Mud White)	ca. RAL 1019 "Grey Beige"	ca. Pantone 7529 C	
Gray	ca. RAL 7032 "Pebble Grey"	ca. Pantone 7535 C	
Beige	ca. RAL 1001 "Beige"	ca. Pantone 726 C	
Greenish	up to RAL 1000 "Green Beige"	ca. Pantone 454 C	
Celadon (= varying shades of grayish green)	/	ca. Pantone 5793 C, 7494 C, 5865 C and similar shades	
Pale Blue (= clear glaze)	/	ca. Pantone 628 C	
Moon Blue (= opaque glaze, varying shades)	/	ca. Pantone 559 C	
Pastel Blue (= varying shades; opaque to rather clear glaze)	/	ca. Pantone 5503 C, if slightly lilac ca. Pantone 5425 C	

2. 1. Technological Features

Blue (= varying shades, opaque to rather clear glaze)	ca. RAL 5019 "Capri Blue"	ca. Pantone 7696 C and Pantone 5483 C	
Dark Blue (= up to very dark blue, rather opaque glaze)	/	ca. Pantone 302 C	
Grayish Blue (= clear glaze)	ca. RAL 5008 "Grey Blue"	ca. Pantone 7545 C	
Turquoise	ca. RAL 5018 "Turquoise Blue"	ca. Pantone 7713 C	
Pastel Green (= slightly varying shades, opaque glaze)	/	ca. Pantone 5575 C and Pantone 5645 C	
Green (= lead glaze)	ca. RAL 6017 "May Green"	ca. Pantone 7740 C	
Tea Dust Green	/	ca. Pantone 449 C	
Dark Green	ca. RAL 6008 "Brown Green"	ca. Pantone 7770 C	
Yellow (= lead glaze)	ca. RAL 1005 "Honey Yellow"	ca. Pantone 110 C	
Red	ca. RAL 3016 "Coral Red"	ca. Pantone 7621 C	
Rust	ca. RAL 8023 "Orange Brown"	ca. Pantone 160 C	
Dark Rust	ca. RAL 8011 "Red Brown"	ca. Pantone 7602 C	
Brown	ca. RAL 8007 "Fawn Brown"	ca. Pantone 7519 C	
Tea Dust Brown	ca. RAL 8008 "Olive Brown"	ca. Pantone 7505 C	
Dark Brown	ca. RAL 8014 "Sepia Brown"	ca. Pantone 7533 C	
Very Dark Brown	between RAL 8014 "Sepia Brown" and RAL 8022 "Black Brown"	between Pantone 7533 C and Black 4 C	
Black Brown	ca. RAL 8022 "Black Brown"	ca. Pantone Black 4 C	
Black	ca. RAL 9005 "Jet Black"	ca. Pantone Black C	

Chart 4: Definition of glaze colors.

2. 2. Typological Features

Thickness of the Glaze

In most cases the thickness of the glaze correlates with a specific color, i. e. a specific type of glaze. This is stated and correlated in the definition and classification of the wares. The categories of thickness itself are defined as follows:

very thin	→ up to 0,2 mm
thin	→ 0,2 – 0,8 mm
medium	→ 0,8 – 1 mm
thick	→ more than 1 mm.

Most of the glazes are thin. Green and yellow glazes are, e. g., generally very thin while celadon glazes are medium to thick. Most of the blue glazes are thickly applied. However, the thickness of a glaze may vary on the different parts of a vessel. If a vessel is thickly glazed blue, the glaze on the (inside) bottom of this vessel might be several millimeters thick while its rim is glazed with a medium to thin thickness only. This is due to the production process and shows that the applied glaze flowed down on/in a vessel before hardening by firing.

2. 1. 3. TRACES OF PRODUCTION

Macroscopically visible traces of production, i. e. throwing marks and spur marks, are recorded in the database (e. g. Plate 65, fig. 16). Additionally, obvious mistakes in production such as massive glaze faults or large temper particles piercing through the glaze are documented. None of these features is a distinctive criterion in the classification of the wares. Therefore, they remain undefined. Wherever required, descriptions on specific characteristics are included in the classifications of the wares in order to provide data for additional studies on the material.

2. 2. TYPOLOGICAL FEATURES

The definitions of the typological features of the ceramics are kept basic and neutral to provide a well comprehensible and comparable basis for the data. First, basic shapes are described and defined. Second, rim types and base types of the glazed ceramics from Karakorum are defined. This is followed by a short description of the documented decoration techniques. Much of the décor on the ceramics is correlated to specific wares. Therefore, motifs are not specified in the general definitions but remain to be described in the chapter on the classifications.

2. 2. 1. SHAPES

The recorded material from the excavations in the craftsmen quarter of Karakorum includes 99 datasets which resemble complete shapes, i. e. rim, base and body parts of a vessel are preserved and the whole vessel can be reconstructed. This amounts to 0,5% of all documented fragments. The spectrum of complete shapes found does not reflect the full spectrum of shapes present in Karakorum. Still, these findings are the basis for the definitions of basic shapes such as 'bowl' or 'plate'.

In order to keep the terms used for basic shapes standardized, they are defined according to Bauer et al. (1986, 27ff) who established a measurable system for defining shapes. Generally, Dexel (1955, 19–21) defines basic shapes for Chinese ceramics but these definitions are not common in the study of Chinese ceramics. Furthermore, the glazed ceramics from Karakorum

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include non-Chinese wares. Therefore, a neutral designation of shapes is preferred and Chinese terms are avoided for classification. Whether required for analyses or interpretation special Chinese terms for relevant shapes are added. By and large, both definitions – Bauer et al. (1986) and Dixel (1955) – are compatible with each other. Therefore, the definitions used in the present study are comparable to both systems. Included in the defined shapes below is the full range of basic shapes, rim types and base types found in Karakorum. Although some of these shapes are limited to specific wares, many apply to a variety of wares. Specifics are outlined in the chapter on the classifications.

2. 2. 1. 1. Basic Shapes

The definition of basic shapes is oriented on standards for medieval pottery in Europe like Bauer et al. (1986, 27ff) and Lüdtkke / Schietzel (2001, 984–985). These standards can be applied to the ceramics at a wide scale and provide a measurable and reproducible basis for further studies. If needed, they are adapted and complemented within their scope. The range of basic shapes includes flat shapes such as plates and bowls as well as high shapes such as pots and bottles.

Flat Shapes: Plates and bowls

About 95% of all complete shapes analyzed are plates or bowls. Relative to the recorded ceramics in total, about 80% of the fragments that can be determined according to their shape are either plates or bowls. Therefore, flat shapes represent the clear majority of shapes in Karakorum.

As Bauer et al. (1986, 29) points out for medieval European pottery, the transitions between plates and bowls are fluent. Relating to the proportions of height and diameter of a vessel he suggests the following classification:

- Plate → the height of a plate usually measures 7–19 % of its diameter but no more than 25% of its diameter
- Flat Bowl → the height of a flat bowl measures about 25% of its diameter
- Bowl → the height of a bowl measures about 25 – 50 % of its diameter (Bauer et al. 1986, 30).

When sorting all the complete shapes that one would intentionally call “bowl” or “plate” according to their proportions of height and diameter and marking the classifications according to Bauer et al. (1986), the following picture develops:

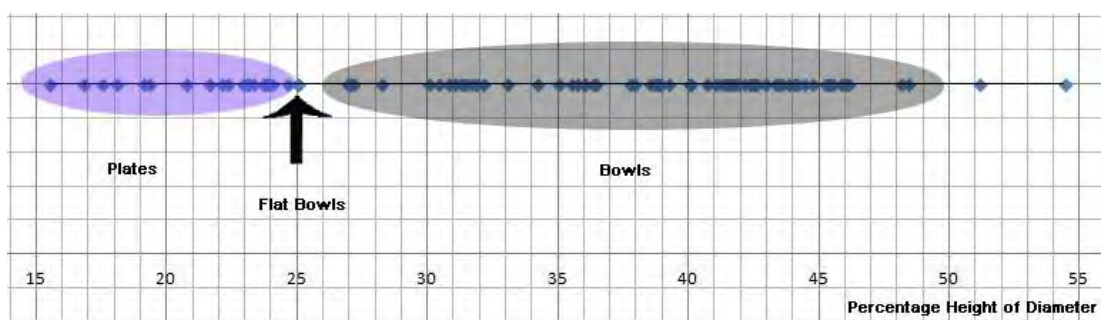


Chart 5: Proportions of bowls and plates in relation to Bauer’s definition.

Though 25% proves to be an appropriate marker between plates and bowls, it is not convenient for distinguishing flat bowls and bowls in Karakorum. There are concentrations of vessels especially at proportions of Height (H) = about 23% Diameter (D), H = 31–32% D and H = 42% D.

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Furthermore, there are two exceptions that would be defined as a “pot” according to Bauer et al. (1986, 28) ($H = \text{more than } 50\% \text{ of } D$).

In view of the concentrations of proportions identified and in relative accordance with Bauer, the following classification is suggested for medieval ceramics from Karakorum:

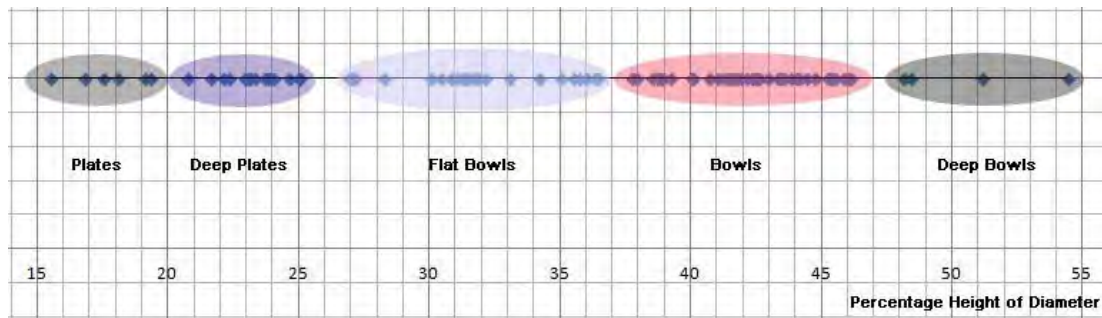


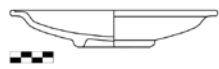
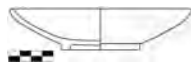
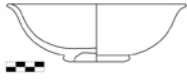
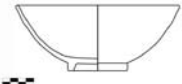

Chart 6: Proportions of bowls and plates as defined in the present study.

This results in the following definitions:

Plate → the height of a plate measures 15 -25 % of its diameter, plates are subdivided into (flat) plates ($H = 15\text{--}20\% D$) and deep plates ($H = 20\text{--}25\% D$)

Bowl → the height of a bowl measures 26%– 55% of its diameter, bowls are subdivided into flat bowls ($H = 26\text{--}37\% D$), bowls ($H = 37\text{--}47\% D$) and deep bowls ($H = 47\text{--}55\% D$).

Examples of these definitions are as follows:

	(Flat) Plate	Deep Plate	Flat Bowl	Bowl	Deep Bowl
Height (cm)	3,2	3,7	6	8,2	9,8
Diameter (Mouth, cm)	19	16	19	20	18
Proportions (H = % of D)	16,8%	23,1%	31,6%	41,0%	54,4%
Draft					
ID	1207	2020	1991	1905	1796
Plate	5, fig. 8	23, fig. 7	45, fig. 5	15, fig. 1	7, fig. 1

Generally, plates and bowls can be distinguished by their proportions only. Many rim shapes cannot be labeled with certainty as belonging to one or the other group though their orientation serves as an indicator. The base shapes on both vessel types are usually the same.

Special bowls: Stemcups and Tripods

Concerning their proportions stemcups as well as tripods can be considered bowls. Depending on the precise shape and fragmentation bowls and stemcups, resp. tripods may not be distinguishable from each other. Still, both shapes partly feature distinct characteristics because they are designed for other purposes. Therefore, these shapes are separately defined.

There are no completely preserved stemcups found in Karakorum. However, documented are high feet that are presumed to belong to bowls (e. g. Plate 3, fig. 7–8). Stemcups are defined as bowls with high feet. It is presumed that their upper parts are equivalent to the proportions

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defined for bowls in general. Thanks to the high feet on these vessels the overall proportions of stemcups differ from those of bowls with H being larger than 55% D.

The main difference between bowls and tripods is the base shape as well. According to its proportions, this shape belongs to the category of bowls with e. g. $H = 42,3\% D$. Still, the feet on tripods are characteristic and often correlate with special rim shapes (e. g. ID 1241 on Plate 10, fig. 3). Concerning Karakorum, vessels with these shapes are interpreted as incense burners and thus fulfill a different use than bowls. Therefore, the tripod-shape is separately defined as a bowl with feet.

High Shapes: Pots, Pitchers/Jugs and Bottles

Especially in the group of completely preserved shapes, high shapes are very rare. Only five out of 99 shapes have a proportion of $H > 60\% D$. In total about 15% of all recorded fragments presumably belong to vessels with high shapes. Generally, their shapes are more distinctive than those of bowls and plates. However, the majority of those shapes cannot be reconstructed from the material itself, thus hindering the definitions of high shapes that are characteristic for the ceramics from Karakorum.

According to Bauer et al. (1986, 28–29), high shapes are defined as follows:

- Pot → the height of a pot measures 50 – 200 % of its diameter, handles are possible
- Pitcher/Jug → the height of a pitcher/jug measures 200–400% of its diameter handles are common, but not mandatory, pitchers have spouts
- Bottle → the height of a bottle measures at least 300% of its diameter, its mouth is narrow, handles are possible.

As can be seen in this definition, transitions between those shapes are fluent and not necessarily clearly defined. Since the proportions of most of these vessels remain unknown in the findings from Karakorum, the definition needs to be extended. At this point, the definitions of Dexel (1955, 20) provide an appropriate mean. He defines high shapes as follows:

- Pot → the mouth of a pot measures 50 – 100 % of its maximum diameter, pots often have a small neck, they are about as high as wide
- Pitcher/Jug → pitchers and jugs are similar to pots and flasks in their shape but do have a (wide) handle, pitchers do have spouts
- Bottle → bottles have a narrow mouth which measures less than 50% of the maximum diameter of a bottle, the neck may be long or short.

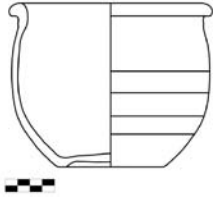


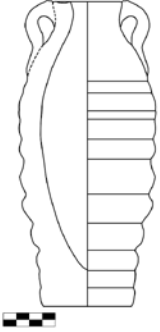
Based on both these definitions, high shapes from Karakorum are defined as follows:

- Pot → the height of a pot measures at least 50% of its diameter while its mouth measures 50 – 100 % of its maximum diameter. Pots can have handles and a small neck, though both features are not mandatory.
- Pitcher/Jug → the height of a pitcher/jug usually measures at least 200% of its diameter. Pitchers and jugs have a (wide) handle, pitchers additionally, have spouts.
- Bottle → the height of a bottle usually measures at least 300% of its diameter, Bottles have a narrow mouth which measures less than 50% of its maximum diameter, its neck may be long or short, handles are possible.

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As hardly any high shapes from Karakorum are completely preserved, these definitions cannot be fully aligned with the material. Concerning the miniature vessels found, exceptions need to be made because their shape is compressed and proportions are distorted. While miniature bowls match with the definitions of normal bowls, miniature bottles do not. Because of their narrow mouth they are classified as bottles without reaching the right proportions concerning their height. A use as bottles for valuable liquids is implied in the definition of their shape.

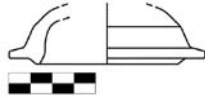



The range of completely preserved high shapes includes the following samples:

	Pot	Pitcher/Jug	Bottle (miniature)		Bottle (with handles)
Height (cm)	10,6	no sample given	3,8	4	21
Diameter (Mouth, cm)	17		2,6	2,2	4,7
Proportions (H = % of D)	62,4%		146,2%	181,8%	446,8%
Draft					
ID	10664		4689	2025	2180
Plate	15, fig. 9	15, fig. 10	29, fig. 1	31, fig. 2	

Partial Shapes: Lids, Handles and Spouts



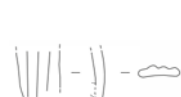


Naturally, lids, handles and spouts are part of basic vessel shapes. However, findings of single fragments of these kinds appear and differ in their shapes. They are thus separately defined. Lids are subdivided into solid lids and hollow lids while handles are subdivided according to their profile and form. Most of these are loop handles. Spouts appear as single pipes only. Whenever possible, lids, handles and spouts are related to a vessel shape.

Examples for lids are as follows:

	Hollow Lid	Hollow Lid (with knob handle)	Solid Lid (with loop handle)	Solid Lid (deepened)
Draft				
ID	13169	2186	1238	15.965
Plate	23, fig. 9	3, fig. 1	7, fig. 7	4, fig. 1

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Examples for handles are as follows:

	Loop Handle with oval profile	Loop Handle, doubled with round profile	Handle with ribbed profile	Knob Handle	Rectangular Loop Handle with a square profile
Draft					
ID	1727	6211	6791	14165	1208
Plate	30, fig. 6	23, fig. 10	29, fig. 2	16, fig. 4	50, fig. 12

2. 2. 1. 2. Rim Types

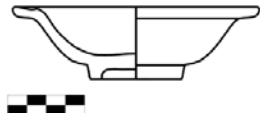
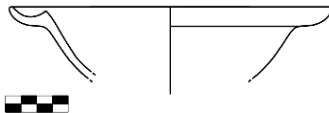
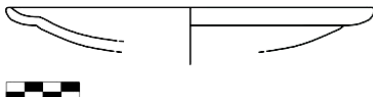
Though being manifold in their detailed shapes, the basic rim types appearing on vessels excavated in Karakorum are simple and small in number. Their typology depends on the morphology of vessels while their specific forming often depends on the ware the vessel is made of. In this chapter, the basic rim types common in Karakorum are introduced to provide a basis for better comparability between the vessel shapes in general and the shapes of the various wares in particular. It is sorted according to the basic shapes defined above.

Rim Types characteristic for Plates

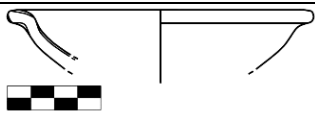
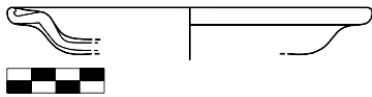
As shown in the general classification of shapes, plates and bowls often differ in their proportions only. Consequently, most rim types connected to them are characteristic for both shapes. However, there is one rim type that is specific for plates only: the horizontally bent rim without neck. It is defined as Rim Type 1.

Rim Type 1: horizontally bent rims on plates

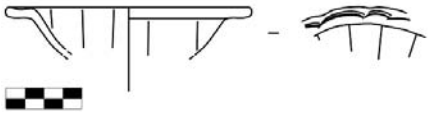
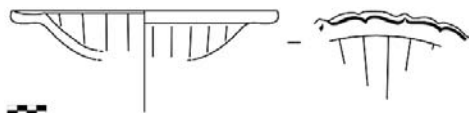
Subsumed in this type are various rim shapes of plates which share the common feature of having a horizontally bent rim. Most of the forming found is rather individual. The range of this shape can differ in between one ware. Samples are as follows:

Rim Type 1, Ware 5	
Draft	
ID	1897
Plate	9, fig. 6
Draft	
ID	7008
Plate	10, fig. 5
Rim Type 1, Ware 11	
Draft	
ID	3378
Plate	16, fig. 5

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	Rim Type 1, Ware 20	
Draft		
ID	15253	1933
Plate	26, fig. 11	26, fig. 9

As a decorative variant, Rim Type 1 may be foliated. It is then defined as Rim Type 1, F. Foliation appears on rims of porcellaneous wares only. This applies to wares 1–5 with ware 3 being an exception. The foliations vary in their formation and complexity. Samples for plates made of ware 5 are as follows:

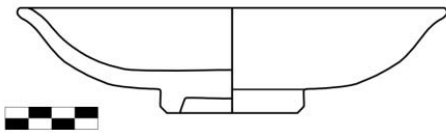
	Rim Type 1, F, Ware 5	
Type of foliation	simple	complex
Draft		
ID	2080	1857
Plate	10, fig. 6	10, fig. 7

Rim Types characteristic for Bowls and Plates

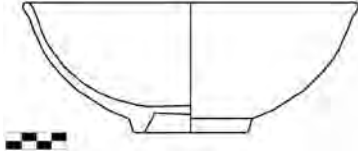
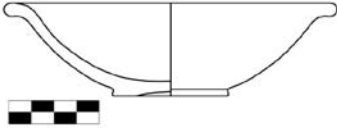
There is no rim type which is characteristic for bowls only. Although specific rim shapes may vary depending on the vessel shape, rim types appearing on bowls appear on plates as well. However, decorative variants are specific for one shape or the other and are labeled as subtypes. Two main rim types appear on bowls and plates: The S-shaped rim that is defined as Rim Type 2 and the straight to rounded rim that is defined as Rim Type 3.

Rim Type 2: S-shaped rims on bowls and plates

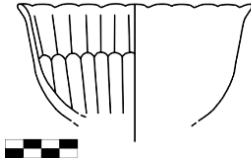
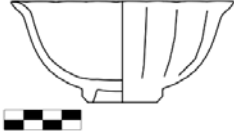
The S-shaped rim is one of the most uniform rim types found in the glazed ceramics from Karakorum. The shape appears throughout most of the wares. Its lip is rounded, rarely is it slightly pointed. Rim type 2 is subdivided according to its degree of flexion. This degree varies and is an indicator for the ceramic group which a vessel is made of. While about 86% of rims with the standard S-shape belong to porcellaneous wares, slightly S-shaped rims of Rim Type 2.1. are to about 90% made of stoneware. Sharply curved S-shape rims of Rim Type 2.2. are made of stoneware only. Samples are as follows:

	Rim Type 2, Ware 5
Degree of Flexion	standard
Draft	
ID	10824
Plate	9, fig. 8

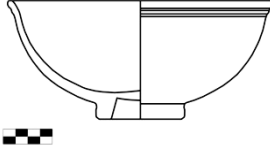
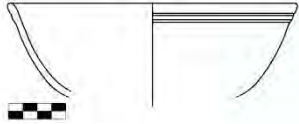
2. 2. Typological Features

	Rim Type 2.1., Ware 9	Rim Type 2.2., Ware 11
Degree of Flexion	slightly curved	sharply curved
Draft		
ID	6368	1188
Plate	13, fig. 1	15, fig. 4

Decorative variants of Rim Type 2 depend on the ware the rim is made of. Furthermore, there are no decorative variants of Rim Type 2.2. When it is applied to a porcellaneous ware, Rim Type 2 can be foliated to differing degrees. Examples from vessels made of ware 4 are as follows:

	Rim Type 2, F, Ware 4	
Type of foliation	small	medium
Draft		
ID	1200	2862
Plate	7, fig. 15	7, fig. 2

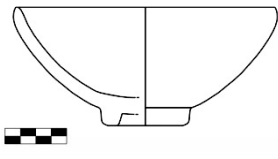
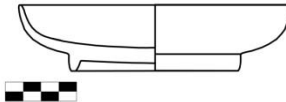


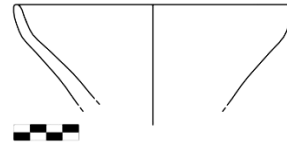
Concerning stonewares with Rim Type 2 or Rim Type 2.1., there is only one decorative variant appearing solely on ware 11 which is stoneware. This is a double narrow rilling shortly underneath the lip of bowls with a standard or slightly S-shaped rim. Examples are as follows:

	Rim Type 2, R, Ware 11	Rim Type 2.1., R, Ware 11
Draft		
ID	7780	7139
Plate	14, fig. 8	17, fig. 1


Rim Type 3: straight to slightly rounded rims on bowls and plates

Rim type 3, the straight to slightly rounded rim, is by far the most common rim on bowls and plates from Karakorum. The shape appears throughout most of the wares found. Its lip is commonly rounded, rarely is it slightly pointed. Being a simple shape, its correlations with bowl or plate shapes are manifold. The body following the straight rim can be e. g. straight or rounded. Thus, many of the shapes with Rim Type 3 differ from each other. General examples for body shapes that can relate to Rim Type 3 are as follows:

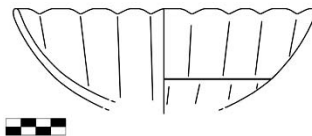
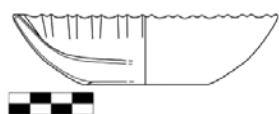
2. 2. Typological Features

Rim Type 3			
Ware	20	4	35
Body Shape	almost straight to slightly convex	convex	conical
Draft			
ID	1002	1914	3181
Plate	25, fig. 11	7, fig. 3	45, fig. 8
Ware	20	28	
Body Shape	straight	with inflection	
Draft			
ID	7929	10520	
Plate	26, fig. 4	38, fig. 6	

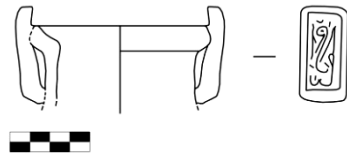
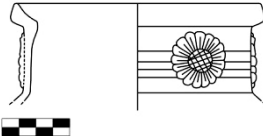
As a variant of Rim Type 3, a few bowls made of stoneware do have a wedge-shaped lip. This is defined as Rim Type 3.1.

Rim Type 3.1., Ware 28	
Draft	
ID	7351
Plate	38, fig. 9

As occurs with bowls and plates with Rim Type 1 or 2, porcellaneous vessels with Rim Type 3 can be foliated as a decorative variant which is defined as Rim Type 3, F. In contrast to foliations on Rim Type 2, vessels with Rim Type 3, F can be made of stoneware that is classified as ware 20. Furthermore, some rims made of ware 40 – an earthenware – are decorated with rillings underneath the lip. This is defined as Rim Type 3, R. Another decorative variant of Rim Type 3 is the application of a cordon underneath the lip that is defined as Rim Type 3, C. It appears mostly on stonewares and the formation of the cordons varies slightly. One special shape of a porcellaneous ware (ware 4) has a cordon as well. This, however, is an exception (see ID 1182 below). An extreme exception in the decorative variants is the attaching of a horizontal rim on Rim Type 3 in the case of a porcellaneous plate (ware 2). This is defined as Rim Type 3, HR. Examples for the decorative variants of rim type 3 are as follows:



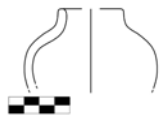
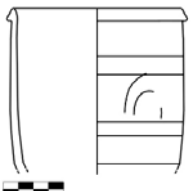
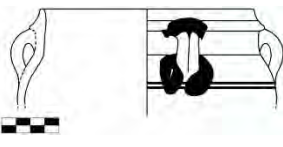
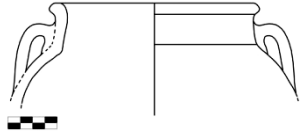
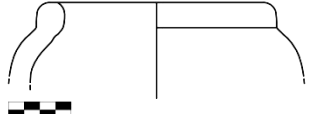
Rim Type 3, F		
Ware	5	20
Draft		
ID	1231	1422
Plate	11, fig. 5	26, fig. 5

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Ware	41	42
Draft		
ID	2073	1844
Plate	50, fig. 2	50, fig. 13

Rim Type 5: straight rims on pots

The plain straight rim on pots is related to the straight rim on bowls and plates (Rim Type 3). Its lip is commonly rounded, though there are a few exceptions with pointed lips. Most of the shapes with a straight rim have small necks. This is defined as Rim Type 5, N. There are a few shapes with thickened lips which are transitional to shapes with intensified lips and defined as Rim Type 5, Th. As a variant, the lip of straight rims can be shaped cordon-like. This variant is defined as Rim Type 5, C and appears on shapes with or without necks. The latter are defined as Rim Type 5, N + C. The cordon-like lip may be rounded or pointed in shape and is distinctive to varying degrees. Connected to pots with necks and a cordon-like lip (Rim Type 5, N + C) are double loop handles with a round profile. Depending on the diameter of the mouth in relation to the body of a vessel, straight rims with a rounded, cordon-like lip may belong to bottle shapes. Pointed lips on Rim Type 5 are characteristic for pots only. Examples for Rim Type 5 and its variants are as follows:

	Rim Type 5	Rim Type 5, N		Rim Type 5, C
Variant	plain straight	with neck		with cordon-like rim
Ware	43	35	11	41
Draft				
ID	2147	2182	10192	2010
Plate	52, fig. 3	46, fig. 6	18, fig. 7	50, fig. 7
		Rim Type 5, N + C		Rim Type 5, (N), Th
Variant		with neck and cordon-like rim, pointed and rounded variant		thickened lip
Ware		11	27	27
Draft				
ID		2076	3257	5299
Plate		19, fig. 2	31, fig. 4	31, fig. 6

2. 2. Typological Features

Rim Type 6: rims with intensified lips

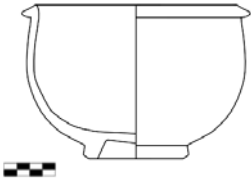



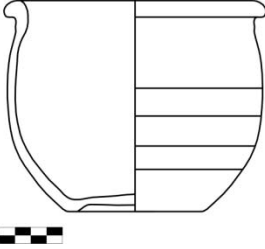
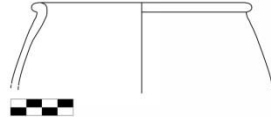



Rims with intensified lips are very characteristic of pots. They appear in numerous shapes. Especially in the case of rims of storage vessels which are made of coarse tempered stoneware they are heavily intensified and large. Broadly categorized there are three different groups of rims with intensified lips:

Rim Type 6.1.: pointed (cordon-like) lips on slightly to very inverted rims

Rim Type 6.2.: rounded lips on slightly to very inverted rims

Rim Type 6.3.: heavily intensified lips on slightly inverted to almost straight rims.

Rim types 6.1.–6.2. are common to all stonewares. Especially almost straight rims of Rim Type 6.1. are related to Rim Type 5, C. Rim type 6.3. is characteristic of vessels made of coarse tempered stoneware. All subtypes of Rim Type 6 are exceptional on vessels made of porcellaneous wares. Examples are as follows:

Rim Type 6.1.			
Variants	nearly straight to inverted rims		
Ware	11	30	14
Draft			
ID	2179	14894	13686
Plate	15, fig. 8	41, fig. 7	23, fig. 1
Rim Type 6.2.			
Variants	nearly straight to inverted rims, the degree of intensification varies		
Ware	28	11	35
Draft			
ID	5377	10664	6552
Plate	39, fig. 13	15, fig. 9	47, fig. 1
Rim Type 6.3.			
Variants	variants in forming		
Ware	32	32	27
Draft			
ID	4766	11669	5181
Plate	42, fig. 7	43, fig. 4	34, fig. 4

2. 2. Typological Features

Characteristic Rim Types for Pitchers/Jugs

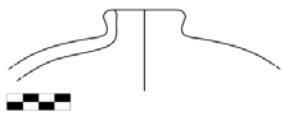
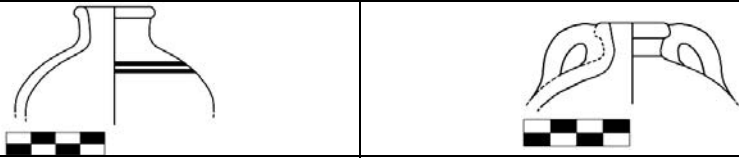
Although the glazed ceramics from Karakorum include few spouts, there are neither rims nor handles found which are characteristic for a pitcher or jug shape. Chances are that some of the pots or bottle shapes might include pitchers/jugs. However, this cannot be proven based on the analyzed material.

Characteristic Rim Types for Bottles

Many bottle rims differ from pot rims in their total diameter and proportion of body to mouth only. They are strongly related to Rim Type 5, N and Rim Type 5, N + C with a rounded cordon-like lip. Whether handles are attached to the rim, they appear in the same shapes as on pots, i. e. loop handles are most common. In contrast to rims of pots, rims of bottles can be slightly everted. Because of the close relation in shape, rims of bottles as described above are subsumed in Rim Type 5 and are marked with a “B” for “bottle”, i. e. Rim Type 5 B for straight rims and Rim Type 5 B, C for rims with a rounded, cordon-like lip. Individually defined is Rim Type 7, a flaring rim that is characteristic for bottles only.

Rim Type 5 B: straight rims on bottles

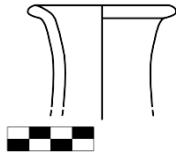
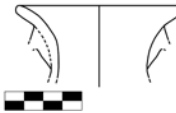
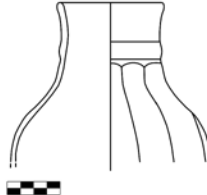

As described above, many rim shapes of bottles are closely related to those on pots. Therefore, they are subsumed in the same rim type. In order to be assorted to subtype Rim Type 5 B (for bottles), the diameter of a vessel mouth needs to measure less than 5 cm and/or the proportion of mouth to body needs to be less than 50%. Miniature vessels are excluded from this definition. Examples for Rim Type 5 B and its variants are as follows:

		Rim Type 5 B	
Variants	plain, straight to slightly everted		
Ware	28	26	
Draft			
ID	1834	1994	
Plate	38, fig. 12	31, fig. 1	
		Rim Type 5 B, C	
Variants	with cordon-like rim (rounded)		
Ware	11	11	
Draft			
ID	1954	1961	
Plate	19, fig. 4	19, fig. 5	

2. 2. Typological Features

Rim Type 7: the flaring rim

Apart from rim shapes that are connected to bottle shapes and pot shapes alike, there is one rim type which is characteristic for bottles only: the flaring rim. It is a simple, everted rim with a rounded lip that differs slightly in its flexion. As a decorative variant, the flaring rim might be lobed. This is defined as Rim Type 7, L. In rare cases Rim Type 7 appears on bowls as well (e. g. ID 1828 on Plate 3, fig. 6). Examples for this type are as follows:

	Rim Type 7			Rim Type 7, L
Variants	varying degrees of flexion			lobed rim
Ware	11	27	43	11
Draft				
ID	2105	1276	1230	3714
Plate	21, fig. 2	36, fig. 1	52, fig. 7	21, fig. 3

2. 2. 1. 3. Base Types

The base types appearing on vessels excavated in Karakorum are less various in their forming than rim types. Their typology is not as dependent on the morphology of vessels. However, specific types for certain vessel shapes appear, e. g. pedestal feet on stemcups and applied feet on tripods.

Broadly, there are three main types of bases which are manifold in their detailed forming:

- (1) bases with a distinctive (applied) footring
- (2) bases with a footring that merges smoothly into the body
- (3) flat-bases.

Those base types appear throughout all basic vessel shapes. Their transitions are fluent. Furthermore, there are two less common but distinctive types of bases that are related to specific vessel shapes:

- (4) pedestal feet (= stem cup feet)
- (5) applied feet (= tripod feet).

In very exceptional cases, rounded-bases appear as well, e. g. on a miniature pot.

Base Type 1: Distinctive Footrings

Footrings appear in various forming. They constitute the major group of bases. According to their profile, bases of type 1 can be subdivided into three types:

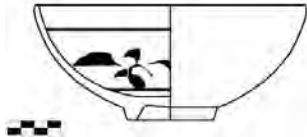
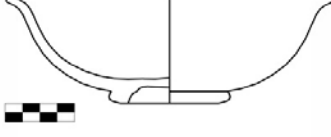
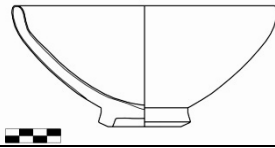
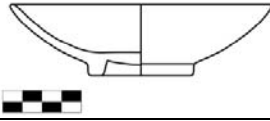



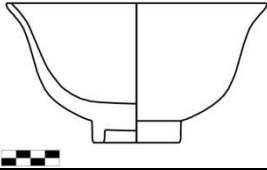

- Base Type 1.1.: hollow (rectangular) footrings
- Base Type 1.2.: concave footrings
- Base Type 1.3.: solid footrings.

2. 2. Typological Features

When looking directly at a vessel, the outer appearance of all those types is the same. They differ only when observing the bottom or the profile.

Base Type 1.1.: Hollow Footrings

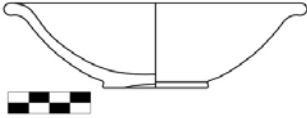

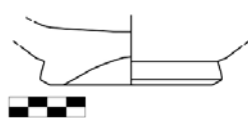
Base Type 1.1. is by far the most common base type on ceramics from Karakorum. Though the particular bases may vary in their profile, the basic forming is rather consistent. It appears throughout all wares. Specifics are associated to certain wares. Examples are as follows:

		Base Type 1.1., standard	
Appearance	most common, appears in all wares		
Ware	3	35	
Draft			
ID	1227	1991	
Plate	5, fig. 9	45, fig. 5	
		Base Type 1.1., standard	
Appearance	most common, appears in all wares		
Ware	20	11	
Draft			
ID	991	11723	
Plate	25, fig. 10	15, fig. 6	
		Base Type 1.1., very thin	
Appearance	on porcellaneous plates only		
Ware	2	4	4
Draft			
ID	1216	10459	5698
Plate	4, fig. 10	8, fig. 10	8, fig. 9
		Base Type 1.1., massive	
Appearance	exceptional, on few porcellaneous bowls		
Ware	4	4	
Draft			
ID	1796	10035	
Plate	7, fig. 1	8, fig. 8	

2. 2. Typological Features


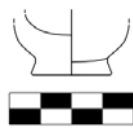
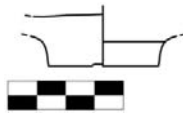
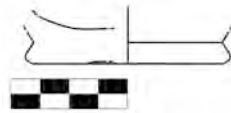
Base Type 1.2.: Concave Footrings

Strictly speaking, concave footrings are a variant of hollow footrings. Both types are very close to each other. However, the concave profile of Base Type 1.2. differs from the standard footring which is subsumed in Base Type 1.1. Examples for Base Type 1.2. are as follows:

	Base Type 1.2.		
Ware	11	3	32
Draft			
ID	1188	9112	3864
Plate	15, fig. 4	6, fig. 10	44, fig. 5

Base Type 1.3.: Solid Footrings

The least common type of footring is Base Type 1.3.: solid footrings. Transitional shapes to type 1.1. (massive hollow footrings in this case) may show a slight depression on the bottom but are solid over all. Examples for solid footrings are as follows:

	Base Type 1.3., standard	
Ware	23	28
Draft		
ID	2025	1912
Plate	29, fig. 1	40, fig. 9
	Base Type 1.3.	
Variant	with a slight depression	
Ware	4	43
Draft		
ID	5804	11587
Plate	8, fig. 11	52, fig. 9

Base Type 2: Bases with an Integrated Footring

Comparable to Base Type 1, Base Type 2 can be subdivided according to its profile shapes. There are three subtypes:

Base Type 2.1.: integrated hollow (rectangular) footrings

Base Type 2.2.: integrated concave footrings

Base Type 2.3.: integrated high footrings.

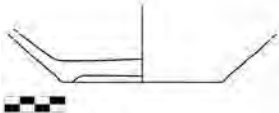
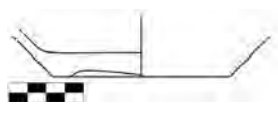
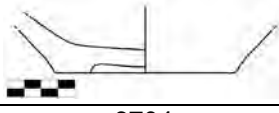
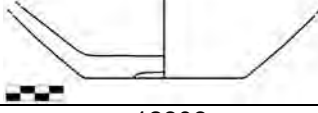
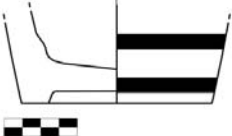
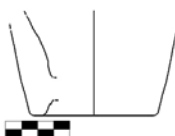


Most of the bodies of vessels with Base Type 2.1. and 2.2. are rounded while the bodies of vessels with Base Type 2.3. are mostly inclined. Bases of Type 2 seem to belong primarily to

2. 2. Typological Features

pots, but not exclusively. Bottles, bowls and plates are also included in the possible spectrum of vessel shapes.

Base Type 2.1.: Integrated Hollow Footrings



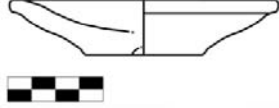
Base Type 2.1. is the most common subtype of Base Type 2. Akin to Base Type 1.1., to which it is related, variations in the profile shape appear. Common for all bases of Type 2.1. is a rectangular deepening in the middle of the bottom which is rather low. The footring itself may be small or wide. Examples for Base Type 2.1. are as follows:

Base Type 2.1.		
Variant	small footring width	medium footring width
Ware	10	10
Draft		
ID	1759	8271
Plate	14, fig. 1	14, fig. 2
Base Type 2.1.		
Variant	large footring width	very large footring width
Ware	10	10
Draft		
ID	6704	12808
Plate	14, fig. 3	14, fig. 4
Base Type 2.1.		
Variant	vessels with an inclined body shape	transitional to base type 2.3.
Ware	11	23
Draft		
ID	1393	6808
Plate	21, fig. 5	29, fig. 14
Base Type 2.1.		
Variant	exceptional variants	
Ware	5	32
Draft		
ID	3934	4558
Plate	11, fig. 13	44, fig. 6

Base Type 2.2.: Integrated Concave Footrings

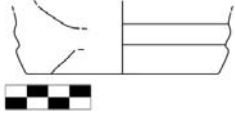
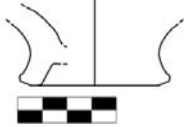
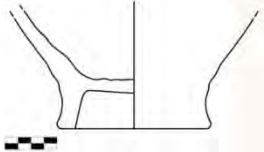
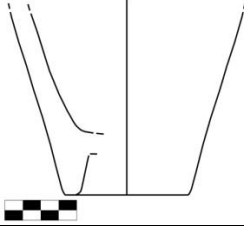
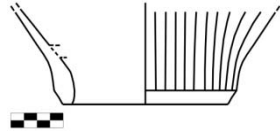
The relationship of Base Type 2.2. to Base Type 2.1. is the same as that of Base Type 1.2. to Base Type 1.1.: they differ in their profile only. Bases of Type 2.2. are rare and uncommon in the ceramics from Karakorum. Examples are as follows:

2. 2. Typological Features

	Base Type 2.2.		
Variant	standard		exceptional
Ware	2	35	4
Draft			
ID	11687	6135	11516
Plate	4, fig. 13	47, fig. 5	7, fig. 5

Base Type 2.3.: Integrated High Footrings


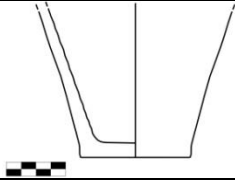
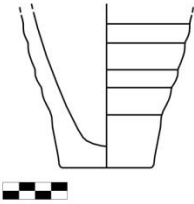
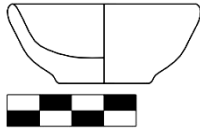
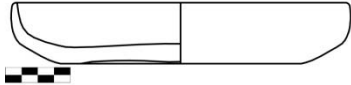
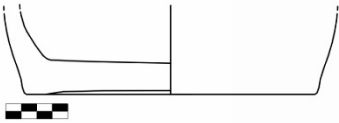
All subtypes of Base Type 2 are hollow footrings that differ in their profile. The profile of Base Type 2.3. resembles the profile of Base Type 2.1. with higher footrings and thus a more pronounced deepening on the bottom. There are transitional shapes and shapes which are clearly higher than usual. This base type seems to be characteristics for pots and bottles and does not appear on plates or bowls. Examples for Base Type 2.3. are as follows:

	Base Type 2.3.		
Variant	medium high types, transitional to type 2.1.		
Ware	30	11	
Draft			
ID	14797	5170	
Plate	41, fig. 10	21, fig. 7	
	Base Type 2.3.		
Variant	high footrings		
Ware	11	28	5
Draft			
ID	3808	13895	4754
Plate	21, fig. 8	41, fig. 3	12, fig. 1

Base Type 3: Flat Bases

Base Type 3 is a very simple and standardized type without any subdivision. Bases of this kind appear on all sorts of vessels but mostly on pots. Very few bases of Type 3 are transitional to Base Type 2.1., i. e. being slightly hollow. Very low, almost flat bases are included in Base Type 3. Examples for flat-bases are as follows:

2. 2. Typological Features

		Base Type 3	
Variant	standard		
Ware	10	10	
Draft			
ID	1824	2185	
Plate	14, fig. 5	14, fig. 6	
		Base Type 3	
Variant	standard		
Ware	24	28	
Draft			
ID	8518	2077	
Plate	30, fig. 5	36, fig. 8	
		Base Type 3	
Variant	exceptional		
Ware	5	32	
Draft			
ID	2170	5564	
Plate	10, fig. 1	44, fig. 7	

Base Type 4: Pedestal Feet

Pedestal feet are a special base type characteristic of stem cups and cups/bowls with high feet. Those shapes appear only on porcelain, porcellaneous wares and a few findings made of white glazed stoneware. There are no stemcups made of earthenware or any other stoneware than the white glazed one. Two subtypes of pedestal feet are distinguished:

Base Type 4.1.: medium-high pedestal feet

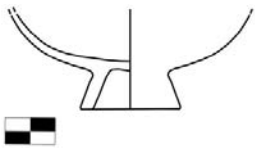

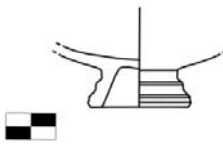
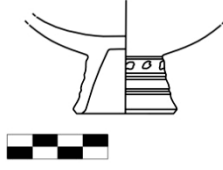
Base Type 4.2. high pedestal feet.

The transition between both types is fluent. Furthermore, some medium-high feet are close to Base Type 1.1. (hollow footrings).

Base Type 4.1.: Medium-High Pedestal Feet

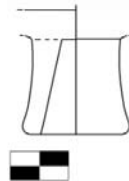
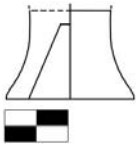
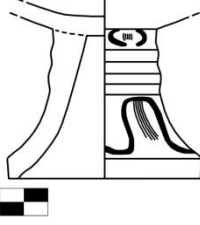
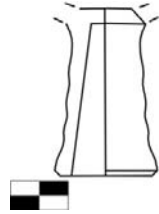
Medium-high pedestal feet are characteristic for bowls/cups made of white glazed porcellaneous ware (ware 2). The height of those feet is defined as measuring 50-75% of its diameter. The average medium-high foot measures 3,5–4,3 cm in diameter and 1,5–2 cm in height. Examples for medium-high pedestal feet are as follows:

2. 2. Typological Features

	Base Type 4.1.			
Variant	plain		decorated	
Ware	2	11	2	2
Draft				
ID	2163	1797	2017	1845
Plate	5, fig. 1	21, fig. 10	5, fig. 4	5, fig. 6

Base Type 4.2.: High Pedestal Feet

High pedestal feet mostly appear on porcellaneous wares; especially wares 5 and 4. The height of those feet equals just about its diameter, respectively it needs to measure at least 75% of its diameter. The average high foot measures 3–4,5 cm in diameter and 3–4,8 cm in height. Exceptions may measure more than 6 cm in height. Examples for high pedestal feet are as follows:

	Base Type 4.2.			
Variant	plain		decorated, very high	
Ware	5	5	5	1
Draft				
ID	2381	1191	2072	1199
Plate	12, fig. 3	12, fig. 2	12, fig. 5	3, fig. 7

Base Type 5: Applied Feet

Applied feet appear on tripods only. The design of the applied feet varies. Although there are few findings only, applied feet are subdivided into three groups according to their forming:

Base Type 5.1.: Applied feet with animal mask design

Base Type 5.2.: Plain applied feet

Base Type 5.3.: Flat applied feet

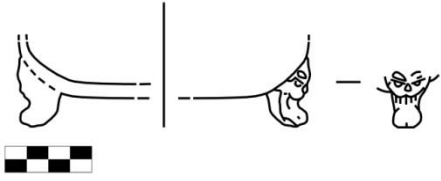

While Base Type 5.2. is limited to porcellaneous wares, Base Type 5.3. appears on earthenware only. Applied feet with animal mask design are documented on porcellaneous ware as well as on earthenware. None of the applied feet is made of stoneware.

Base Type 5.1.: Applied feet with animal mask design

Applied feet with animal design are characteristic of tripods made of the porcellaneous ware 4.1. However, one exceptional find is made of earthenware (ware 41). This particular foot is larger

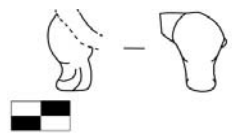
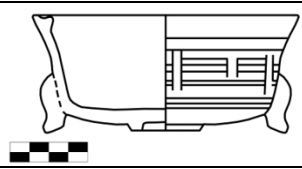
2. 2. Typological Features

than those made of porcellaneous ware but similar in the design of the animal mask. Examples of Base Type 5.1. are as follows:

		Base Type 5.1.	
Ware		4	41
Draft			
ID		1195	2099
Plate		9, fig. 4	50, fig. 9

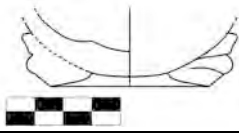
Base Type 5.2.: Plain applied feet

Plain applied feet are made of porcellaneous ware only. They are very close in shape to porcellaneous feet of Base Type 5.1. Applied feet of this type can be combined with a hollow footing (Base Type 1.1.) on the same vessel. Examples of plain applied feet are as follows:

		Base Type 5.2.	
Variant		plain applied feet	plain applied feet, combined with footing
Ware		4	5
Draft			
ID		2043	1241
Plate		9, fig. 5	10, fig. 3

Base Type 5.3.: Flat applied feet


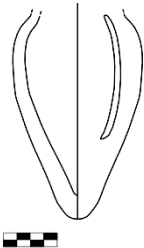
Flat applied feet are limited to ware 41. They differ completely in shape from the types depicted above. Feet of type 5.3. are low and rounded, lacking décor. They are applied on a rounded base. An example of Base Type 5.3. is shown below:

		Base Type 5.3., Ware 41	
Draft			
ID		15133	
Plate		50, fig. 10	

Exceptional Bases: rounded

Only two of the bases found in Karakorum are rounded. Both are different in shape. One belongs to a miniature pot made of white glazed stoneware (ware 11); the other one is slightly pointed and belongs to an amphora made of black glazed stoneware (ware 28). Since these are stray finds only, no type is defined. The bases are illustrated below:

2. 2. Typological Features

	Rounded Bases	
Variant	miniature pot	rounded (+pointed) base, amphora
Ware	11	28
Draft		
ID	4689	2069
Plate	15, fig. 10	41, fig. 5

2. 2. 2. DÉCOR

Unlike the shapes which can be generalized for all the ceramics and only partly include exceptions in specific wares, the applied techniques of decoration and the motifs on the ceramics are highly specific for particular wares or ware groups. Subsumed in this chapter are all techniques of decoration that generally appear on the ceramics from Karakorum. Furthermore, their correlations to the wares are stated. Motifs on the wares are defined by their depiction on the corresponding plates only. The variations are manifold. Special meanings are discussed in relation to the wares in the chapter on their classification.

Underglaze Painting

Underglaze painting appears in different variations on the ceramics from Karakorum. Most characteristic is blue underglaze painting on white porcelain which is specific for ware 1 (Plate 53). The motifs painted in underglaze blue often are ornamental and floral, e. g. ornamental scrolls, cloud collars, lotus flowers and bouquets or leaf designs. Few fragments of figural paintings are found as well, most likely to depict dragons. Exceptional is a fragment showing a human leg. This is the only depiction of people throughout the sample material (Plate 54, fig. 11). An exception of underglaze decoration on porcellaneous wares is one small fragment of ware 4.1. with copper red underglaze painting (ID 7271 on Plate 58, fig. 6). It is the only sample from Karakorum with this kind of décor.

In addition to underglaze paintings on porcelain and porcellaneous wares, there are brown to black underglaze paintings on fine tempered white glazed stonewares (ware 11; Plate 68, fig. 1–9) as well as on white and black glazed stonewares with a fine to coarse temper (wares 35–37; Plates 73–74). Most of the painted motifs are floral, e. g. bamboo leaves, chrysanthemum flowers or various leaf designs. Rarely found are fragments indicating a cloud motif or a figural motif like a fish.

The third variation of underglaze painted decorations is black paintings under a turquoise glaze. This style is common on turquoise glazed stoneware (ware 18) and very exceptional on turquoise glazed earthenware (ware 42). As in the other groups, floral motifs are prevalent, e. g. bamboo leaves. Figural motifs like fish appear as well (Plate 69, fig. 5–9).

Molded Décor

Molded décor is characteristic of porcellaneous wares (wares 2–5) but not restricted to them. Concerning stonewares, findings of ware 19 have molded décor (Plate 69, fig. 10–12). Generally, this technique is very uncommon on stonewares. An exception is a finding of ware 32 which is decorated with molded flowers on the outside (ID 14678 on Plate 72, fig. 3). On earthenwares

2. 2. Typological Features

especially the handles of pots that are copies of shapes from bronze vessels are molded (wares 41 + 42). They have ornamental or figural motifs on them (Plate 77, fig. 6–7 + 10–13).

Concerning white porcellaneous ware (ware 2), often not only the décor but the whole shape is molded. Complex ornamental and floral designs seem to be favored, e. g. peonies. On one of the fragments the paws of a lion are preserved. In general, floral designs are more common than figural motifs (Plate 54, fig. 12–22). However, there are complex figural depictions molded onto pale blue and green glazed porcellaneous wares (wares 4 and 5), e. g. a phoenix, fish and a duck (Plate 57, fig. 1 and Plate 56, fig. 10 + 13). On ware 5 only, molded décor includes religious motifs like the Eight Trigrams and the Miscellaneous Treasures (Plate 59, fig. 15 and Plate 60, fig. 1–2).

Imprinted Décor

Imprinted décor appears almost exclusively on ware 5 (Plates 63–64). It is partly combined with incised decorations. Motifs are mainly floral, e. g. lotus, peonies, chrysanthemums. Rarely figural motifs are applied, e. g. a pair of fish or a flying duck (Plate 64, fig. 13–14). Apart from findings of ware 5 only one fragment of ware 4 is decorated with imprinted décor (ID 6072 on Plate 58, fig. 7).

Incised/ Carved Décor

Incised decorations are clearly prevalent on porcellaneous wares, especially on wares 4 and 5. On ware 5 only, incised decorations are partly combined with molded or imprinted décor. The motifs generally are floral and often stylized / abstract, e. g. various floral designs or lotus leaf designs (e. g. Plates 61–62).

On stoneware incised décor is rarely documented. Fragments of recognizable motifs are found exclusively on stonewares that are related to porcellaneous wares, i. e. ware 16 which is close to porcellaneous ware 3. Those motifs are floral, generally depictions of peonies (Plate 69, fig. 2–4). The lines on wares 3 and 16 are much wider and often more deeply cut than the lines on wares 4 and 5. They appear rather carved than incised. However, as both techniques are close to each other and include the carving of lines into the body, there are subsumed into one category at this point.

Concerning earthenwares, carved décor appears on earthenware with a multicolored glaze only (ware 41). Often, the outline of a motif is carved into the body while the motif itself is colored through the glaze. Most common are floral motifs. However, figural motifs like a swan appear as well (Plate 77, fig. 2).

Cut-Glazed Décor/ Sgraffiato

Cut-Glazed décor is almost exclusive to stonewares, especially white or black glazed wares (wares 11 and 28). The motifs are floral or ornamental; often scroll designs (Plate 68, fig. 10–19 and Plate 71, fig. 19). In total, this technique of decoration is uncommon on the wares from Karakorum. Further wares which are partly decorated with this technique are wares 23, 27, 30 and 35 (e. g. Plate 70, fig. 5–6).

Included in the group of cut-glazed décor are unglazed circles on the inside of a vessel which are likely to be spur marks and décor at the same time. In contrast to real cut-glazed designs, unglazed circles are not covered by a glaze. This design is characteristic of black glazed stoneware (ware 28). It hardly appears on other wares. If it does, the most common are dark glazed wares, e. g. ware 22 or 23. However, very few exceptions of the porcellaneous ware 5 have an unglazed circle as well. There is even one example with an unglazed circle around an imprinted lotus (Plate 64, fig. 3).

2. 2. Typological Features

Painted Décor

Painted décor is the most common variant of decoration on stonewares from Karakorum. There are two types of painted décor: brown to black paintings which are exclusive to stoneware (e. g. Plates 66–67) and colored (red, green, yellow) paintings which are exclusive to earthenware (Plates 75–76).

Brown to Black Paintings

Much of the brown to black paintings is applied on white glazed stoneware (ware 11). Due to the state of preservation, sometimes overglaze and underglaze paintings are hardly distinguishable. The most common motifs are leaf designs. Floral designs, as e. g. chrysanthemums, and ornamental designs appear as well (e. g. Plates 66–67). Further wares with brown to black paintings are ware 3, 9, 14, 16, 25, 28 and 35–38. The design and outer appearance of brown painted ceramics of ware 3, 9, 11, 14 and 16 is very close to each other. All of these are ceramics with a light-colored foundation and dark colored design. The glazes and appearance of wares 35–37 differs in so far as they are light on one side and dark on the other. The fragments found in ware 25 and 28 are exceptional findings in these wares (Plate 71, fig. 21).

Colored Paintings

Décor with multicolored paintings appears on earthenware only, i. e. ware 40. The colors used for the paintings are red, green and yellow. They are applied on white glazed earthenware. Many of the motifs are floral, e. g. chrysanthemums, or ornamental. Also, figural motifs like fish are depicted (Plates 75–76).

Colored Glaze / In-Glaze Décor

Most of the decorative glaze variations appear on black glazed stoneware (ware 28). Special glazes called 'hare's fur' or 'oil spot' (cf. Mowry 1996) are characteristic to this group. Furthermore, rust colored splashes on a black ground as well as rust colored rims on black glazed wares are common (Plate 71). Sometimes white glazed rims on black glazed wares appear as well (Plate 71, fig. 18).

The second most common variant of in-glaze décor are purple splashes on the blue or green glazes of ware 20. The color of the splashes varies, some of them are green as well. On two exceptions, a pattern is recognizable (Plate 70, fig. 1–4).

The last variant of colored glazed on stoneware are brown splashes on white glazed wares (ware 11) and greenish glazed wares (ware 16). This design often appears on handles and can be combined with brown paintings. The same applies to few pieces of the porcellaneous ware 3 which is related to ware 16.

A special in-glaze décor is applied on ware 4.1. These are little black spots on the pale blue glaze of this ware (Plate 58, fig. 5). This design is exceptional in the ceramics from Karakorum and limited to ware 4.

Exceptional Decoration Techniques

There are two special decoration techniques on very few fragments of ware 4. One is appliqué décor, namely pearl beads which are applied on both sides of a vessel that presumably is a bowl or stem cup (Plate 58, fig. 8). The other is an applied polychromous décor with floral motifs (Plate 58, fig. 3–4). These findings are exceptional in the spectrum of glazed ceramics from Karakorum.

2. 3. Special Features

2. 3. SPECIAL FEATURES

There are two special features on the ceramics from Karakorum that are recorded in the database: signs of repair and marks. In this section, their characteristics are briefly described.

2. 3. 1. SIGNS OF REPAIR

The signs of repair mainly consist of non-piercing drill-holes with an average diameter of 3 mm. Exceptional are piercing holes. These appear to be made by mistake as in those cases the glaze is generally broken on the inside of the vessel. Non-piercing drill holes do not affect the inside of the vessels but are applied on the outside only. Often some rust is documented in or around the holes. Sometimes iron remains are still preserved. In few cases metal clamps are recorded which are used to repair a vessel (ID 1241 + ID 8382 on Fig. 4).

Recorded in the database is the number of drill holes found, their diameter and whether or not they are piercing. Whether metal clamps are preserved their measurements are documented. Findings with metal clamps and/or numerous drill holes are photographed.

It is assumed that most of the drill holes are made for repairing vessels. The method itself is documented on some findings and therefore proved. Still, other uses need to be considered as well. On one fragment, the holes are used to attach a metal handle (ID 4173 on Fig. 4).

Drill holes are documented on most porcellaneous wares, stonewares and on porcelain. None is documented on any earthenware.

2. 3. 2. MARKS

Any mark or remain of a mark is documented in the database and photographed (Plates 78–84). Furthermore, all marks are drawn. There are two types of marks documented in Karakorum:

1. Marks written in black ink
2. Carved marks.

Both types are applied outside on the base of the vessels. Carved marks are assumed to be potters marks as they need to be incised in the unfired body. This type is very exceptional in the ceramics from Karakorum. The most common marks are writings or paintings in black ink which do have various meanings. The specific marks are discussed in the analyzing chapter on the wares they belong to. Included in the range are Chinese writings, writings in other scripts and painted symbols.

In addition to real marks, fragments with red color on the outside are recorded as marked vessels in the database. Red color on the ceramics is exceptional and likely to be applied on purpose. However, none of these findings is a recognizable mark.

Marks are documented on wares from all ceramic categories except for porcelain. The majority of marks is documented on wares 11 and 20. Many of them are badly preserved and no longer legible.

3. CLASSIFICATION

Subsuming the current state of research on the glazed ceramics from Karakorum as well as the research on Chinese ceramics of the 13th–14th century, the following essentials are to be considered for working with the material: First, there is no consistent and standardized system for the classification that could be easily applied on the entire range of wares found. Especially in publications on Chinese ceramics, famous kiln sites of the time are used eponymously for classifying the ceramics (see introduction above). Apart from the fact that not all the glazed ceramics from Karakorum are comparable to Chinese wares, not all of the Chinese ceramics are in turn attributable to a kiln system without doubt (cf. Meitoku / Ochir 2007; Evtiukhova 1965). Much too often the outer appearance of the ceramics is thoroughly described while the body criteria are neglected. Hence, their archaeological comparability is reduced. The association with an eponymous kiln site can be vague as these often describe kiln systems in a certain area to which many more kiln sites belong; i. e. the eponymous site by far is not the only site where these wares are produced but an indicator of the production area. This is i. a. evident when comparing maps where predominantly eponymous kiln sites are depicted as e. g. by Pierson (2009, 6) with maps where all known kiln sites are depicted as e. g. by Mino / Wilson (1973, 75–76, map ‘Sung Dynasty’). Another difficulty in the classification are descriptions of body features that can be contradictory for some wares. An example is the so-called Jian ware, a black glazed stoneware that is originally produced in southern China but widely copied in northern China as well. According to Wood (2011), Jian wares consist of a “very high iron-oxide stoneware” (148) which he compares to modern day Etruria marl, a red stoneware clay. Medley (1989) characterizes the same ware as “very hard, coarse grained, but well compacted dark brown or blackish stoneware.” (162). In contrast, Chen Yongzhi (2004, 167) describes wares made in the Jian kiln system as having a gray or buff body. Overall, there is no consistent definition of the body features and the production sites of the different Jian wares are highly likely to vary. Concerning the classification of ceramics from archaeological sites that are contemporaneous to Karakorum, the lack of a standardized system is also evident. While Chen Yongzhi (2004) refers to eponymous kiln systems in his study on Jininglu, Inner Mongolia, Ta La et al. (2010) classify the ceramics from Yanjialiang, Inner Mongolia, according to their outer appearance and refer to the variety of possible productions sites in their conclusion.

Due to the problems summarized above, the author refrains from using Chinese terms in the definition of wares from Karakorum. The classification used in the present study is based on the criteria that are defined in the chapter on the documentation. It is a neutral and comprehensible definition of wares. The system of classification is kept comparable to Chinese wares in order to facilitate comparisons, i. e. it relies on the outer appearance of the ceramics as one of the most important classifying criterion. Commonly used Chinese terms for the ceramics are added and/or discussed when required to provide better comparability. Included in the classification system of the present study are Chinese and non-Chinese wares. It thus covers the complete range of glazed ceramics found in Karakorum independently of their provenance.

The system of classification is arranged according to the following criteria: ceramic group → glaze → body color and variations in temper or glaze if given. Therefore, the wares are first subdivided into four groups of ceramics: porcelain, porcellaneous wares, stonewares and earthenwares. The criteria of these termini are defined in the previous chapter. These ceramic groups are again subdivided according to glaze colors, e. g. ‘pale blue glazed porcellaneous wares’ or ‘white glazed stonewares’. The only exception is earthenware with a brick red body. Due to surface alterations on the glaze of this ware, the green and turquoise glazes on it are sometimes no longer distinguishable. Furthermore, the brick red body itself is distinctive as it is and thus proves to be sufficient for a classification.

Generally, porcelain, porcellaneous wares and earthenwares are distinctively defined by their ceramic group and their glaze color. Neither body colors nor tempers change significantly in these

groups/wares. In contrast, most of the stonewares are further divided according to differing body colors, tempers and glazes. In total 43 wares are defined, some of them including sub-groups. Whenever possible the wares are correlated to Chinese kiln systems and a production region. Some of the ceramics lack comparable findings. These are distinctively defined and described for the first time in the present study. Their origin remains unknown.

The systematic of the classification is as follows:

- | | |
|---|--------------------------|
| (1) Porcelain | → Ware 1 |
| (2) Porcellaneous wares | → Wares 2–7 |
| a. white glaze | (very fine temper only) |
| b. greenish glaze | |
| c. pale blue glaze | |
| d. celadon glaze | |
| e. stray finds | |
| (3) Stonewares | → Wares 8–38 |
| a. clear glaze | (fine, medium and coarse |
| b. white glaze | tempered wares; varying |
| c. greenish glaze | body colors and glazes) |
| d. turquoise glaze | |
| e. thick blue or green glaze | |
| f. brown to green glaze | |
| g. black glaze | |
| h. black and white glaze | |
| i. mud colored slip | |
| (4) Earthenwares | → Wares 39 – 43 |
| a. Lusterware | (fine temper only) |
| b. multicolored décor | |
| c. multicolored glaze | |
| d. turquoise glaze | |
| e. brick body, green or turquoise glaze | |

A schematic overview on the classification including a comparison with previous classifications is attached in Appendix A.

3. 1. Porcelain – Ware 1

3. 1. PORCELAIN – WARE 1

The first ceramic group in the wares from Karakorum is porcelain. General features of this group are a very hard body with a translucent (vitrified) structure and a very fine temper without any macroscopically visible temper particles. The glaze on porcelain from Karakorum is very thinly to thinly applied. Only one ware belongs to this category. This is ware 1.

Ware 1

Designation: Blue-and-white porcelain

Glaze: clear, i. e. outer appearance pure white

Coat: very thin to thin

Body: grayish white

Temper: very fine

Hardness: very hard

Average Thickness: very thin / 0,44 cm

Structure: translucent

Characteristic for ware 1 is the decoration with blue underglaze paintings. A few fragments with a very pale blue glaze and blue underglaze décor are included in this ware. Furthermore, one rim fragment is totally colored in underglaze dark blue.

Throwing marks are visible on unglazed parts on the inside of some fragments. The intensity of the blue color used for the paintings varies. Some are generally brighter than others (Plate 53). In the paintings themselves very dark, sometimes almost black spots appear. This so-called 'heaped and piled' effect is an indicator for the use of iron-rich cobalt ores for the paintings as is common on blue-and-white porcelains of the 14th century (Wood 2011, 63–66; Li Zhiyan 1996, 120).

In total, 78 fragments of blue-and-white porcelain are recorded in 69 datasets. Therefore, ware 1 is a very small group that holds a share of only 0,37% of all documented fragments (0,42% of the datasets).

Ware 1 – Shapes

Most of the fragments are body shards with a share of 74% (58 fragments).

There are two fragments which together represent the complete shape of a bowl and one fully preserved lid (Plate 3, fig. 1–2). Rim fragments constitute 14% (11 fragments) and base fragments 8% (6 fragments) of the findings of ware 1.

Shapes of rims are determined on 13 fragments which include two matching shards that belong to bowl ID 1801.

The dominant shape on ware 1 is Rim Type 2, i. e. S-shaped rims. Plain S-shaped rims (Rim Type 2) as well as foliated S-shaped rims (= Rim Type 2, F) are documented (Plate 3, fig. 3). Both types together constitute 42% of all determined rim shapes. Plain S-shaped rims are more common than foliated S-shaped rims with a share of 60% plain and 40% foliated rims. However, the total number of findings is very low (7 fragments). All of these fragments likely belong to bowls such as ID 1801. Depending on their bases they could belong to stemcups as well. The diameter of these vessels ranges from 12–13 cm.

The second most common shape on ware 1 is Rim Type 3, i. e. straight to slightly rounded rims, with a share of 33% (Plate 3, fig. 4–5). No subgroups of this type are documented. Judging from the orientation of the fragments and the curve of the body, this rim type seems to belong to deep plates or flat bowls in the case of ware 1. Most of the diameters are not determinable. These vessels appear to be slightly larger than those with Rim Type 2 with a possible diameter of about 16 cm.

The third shape which is documented in ware 1 is Rim Type 7, i. e. a flaring rim (Plate 3, fig. 6). Generally, this rim type is thought to belong to bottles (vases) which cannot be proved in the case

3. 1. Porcelain – Ware 1

of ware 1 as the fragments are too small. Depending on the missing body part the fragments could partly belong to a deep bowl as well. The diameter of the vessels ranges from 7–16 cm. The smaller ones are assumed to be bottles while the larger ones are assumed to be bowls.

In total, the variety of rim shapes on ware 1 is low and balanced.

Concerning shapes of bases only six fragments with two different types are documented in ware 1. The dominant type is Base Type 1.1., i. e. hollow footrings, with a share of 60% (Plate 3, fig. 2). The findings indicate a different shape of all three vessels with Base Type 1.1. First, there is a complete bowl found. Second, there are two matching fragments with a lotus bouquet painted on the inside; an extensive motif which is more likely to be found on plates than on bowls. Third, there is a fragment that is unglazed on the inside and might derive from a pot or a bottle; possibly even a part of an incense burner. The diameter of the footrings ranges from 4–6 cm.

The second base type on ware 1 is Base Type 4.2., i. e. high pedestal feet, with a share of 40% (Plate 3, fig. 7–8). Both findings of this type belong to the shape of stemcups and differ significantly in their appearance. One is shaped bamboo-like and coated with a very pale blue glaze. The other is plain in shape and painted with a plantain leaf scroll. The diameter of these findings ranges from 3,7–4,2 cm.

The total spectrum of shapes that is verifiable on rim and base fragments includes bowls, plates and stemcups. Body fragments which are strongly bent and only partly glazed inside are assumed to derive from small bottles (e. g. ID 5241 on Plate 53, fig. 15). The only lid found appears to belong to a small storage vessel like a miniature pot, e. g. an inkpot (Plate 3, fig. 1).

Most of the vessels are open shapes, presumably designed for eating or drinking. Whether closed shapes like storage vessels appear they are of a small size only.

Ware 1 – Décor

Per definition, all of the fragments of ware 1 are decorated with underglaze blue paintings. The exception is rim fragment ID 9600 which is completely covered in underglaze dark blue.

The motifs that are used for decoration are primarily floral and ornamental (Plates 53–54). Only three figural motifs appear: two styles of dragons and one human.

Some of the motifs are characteristic of specific shapes, e. g. small scrolls like the Classic Scroll, Linear Scroll and Spiral Scroll which appear on the inside of the bowls only. All of them are applied closely to the rim of the bowls. In contrast, extensive scrolls like the Stylized Lotus-leaf Scrolls with all their variations are exclusively applied on the outside of a vessel. These scrolls appear on plates and bowls as well as on bottles (vases). A small variety of indefinable scrolls seems to be characteristic of small bottles only (Plate 53, fig. 14–17).

Floral scrolls and floral depictions of e. g. chrysanthemum and lotus may appear on the outside or the inside of vessels. They are not characteristic for a certain shape. However, the documented motif of a lotus bouquet is quite extensive and likely to be applied on plates only.

All in all, there is a broad variety in the motifs. Many are found on a single shard only. The quality of the paintings varies. Some of them appear blurred underneath the glaze. On most pieces, the intensity of the blue color varies in the painting, i. e. there are dark blue spots in the motif. This is the so-called 'heaped and piled' effect mentioned above (e. g. ID 2133 on Plate 53, fig. 21). Sometimes, changes in the intensity of color are intentionally used for the depiction of a motif as e. g. on ID 2078 (Plate 53, fig. 23).

Ware 1 – Signs of Repair

Signs of repair are very rare on ware 1. In total, only 3 vessels seem to have been repaired. This constitutes a rate of 4,3 % repaired vessels in the findings. Documented are drilling-holes with a diameter of 2,5–3 mm on the outside of the vessels. In two cases, the drilling-holes are non-piercing while there is one case with a piercing drilling-hole (ID 2137 on Fig. 5). It is likely that the

3. 1. Porcelain – Ware 1

piercing drilling-hole is a mistake in repairing. On the inside of this vessel, parts of the body are broken loose around the drilling hole. This appears unintentional and thus a mistake. Metal clamps or the like are not preserved on the documented findings of ware 1.

Ware 1 – Marks

There are neither marks found on ware 1 nor any inscriptions in the décor or the like.

Ware 1 – Comparable Findings

In ware 1 six shards with fragments of paintings that are likely to depict dragons are documented. Five of these dragons are determined as motif 'Dragon I' (Plate 54, fig. 9). They are depicted on the outside of the vessels and similar in style. The sixth documented dragon considerably differs in style from the others. It is determined as 'Dragon II' (Plate 54, fig. 10).

The style and the motif of 'Dragon I' is familiar for the Yuan dynasty. Various published vessels which are dated into the Yuan dynasty are very comparable to finding ID 15657 (Plate 54, fig. 9), e. g. a vessel from the Cleveland Museum of Art that is dated into the 14th century (Medley 1989, Fig. 139 + 187) or another vessel depicted in Pierson (2009, Fig. 77, 58) which is dated 1320–1350. Both examples are stemcups which are decorated with a Classic Scroll inside, as is ID 15657. A finding from Jininglu, Inner Mongolia, shows a similar dragon as well while having a simple blue line as inside rim décor (Chen Yongzhi 2004, 70). Another very similar stem cup is depicted in Carswell (2000, 30, Fig. 30). It is dated to the Yuan dynasty (14th cent.). Furthermore, a similar style of dragon can be found on a Yuan vase that is described and depicted by Vainker (1991, Fig. 132, 177).

Medley (1989) classifies the vessels described and depicted above in her chapter on products for the domestic market as "pieces made for family altars and shrines" (187). Her detailed description of such dragon bowls and their appearance is as follows:

"The small stem-cups which make their appearance in this group are better treated. The bowls of the cups are pressed out over decorated moulds which incorporate designs of four or five-clawed dragons running the inside walls with great vigor among clouds. The cups which had a small tapering shank on the bottom were then luted into a turbular stem, sometimes shaped to resemble a bamboo stem, with ridges marking the joints. The painting of these was chiefly on the outside, the most favoured motif being two three-clawed dragons scribbled with a cursive energy (Fig. 139); inside on the bottom of the cup it was usual to add a flower spray, chrysanthemum or lotus being popular, but a few have the conch shell associated with Buddhism." (Medley 1989, 187–189)

A stem cup on which such an impressed inside design can be seen is published in Macintosh (1997, Fig. 5, 16). This stem cup is part of the collection of the British Museum and is otherwise designed as the samples above with a dragon motif outside and a classic scroll inside. Through this description there is not only an analysis of the fragment ID 15657 given but a connection to one of the stem cup-bases, ID 1199 (Plate 3, fig. 7), as well. Since its shape can be labeled as bamboo-like, it may derive from a similar vessel as ID 15657.

The shape of a stem cup is interesting in the context of the findings from Karakorum. According to Carswell (2000) it is "reasonable to assume that [...] stem cups [...] were introduced in direct response to Mongol taste." (31). Carswell (2000, 31 with reference to Bushell 1899) quotes a Chinese collectors' handbook, the '*Ge gu yao lan*', where it is stated that stem cups were not known in the wares of the Song dynasty. Furthermore, he states that other (blue-and-white) stemcups of the 14th century are found in Beijing, northeast of Chifeng and in Kharakhoto (Carswell 2000, 31) – all of which belong to the Mongol Empire in the Yuan dynasty. According to

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him, “the form is of metal origin, probably copying a silver shape from Central Asia” (Carswell 2000, 31).

The motif of the dragon on the stemcups is distinctively Chinese. In her work about Chinese designs, Pierson (2001) describes the dragon as follows:

“In the Yuan dynasty, dragons were very serpent-like with long, snake-like bodies and small heads. [...] The dragon is one of the oldest symbols in Chinese mythology. Traditionally it represents several themes relating to power: the emperor, rain and water, and energy. The dragon is also seen as an emissary or guardian figure who bears deities through the skies and guards the entrance to paradise in the Kun Lun mountains. [...] [The motif of a dragon] is used continuously on imperial ceramics of the Yuan, Ming and Qing dynasties. In general, in art and in literature, the early dragon is aerial and the later dragon aquatic.” (67)

Furthermore, Pierson (2001, 69) states that the number of claws on a dragon can be of relevance for its interpretation. While three claws are the minimum number on Chinese dragons, the dragons which represent the emperors are depicted with five claws. Therefore, five-clawed dragons are prohibited on popular ware and applied on imperial ware only (Kerr / Wood 2004, 202).

Concerning the findings from Karakorum, ID 15657 and ID 3725 can be labeled as aerial dragons since parts of clouds are visible on the fragments. The other fragments painted with Dragon I do show serpent-like dragons but whether they are aerial or aquatic cannot be concluded. The fragment with Dragon II appears serpent-like as well but is completely different in style. Its outline is accentuated in an intense dark blue while its body is colored in a lighter and brighter blue. In contrast to the common Chinese depiction of dragons, no scales are depicted on Dragon II. The number of claws on the dragons from Karakorum cannot be counted since none of the fragments reveals any claw whatsoever. However, based on the vessels taken for comparison and the description of Medley (1989, 187–189) stated above, three claws are assumed on the motif of Dragon I from Karakorum.

Furthermore, other parts of the décor on ware 1 are identifiable as being characteristic for blue-and-white wares of the Yuan dynasty. Recognizable on the inside of fragment ID 7546 is a leaf which is designated as motif ‘Small Leaves IV’ in the recording of the ceramics from Karakorum (Plate 54, fig. 6). This motif equals the ‘double-gourd-shaped leaf’ (Chin. *hu lu xing ye*, 葫芦形叶) as described by Wang Qingzheng (2002, 246) in his dictionary on Chinese ceramics. Wang Qingzheng (2002) defines it as being “a characteristic design on the blue-and-white wares of the Yuan dynasty” (246). The motif on the outside of the same shard is less recognizable but still comparable to a motif that Wang Qingzheng (2002, 257) labels as ‘stylized lotus petal design’ (Chin. *bian xing lian ban wen*, 变形莲瓣纹). He describes it as “often seen around the shoulder and foot of a vessel made in the Yuan” (Wang Qingzheng 2002, 257). In total, according to Wang Qingzheng (2002), the small fragment recorded as ID 7546, can be specified as a typical representative of Yuan blue-and-white ware. On the same finding, controversies in the dating of blue-and-white porcelain are evident. Kessler (2012) argues on an early dating of this ware that is contradictory to most other research. One of his samples is a fragment with the same décor as ID 7546 that Kessler (2012, 44 + Color Plate 20B) connects to ceramics from the Xi Xia era, i. e. to a dating into the early 13th century. Another sample with the same décor is dated by Kessler (2012, 99–102) into the Song or Yuan dynasty, i. e. the late 13th or early 14th century. Generally, the beginning of Chinese blue-and-white porcelain is dated from about 1328 (Wood 2011, 63 with reference on Liu Xinyuan), respectively to “about the end of the first quarter of the fourteenth century” (Medley 1989, 176). Carswell (2000) even argues that “[i]t is generally accepted that the production of blue-and-white began in earnest on a large scale some time shortly after 1325.” (17). He underlines this argument with the fact that there is no blue-and-white porcelain on a

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cargo that dates from 1323 (Carswell 2000, 17). In this discussion, the findings from Karakorum are of an especially high value because they can be related to the stratigraphy of the excavation (cf. Pohl 2010). The fragment ID 7546 that is comparable to the findings which Kessler (2012) dates to the 13th century derives from an excavation layer that belongs to settlement period II. Thus, its dating is ca. 1280 to about 1310 which is the beginning of the Yuan dynasty. It belongs to the earliest findings of blue-and-white porcelain from Karakorum as none of ware 1 dates to settlement period I (= end of Song dynasty). Therefore, it confirms a dating of this ware that begins later than Kessler's contended early date (Song dynasty) but earlier than the common dating (mid-Yuan dynasty) (see above).

Other motifs found in Karakorum are not as well comparable as the one described above. The rim fragment ID 1828 shows a very simple and small motif of spiky leaves on the outside ('Small Leaves I'; Plate 54, fig. 2) while having a Linear Scroll painted on the inside (Plate 53, fig. 6). The latter is singular on the findings from Karakorum as none of the other leaves are painted as spiky as the ones on ID 1828. However, the motif bears resemblance to the motif of 'Chrysanthemum Scroll II' (Plate 53, fig. 20) which does have comparable findings. These findings derive from Inner Mongolia, i. e. Jininglu (Chen Yongzhi 2004, 74) and Heicheng (Kessler 2012, Color Plates Fig. 39), and are dated to the Yuan dynasty in both cases.

Another rim from Karakorum is broadly painted on both sides which is quite unusual. The inside as well as the outside shows a wide scroll of Chrysanthemum III (ID 2133 on Plate 53, fig. 21). The rim shape itself is slightly inverted and the vessel it belongs to is likely to be a plate. The paintings appear hastily painted without care. Especially on the inside the so-called 'heaped and piled' effect in the blue painting is very distinctive. This is a clear indicator for the use of iron-rich cobalt ores for the painting as is common on blue-and-white porcelains of the 14th century (Wood 2011, 63–66; Li Zhiyan 1996, 120). Just as on ID 1828 (discussed above), some of the leaves are painted strikingly spiky. The chrysanthemum itself is a motif which is commonly painted on various Chinese wares.

The paintings of two body fragments from Karakorum are applied with an exceptionally bright blue compared to that of other findings (ID 1855 on Plate 54, fig. 8 + 10 and ID 2082 on Plate 54, fig. 11). At first sight, this appears as a sign of a higher amount of manganese in the color (cf. Wood 2011, 66). Still, the heaped and piled effect is clearly visible on the inside of one of the fragments. The motif on the outside of both fragments is a slightly varying style of a Vine Design Scroll (Chin. *man cao wen*, 蔓草纹; Wang Qingzheng 2002, 259). Striking are the motifs on the inside of both fragments. Inside ID 1855 the fragment of a dragon is visible ('Dragon II'). This dragon is completely different in style than the other fragments of dragons found in Karakorum or the dragons on analogue findings. Its outline is accentuated in an intense dark blue while its body is colored in a lighter and brighter blue. In contrast to the common Chinese depiction of dragons, no scales are depicted on Dragon II.

Inside on ID 2082 is the only depiction of a human which is documented in Karakorum (Plate 54, fig. 11). It could be a peasant. Visible is a half-naked leg with knee-length trousers. The figure is standing on grassland. On the naked part of the leg the 'heaped and piled' effect mentioned above is striking. The trousers are filled with a varying shade of blue.

Both fragments described above differ in quality from the other fragments found and lack comparable findings.

The only finding of ware 1 that represents a complete vessel is bowl ID 1801. This bowl is comparable to a bowl from Zhenzishan, Inner Mongolia, which is dated to the Yuan dynasty and attributed to the Jingdezhen kiln (Ta La / Chen Yongzhi 2008, 220). The shape and the style of the chrysanthemum flower that is part of the 'Chrysanthemum Scroll I' (Plate 53, fig. 19) which is painted outside on the bowl are comparable to other findings as well. Though the leaves in the scroll are painted in a different style, the chrysanthemum flowers of e. g. a bowl found in Jininglu and dated to the Yuan dynasty (Chen Yongzhi 2004, 74) as well as two other pre-Ming bowls from Heicheng, Inner Mongolia (Kessler 2012, Color Plates 39 + 40), are well comparable to the

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chrysanthemum on ID 1801 (Plate 53, fig. 19). On the inside of one of the bowls from Heicheng a spiral scroll is painted. It does bear resemblance to the Spiral Scroll on the bowl from Karakorum but is different in style and painted with far less care than the scroll from Karakorum. Another fragment (ID 1952) found in Karakorum with the Spiral Scroll painted inside and Chrysanthemum Scroll I outside might derive from the same bowl as ID 1801 but is not matching.

More resemblance to chrysanthemum motifs that are dated to the Yuan dynasty bears Chrysanthemum Scroll II which shows a similar flower as Chrysanthemum Scroll I but a different leaf design (Plate 53, fig. 20). In the findings from Karakorum it is painted on the inside of a rim fragment which possibly belongs to a deep bowl. The lotus depicted on the outside of ID 1802 (Plate 53, fig. 22) is similar (but not identical) in style to the lotus on the outside of a plate with dragon décor found in the temple area of Karakorum (cf. Janssen-Kim 2005, 166).

Another characteristic motif which can be found on various vessels, especially vases, from the beginning of blue-and-white porcelains on is the Stylized Lotus-Leaf Scroll with Cloud I (cf. Macintosh 1997, 212). Comparable to ID 2084 from Karakorum (Plate 53, fig. 9), clouds are often depicted inside these Stylized Lotus-Leaf Scrolls. The style of these clouds varies widely (Plate 53, fig. 9–12). Apart from clouds, Buddhist motifs are depicted inside Stylized Lotus-Leaf Scrolls. A sample of this from Karakorum is ID 1894 (Plate 53, fig. 13). Depicted on this fragment is one of the so-called Miscellaneous Treasures (Chin. *za bao*, 杂宝, Wang Qingzheng 2002, 254), most likely a pair of coins.

Another specificity in the findings of ware 1 is a rim fragment with a Peony Scroll painted on the outside (Plate 53, fig. 26). The motif of a peony is rarely found in Karakorum. Mostly depictions of chrysanthemums are documented. Together with the lotus and the plum, the peony and the chrysanthemum are the four flowers of the seasons in Chinese paintings (Pierson 2001, 29). The peony represents the spring and is furthermore associated with royalty, wealth and rank (Pierson 2001, 29; Wang Qingzheng 2002, 255). In the documentation of blue-and-white porcelain from Karakorum all of the four flowers of the seasons are recorded.

Body fragment ID 2128 is especially interesting since its shape and décor indicate a shape which is not documented in the other findings from Karakorum. It is slightly faceted which is emphasized by its décor. The décor consists of the motif Small Leaves I on the left side of the fragment and Small Leaves II on the right site of the fragment (Plate 54, fig. 3 + 4). According to shape and décor, the fragment is very likely to belong to either a faceted flask or an ewer. Both shapes are common in blue-and-white porcelain from the 14th century and frequently painted with small leaves. Examples are a flask (neck missing) which is depicted in Carswell (2000, 31, Fig. 31) and an ewer from the Hopei Museum which is depicted in Medley (1989, 185, Fig. 137).

Ware 1 – Origin and Interpretation

Due to its very specific appearance, which requires high technological standards, ware 1 is easily classifiable as Chinese blue-and-white porcelain, so-called Qinghua ware. This classification corresponds to the rating of Evtikhova (1965, 248), Meitoku / Ochir (2007, iii) and Janssen-Kim (Erdenebat et al. 2010, 49), i. e. there is consensus.

Hardly any other ware is as famously Chinese as blue-and-white porcelain is. The fine quality of the body and the characteristic motifs painted on it leave no doubt on the classification of ware 1. The findings from Karakorum match exactly the criteria of blue-and-white porcelain: a pure white body which is slightly translucent and (cobalt-)blue paintings underneath a clear to slightly blue glaze (cf. Carswell 2000, 11). Interestingly, Chinese blue-and-white porcelain is the subject of many studies but these rarely include an exact definition of the material. The term “blue-and-white” is taken for granted and generally connected to Chinese wares (cf. Hamer / Hamer 1993, 29). On the definition of the glaze and the pigments used on Chinese blue-and-white porcelain a precise analysis is offered by Wood (2011, 61–63). The composition of Chinese blue-and-white

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porcelain is furthermore analyzed and described by Wu Juan et al. (2007). Unfortunately, such analysis is not provided for the material from Karakorum and thus there are no references.

The production of Chinese blue-and-white porcelain is closely connected to the kiln system of Jingdezhen, Jiangxi province, southern China. A brief introduction on this kiln is given by Wang Qingzheng (2002, 160). The general history of Jingdezhen up until today is e. g. published in Gillette (2016). An overview on wares from Jingdezhen over time is i. a. included in Scott (1993). The production site of Jingdezhen incl. its historical records and technical innovations is examined in detail by Kerr / Wood (2004, 184–239). Other sources on Jingdezhen and its kiln sites are e. g. Brankston (1938, 54–6) and Sjostrand (2007, 65–67) as well as studies of Liu Xinyuan (Jingdezhen Institute of Ceramic Archaeology) like Liu Xinyuan / Bai Kun (1980). Large-scale excavations from the site are published in Jiangxi Provincial Institute of Cultural Relics and Archaeology and Jingdezhen Kiln Museum (2007). Jingdezhen is a major production centre for Chinese ceramics from the Yuan dynasty onward. It is the Chinese kiln system which blue-and-white porcelain is assigned to (Medley 1989, 177f; Macintosh 1997, 13; Wang Qingzheng 2002, 160; Wood 2011, 62; Wu Juan et al. 2007, 188). Sometimes the term ‘Jingdezhen wares’ is even used synonymously for blue-and-white porcelains (Vainker 1991, 139).

Considering the present state of research on Chinese blue-and-white porcelain, it is to be concluded that the findings of ware 1 from Karakorum are produced at southern Chinese kilns that belong to the Jingdezhen kiln system. However, this does not indicate that all the vessels are produced at the same kiln site. The varying qualities and the different compounds of blue which are traceable on the findings from Karakorum lead to the conclusion that they are produced at different kiln sites. Therefore, the region of production of ware 1 is determinable and concluded to be in and around Jingdezhen. Still, specific kiln sites are not determined but might be traceable with further analysis and research of the material as e. g. scientific analyses.

Overall, Chinese blue-and-white porcelain is considered to be produced for export and especially for the Near Eastern taste (Medley 1989, 176ff; Carswell 2000, 17). The most famous and largest collection of those porcelains today is found at the Ardebil shrine, Iran, and published by Pope (1956, reprint 1981). Some elements of the 14th century ceramics from the Ardebil shrine are stylistically comparable to the findings from Karakorum, e. g. the Classic Scroll (Plate 53, fig. 1–3; cf. Pope 1956, Plate 11–12 + 25) or some clouds depicted in Stylized Lotus Leaf Scrolls (Plate 53, fig. 9–12; cf. Pope 1956, Plate 12 + 24). On most parts, however, the vessels from the Ardebil shrine are much more complex in design than the ones from Karakorum and later in their dating. It is highly likely that the findings from Karakorum do not belong to the well-known group of blue-and-white porcelains made for export and imperial households like the vessels from Ardebil which one might associate at first. Instead, they are better to be compared to the blue-and-white porcelains made for the domestic market as stated by Medley (1989, 186ff). The most striking example for this classification is shard ID 15657 that is discussed above. This fragment can clearly be associated with stemcups made for family altars and shrines (cf. Medley 1989, 187; Brankston 1938, 27).

The comparatively simple designs on many fragments from Karakorum match best with findings from coexistent city sites in Inner Mongolia like Jininglu and Khara Khoto (see above). There, one might tend to associate import wares from southern China with higher ranking Chinese officials, but – according to Medley (1976) who cites a contemporary Chinese author – “the man of culture regarded the blue decorated porcelains [of the 14th century] as very vulgar” (3). Blue-and-white porcelain is not necessarily an imperial ware from its beginnings. It does not seem to be produced for official uses before 1328 (Liu Xinyuan 1993, 37) but is found in Karakorum from about 1280 on (see above).

Concerning the interpretation of the daily life in the center of Karakorum, blue-and-white porcelain is a ware that needed to be imported from its southern Chinese production sites. Comparable fragments are found in coetaneous city sites in Inner Mongolia which indicates that those findings belong to the common ceramic spectrum of the time. Their origins as export wares for a Near

3. 2. Porcellaneous Wares – Wares 2–7

Eastern taste while being a Chinese ware fit well in the international flair that historical sources (like Rubruck) describe for Karakorum. Chances are that some of the pieces got to Karakorum with merchants travelling to the Near East or Central Asia via the Old-Mongolian capital. Blue-and-white porcelains in general cannot specifically be related to a Chinese lifestyle or craftsmen. However, special pieces like ID 15657 and ID 1199 are an indicator for Chinese family altars and therefore a Chinese lifestyle in Karakorum.

Ware 1 is documented solely in layers that date to the Yuan dynasty. This correlates to the assumption that blue-and-white porcelain is not produced before the middle or the end of the 13th century (see above or e. g. Macintosh 1997, 9ff for a short excursus on the dating of this ware).

3. 2. PORCELLANEOUS WARES – WARES 2–7

General features of the porcellaneous wares are a very hard body with a slightly translucent structure and a very fine temper without macroscopically visible temper particles. The body is not as translucent and pure as that of porcelain. Different kinds of bodies and different glazes appear in this group.

Varying glazes are the main criterion for the subdivision of the porcellaneous wares found in Karakorum. The group includes wares 2–7. The wares are characterized by a white glaze (ware 2), greenish glaze (ware 3), pale blue glaze (ware 4), celadon glaze (ware 5), celadon-like glaze (ware 6) and grayish blue glaze (ware 7).

In total, porcellaneous wares hold a share of about 16% of the documented ceramics. It is the second largest ceramic group in Karakorum.

Ware 2

Designation: White porcellaneous ware

Glaze: clear (or pure white), i. e. outer appearance pure white

Coat: very thin to thin

Body: white

Temper: very fine

Hardness: very hard

Average Thickness: very thin / 0,3 cm

Structure: slightly translucent

The outer appearance of ware 2 is defined as being pure white. Whether its glaze is white or clear is often not determinable. Parts of a vessel may be unglazed. In this case a white body with throwing marks is visible. Further traces of production on ware 2 are small spur marks in the middle of some vessels. Partly, spurs are still preserved on the base of some findings. In a few cases a complete circle is left unglazed on the inside of a vessel. Furthermore, some of the rims are left unglazed. No traces of metal strips to cover the unglazed rims are documented in Karakorum.

The transition to ware 3 – which is coated with a greenish glaze – is fluent. Generally, fragments of ware 2 are thinner than those of ware 3 and whiter in color.

In total, 330 fragments of ware 2 are documented in 275 datasets. Therefore, ware 2 holds a share of 1,56% of all fragments documented (1,68% of the datasets).

Ware 2 – Shapes

Most of the fragments are body shards with a share of 53% (175 fragments).

The only completely preserved shape that is documented in ware 2 is a small solid lid (Plate 4, fig. 1). Rim fragments constitute 30% (98 fragments) and base fragments 16% (54 fragments) of the documented findings. In addition to the complete lid found, two fragments of a hollow lid type are recorded (e. g. Plate 4, fig. 2).

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Shapes of rims are determined on 97 fragments. Most of the rims belong to Rim Type 2, i. e. S-shaped rims (Plate 4, fig. 4). All of these rims are plain and uniformly shaped. No subtypes appear concerning the rim itself. However, the body of some bowls with Rim Type 2 is foliated (Plate 4, fig. 5). In total, 60% of the determinable rims belong to Rim Type 2. Due to their uniformity, all of them are assumed to derive from bowls which are either plain or foliated. The diameter of these bowls ranges from 8–14 cm.

Second in the shapes of ware 2 is Rim Type 3, i. e. straight to slightly rounded rims, with a share of 26% in its plain version (Plate 4, fig. 6–7). Additionally, there are very few fragments of Rim Type 3, HR, i. e. a straight rim with a horizontal attachment, which hold a share of 3% in ware 2 (Plate 4, fig. 9). The latter shape appears exclusively on this ware. It is assumed to derive from a special plate shape. Its diameter is not definable on the fragments from Karakorum. Rim Type 3 on ware 2 in general belongs to bowls with a diameter of 7–12 cm. Included in this type is one fragment with a very exceptional shape that belongs to a flat plate with a diameter of 14 cm (Plate 4, fig. 8).

The last rim type which is documented in ware 2 is Rim Type 1 with a share of 10% (Plate 4, fig. 3). This horizontally bent rim belongs to plates with a diameter of 12–15 cm.

Rims of type 1 and 3 can be unglazed while rims of type 2 generally are fully glazed. The range of rim types in ware 2 is low with a clear focus on a uniformly shaped Rim Type 2.

Compared to most of the other wares from Karakorum, the variety of base types in ware 2 is quite manifold. Base Type 4.1., i. e. medium-high pedestal feet, is the most common type in this ware with a share of 46% (Plate 5, fig. 1–6). There is a fluent transition from medium-high pedestal feet to hollow footrings, i. e. Base Type 1.1. (Plate 4, fig. 11–12), which constitute the second largest group of base types in ware 2 with a share of 39%. Both base types are not homogeneously shaped in ware 2. The footrings of Base Type 1.1. vary in height as well as in diameter. Some of them are very low and thin while others are higher and close in shape to Base Type 4.1. (Plate 4, fig. 10–12). Slightly more than 50% of the bases of type 1.1. are medium sized, rather low footrings. This is the average shape of Base Type 1.1. in ware 2. This type is related to the shape of bowls. The diameter of the footrings ranges from 3–6 cm. Higher footrings are smaller in diameter and range from 3–4 cm only. Exceptional are the very thin footrings in this type that are related to plates. Their diameter ranges from 4–6 cm.

Bases of Type 4.1. are defined as measuring in height 50-75% of their diameter. About one third of these bases of ware 2 do have an ornate shape (Plate 5, fig. 4–6). The other bases of this type are plain. Rarely do they vary in shape (Plate 5, fig. 2–3). Base Type 4.1. is assumed to belong to bowls, resp. low stemcups. The diameter of the bases ranges from 3,4–5 cm.

In addition to the medium-high pedestal feet, one fragment of Base Type 4.2., i. e. a plain high pedestal feet, is documented (Plate 5, fig. 7). It belongs to a stem cup. Its diameter is 3,5 cm.

The last base type which is documented in ware 2 is Base Type 2.2., i. e. an integrated concave footring (Plate 4, fig. 13). It is exceptional in ware 2 and presumably belongs to small pots. The diameter of both recorded fragments measures 3 cm.

Concerning the spectrum of basic shapes that are produced in ware 2, there are no clear indicators for bottles made of this ware. The fragments of lids found are assumed to belong to pots. The small solid lid ID 15965 (Plate 4, fig. 1) derives from a little storage vessel which might be a bottle or a pot. Taking the considerations of the assignments of the rim and base shapes to specific basic shapes into account, more than 80% of the vessels made in ware 2 are bowls or stemcups. About 10% are plates. The remaining findings are either not assignable to a shape or possibly storage vessels, i. e. few pots with lids.

Ware 2 – Décor

Décor is documented on 7,58% of the fragments. This is nine rim fragments, nine base fragments and seven body fragments. The only documented technique of decoration on ware 2 is molding.

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With the exception of two findings, all of the décor is applied on the inside of the vessels. These exceptions are dots on the base of ID 1845 (Plate 54, fig. 14) and some indefinable décor on the outside of fragment ID 10686.

Six fragments display the décor of a Key Fret Scroll combined with a Chrysanthemum Shape (e. g. Plate 54, fig. 15). Their rim is unglazed. The fragments belong to a plate. All of them are found close to each other. Three of the fragments are matching. Whether the other fragments belong to the same plate cannot be concluded for certain, though it seems likely.

Two fragments of Rim Type 3, HR which are decorated with a Classic Scroll, floral Style on the attached rim could belong to one vessel as well (Plate 54, fig. 12). The fragments are not matching but very much alike.

The ornamental motif of Flowerily Tendrils is always combined with some sort of animals (e. g. Plate 54, fig. 13). Further common ornamental motifs are Lotus Petals. These seem to be combined with floral motifs like peonies (Plate 54, fig. 18–19). Motifs like the Linear Pattern with Waves and Flower Petals remain singular in the documented findings (Plate 54, fig. 16–17).

In general, ware 2 is a rather plain ware without much décor. However, if décor is applied, the vessel is extensively covered with it.

Ware 2 – Signs of Repair

Reliable signs of repair on ware 2 are not documented. There is only one small rim fragment with a piercing drilling hole recorded (ID 6070). This drilling hole has a diameter of 2 mm. It may have been used for repairs or to fix a handle on the vessel.

Ware 2 – Marks

Black paint is documented on the base of five fragments of ware 2. Still, only one of these fragments portrays a recognizable Chinese character (Plate 78, fig. 1). The fragment derives from a plate which is decorated with a peony design on the inside. It seems likely that this vessel is marked with a single character in the middle of the base. Since only the upper part of the mark is preserved, its meaning cannot be analyzed.

The black ink marks on the other findings are problematic. These are black stripes painted on the inside of two medium-high pedestal feet (ID 1093 + ID 2162) as well as on one medium-high pedestal foot (ID 5222). The meaning of these stripes remains unclear.

On the last fragment with black paintings the color is only badly preserved and hardly recognizable anymore (ID 6179). It is the base of a stem cup. A written character seems likely on this piece but is no longer legible.

In sum, none of the marks on ware 2 are legible.

Ware 2 – Comparable Findings

The most comparable shape of ware 2 from Karakorum is Base Type 4.1. (Plate 5, fig. 4–6). White glazed and thinly potted stemcups with this kind of base are e. g. excavated at various sites in Inner Mongolia. For the most part, the rims of these vessels are S-shaped, i. e. of Rim Type 2 which is the most commonly documented rim type in ware 2. However, there is a comparable finding with a straight rim, i. e. Rim Type 3, as well. All of the comparable findings are dated to the Yuan dynasty and associated with the Huozhou kiln in Shanxi, e. g. a stem cup with an S-shaped rim found in Beijing (Hughes-Stanton / Kerr 1981, 102 + 162, Cat-No. 465; Ye Peilan 1998, 202, Fig. 342), a stem cup with a straight rim from Yanjialiang, Inner Mongolia (Ta La / Chen Yongzhi 2008, 196), a stem cup with an S-shaped rim from a hoard in Shuozhou, Shanxi (Shi Jinming / Liu Yan 2008, 188) and a stem cup with an S-shaped rim from Jininglu, Inner Mongolia (Chen Yongzhi 2004, 164, Plate 118).

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Another well-comparable finding is a small lid excavated at the Yingzhou Road site in Chaoyang, Liaoning. This lid is identical to lid ID 15965 found in Karakorum (Plate 4, fig. 1). In the publication on the ceramics from the Yingzhou Road site, it is classified as northern Chinese white ware without an assignment to a specific kiln system and dated to the Liao, Jin or Yuan dynasty (Liaoning Provincial Institute of Archaeology 2011, 224 + 229). A larger lid of the same shape is excavated in Dawangzhuang, Datong city, and dated to the Jin dynasty (Shi Jinming / Liu Yan 2008, 114). It belongs to an ewer that is exhibited in the Shanxi Museum.

Other shapes and décor from ware 2 are not as comparable as those described above. The hollow lid found in Karakorum may be comparable to various other lids but as the top of this shape is missing its comparison remains uncertain. It could e. g. be a simple and plain lid like the one found at the Bayi kiln site in Changzhi, Shanxi (Shanxi Institute of Archaeology 1998, 5, Fig. 7). This site is dated to the Jin and Yuan dynasties (Shanxi Institute of Archaeology 1998, 24). Another comparable lid fragment is found at the Hebi kiln site in Henan and dated to the Song or Jin dynasty (Feng Xiaoqi 2005, 342, Fig. 300).

Findings which are comparable to ID 8438 – a fragment with an unglazed circle on the inside base as well as a Linear Pattern with Waves – are rarely found. A good sample is a bowl excavated from a Yuan dynasty tomb in Shuozhou, Shanxi (Shi Jinming / Liu Yan 2008, 219). Other thinly potted vessels with an unglazed circle inside lack the same motifs as the one from Karakorum but are otherwise well-comparable. These are e. g. a bowl that is excavated from a Jin dynasty tomb in Houma, Shanxi and classified as Huozhou ware (Shi Jinming / Liu Yan 2008, 119) or a bowl excavated at Yingzhou Road site in Chaoyang, Liaoning which is also dated to the Jin dynasty (Liaoning Provincial Institute of Archaeology 2011, 80). The latter finding is transitional between ware 2 and 3 from Karakorum in its appearance. A comparable wave pattern on vessels without an unglazed circle inside is e. g. known from findings that are associated with the Ding kiln and dated to the Southern Song and the Yuan dynasty (Committee for Chinese Ceramics 1983, 82–83).

Concerning vessels with a foliated body which appear in ware 2, comparisons are complicated because little of these vessels is preserved in Karakorum. Comparable vessels appear to be more distinctively foliated like e. g. a Jin dynasty bowl which is excavated from a tomb in Datong, Shanxi (Shi Jinming / Liu Yan 2008, 94). The foliated shape appears in other white wares as well. These differ in body from ware 2 like e. g. a bowl from the Song dynasty found in Hebei and assigned to the Cizhou kiln (Palace Museum 2006, 70, Fig. 36).

The décor on ware 2 from Karakorum generally lacks precise comparability. Motifs that are similarly complex and sharply molded are e. g. documented in white glazed ceramics from the Hebi kiln, Henan, and date to the Jin dynasty (Feng Xiaoqi 2005, 343–345). Unglazed rims as on ID 6262 from Karakorum are included in the spectrum of findings from the Hebi kiln as well (Feng Xiaoqi 2005, 343, Fig. 304). These findings are partly classified as imitations of ceramics from the Ding kiln (Feng Xiaoqi 2005, 345). Published findings from the Ding kiln system itself are only partly comparable to those from Karakorum. As far as Ding ware plates with similar décor are known, these are dated to the Liao dynasty (Ta La / Chen Yongzhi 2008, 47), the Jin dynasty (Committee for Chinese Ceramics 1983, 98, Plate 107) or the Song dynasty (Cao Kai 2008, 134).

Ware 2 – Origin and Interpretation

In previous publications on ceramics from Karakorum, fragments with the characteristics of ware 2 are classified as deriving from Jingdezhen (Elikhina 2010, 45; Meitoku / Ochir 2007, iii), resp. as Dehua ware (Janssen-Kim 2005, 194–195). Although the term Ding ware is partly used for classification of white wares as well it does not refer to thinly potted, porcellaneous ceramics in these publications.

Referring to the classification of findings from Chinese sites which are coeval to Karakorum, fragments which correlate to ware 2 are e. g. classified as Ding ware concerning the Jininglu site

3. 2. Porcellaneous Wares – Wares 2–7

in Inner Mongolia (Chen Yongzhi 2004, 151 + 164, Plate 118) or as “thin white glazed ware” (Ta La et al. 2010, 387–391) that derives from kilns in Hebei, Henan and Shanxi like e. g. the Huoxian or Ding kiln concerning the Yanjialiang site in Inner Mongolia (Ta La et al. 2010, 647). The findings from Yanjialiang are especially comparable to those from Karakorum. The same applies to their classification. As shown above, the most comparable findings of ware 2 are fragments from stemcups that are assigned to the Huo kiln in Shanxi and dated to the Yuan dynasty. This includes the termini ‘Huozhou’ and ‘Huoxian’ as both refer to the same kiln system (Ye Peilan 1998, 203). Furthermore, lid ID 15965 is identical to a lid which is excavated in Liaoning and classified as northern Chinese white ware that is dated to the Liao, Jin or Yuan dynasty (Liaoning Provincial Institute of Archaeology 2011, 224 + 229). Fragments with décor lack exact parallels but are best comparable to ceramics that are classified as Ding wares from the Song and Jin dynasties.

All in all, the classification of ware 2 as northern Chinese white ware from kiln sites in Hebei, Henan and Shanxi is very coherent. Although it is known that these wares are copied in southern Chinese production sites like Jingdezhen (Pierson 2009, 22; Kerr 2004, 51), this possible origin is unlikely for ware 2 from Karakorum. White wares excavated in Jingdezhen partly are similar in shape to findings of ware 2 (cf. Jiangxi Provincial Institute of Cultural Relics and Archaeology / Jingdezhen Kiln Museum 2007, Color Plate 46, Fig. 3 + 4) but their overall appearance clearly differs from ware 2 which lacks e. g. the bluish tinge in the glaze. This shade of glaze is one of the distinctive criteria between thinly potted white wares from northern and southern Chinese kiln systems (Krahl 2000, 15–16). Therefore, ware 2 correlates in its appearance with the northern Chinese Ding ware described as “[...] porcellaneous ware [which] [...] is characterized by the extreme whiteness and hardness of the body, which may be translucent, and the glassy, transparent, and warm ivory tone of the glaze.” (Medley 1989, 106). Similar definitions are published e. g. in Kerr (2004, 47), Powell (2012, 210) or Sato (1981, 95) and many other treatises on Chinese ceramics. The chemical compositions of Ding ware and technical studies are conducted by Wood (2011, 100–103) and Kerr / Wood (2004, 157–162). Recent excavations at Ding kiln sites are published by e. g. Qin Dashu et al. (2014). A brief overview on this kiln system is provided by Wang Qingzheng (2002, 154–155).

Ding ware belongs to the so-called ‘Five Great Wares of the Song dynasty’ or ‘classic wares’ (see introduction above and Pierson 2009, 20; Medley 1989, 106 or Fang 2005, 58). Depending on the quality, time and production site this ware is used as imperial ware for the court or as an export ware. Several features of this type of ceramic that are datable and assignable to changing production sites are recognizable in the material from Karakorum. First, none of the documented findings of ware 2 is decorated with incised or carved décor. Any décor on ware 2 from Karakorum is molded. This is a technique which is applied on Ding ware from the 12th century on and subsequently supersedes incised décor (Kerr 2004, 49; Wang Qingzheng 2002, 154–155; Medley 1989, 110). Furthermore, unglazed rims on this ware are due to upside-down firing which becomes popular in the late Northern Song dynasty, i. e. in the 13th century (Kerr 2004, 45; Medley 1989, 108–109). The unglazed rim is a commonly mentioned characteristic of Ding wares (cf. Hughes-Stanton / Kerr 1981, 72; Fang 2005, 60). Due to the dating of Karakorum from the 13th and 14th century, the appearance of fragments that are classified as deriving from the Huo kiln fits well into the overall classification of ware 2. The Huo kiln site is partly known as “new Ding” (Hughes-Stanton / Kerr 1981, 102) production site where imitations, resp. successive types, of Ding ware are produced (Wang Qingzheng 2002, 158; Hughes-Stanton / Kerr 1981, 102). In contrast to Ding wares, ceramics later produced at the Huo kiln site are said to be fired with less precision and often having spur marks (Kerr 2004, 51). Both features are documented in ware 2 from Karakorum as well as the typical stem cup shape attributed to the Huo kiln site (see above). Overall, the classification of ware 2 correlates to the classification of thin white glazed ware excavated in Yanjialiang (see above and Ta La et al. 2010, 647). It is a porcellaneous, thinly potted white ware that derives from the northern Chinese provinces of Hebei, Henan and Shanxi.

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Chronological and regional features are recognizable and specifiable in the findings of ware 2. Concerning known Chinese kiln systems parts of this ware are produced at the Ding and the Huo kiln sites in Hebei and Shanxi. In terms of their use, ceramics made of ware 2 can be imperial wares, export wares or domestic wares as all these types are included in the production range (see above). Judging from the shapes and the comparable findings, most of ware 2 from Karakorum is likely to be made for domestic use. Special findings as e. g. ID 1216 with a fine and complex imprinted lion décor (Plate 54, fig. 13) may be interpreted as high quality ware that could be made for imperial use or as luxury goods for an elite.

Ware 3

Designation: Greenish glazed porcellaneous ware with a white body (= ware 3.1.)
a gray body (= ware 3.2.)

Glaze: Greenish

Coat: thin

Body: white, grayish white (= ware 3.1.)
light gray (= ware 3.2.)

Temper: very fine

Hardness: very hard

Average Thickness: thin/ 0,49 cm (= ware 3.1.)
medium/ 0,61 cm (= ware 3.2.)

Structure: slightly translucent

Ware 3 is subdivided into two groups according to varying body colors. As a common feature, it is defined as greenish glazed porcellaneous ware. The outer appearance of this ware is defined as greenish. Parts of the vessel can be unglazed. In this case, a white to light gray body with fine throwing marks is visible. Further traces of production are well visible spur marks on the inside base of many vessels. In a few cases a complete circle is left unglazed on the inside of a vessel (Fig. 6).

Ware 3 is in between white porcellaneous ware (ware 2), white glazed stoneware (ware 11) and greenish glazed stoneware (ware 16). The transition between these wares is fluent. Their greenish tint varies easily on photographs. Depending on the quality of the pictures and the print, some of the differences or equalities cannot be adequately depicted. The separation of the similar wares is carried out according to the defined criteria. Transitional types are sorted into the ware that they resemble the most. The specifics are documented during the material record of the shards in Ulaanbaatar. Therefore, the light conditions for the examination are kept as equal as possible for all fragments. Especially thinly potted fragments of ware 3.1. are related to ware 2 and may belong to the same type of ceramics. Still, they are likely to be produced at a different kiln as the glaze is more greenish. In ware 3.2. there are no thinly potted fragments recorded. Fragments of both types of ware 3 that are thicker in diameter are closer in their appearance to wares 16 and 11. They differ from these wares in terms of their body which is porcellaneous and slightly translucent.

In total, 676 fragments of ware 3 are documented in 591 datasets. Therefore, ware 3 holds a share of 3,19% of all fragments documented (3,61% of the datasets). The vast majority of ware 3 belongs to subgroup 3.1. (= 95,4%) while subgroup 3.2. is exceptional only (4,6%). Hence, the standard of ware 3 is a white to grayish white body while light grayish bodies are uncommon.

Ware 3 – Shapes

The description of shapes in ware 3 relies on findings of subtype 3.1. Concerning subtype 3.2. the only fragments with a determinable shape are seven base fragments that belong to Base Type 1.1. As common in all wares, most of the documented fragments are body shards with a share of 67,8% in ware 3 in total, resp. 67,3% in subtype ware 3.1. by itself.

In ware 3.1. the spectrum of documented shapes includes two complete shapes, six rim types and two base types as well as fragments of one handle and one spout. Lids are not documented

3. 2. Porcellaneous Wares – Wares 2–7

in ware 3 at all. Rim fragments constitute 22,2% and base fragments 8,88% of the findings of ware 3.

Shapes of rims are determined on 150 fragments of ware 3.1. This is a share of 23,3% of the findings of this subtype. Many rims are defined as Rim Type 3, i. e. straight to slightly rounded rims, with a share of 64% of all determinable rims (Plate 6, fig. 2–5). Depending on their specific variant, these rims are assumed to belong to bowls or plates. An example for a bowl with Rim Type 3 is ID 1227 which represents one of the two complete shapes that are documented in ware 3 (Plate 5, fig. 9). The diameters of vessels with Rim Type 3 range from 10–24 cm with an average of 19,5 cm.

The second most common rim type in ware 3 is Rim Type 2.1., i. e. an S-shaped, slightly curved rim, with a share of 24% (Plate 6, fig. 1). This shape is also assumed to belong to bowls or plates. The diameters of vessels with this rim shape range from 18–25 cm with an average of 21 cm.

The more distinctively S-shaped Rim Type 2 is rarely documented on ware 3 and holds a share of 4% only (Plate 5, fig. 12–14). It is not characteristic for ware 3 and more likely to represent transitions to other wares or uncommon kiln sites – possibly even mistakes in classification due to close resemblances with other wares. Vessels with Rim Type 2 range from 15–17 cm in diameter with an average of 16 cm. Typical for ware 3 is a rim which is straight or slightly curved only.

In addition to these shapes, Rim Type 5, N, i. e. straight rims with neck, and Rim Type 5, N + C, i. e. straight rims with a neck and a cordon-like rim, are documented in ware 3.1. (Plate 6, fig. 6–9). Both shapes are associated with pots. The first shape, Rim Type 5, N, is a singular exception in ware 3 and represented with one fragment only (ID 3228). The diameter of this vessel is 9 cm. Both rim shapes together hold a share of 4% in ware 3. On rims of type 5, N + C remains of handles are documented. The diameter on these vessels ranges from 11–14 cm with an average of 13 cm.

The least common rim shape is Rim Type 1, i. a horizontally bent rim, with a share of 2% of all rim shapes. This shape is associated with plates like ID 1207 which is the second complete shape documented in ware 3 (Plate 5, fig. 8). The diameter of vessels with this rim shape is 19 cm.

The base types in ware 3 are very homogenous. About 90% of the bases belong to Base Type 1.1., i. e. hollow footrings (Plate 5, fig. 8–9). The diameters of these footrings measure 4–9 cm with an average of 6,6 cm. Only two fragments are defined as Base Type 1.2., i. e. concave footrings (Plate 6, fig. 10). Both are classified as ware 3.1. The diameter is 4,3 cm. Other base shapes are not documented in ware 3.

Concerning the spectrum of basic shapes that are produced in ware 3, most vessels are bowls (at least 63%), followed by plates (at least 5%) and pots (about 3%). Not all the rim fragments can be assigned with certainty to a specific shape. The distinction between plates and bowls is especially difficult. The fragments of a spout found indicate the existence of pitchers made of ware 3 (Plate 5, fig. 10). Unfortunately, this spout is the only fragment that can be associated with this shape. Pots with Rim Type 5, N + C partly had small handles applied to them which e. g. is useful to pull a rope through. These handles are too small to be used with hands (e. g. Plate 5, fig. 11).

Overall, the clear majority of vessels made of ware 3 is made for eating and drinking (bowls and plates). The rim types used for pots and the pots themselves are specific. These shapes are not characteristic of other porcellaneous wares but commonly associated with stonewares. Therefore, the status of ware 3 is between higher quality (porcellaneous) wares and average (stone)wares. This is reflected in its body characteristics as well as in its shapes. Ware 3 is assumed to be a basic domestic ware of high quality.

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Ware 3 – Décor

Décor is documented on 18,3% of all fragments of ware 3. This includes 115 fragments of ware 3.1. and 9 fragments of ware 3.2. which equals a share of 17,8% in ware 3.1. and a share of 29% in ware 3.2.

The techniques of decoration vary. About 76% of all décor are painted decorations. This includes 67% of all fragments with décor from ware 3.2. In two cases (both ware 3.1.) painted decoration is combined with colored glaze as décor. Colored glaze as décor is applied on ware 3.1. only. This technique appears on 7,3% of all fragments with décor. All the décor made as colored glaze are brown splashes. Painted décor as well as the décor with colored glaze are strongly related to the décor on white glazed stonewares (ware 11) and on greenish glazed stoneware (ware 16). All the motifs are simple and ornamental or leaf designs. Especially the various Leaves Scrolls are similar to those on ware 11 or ware 16 (Plate 55, fig. 4–6). An exception in the painted décor is ID 8440 with a Zig-zag Scroll outside (Plate 55, fig. 3). This motif is singular in Karakorum. The fragment itself hardly fits into any classification but is included in ware 3.2. because its body and glaze features approximately match the criteria. It seems to be an inexpertly made copy of some other ware and can be considered an exceptional stray find in this group.

Apart from techniques of decoration that employ color, there are two further techniques of decoration that are applied solely on ware 3.1. This is carving on 9,7% of the findings and molding on 2,4% of them. The fragments with molded décor are strongly related to white porcellaneous ware (ware 2). The only difference to ware 2 is their glaze which is greenish instead of white. It is assumed that those fragments represent a production site – possibly outside the main production region of ware 2 – where the same ware is produced in a lesser quality (more greenish) than at the other kilns where ware 2 is produced. The same applies to fragment ID 14736 (Plate 55, fig. 7). The décor on this fragment is classified as carved but only very little is preserved and thus the classification is not definite. It shows strong parallels to fragment ID 8438 (Plate 54, fig. 16) that is classified as white porcellaneous ware (ware 2).

Concerning the parallels to other wares, carved décor is the most indigenous décor on ware 3. Partly, this décor seems to be copied on greenish glazed stoneware (ware 16) but it does not attain the same quality as on ware 3. All the carved décor on ware 3 is floral. The most common motif is a lotus (Plate 55, fig. 8–9). It is carved into the body of the vessels. An exception in the décor is fragment ID 13982 of ware 3.2. on which the motif is carved in the glaze (Plate 55, fig. 10). Again, this fragment shows the complications in classifying the ceramics from Karakorum. Its appearance does not correlate with the standard of ware 3. Still, it fits best in this classification. This finding lacks further examples of the same type and thus is included in ware 3 as an exception.

All in all, the décor on ware 3 confirms the impression provided in the description of the shapes: Ware 3 is situated in between higher quality wares (porcellaneous wares) and standard domestic wares (stonewares). Motifs and techniques of decoration from both types of wares are applied on ware 3.

Ware 3 – Signs of Repair

Only one fragment with signs of repair is documented in ware 3. It is fragment ID 15421 which is classified as subtype ware 3.1. and has the shape of Base Type 1.1. The non-piercing drill hole on the break of the fragment is applied on the outside and has a diameter of 2,5 mm. On the inside of the shard three large spur marks are visible. The outside has a surface defect.

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Ware 3 – Marks

There are two fragments of black ink inscriptions documented on findings of ware 3 (Plate 78, fig. 2–3). Neither of them are legible. One is applied on the outside of body fragment ID 1629 that is classified as ware 3.1. The mark appears simple and looks almost like an “M”. On the inside this fragment is painted with brown circular lines as décor. The other ink inscription is applied on base fragment ID 1815 which is classified as ware 3.2. This mark is larger and more complex. Whether it is e. g. phagsba-script or a Chinese character cannot be determined. The fragment itself is of shape Base Type 1.1. and decorated with a carved lotus (Lotus I) on the inside.

Ware 3 – Comparable Findings

The comparison of ware 3 with Chinese ceramics is difficult. The characteristics do not match the features of the common kiln systems. In terms of comparability to contemporaneous sites, this ware does not seem to appear in Yanjialiang. Concerning the city site of Jininglu two vessels are similar to ware 3 from Karakorum. This is a plain plate that is attributed to the Huoxian kiln in Shanxi province (Chen Yongzhi 2004, 163, Fig. 117) and a plate that has the same décor as ID 1227 (Plate 55, fig. 4) but a different shape and is attributed to the Cizhou kiln in Hebei province (Chen Yongzhi 2004, 188, Fig. 133). The latter is dated to the Jin dynasty while the former is dated to the Yuan dynasty. The shape of the painted plate from Jininglu equals the shape of ID 1207 that is decorated with a carved lotus (Plate 55, fig. 8). Large spur marks are visible on any of these samples.

Generally, the painted décor on ware 3 is associated with the Jin dynasty (cf. Yu Yue 2014, 36). Carved flower motifs which are similar to those from Karakorum are also dated to the Jin dynasty (cf. Shi Jinming / Liu Yan 2008, 81 + 112). Molded décor on ware 3 appears only on findings that are strongly related to ware 2 and might share the same origin, i. e. the Ding and/or Huo kiln sites of the Song and Yuan dynasty (cf. Hangzhou Municipal Institute of Cultural Relics and Archaeology 2008, 150, Color Plate 52).

The thesis of a connection of ware 3 with the Jin dynasty and northern Chinese production sites is supported by findings from excavations at the Yingzhou road site, Chaoyang. Comparable vessels from this site are dated to the Jin dynasty and attributed to the Gangwa kiln site in Inner Mongolia. This includes greenish glazed ceramics with carved, molded and painted décor (Liaoning Provincial Institute of Archaeology 2011, 76ff). Literature on the Gangwa kiln is hardly available in western countries. Therefore, a more detailed comparison of ware 3 from Karakorum with products from this kiln site cannot be provided at the present state of research. Still, it is known that e. g. imitations of Ding ware ceramics are produced at the Gangwa kiln (Kessler 2012, 147 with reference to Chinese sources). This correlates to the impression on ware 3 concerning findings with molded and carved décor that are classified as being like ware 2.

Ware 3 – Origin and Interpretation

Ware 3 is neither defined in previous studies on ceramics from Karakorum nor strikingly evident on the depictions in these publications. It is assumed that fragments of this kind are subsumed as so-called Cizhou type ceramics which are produced in Hebei province and surrounding areas. These include white glazed stonewares with a painted décor similar to the décor on ware 3 (cf. the chapter on ware 11 below or i. a. Mino 1980; Ye Zhemin 2009a + b). Still, as shown above, comparable findings to ware 3 indicate an origin in the region of modern day Inner Mongolia. Generally, the distinction of Cizhou wares and other northern Chinese white wares is complicated as many features are similar and the influence of the Cizhou kiln system is strong in this region (Ye Zhemin 2009a, 33–35). Up unto today the popularity of the Cizhou kiln system often results in a cursory classification of white wares with brown painted décor as Cizhou type ceramics. Nevertheless, the body features of ware 3 do not correspond to the stoneware bodies of Cizhou

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and Cizhou type wares. Unfortunately, based on the available literature these characteristics cannot be sufficiently compared with the features of ceramics produced at supposable production sites like the Gangwa kiln in Inner Mongolia. The origin of ware 3 at this kiln site remains an assumption that needs to be proven in future studies.

The décor of this ware is stylistically attributed to the Jin dynasty. This indicates an early dating as well as an origin in northern Chinese regions. Indeed, the amount of ware 3 in Karakorum declines over time. Still, it is documented in all settlement layers.

Overall, ware 3 is classified as a ware with strong influences from northern Chinese regions and dynasties of the time. The Gangwa kiln site in Inner Mongolia is a supposable production site of these ceramics. Concerning the use of this ware, its shapes, its décor and its similarities to the other wares indicate that it is between higher quality wares (porcellaneous wares) and standard domestic wares (stonewares). It is thus assumed to be a basic domestic ware of high quality.

Ware 4

Designation: Pale blue glazed porcellaneous ware with a thin glaze (= ware 4.1.)
a thick glaze (= ware 4.2.)

Glaze: Pale Blue

Coat: thin (= ware 4.1.)
medium (= ware 4.2.)

Body: grayish white, rarely light gray

Temper: very fine

Hardness: very hard

Average Thickness: thin/ 0,46 cm (= ware 4.1.)
thin/ 0,55 cm (= ware 4.2.)

Structure: slightly translucent

Ware 4 is defined as having a porcellaneous body that is grayish white, resp. rarely light gray, in color. Its glaze is pale blue. This ware is divided into two subgroups according to the thickness of its glaze coat. While ware 4.1. has a thinly applied glaze, the glaze of ware 4.2. is medium in its thickness.

Ware 4.2. has parallels to ware 5. Some of the glazes are transitional in their color between pale blue and celadon (green). Especially on photographs it might be difficult to distinguish both colors since they vary with the light conditions in the particular picture (Fig. 13). Due to the conditions given in the archive of Ulaanbaatar some of the glazes may appear greener than they are in reality. Every effort has been made to ensure that the conditions are as similar as possible for the comparison. Still, the print color impressions may be altered which is a general problem in the presentation of the findings. Further parallels to other wares exist between ware 4 and ware 1. Few of the findings of blue-and-white porcelain (ware 1) are partly glazed with a pale blue glaze. This is due to the origin and history of both wares that is outlined below.

In total, 1161 fragments of ware 4 are recorded in 893 datasets. This equals a share of 5,49% of all fragments documented (5,45% of all datasets). Therefore, ware 4 is the major group of porcellaneous wares from Karakorum. About 90% of this ware is defined as ware 4.1. while 10% are defined as ware 4.2.

Ware 4 – Shapes

Generally, the distribution of fragments in ware 4 equals the common scheme in Karakorum: about 67% are body fragments, 22% rim fragments and 9% base fragments. Complete shapes as well as lids, handles and spouts are sporadically found. While handles are documented in ware 4.1. and ware 4.2., lids and spouts are documented in ware 4.1. only. A specialty in the findings of ware 4 is the fragment of a figurine or molded decorative element that belongs to ware 4.2. (Fig. 7).

Concerning the complete shapes, four vessels are documented in ware 4.1. and five in ware 4.2. (Plate 7, fig. 1–6). All of the complete shapes from ware 4.1. are different. One of them is deep

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bowl ID 1796 with a diameter at the mouth of 18 cm, at the base of 6 cm and with a height of 9,8 cm. The rim shape of this bowl belongs to Rim Type 2. Its base is a thickly formed Base Type 1.1. This is the only completely preserved bowl of ware 4.1. Two further findings are deep plates with differing body shapes and bases. This is plate ID 1914 and miniature vessel ID 2712. Plate ID 1914 has a diameter of 15,5 cm at the mouth, 9,5 cm at the base and a height of 3,7 cm. Miniature vessel ID 2712 has a diameter of 5 cm at the mouth, 4 cm at the base and a height of 1,2 cm. The rims of both findings belong to Rim Type 3. The base of ID 1914 is a thickly potted Base Type 1.1. while the base of ID 2712 belongs to Base Type 3. Additionally, the body of miniature vessel ID 2712 has a molded shape while ID 1914 is a plain deep plate. The last complete finding in ware 4.1. is plate ID 11516 with Rim Type 1–2 and Base Type 2.2. The appearance of this plate slightly differs from the other findings. It is exceptional in ware 4. Its diameter at the mouth is 11 cm, at the base 5 cm and the height is 2,1 cm.

Although in ware 4.2. more findings are completely preserved in shape than in ware 4.1., the variety of shapes is lesser. Of the five vessels, three are molded flat bowls with Rim Type 3, C and Base type 2.1. The remaining two vessels are bowls with Rim Type 2, F and a thickly potted Base Type 1.1. Both shapes are quite homogenous. The molded flat bowls range from 11–12 cm in diameter at the mouth and from 8–10 cm in diameter at the base. Their height is between 3,5–3,7 cm. The bowls with a foliated rim range from 12,4–14 cm in diameter at the mouth and 3,8–4,2 cm in diameter at the base. Their height is between 5,5–6 cm. Both bowls are furthermore decorated with the same décor.

As stated above, lids, handles and spouts are exceptional in ware 4. In total, five fragments of handles, two fragments of spouts and one fully preserved lid are documented (Plate 7, fig. 9–12 and Plate 7, fig. 7). Apart from two handles, these fragments belong to subtype ware 4.1. Four of the handles are loop handles with rillings. The fifth is rectangular in shape. None of these findings are attributable to a complete shape. The vessels they derive from cannot be reconstructed from the documented findings.

Shapes of rims are determined on 258 fragments. About 86% of these fragments are classified as subtype ware 4.1. The remaining 14% belong to subtype ware 4.2. This represents a total of 222 rim fragments in ware 4.1. and 36 rim fragments in ware 4.2. Compared to other wares found in Karakorum, the spectrum of rim shapes is high. Most of the shapes are documented in both subtypes of ware 4. Exceptions are Rim Type 3, C and Rim Type 5, N which appear in ware 4.2. only as well as Rim Type 5 B, C which appears in ware 4.1. only. All these shapes are exceptional in ware 4 and belong to distinctive vessel shapes (Plates 7–8).

Concerning rim shapes of ware 4 in general, most common is Rim Type 2, i. e. the S-shaped rim in its plain variant, as well as Rim Type 2, F, i. e. the foliated variant of Rim Type 2 (Plate 7, fig. 1–2 and Plate 7, fig. 14–15). Both types sum up to 66% of the rim shapes found. Individually, each shape holds a share of about 33%, i. e. the division of S-shaped rims with or without a foliated rim is approx. 50:50. The degree of foliation varies. Most common is a small foliation in both subtypes of ware 4. Both rim types are associated with the shape of bowls. The diameters of these vessels range from 8–20 cm with an average of 14,6 cm concerning Rim Type 2. The diameters of vessels with Rim Type 2, F range from 11–20 cm with an average of 13,7 cm. Thus, the variety of sizes is wider on bowls with Rim Type 2. They are furthermore averagely larger than bowls with foliated rims.

The second most common rim type on ware 4 is Rim Type 3, i. e. the straight to slightly rounded rim, with a share of 23% (Plate 8, fig. 1–2). Mostly, it seems to belong to bowls. However, its use on plates is documented as well (Plate 7, fig. 3–4). The specific forming of this rim type varies in ware 4. Depending on the shape of the body, conical or rounded vessels with Rim Type 3 appear. In their majority, vessels with this rim shape have a rounded body. Their diameter ranges from 5–22 cm with an average of 14,9 cm. The smallest diameters are documented on two miniature vessels, one of them being the completely preserved shape ID 2721 described above. The other

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is ID 816 which is assumed to be a miniature bowl. Apart from these two findings all vessels with Rim Type 3 have a diameter of at least 12 cm.

Any rim shape other than Rim Type 2, F or Rim Type 3 is exceptional in the spectrum of shapes of ware 4. About 89% of all rim fragments belong to the shapes listed above. The less common shapes in this ware include Rim Type 1, F with a share of 2% (Plate 7, fig. 13), Rim Type 3, C with another 2% (Plate 7, fig. 6) as well as Rim Type 5, N (Plate 8, fig. 3), Rim Type 5 B, C (Plate 8, fig. 4) and Rim Type 7 (Plate 8, fig. 5–6) with a share of 3% each. About 4% of all rim fragments are not determinable in shape.

Rim Type 1, F is specific for plates with a small foliation. The diameter of these vessels ranges from 11–14 cm with an average of 12,5 cm. Plates with this shape are poorly preserved as any of the documented fragments are quite small. All of them derive from layers that date to the early Yuan dynasty. Rim Type 3, C is documented on molded flat bowls as described in the passage on completely preserved shapes. This rim type is limited to ware 4.2. and this very specific bowl shape. Most of the molded flat bowls are completely preserved. Their diameter ranges from 11–12 cm with an average of 11,3 cm. All of them date to the early Yuan dynasty as well. Rim Type 5, N is also limited to ware 4.2. It appears to be specific for a special kind of ribbed pot with a diameter of 14 cm. The findings date from the mid to late Yuan dynasty. Rim Type 5 B, C is limited to ware 4.1. and attributed to the shape of a bottle with a diameter of 9 cm. Both fragments derive from layers of the late Yuan dynasty. The fragments from Rim Type 7 are attributed to the shape of a bottle or vase and measure 7,5 cm in diameter. They date to the mid-Yuan dynasty.

Just like the spectrum of rim shapes, the spectrum of base shapes is strikingly manifold in ware 4 with slightly more variants in subtype ware 4.1. than in subtype ware 4.2. As in much of the glazed ceramics from Karakorum, Base Type 1.1. is the most common base shape with a share of 67%. The footrings of this base type vary from thinly to thickly potted in ware 4 (Plate 8, fig. 7–10). Thinly potted footrings are limited to subtype ware 4.1. and documented in layers from the Yuan dynasty only. Thickly potted footrings are documented in both subtypes and throughout all layers. About 96% of all footrings are thickly potted while thinly potted footrings appear on only 3% of the bases with Base Type 1.1. The diameters of the footrings on these bases range from 3–9,5 cm with an average of 4,8 cm. Sizes below 4 cm and above 6 cm are exceptional.

The second most common base shape on ware 4 is Base Type 4.2. with a share of 12% (Plate 9, fig. 3). These high pedestal feet are characteristic for stemcups. Their diameter ranges from 3,3–4,5 cm with an average of 3,8 cm. The height of these feet ranges from 3,6–5,5 cm with an average of 4,4 cm. Less common are medium-high pedestal feet of Base Type 4.1. which hold a share of 3% only (Plate 9, fig. 2). The diameter of this type ranges from 2,8–3 cm. It is documented in layers from the Yuan dynasty only.

The range of less common base shapes in ware 4 includes Base Type 1.3. (Plate 8, fig. 11), Base Types 2.1.–2.3. (Plate 7, fig. 5–6 and Plate 8, fig. 12), Base Type 3 (Plate 9, fig. 1) and Base Types 5.1.–5.2. (Plate 9, fig. 4–5). Most often documented is Base Type 3 with a share of 4% of the base shapes in total. It is found on subtype ware 4.1. only. Included in these findings are two miniature vessels. One is the deep plate ID 2721 that is already described above and has a diameter at the base of 4 cm. The other is ID 8806 which is assumed to derive from a miniature bottle and has a diameter of 2,5 cm. In general, bases of Base Type 3 range from 2,5–8 cm in diameter with an average of 4,6 cm and are recorded in Yuan dynasty layers only.

Tripod feet of Base Type 5 hold a share of 3% and are documented in two variants. Base Type 5.1., i. e. applied feet with animal mask design, are recorded on findings of subtype ware 4.1. only. Plain applied feet are documented only once in ware 4 on a fragment of subtype ware 4.2. Both shapes are attributed to incense burners. The diameter of these bases is not definable. They are all found in the upper layers of the excavation and date from the mid to late Yuan dynasty (Plate 9, fig. 5–6).

Concerning the variants of Base Type 2, there are three findings documented with Base Type 2.1. All of these belong to subtype ware 4.2. and the shape of flat bowls like ID 1182 described

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above. Their diameter ranges from 8–10 cm with an average of 8,7 cm. This shape is documented in layers from the early Yuan dynasty only. The finding of Base Type 2.2. is singular in ware 4. This shape is solely documented on the completely preserved plate ID 11516. The diameter of the base is 5 cm. It dates to the late Yuan or early Ming dynasty. Base Type 2.3. is documented on two fragments of subtype ware 4.1. Both are assumed to derive from pots which date to the Yuan dynasty. Their diameters are 7,5 cm and 11 cm.

The last exceptional base shape in ware 4 is Base Type 1.3. which is documented on ID 5804 only. This fragment belongs to subtype ware 4.2. and has a diameter of 3,8 cm. It dates to the late Song or early Yuan dynasty.

Concerning the spectrum of basic shapes that are produced in ware 4, the clear majority of vessels are bowls with a share of about 89% (including stemcups). Even though the other basic shapes hold small shares only in the total distribution, their variety in ware 4 is very broad. It is striking that the variety of shapes widens over time. Still, the most common shapes in ware 4 are documented throughout all excavation layers.

The fragments of a spout (Plate 7, fig. 9) indicate that the basic shape of a pitcher must be added to the variety of shapes in ware 4 as well. The tripod feet of Base Type 5 prove special shapes like incense burners. Therefore, there is evidence for religiously used vessels made of ware 4.

In total, the spectrum of shapes in ware 4 is wider than in many other wares from Karakorum.

Ware 4 – Décor

The share of datasets that include decorated fragments is high in ware 4. With 49,1% the share of décor on subtype ware 4.2. is considerably higher than the share of décor on ware 4.1. which is 26,2% only. In total, about 29% of the datasets of ware 4 include fragments with décor (Plate 56–58).

The applied techniques of decoration vary. About 80% of the décor on subtype ware 4.1. is made by molding. Concerning subtype ware 4.2. the most common technique of decoration is incising with a share of 76%. Vice versa, molding is the second most applied technique on subtype ware 4.2. with a share of 19% and incising is the second most common technique of decoration of subtype ware 4.1. with a share of 16%. Any other techniques of decoration on ware 4 are exceptional and each specific for one subtype only. These include colored glaze (black), underglaze red and polychromous enamel on subtype ware 4.1. and appliqué as well as imprinted décor on subtype ware 4.2.

In both subtypes of ware 4 motifs made as molded décor are predominantly floral. Especially chrysanthemums and peonies, rarely a lotus, are depicted (Plate 56). Additionally, elaborate figural designs like that of a phoenix (Plate 57, fig. 1) and more domestic figural designs like a flying duck (Plate 56, fig. 10) or a pair of fish (Plate 56, fig. 13) appear.

Concerning incised décor, most of the motifs are ornamental (Plate 57). Rarely, floral designs like a peony (Plate 57, fig. 13) or extensive figural designs like fish (Plate 58, fig. 2) appear. Very special is the incised décor on the outside of ID 6839 (Plate 57, fig. 14) which appears to be an Islamic script, resp. being based on Islamic scriptures as décor.

As stated above, three techniques of decoration are specific for findings of subtype ware 4.1. These are black spots on the pale blue glaze (= colored glaze décor), polychromous enamel décor and red underglaze painting (Plate 58, fig. 3–6). The latter mentioned is a stray find only while the other two types each hold a share of 1,8% of the findings with décor in total. The only recognizable motifs are flowers in the polychromous enamel décor. All the datable fragments with special décor derive from Yuan dynasty layers.

Techniques of decoration which are specific for ware 4.2. are imprinted décor and appliqué décor (Plate 58, fig. 7–8). Both of which are documented on stray findings only. The appliqué décor consists of pearl beads. These findings are to be dated to the Yuan dynasty. Recognizable on the

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imprinted décor are tendrils. This fragment derives from a layer that dates to the late Song or early Yuan dynasty.

Overall, the range of motifs on ware 4 is broad. The applied techniques of decoration are widely characteristic for the individual subtypes. Specialties in décor date to the Yuan dynasty for the most part.

Ware 4 – Signs of Repair

In total, 37 fragments with signs of repair are documented in ware 4 which is a share of about 3,2% of all fragments. Most of these belong to subtype ware 4.1. This is 28 fragments, i. e. 2,7%, of ware 4.1. Still, the share of repaired vessels is higher in ware 4.2. The nine documented signs of repair in this subtype represent a share of 7,8% of the fragments.

Apart from few exceptions the signs of repair are non-piercing drill holes on the outside of a vessel with an average diameter of 3 mm. In four cases, the drill holes are piercing. All these findings belong to subtype ware 4.1. (Fig. 8). Their diameter equals those of the non-piercing holes, i. e. 3 mm in average. A striking exception in the signs of repair from Karakorum is ID 15011 where the drill hole appears square (Fig. 8, right). This fragment belongs to subtype ware 4.2.

The number of the signs of repair rises significantly over time. At least 62% of all signs of repair on ware 4 date to the Yuan dynasty. About 8% date to the Song dynasty and the remaining 30% date to the late Song or early Yuan dynasty.

Ware 4 – Marks

There are three fragments with marks documented in ware 4 (Plate 78, fig. 4–6). All the marks are written with black ink and belong to subtype ware 4.1. The share of fragments with marks is 0,34% for ware 4 in total and 0,38% for subtype ware 4.1. They are found in layers that date to the Yuan dynasty. Only one of these marks is decipherable. This is ID 1258.

The character written on this fragment is clearly neither Chinese nor Mongol script. In a first report on inscriptions on pottery from Karakorum, the same mark is documented on a different fragment. This is ID 1281 of the black glazed ware 28 that is described below. In this case the mark is interpreted as ‘phags-pa signum with a terminus postquem of 1268 (Nagel 2002, 99).

Concerning the mark on ID 1258 in ware 4.1. it is slightly different than other ‘phags-pa characters that are e. g. documented in the findings from Yanjialiang. Only one of these marks is similar in appearance to ID 1258 (cf. Ta La et al. 2010, Color Plate 277, Fig. 5). Another possible interpretation of this mark is the Tibetan character “*gra*” (གྲ). According to several dictionaries this is the name of an ancient Tibetan clan (Das 1979, 237; Goldstein 2001, 196; Krang-dbyi-sun 1999, 387). It could also be interpreted as a slightly misspelled abbreviation of a Tibetan word for “monk” (Tib. *grva-pa*, གྲ་པ; cf. Jäschke 1965, 75).

In any case, the mark on ID 1258 reflects cultural influences which are other than Chinese. This is striking as most of the decipherable marks on ceramics from Karakorum are Chinese characters.

Ware 4 – Comparable Findings

Many of the findings of ware 4 from Karakorum are easily comparable. Concerning vessels from the coexistent city site of Jininglu, Inner Mongolia, similar findings are attributed to the Jingdezhen kiln system in modern day Jiangxi province. This classification includes vessels with incised décor and a so-called ‘青白’ (*qingbai*) glaze as well as vessels with a molded décor and a so-called ‘卵白’ (*luanbai*) glaze (Chen Yongzhi 2004, 13ff). Both glazes are very similar in appearance and hardly distinguishable from pictures only. The term ‘*qingbai*’ is to be translated

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as 'bluish white' or 'greenish white' while '*luanbai*' translates as 'egg-white'. The main criterion for distinguishing these glazes is that *qingbai* glaze is transparent while *luanbai* glaze is opaque. Archaeometric studies on these glazes are e. g. conducted by Ming Chaofang et al. (2014). Both glazes may appear in ceramics defined as '*qingbai* ware'. Furthermore additional terms like '*yingqing*' (shadow blue) are used for the same kind of glaze (Peng Shifan 1998, 30). In respect to the comparability of findings from Jininglu to findings from Karakorum, the incised lotus design on the bowls with *qingbai* glaze from Jininglu is not documented in ware 4 from Karakorum. Still, the figure of a lion with *qingbai* glaze is stylistically comparable to the figurine fragment ID 1223 (cf. Chen Yongzhi 2004, 22–23). A comparable lion has been previously found in Karakorum (Erdenebat / Pohl 2009, 141, Fig. 18.7). Unfortunately, this finding has not been available during in the material record for the present study. It is highly interesting as similar lions are documented in both the known contemporaneous city sites, i. e. both Jininglu as well as Yanjialiang (Chen Yongzhi 2004, 22–23; Ta La et al. 2010, 487). Concerning further parallels to the spectrum of findings from Jininglu, best comparable are vessels with a *luanbai* glaze and a molded flower décor (cf. Chen Yongzhi 2004, 30 and ID 1796 on Plate 7, fig. 1) as well as bowls with a *luanbai* glaze and a foliated rim (cf. Chen Yongzhi 2004, 33 ff and ID 1200 on Plate 7, fig. 15). As a striking difference, none of the findings from Karakorum is as white in color as some of the plates with *luanbai* glaze published from Jininglu (Chen Yongzhi 2004, 53).

Regarding the site of Yanjialiang, again, vessels classified as being glazed with *qingbai* or *luanbai* glaze are comparable to ware 4 from Karakorum. The incised décor on findings with *qingbai* glaze is more similar to the motifs from Karakorum than to the motifs from Jininglu. Especially the peony on ID 9679 (Plate 57, fig. 13) is very similar to those from Yanjialiang (cf. Ta La et al. 2010, 481, Fig. 497 + Color Plate 188). In contrast, molded décor on vessels with *luanbai* glaze is less comparable. Motifs like a plain flower as on ID 13701 (Plate 56, fig. 6; cf. Ta La et al. 2010, 489, Fig. 504, 1), flowerily tendrils as on ID 5119 (Plate 56, fig. 3; cf. Ta La et al. 2010, 489, Fig. 504, 4 and 490, Fig. 505, 1 + 2) or shapes like foliated rims as on ID 1200 (Plate 7, fig. 15; cf. Ta La et al. 2010, 490, Fig. 505, 3 + 4 and Color Plate 190, 2) are similar but more complex in Yanjialiang than they are in Karakorum. Additionally, bowls from Karakorum have a rounded body. Edgy shapes as in Jininglu and Yanjialiang (cf. Chen Yongzhi 2004, 26f; Ta La et al. 2010, 490, Fig. 505, 1 + 2 and Color Plate 191, 1) are not verifiable in the currently documented ceramics from Karakorum.

Overall, findings of ware 4 are comparable to vessels with *qingbai* and *luanbai* glaze found in Jininglu and Yanjialiang. Still, many motifs are documented in Karakorum only. This includes e. g. molded motifs like the phoenix on ID 788, a flying duck on ID 6223 or a peony with key fret scroll on ID 11407 as well as incised motifs like the fish on ID 1880 (Plate 56–58). Furthermore, techniques of decoration like colored glaze, polychromous enamel or appliqué on bowls are documented neither in Jininglu nor in Yanjialiang.

The impression that arises from comparing ware 4 with findings and classifications from Jininglu and Yanjialiang is consistent throughout further comparisons. Many of the findings of ware 4 from Karakorum are comparable to ceramics that are classified as having a *qingbai* or *luanbai* glaze and deriving from the Jingdezhen kiln system. This includes e. g. a further lion figure and bowls with molded flower décor from the Yuan Tuchengzi city site in Inner Mongolia as well as bowls with a foliated rim and stemcups from the same site (Ta La / Chen Yongzhi 2008, 170–171 + 174 + 178). Furthermore, findings from excavations at the Hutian kiln site of the Jingdezhen kiln system are comparable to those from Karakorum concerning their glaze and body although their shape and décor often differs (cf. Jiangxi Provincial Institute of Cultural Relics and Archaeology / Jingdezhen Kiln Museum 2007, esp. vol. 2 (Color Plates)). Concerning compilations of Chinese ceramics, most of the comparable findings are classified as '*Qingbai*' ware (Medley 1989, 164ff; He Li 1996, 143 + Color Plates 365ff; Kerr 2004, 96ff) or '*Yingqing*' ware (Li Zhiyan 1996, 114f). The term '*luanbai*' is rather uncommon in European literature of the subject. This glaze is considered transitional between the transparent bluish *qingbai* glaze and an opaque white *shufu*

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glaze (Medley 1989, 172–176). The latter is not documented in Karakorum. All these glazes are attributed to Southern Chinese ceramics of the Jingdezhen kiln system during the Song and Yuan dynasties. As ware 4 from Karakorum in general is strongly comparable with pale blue glazed ceramics attributed to the Jingdezhen kiln system, it is striking that the spectrum of motifs on this ware often differs from known findings. Although vessels with e. g. molded key fret décor and birds are known from Yuan dynasty findings in Jiangxi province, the décor and partly the shapes of these vessels differ from those found in Karakorum (cf. e. g. ID 788 on Plate 57, fig. 1, and Cao Guoqing 2008, 138 + 139). Special features in ware 4 from Karakorum are furthermore all of the exceptional techniques of decoration in this ware. Black spots as e. g. documented on ID 2671 (Plate 58, fig. 5) are commonly associated with Southern Chinese ceramics that are produced for the taste of the South-East Asian export market. Many of them are found in the Philippines (cf. Crick 2010, 190 + 206–207; Wiesner 1977, 157–163). Other comparable vessels are included in ship cargo as e. g. in the Sinan shipwreck (cf. Shen Qionghua 2012, 70f). They are generally classified as *qingbai* or Jingdezhen ware with black spots. Red underglaze paintings as on ID 7271 (Plate 58, fig. 6) derive from a technological development in Jingdezhen ceramics that is likely to appear in the very beginning of the 14th century, before the development of blue-and-white porcelain started (Crick 2010, 211; Medley 1976). Findings of copper red *qingbai* ware are comparatively rare. Apparently, this style never became common. The fragment from Karakorum is a surface finding and likely to date to the late 14th century. Most striking concerning their décor are fragments ID 6270, ID 7361 and ID 8203 with polychromous enamel (Plate 58, fig. 3–4). Only few findings with this unique technique of decoration are known. One is a bowl from the Chengbuzi city site in Inner Mongolia that is dated Jin to Yuan (Kessler 2012, Color Plate 67 + 122ff, resp. 134f on the site itself). Another bowl is classified as ‘Jingdezhen enamelware’ and published in a compilation of South-East Asian ceramics (Miksic 2009, 151, Fig. 1b). The enamel décor on a third bowl is far better preserved than on the other samples but differs in style. This piece is part of the ceramic collection of the Shanghai Museum and classified as Yuan bowl with *luanbai* glaze (Shenzhen Museum, 37, Fig. 93).

Special but better known and better comparable is appliqué décor on ceramics with a *qingbai* glaze. Pearl beads are documented on two fragments from Karakorum. As the décor on fragment ID 15505 is applied on both sides, this fragment is assumed to derive from a bowl (Plate 58, fig. 8). Fragment ID 5162 appears to be part of a stem cup foot. Concerning published findings from collections and excavations, many of the objects with applied pearl bead décor are figurines or vases (cf. Carswell 2000, 171, Plate 200; Ye Peilan 1998, 232). However, there are known samples of stemcups with this décor. All of which are dated to the Yuan dynasty (Ye Peilan 1998, 243, Fig. 416 + 417; Carswell 2000, 172 + 201; Medley 1974, monochrome plates, Fig. 8A + 8B). Especially interesting is a bowl that is excavated from a Yuan dynasty tomb in Datong, Shanxi. According to an inscription this tomb is built in the year 1298 (Datong Museum 1993, 21). A stem cup of the same style is also included in the cargo of the Sinan shipwreck (Shen Qionghua 2012, 112). In general, *qingbai* glazed ceramics with applied pearl bead décor are assumed to imitate metalwork and are dated from 1298/99 on (Crick 2010, 172 + 184; Carswell 2000, 171). This special kind of décor is stated as being a “uniquely southern element of decoration” (Medley 1974, 10) on Chinese ceramics in the Yuan dynasty. The appearance of such findings in the northern margin of the Yuan Empire is thus highly interesting.

Apart from the stem cup depicted above, the cargo of the Sinan shipwreck included further ceramics that are well comparable to ware 4. This ship sank in the year 1323 en route from China to Japan (Shen Qionghua 2012, 18). Comparable findings to ware 4 in the cargo are e. g. miniature vessels, vessels with black spots, an incense burner with feet in animal mask design and a deep bowl. All are attributed to the Jingdezhen kiln system (Shen Qionghua 2012, 66ff, 70, 81 + 185). Interesting is furthermore an ewer with a dragon-shaped handle (Shen Qionghua 2012, 100). The fragments of figurine ID 1223 are similar to this dragon and could possibly derive from a similar handle. Furthermore, different ewers with dragon-shaped handles have been found

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in a tomb in Hualongqiao, Chongqing city or are part of the Palace Museum collection in Beijing (Huang Daoqin 2008, 220; Ye Peilan 1998, 237, Fig. 394). Both are dated to the Yuan dynasty and their glaze is classified as *qingbai*.

As stated above, most of the findings of ware 4 are comparable to ceramics with a *qingbai* or *luanbai* glaze and attributed to the Jingdezhen kiln system. Still, this is not the only connection to possible production sites of ware 4. The thick transparent glaze on subtype ware 4.2. could also be classified as celadon glaze that is attributed to the Longquan kiln system in modern day Zhejiang (cf. Shen Qionghua 2012, 85, 116 + 154). Less common for this glaze is furthermore a classification as ‘*yuebai*’ (‘moon blue’) glaze from Yaozhou wares of the Jin dynasty (cf. Yu Ping 2008, 63). However, the bodies of both wares are generally described as gray while the findings from Karakorum have a grayish white body. Most striking in the research on the origin of findings from subtype ware 4.2. is the shape of a molded flat bowl as e. g. ID 1182 (Plate 7, fig. 6). In total, four such bowls are documented in Karakorum. These findings are thickly glazed with a transparent pale blue glaze and classified as ware 4.2. (Fig. 9). Their shape is highly specific. It belongs to a Chinese scholar’s accoutrements of the Song and Yuan dynasty and is homogeneously defined as so-called ‘sugarcane-sectioned (brush) washer’. In his Dictionary of Chinese Ceramics Wang Qingzheng (2002) describes these vessels as follows:

“sugarcane-sectioned washer, zhe duan xi (蔗段洗)

The name of this washer was first mentioned in Zhang Wu Zhi (Records of Superfluous Things) by the Ming connoisseur Wen Zhenheng and was popular during the Song and Yuan dynasties. This type of brush washer was fired in Jingdezhen covered in a bluish white (*qing bai*) glaze or Longquan coated with celadon glaze. The wall of the washer was modeled as if it was a horizontal row of sections of sugarcane. Imitations were made during the Qing dynasty.” (90)

Judging from this, the washers found in Karakorum are attributable to Jingdezhen ware with a *qingbai* glaze. Nevertheless, findings of sugarcane-sectioned washers with such classification are very limited. One sample from a study collection on *qingbai* wares may be defined as such (Pierson 2002a, 15, Fig. A, upper left). Generally, these washers are classified as celadon from the Longquan kiln system. This includes e. g. washers from the Yuan dynasty city sites of Jininglu and Yanjialiang in Inner Mongolia (Chen Yongzhi 2004, 87; Ta La et al. 2010, 501, Fig. 514), washers from various Song dynasty sites in Lin’an, Zhejiang province (Hangzhou Municipal Institute of Cultural Relics and Archaeology 2007, 49, fig. 35 + 82, Fig. 62, 1; Hangzhou Municipal Institute of Cultural Relics and Archaeology 2013, 154, 177), a washer from a Yuan storage site in Ningbo, Zhejiang province (Ningbo Municipal Institute of Cultural Relics and Archaeology 2013, Color Plate 82, Fig. 6), a washer dated to the Yuan dynasty from an excavated road in Liaoning province (Liaoning Provincial Institute of Archaeology 2011, 51) or further washers from the Yuan dynasty excavated in Inner Mongolia (Ta La / Chen Yongzhi 2008, 143), Shaanxi (Liu Yunhui et al. 2008, 208) and Shandong (Xie Zhixiu et al. 2008, 179). Additionally, a sugarcane-sectioned washer is excavated from a tomb of a member of the feudal aristocracy of the Yuan dynasty (Beijing Institute of Cultural Relics 1986, 100, Fig. 6, 10). Therefore, basically all comparable findings to this shape are washers that are dated to the Yuan dynasty and classified as celadon from the Longquan kiln system. The washer fragments from Karakorum derive from the middle to lower layers of the excavation and are to be dated into the late Song or early Yuan dynasty, i. e. to about the end of the 13th century.

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Ware 4 – Origin and Interpretation

Ware 4 is classified in all the previous studies on ceramics from Karakorum. The variations of these classifications reflect the problems in terminology which are already obvious from the chapter on the comparable findings. Evtiukhova categorizes these findings as deriving from the Jingdezhen kiln system and being of type '*qing yao*'/'*qing bai*' and '*ying ting*' (Evtiukhova 1965, 246–247). Both terms actually describe the same glaze (Niklès 2002, 234; Peng Shifan 1998, 30). Elikhina defines a Jingdezhen type including “vessels with floral or meander ornament executed with thin needle” (Elikhina 2010, 45) and adds fragments with a pale blue glaze separately as '*Ying ting*' type (Elikhina 2010, 45), resp. she describes '*Qinbai*' vessels (Elikhina 2014, 59). Additionally, she adds a '*Ru yao*' type that is defined as “blue or green-glazed vessels with a floral relief” (Elikhina 2010, 45). These ceramics are included in the range of ware 4 though the last is classified as ware 5 whether its glaze is green. Meitoku / Ochir (2007) include this ware in the spectrum of ceramics from Jingdezhen and differentiate between “underglaze red ware, egg-white glaze (*luanbai*) ware, and *ying qing* ware porcelains” (iii). Janssen-Kim (2005, 186) defines it as so-called *qingbai* type which is primarily produced in the Jingdezhen kilns and claims that this ware is the most common in Karakorum.

The central theme in any of these classifications is an origin in the Jingdezhen kiln system while the central problem is a homogenous definition. This is due to various reasons. First, ware 4 from Karakorum is not a homogenous ware. It is a ceramic group that is comprised of very closely related wares with equal body features and strongly related glazes. The origin of this ware in or around the Jingdezhen kiln system in the modern-day Jiangxi province is determinable based on its body, which is specific for ceramics from southern China and especially the Jiangxi region (cf. Pierson 2002a, 15; Chen Baiquan 1993, 14; Kerr / Wood 2004, 49). This body is whiter in color than that of other porcellaneous wares of the time. Changing body recipes in the ceramics from Jingdezhen lead to the appearance of rusty or apricot-colored unglazed bases (Wood 2011, 58f). This phenomenon is documented in the spectrum of ware 4 from Karakorum (Fig. 10). According to the developments in Jingdezhen it is related to findings of the 14th century. Slightly orange colors on unglazed bases are documented in earlier excavation layers as well. Strongly colored bases are limited to layers that date to the 14th century. Whitish bases are documented throughout all layers though their number decreases over time.

In addition to the body features, the glaze features of ware 4 indicate an origin in the Jingdezhen kiln system, resp. southern China, as well. As stated above, different glazes are applied on this ware. Judging from the comparison of ware 4 with classified Chinese ceramics one might distinguish between a transparent bluish *qingbai* glaze, an opaque bluish *luanbai* glaze and a thick bluish celadon glaze. Although these glazes differ in composition, all of them are characteristic for southern Chinese wares and known to be produced in the Jingdezhen kiln system (Ming Chaofang et al. 2014; Wood 2011, 47ff). Therefore, their distinction is irrelevant for the correlation of ware 4 with a production region. Without chemical analysis or the like, a more precise attribution of the findings from Karakorum to e. g. one of the more than 136 known kiln sites in the Jingdezhen area (Scott 2002, 6; Chen Baiquan 1993, 17) or a kiln site close by where copies are produced (Pierson 2002a, 17) is not possible. Judging from macroscopically determinable features, ware 4 is to be classified as a product that is inter alia produced at kiln sites of the Jingdezhen kiln system, Jiangxi province. Additional production sites in the southern Chinese region are supposable.

The correlation of ware 4 with classifications of Chinese ceramics is partly problematic. Although a general attribution to the Jingdezhen kiln system or sites copying Jingdezhen wares is possible, a more specific classification in the range of these wares is complicated. Most commonly, comparable ceramics are classified as *Qingbai* wares (Pierson 2002; Peng Shifan 1998; Medley 1989, 171ff; Li Zhiyan 1996, 114ff; Kerr 2004, 96ff) which corresponds to most of the previous classifications of the ceramics from Karakorum (see above). The problem is that this classification

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partly – but not necessarily – excludes findings with the opaque *luanbai* glaze. The degree to which both glaze types are intermingled in classifications of Chinese ceramics varies and the extent of the intermixture is often unpredictable. Even though it is known that there is a difference between the transparent *qingbai* glaze and the opaque *luanbai* glaze, their relation is close and both partly get subsumed as ‘transitional white’ (Medley 1989, 172). Especially the *luanbai* glaze is considered being a transitional glaze from transparent blue to opaque white (*‘shufu’*). Concerning the major treatise on Chinese glazes in western literature, only glazes classified as *‘yingqing’* (resp. *qingbai*) and *‘shufu’* are analyzed (Wood 2011, 54ff + 60f). Findings with a white glaze that can be described as *shufu* glaze are not known from Karakorum, though sometimes ceramics with a *luanbai* glaze are classified as *shufu* ware (Scott 1989, 52). However, this is no general rule. Because of these classifications, most of the findings from Karakorum with an opaque pale blue glaze are neither comparable to *Qingbai* ware nor to *Shufu* ware. A classification of *Luanbai* ware is not common in western literature. These classifications are related to developments in the ceramic production and not to the origin of the ceramics. Therefore, a further distinction of ware 4 according to glazes is recommended only for a detailed research on innovations in pale blue glazed ceramics from southern China. As a general rule, the glaze on vessels with an incised décor is of *qingbai* type. Vessels of subtype ware 4.1. with a molded décor are more likely to be glazed with a *luanbai* glaze than a *qingbai* glaze. The glaze on subtype ware 4.2. is a *qingbai* type that is transitional to celadon.

As stated in the chapter on comparable findings to ware 4, much of this type of ceramics is produced for the export market and thus widely distributed (cf. Scott 2002, 10–11). Few findings from Karakorum belong to vessels that are assumed to be explicitly produced for trade with South East Asia. This relates specifically to fragments with black spots which are characteristic import ceramics on the Philippines (Crick 2010, 190 + 206–207; Wiesner 1977, 157–163). An additional peculiarity on ware 4 is the broad range of shapes that includes a scholar’s accoutrements like the brush washer ID 1182 and vessels for religious use as the incense burner with tripod feet ID 1195. Furthermore, miniature vessels (e. g. ID 2721) and figural shapes (ID 1223) are documented. A partly imperial use of ware 4 is implied by the motif of a phoenix on ID 788 as ceramics with such a motif are exclusively produced for the court (Kerr / Wood 2004, 202). Overall, ware 4 is a high-class ware of the time which is widely distributed and includes products for domestic use (e. g. simple bowls), the export market (e. g. vessels with black spots), official use (e. g. brush washers for writing), religious use (e. g. incense burners) and imperial use (e. g. phoenix décor). Detailed studies on this ware in the context of the analysis of features and stratigraphy as well as in comparison with further excavation sites in Karakorum are desirable.

Ware 5

Designation: Celadon

Glaze: Celadon

Coat: thin to medium

Body: light gray to dark gray,
partly brick-red

Temper: very fine

Hardness: very hard

Average Thickness: thin/ 0,57 cm

Structure: slightly translucent

Ware 5 is defined as having a porcellaneous body that is light gray to dark gray in color. Unglazed body parts may turn brick-red during the firing. Its glaze is mostly applied in a medium thickness. The glaze color is best described as being celadon (green), i. e. consisting of a range of green to bluish-green colors. The color impression is dependent on the color of the body, firing conditions of the glaze and light conditions when examining it. Especially on the photographs

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some fragments may appear bluer than they appeared in reality, which underlines given relations between ware 4 (subtype ware 4.2.) and ware 5 (Fig. 13).

In total, 1057 fragments of ware 5 are recorded in 871 datasets. Therefore, ware 5 holds a share of about 5% of all fragments documented (5,3% of the datasets). This share is almost as high as that of ware 4 which is the largest group in the category of porcellaneous wares. Both wares together comprise about two thirds of all porcellaneous ceramics from Karakorum.

Ware 5 – Shapes

Concerning the spectrum of fragments, comparatively many complete shapes are documented in ware 5 (Plate 9, fig. 6–10 and Plate 10, fig. 1 + 3). This is about 2% of all fragments. The general distribution equals the common scheme in Karakorum with a majority of body fragments documented (58%) and almost three times as many rim fragments (29%) as base fragments (11%). There are no lids recorded. Handles and spouts appear exceptionally only with one fragment each.

Apart from one exception the entire 17 vessels with fully preserved shapes are bowls. These are subdivided into two tripods, eight bowls and six flat bowls. The last complete shape is a large plate. Both tripods are incense burners with an exceptional gorged rim and Base Type 5.2. Their shape is uniform with a diameter of 13 cm at the mouth, 11 cm at the base and a height of 5,5 cm. The shape of the bowls is almost uniform as well. All the bases belong to Base Type 1.1. and range from 5–7,3 cm in diameter with an average of 6,5 cm. Concerning the rim shapes seven out of eight are defined as Rim Type 2. The diameter ranges from 16–20 cm with an average of 17,9 cm. The last documented rim shape on bowls of ware 5 is the foliated variant Rim Type 2, F with a diameter of 16,7 cm. The shapes of the flat bowls are very similar to those of the bowls and differ in the proportions only. Again, all bases are of Base Type 1.1. Their diameters are slightly smaller and range from 4,8–6,3 cm with an average of 5,9 cm. Three out of the six vessels have a rim that is defined as Rim Type 2. The diameter on this shape ranges from 11,5–17 cm with an average of 14,8 cm. The rim of a single flat bowl belongs to the foliated variant Rim Type 2, F with a diameter of 17 cm. In total, these flat bowls are smaller in diameter, height and proportions than the bowls but generally of the same shape. This is different on the remaining two flat bowls that are completely preserved. These are comparable concerning their bases as both belong to Base Type 1.1. Their diameter is smaller and ranges from 4,8–5,5 cm with an average of 5,2 cm. The rims of these flat bowls are different and belong to Rim Type 1, i. e. a horizontally bent rim. The diameter on both vessels is the same and measures 12,5 cm. Judging from the position of the findings in the stratigraphy it is indicated that the proportions of bowls shrink over time, i. e. all the completely preserved bowls date to the 13th century while all but one flat bowl date to the 14th century. The only documented plate in the spectrum of completely preserved vessels differs completely from the other shapes (Plate 10, fig. 1). Its rim belongs to Rim Type 3 and the base is of Base Type 3. The diameter of this plate is exceptionally large. It measures 20,5 cm at the mouth and 14 cm at the base. This plate is exceptional in other terms as well as its rim is left unglazed and an extensive peony décor is incised on the outside on the base (Plate 63, fig. 1).

Shapes of rims are determined on 303 fragments. Therefore, the number of documented rim fragments in ware 5 is even higher than that of ware 4 which holds the highest share of recorded porcellaneous fragments. Both wares share the common feature of having a broad spectrum of shapes. Furthermore, the most common rim shape is the same on both wares: Rim Type 2. Concerning ware 5 the striking majority of 71% of all rim fragments belongs to this type (Plate 9, fig. 7–8). The diameter of vessels with this rim shape has a wide range that measures from 11,5–25 cm with an average of 17,6 cm. All of them are assumed to be bowls or flat bowls. In addition to rims with Rim Type 2, another 5% of all rim fragments belong to the foliated variant Rim Type 2, F (Plate 9, fig. 9–10). The diameter of these vessels ranges from 13–22 cm with an average of 16,5 cm. Judging from the completely preserved shapes, all these fragments are assumed to

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derive from bowls and flat bowls. The foliation itself is simple and broad in Rim Type 2, F on ware 5.

The second most common rim type is Rim Type 3 with a share of about 9% (Plate 11, fig. 1–4). The diameter of vessels with this rim shape ranges from 12–20,5 cm with an average of 16,3 cm. The completely preserved plate ID 2170 with Rim Type 3 is an exception in this group with the largest diameter and an unusually straight and pointed rim compared to the other findings. In general, this rim shape is assumed to be used for bowls and flat bowls made of ware 5. The foliated variant of this shape, i. e. Rim Type 3, F, is documented on two fragments only (Plate 11, fig. 5). The foliation on these findings is simple and small and the shape is most likely a bowl. The only determinable diameter on the fragments with this rim shape is 20 cm.

The third most common type in the spectrum of rim shapes on ware 5 is Rim Type 1 with a share of 7%. Generally, this rim shape is attributed to plates. Concerning ware 5 all but two findings belong to the shape of a flat bowl like the completely preserved ID 1897 (Plate 9, fig. 6). The diameters on these flat bowls range from 11–15 cm. Apart from the smallest and the largest diameter which are exceptions, the diameters are very homogenous and measure from 12–13 cm with an average of 12,6 cm. The two exceptional shapes in Rim Type 1 on ware 5 are gorged rims that derive from a large flat bowl or plate with a diameter of 20 cm (Plate 10, fig. 7). It is striking that all the findings with Rim Type 1 date to the 14th century. Furthermore, fragments of a bowl with massive production defects are documented in this shape (Fig. 11).

In addition to plain horizontally bent rims the foliated variant Rim Type 1, F is documented in ware 5 with a share of 2% of all rim fragments. Foliations on this shape are recorded in ware 4 and ware 5 only. As a special characteristic, the foliation on ware 5 can be simple or complex (Plate 10, fig. 6–7). The share of simple foliations is 70% and complex foliations hold a share of 30% of fragments with Rim Type 1, F. Both variations are assumed to belong to shapes of flat bowls or plates. Vessels with a simple foliation measure 10–13 cm in diameter with an average of 12,3 cm. In contrast, vessels with complex foliation are much larger and range from 17–28 cm in diameter with an average of 22,5 cm (Plate 10, fig. 7). Shapes with a simple foliation appear to date before the shapes with complex foliation but both types are found in layers of the Yuan dynasty, i. e. 14th century. A complex foliation as on ID 1857 depicted above is documented in ware 5 only and does not appear on any other glazed ceramics found in Karakorum.

Any other rim shape than those described above is exceptional in ware 5. The most common in the spectrum of exceptional shapes is a straight and gorged rim that is attributed to incense burners as the completely preserved ID 1241 (Plate 10, fig. 3). About 3% of all rim fragments belong to this shape. It is documented in ware 5 only and not common to any other ware found in Karakorum. The diameter of these incense burners is very homogenous and measures 12–13 cm. Apart from these rims there are four stray findings with a special shape each. This is ID 7342 that most likely derives from an incense burner with Rim Type 4 and has a diameter of 12 cm (Plate 11, fig. 6); ID 1406, a small pot with Rim Type 5, N and a non-definable diameter (Plate 11, fig. 7); ID 11377, a pot with Rim Type 6.2. and a diameter of 18 cm (Plate 11, fig. 8); and ID 2145 that is assumed to be a flower pot with a diameter of 12 cm (Plate 11, fig. 9). The latter interpretation derives from comparable vessels with the same shape from the shipwreck of Sinan that are described as flower pot, resp. pot (Bureau of Cultural Properties, Ministry of Culture and Information 1985, 52, Plate 40, Fig. 58; Shen Qionghua 2012, 158–159).

The variety of base shapes on ware 5 is comparatively manifold. Still, the clear majority of base fragments is defined as Base Type 1.1. which holds a share of 82% (Plate 9, fig. 7–10). The footing of these bases measure 3–12 cm in diameter with an average of 6,4 cm. Most range from 4–7 cm in diameter. Anything below or above this range is uncommon. One exception is potted as thickly as some of the bases of ware 4 (Plate 11, fig. 10).

Basically, all shapes apart from Base Type 1.1. are exceptional in ware 5. The highest shares in this spectrum reach Base Type 2.3. (Plate 12, fig. 1), Base Type 4.2. (Plate 12, fig. 2–5) and Base Type 5.2. (Plate 10, fig. 3) with 3% each. Base Type 2.3. is specific for the shape of a

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ribbed pot and does not appear on bodies without a molded ribbing outside. These bases measure 10–13 cm in diameter with an average of 11 cm. Interestingly, neither rims belonging to this pot shape nor fragments of a lid that belongs to the same shape are documented in Karakorum (cf. Bureau of Cultural Properties, Ministry of Culture and Information 1985, 42, Plate 30, Fig. 37 for such a pot incl. a lid). Base Type 5.2. is defined as being plain tripod feet that belong to the shape of an incense burner with a diameter at the base of 11 cm. Base Type 4.2. consists of stem cup-feet that vary in height and shape. All the findings of this type are different in ware 5. Their diameters range from 3,5–8 cm and their height varies between 2,8–5,8 cm. Findings of Base Type 4.2. which date to the 13th century are smaller than findings from the 14th century.

Another exceptional base shape in ware 5 is Base Type 2.1. with a share of 2% only (Plate 11, fig. 13). The diameters of these bases measure 8–15 cm with an average of 11,3 cm. This base type is not attributable to a vessel shape. Any other base shape on ware 5 is documented on single findings only. This is Base Type 1.3. on ID 10710 (Plate 11, fig. 11), Base Type 1.1.–2.1. on ID 2916 which appears to be an incense burner (Plate 11, fig. 12) and Base Type 3 on the completely preserved plate ID 2170 described above (Plate 10, fig. 1).

Overall, the spectrum of shapes in ware 5 is strongly dominated by bowls and flat bowls. It is estimated that about 90% of the vessels in this ware belong to this shape. Pots appear only rarely with about 5% and pitchers are documented with the single find of a spout only. Striking is the high amount of incense burners with about 4%. This indicates a partly religious use of ware 5 that is documented in its décor as well.

Ware 5 – Décor

The share of findings with décor is exceptionally high in ware 5. It amounts to 50,52% of the recorded fragments. All the décor is applied on the unfired body and covered with glaze (Plate 58–64). The techniques used are incising, imprinting and molding. Incised decorations are often used for simple décor on the outside and can be combined with imprinted or molded décor. Concerning the statistics on the applied techniques of decoration, the technique used for the main motif is deciding whether or not more than one technique is documented on a finding. The most commonly used technique is incising with a share of 73% of the fragments with décor. Another 18% are decorated by molding. The least common method is imprinting with a share of 8%. Additionally, a few fragments have an unglazed circle on the inside base that could be a decorative element (cut glazed), a simple spur mark or both simultaneously.

Incised décor on ware 5 is highly ornamental and consists almost exclusively of stylized motifs in various line designs (Plate 61–62). Concerning incised décor on the outside of vessels, all motifs are abstract designs with simple and/or combed lines that partly resemble stylized leaves. The only exception is the completely preserved plate ID 2170 that is decorated with an extensive peony design on the outside base (Plate 63, fig. 1). This finding is special in general and does not represent the standard. Pertaining to incised décor on the inside on vessels of ware 5, most of it is ornamental lines and stylized designs as well. However, there is a clear focus on the motif of a floral design scroll (Plate 61, fig. 2). Almost 50% of the findings with incised décor are decorated with a variant of a floral design scroll on the inside. Another 45% of the motifs on the inside are simply not definable as only a few lines are preserved. The remaining 5% of the inside incised décor is split up into 2% of mixed singular motifs like a wavy lines design (Plate 61, fig. 1) and 3% with an auspicious design of the so-called Miscellaneous Treasures / Eight Treasures (cf. Wang Qingzheng 2002, 254) (Plate 63, fig. 2–3). The latter is worth a short excursus. It cannot be excluded that some of these vessels are decorated with the so-called Eight Buddhist Emblems (cf. Wang Qingzheng 2002, 247; Pierson 2001, 83) as the symbols of both motifs partly overlap. Still, most of the findings include auspicious signs that are attributed to the Miscellaneous Treasures only. This is e. g. a coral as incised on ID 2079 (Plate 63, fig. 3). It is striking that the

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Miscellaneous Treasure are considered to “appear on porcelains as supplementary elements” (Wang Qingzheng 2002, 247) but seem to be the main motif on findings from Karakorum. Even if the fish on ID 2226 (Plate 63, fig. 2) belongs to the design of the Eight Buddhist Emblems that are more likely to be a main motif, it is unusual as an incised décor. The Eight Buddhist Emblems are said to be “introduced from the Tibetan Lamaist art in the Yuan dynasty” (Wang Qingzheng 2002, 247; cf. also Pierson 2001, 83) and to be “impressed on Yuan Jingdezhen egg-white wares and Longquan celadons” (Wang Qingzheng 2002, 247). Two findings from Karakorum with incised Miscellaneous Treasures derive from Song dynasty layers. Six are documented in layers that date to the late 13th century, i. e. the early Yuan dynasty. Only one is to be dated to the 14th century. Impressed, resp. molded, motifs are to be discussed below but mainly consist of décor that includes symbols that are characteristic of the Miscellaneous Treasures only. For the interpretation of ware 5 it is furthermore to be considered that “[b]efore the Ming dynasty, auspicious’ designs were generally restricted to ritual objects.” (Pierson 2001, 7).

Concerning vessels with molded décor, there are four findings with auspicious symbols that are subsumed as various styles of Miscellaneous Treasures (Plate 60, fig. 1–4). This is a share of 6% of the molded décor on ware 5. One of these findings contains the Buddhist Emblem of the Endless Knot which is uncommon in the range of Miscellaneous Treasures. Another two are very large. On each of them four out of eight auspicious symbols are preserved. These are a coral, a pair of cash coins, a rhinoceros horn and a pair of horns on ID 1245 and a pair of cash coins, a rhinoceros horn, a pair of horns and most likely a flaming pearl on ID 1854. The latter finding dates to the Song dynasty while all the other findings with this motif date to the early Yuan dynasty. None of them derives from layers that date later than the end of the 13th century.

Another religious motif is documented on an additional 6% of the fragments with molded décor. This is the Taoist design of the so-called Eight Trigrams (cf. Wang Qingzheng 2002, 248; Pierson 2001, 76; Crick 2010, 116). These findings are fragments of incense burners (Fig. 12). This is not surprising as the trigrams are symbols of divination (Pierson 2001, 76). On two of the vessels some symbols are still recognizable. These are the symbols for ‘earth’ and ‘heaven’ on ID 2141 and the symbol for ‘fire’ on ID 1241. The second symbol on ID 1241 is partly broken. It could be ‘wind’ or ‘mountain’ (cf. Wang Qingzheng 2002, 248). Incense burners of this type and décor and found in the upper layers of the excavation only. This correlates with the assumption that the trigrams “generally do not appear on ceramics until much later in the Yuan dynasty.” (Pierson 2001, 76)

In addition to the auspicious designs described above, few figural motifs are documented in the molded décor of ware 5. These are a pair of fish and a phoenix (Plate 59, fig. 13–14). Both of which are auspicious motifs as well, resp. an imperial motif in the case of the phoenix (Wang Qingzheng 2002, 255; Pierson 2001, 19; Kerr / Wood 2004, 202). Just like the incense burners described above these findings are to be dated into the mid to late Yuan dynasty. The motif of the phoenix is singular on ID 4482 while a pair of fish appears in the spectrum of findings with imprinted décor as well.

In general, most of the molded motifs are floral or leaf designs with a share of 41% (Plate 59). Recognizable flowers in this spectrum are chrysanthemums. A large group in the molded décor consists of fragments that are ribbed outside, i. e. rather decoratively shaped than having a motif. These hold a share of about 35% and are likely to derive from ribbed pots as described in the chapter on shapes.

Imprinted décor on ware 5 is almost exclusively limited to floral motifs on the inside base which hold a share of 86% in this group (Plates 63–64). The most commonly depicted flower is a lotus with a share of 40% of all motifs. The lotus is known to be a popular motif during the Song to Qing dynasties which is associated with Buddhism (Pierson 2001, 28). Most of these imprints are classified as motif ‘Lotus II’ (Plate 63, fig. 9). Second in the spectrum of imprinted flowers are chrysanthemums with a share of 22%. Here, the most common variant is classified as ‘Chrysanthemum I’ (Plate 63, fig. 5). The third identifiable flower is a peony with a share of 14%.

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In this case, basically all imprints are different (Plate 64, fig. 7–9). Depictions of peonies are associated with royalty, wealth and rank (Pierson 2001, 28; Wang Qingzheng 2002, 255). Furthermore, these motifs belong inter alia to the flowers of the seasons that are popular in Chinese paintings from the Song dynasty on. The lotus represents the summer, the chrysanthemum represents the autumn, the peony represents the spring and plum blossoms represent the winter (Pierson 2001, 28–29). The last of these flowers is documented only once in the imprinted motifs on ware 5 (Plate 64, fig. 11).

Exceptions in the imprinted décor are figural and especially ornamental designs. The only sample for an imprinted ornamental décor is a rhombus design on the outside of ID 7321 which is a very small and singular fragment. Figural designs are a pair of fish on ID 1897 and a flying duck on ID 1244 (Plate 64, fig. 13–14). The fish match with molded décor on ware 5 where this motif is also documented (see above). The flying duck is singular in the spectrum of findings from Karakorum. Both designs are applied on flat bowls and excavated from layers that date to the 14th century, i. e. the Yuan dynasty.

Overall, the décor on ware 5 includes the widest spectrum of religious and symbolic motifs documented in Karakorum. The designs of the Miscellaneous Treasures, the Buddhist emblem of the Endless Knot and the Eight Trigrams are exclusively limited to this ware and do not appear on any other glazed ceramic found. This highlights the high interpretational value of ware 5.

Ware 5 – Signs of Repair

Signs of repair are documented in 76 datasets of ware 5. This equals a share of 8,7% which is the highest rate of repairs recorded in the glazed ceramics from Karakorum. In total, 378 datasets with signs of repair are documented throughout the complete material. Repairs in ware 5 alone hold a share of 20% of these datasets. The ware itself has a share of only 5% of the complete material. Thus, the number of repairs on ware 5 is striking.

Generally, the signs of repair are non-piercing drill holes with a diameter of 2–4 mm. Apart from one exception (ID 409) all the repairs are applied on the outside of the vessels. In about 5 % of the documented cases, the drill holes are piercing and measure 3 mm in diameter. Through rust on most drill holes it is implied that metal clamps have originally been applied inside these holes. Metal clamps are preserved on the incense burner ID 1241 that is a very good sample for repairs on ceramics in 14th century Karakorum (Fig. 4, left).

The number of fragments with signs of repair rises over time. As does the number of fragments of ware 5 in general. The percentage of findings with signs of repair actually decreases from the end of the 13th century onward. This is the time when the share of ware 5 rises in the spectrum of glazed ceramics from Karakorum. In number, the share of findings with repairs is 14,3% during the Song dynasty and 7,9% during the Yuan dynasty. Clearly, repairs lessen with a higher availability of ware 5. Still the overall percentage of repairs remains high which underlines a supposedly high value of this ware.

Ware 5 – Marks

There are five fragments with marks documented in ware 5 (Plate 78, fig. 7–10). This equals a share of 0,6% of the findings. None of the marks is decipherable. Only the mark on ID 1257 is fully preserved. This is a handwritten Chinese character of unknown meaning. A specialist on Chinese handwritings is needed for an interpretation. Fragment ID 1266 is already published in an article on Chinese inscriptions on Karakorum pottery by the sinologist E. Nagel (2002). There, it is classified as “qingbai ware bowl from proto-porcelain in the Longquan kiln-tradition of the Southern Song” (Nagel 2002, 99) and its fragmentarily preserved mark is interpreted as ‘phags-pa signum with a terminus postquem of 1268 (Nagel 2002, 99 + Plate XVI, Fig. a–c). As this fragment is found in the upper layers of the excavation, it dates to the 14th century. Its interpretation is vague as much of the mark is lost.

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The marks on ID 2142 and ID 6341 are left without any interpretation as too little is preserved. ID 4067 appears to be marked with a simple black cross. Regardless of the décor applied on the findings with marks, all the motifs are floral. The techniques of decoration vary. Incised décor is documented on ID 1257, molded décor on ID 2142 and imprinted décor on ID 1266 and ID 6341. There is no décor at all on ID 4067. These fragments are documented in excavations layers that date to the end of the 13th century to the middle or late 14th century.

Ware 5 – Comparable Findings

Before comparing ware 5 to other ceramics a problem that is especially evident on this ware needs to be highlighted. Its color appearance on pictures is highly dependent on light conditions, cameras and printing quality (Fig. 13). Due to the given conditions during the material record, some of the findings may appear bluer or greener on the pictures than they do in natural light. As the light conditions for the pictures of comparable findings cannot be reconstructed, detailed color impressions are not of relevance in the comparisons. The range of the green shades of ware 5 in natural light goes from bluish-green to olive green and dark green. It is best described as celadon which is both a color term and a term for these kinds of ceramics (Gompertz 1980, 21).

Many of the findings of ware 5 from Karakorum are very well comparable. All the comparable findings to this ware are classified as celadon. Often, they are attributed to the southern Chinese kiln system of Longquan in modern day Zhejiang province. This includes e. g. findings from the contemporaneous city site of Jininglu in Inner Mongolia (Chen Yongzhi 2004, 79ff). Especially comparable findings are a ribbed pot with a lotus leaf lid that is larger than the findings from Karakorum (e. g. ID 4754 on Plate 12, fig. 1) but the same in shape (cf. Chen Yongzhi 2004, 95, Fig. 61), a 'plate' with an impressed double fish design that slightly differs in its outer décor from flat bowl ID 1897 (Plate 9, fig. 6) but is generally equal in shape and décor (cf. Chen Yongzhi 2004, 98, Fig. 63) as well as vessels with various chrysanthemum prints on the inside base as e. g. ID 2155 (Plate 63, fig. 6; cf. Chen Yongzhi 2004, 116, Fig. 80). These shapes and motifs are furthermore documented at the city site of Yanjialiang and classified as '青釉器' (*qing you ci*) which can be translated as celadon or green glazed ceramics (Ta La et al. 2010, 492ff). Additionally, bowls with incised stylized floral design as ID 2009 (Plate 9, fig. 7; cf. Ta La et al. 2010, 496, Plate 510, Fig. 2), flower shaped bowls as ID 1231 (Plate 11, fig. 5; cf. Ta La et al. 2010, 497, Plate 511, Fig. 2) and the motif of the Miscellaneous Treasures as on ID 1245 (Plate 60, fig. 1; cf. Ta La et al. 2010, 497, Plate 511, Fig. 1) are documented in the green glazed ceramics from Yanjialiang and comparable to the findings of ware 5 from Karakorum. A connection between ware 5 and ware 4.2. from Karakorum becomes apparent in another finding from Yanjialiang that is classified as green glazed but decorated with a motif like the design on ID 2862 (Plate 56, fig. 8; cf. Ta La et al. 2010, 497, Plate 511, Fig. 5) which is a thickly bluish glazed fragment of ware 4.2. Unfortunately, there is no color plate of this finding published. Findings like e. g. incense burners with the Eight Trigrams as ID 1241 or bowls with a bird design like the duck on ID 1244 or the phoenix on ID 4482 are published from neither of the two comparable city sites. Still, the findings from Jininglu and Yanjialiang reflect the common spectrum and classification of comparable contemporaneous ceramics found in Inner Mongolia (cf. Ta La / Chen Yongzhi 2008, 132ff).

In general, ceramics that are comparable to ware 5 from Karakorum are widely documented. This includes e. g. a ribbed pot of approximately the same size as ID 4754 (Plate 12, fig. 1) excavated in Shanxi province, dated to the Yuan dynasty and classified as 'Longquan celadon rib jar' (Shi Jinming / Liu Yan 2008, 201). This type of pot is popular during the Yuan dynasty. It is excavated in many other Chinese provinces as well and furthermore known from the cargo of the Sinan shipwreck. This ship sank in the year 1323 and its cargo included much Chinese export ceramics (Shen Qionghua 2012, 18). The ribbed pots found on this ship as well as those excavated from all over China are classified as celadon produced at the Longquan kiln system in modern day

3. 2. Porcellaneous Wares – Wares 2–7

Zhejiang province (cf. Shen Qionghua 2012, 218–219; Bureau of Cultural Properties, Ministry of Culture and Information 1985, 42–43; Liu Yunhui et al. 2008, 214; Cao Guoqi 2008, 99; Zhang Bai 2008, 229). The published findings from one of the kiln sites of the Longquan kiln system include a ribbed pot of the same type and shape with manufacturing defects that also dates to the Yuan dynasty (Zhejiang Institute of Archaeology 2009, 59).

Further findings excavated at kiln sites from the Longquan kiln system are also comparable to those documented in Karakorum. This includes particularly bowls with incised stylized floral designs as ID 2872 (Plate 61, fig. 2) which are the most common celadon vessels in Karakorum. Many similar bowls with or without additional imprinted floral stamps at the inside base are documented in the Longquan kiln system (cf. Zhejiang Institute of Archaeology 2005, 128, 220ff or 252ff). The imprinted flowers are comparable to those documented in Karakorum (Plates 63–64). Worth mentioning are incense burners with the same shape and décor as ID 1241 (Plate 10, fig. 3) which obviously have been produced in this kiln system (Zhejiang Institute of Archaeology 2005, 304, 345 + 385 and Color Plate 49, Fig. 1 + Color Plate 48, Fig. 6). The same applies to flat bowls with molded or imprinted fish décor as documented on ID 2156 (Plate 59, fig. 13) and ID 1897 (Plate 64, fig. 14; cf. Zhejiang Institute of Archaeology 2005, 278, Plate 186 + 308, Plate 221, Fig. 8). Even motifs such as the Miscellaneous Treasures that are uncommon in other findings are documented at the Longquan kiln sites. None of these designs is the same as those from Karakorum but one finding appears similar in style to fragment ID 2310 (Plate 60, fig. 3; cf. Zhejiang Institute of Archaeology 2005, 273, Pl. 181, Fig. 2). A detailed analysis of the similarities between ceramics from Longquan kiln sites and ware 5 from Karakorum could be part of an independent research but is out of the scope of the present study. Generally, many of the findings from Karakorum are comparable to those from the Longquan kiln sites.

Many of the findings are furthermore comparable to the cargo of the above mentioned Sinan shipwreck. Next to common vessels and décor like flat bowls with fish designs, bowls with incised stylized floral designs and imprinted chrysanthemums or the special shape of a flower pot like ID 2145 (Plate 11, fig. 9) are documented in this cargo and classified as celadon from the Longquan kiln (Shen Qionghua 2012, 158, 176, 197 + 195; Bureau of Cultural Properties, Ministry of Culture and Information 1985, 52, Plate 40, Fig. 58). Further vessels that are comparable to ID 2145 are rare in the spectrum of celadon findings. Still, a sample which is excavated at the Longquan kiln sites is known (Zhejiang Institute of Archaeology 2009, 68). Another special finding from Karakorum is ID 4482 with the molded décor of a phoenix or a bird (Plate 59, fig. 14). Best comparable to this is a bowl with molded floral and bird design that is excavated from the Yuan dynasty city site of Alimali in Xinjiang province (Wang Hui et al. 2008, 174). At the same site, a dish with a complex foliated rim like ID 2080 is furthermore documented (Wang Hui et al. 2008, 177). The latter shape is i. a. also recorded in a Yuan dynasty hoard from Chongqing (Huang Daoqin 2008, 209) and in the collection of the Victoria and Albert museum, London (Medley 1977, 24, Plate VII, Cat.-No. 66). Again, all of these findings are attributed to the Longquan kiln system. Generally, the classification of findings comparable to ware 5 as celadon from the Longquan kiln system is very repetitive. Many more samples are e. g. published from Song dynasty sites in Lin'an, Zhejiang province (i. a. Hangzhou Municipal Institute of Cultural Relics and Archaeology 2007, 70ff, 162 ff + 206ff). Furthermore, Longquan celadon is part of most collections of Chinese ceramics. Many of these include additional comparable findings to those from Karakorum (cf. Krahl 2000, 269ff; Krahl / Harrison-Hall 2009, 44ff; Scott 1989, 45ff; Pierson 2009, 27ff; Crick 2010, 110ff).

Few fragments differ from those described above. This includes the small finding ID 7231 (Plate 63, fig. 4) with a geometric design on the inside that is best comparable to so-called Northern celadon from the Yaozhou kiln site in modern day Shaanxi province (cf. Shaanxi Provincial Institute of Archaeology 1998, 668, Fig. 345, 11; Liu Yunhui et al. 2008, 178). Overall, ware 5 from Karakorum is rarely comparable to findings that are classified as Northern celadon.

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A last specificity in the spectrum of ware 5 from Karakorum are flat bowls with a double fish design like ID 1897 (Plate 64, fig. 14). This shape as well as the décor is popular on celadon. Though most of the fish on comparable vessels are molded and not imprinted as they are on the sample from Karakorum (cf. Chen Yongzhi 2004, 96ff). Similar vessels are part of Chinese export wares (cf. Shen Qionghua 2012, 192). These appear to be highly successful as the motif of two fish is copied even in Iranian celadons (Wade Haddon 2012, 100). Concerning Chinese traditions, a pair of fish is a symbol for good fortune and a successful wedding. Due to this flat bowls like ID 1897 are partly described as wedding bowls (Pierson 2001, 19). Interestingly, the same bowl shape is partly classified as a washer that is part of a scholar's equipment (Wang Qingzheng 2002, 90). Several bowls with the same shape but often without décor are imported to Karakorum during the Yuan dynasty. Partly, even fragments of these bowls with massive production defects are documented (ID 2616, Fig. 11).

Ware 5 – Origin and Interpretation

Ware 5 is well-known from previous studies on the ceramics from Karakorum. It is consistently classified as celadon. A correlation to the Longquan kiln system is stated for at least parts of the material (Evtiukhova 1965, 241–245; Elikhina 2014, 57; Meitoku / Ochir 2007, iii; Janssen-Kim 2005, 186–187). Elikhina (2014, 57–58) and Janssen-Kim (2005, 186) furthermore classify some of the celadon as deriving from the Yaozhou kiln system.

When classifying ware 5 as celadon it needs to be considered that the term is very broadly defined. Generally, it is a color term only that is said to originate from the cloth of a shepherd named Celadon in a 17th century French play (Gompertz 1980, 21; Mino / Tsiang 1986, 14). Included are colors ranging “from blue-green to grayish-green to olive and yellow” (Mino / Tsiang 1986, 14), resp. “light green through bluish green to olive or dove-grey” (Gompertz 1980, 22). As a term for ceramics, celadon is widely used for defining a certain type of glaze and comprises Chinese as well as Korean and Siamese wares (Gompertz 1980, 21; Wood 2011, 38ff). The range of Chinese wares included in this classification varies. In some cases, ceramics from the 2nd millennium B.C. up to today are classified as celadon (Mino / Tsiang 1986, 7). More common is the use of the term for green-glazed wares from the 10th century on, especially Yue, Yaozhou and Longquan wares (Wood 2011, 116–117).

Concerning the time of Karakorum, two main categories of Chinese celadon are of relevance. These are Southern and Northern celadons. The latter are mainly attributed to the Yaozhou kiln system in modern day Shaanxi province (Wood 2011, 110ff ; Medley 1989, 115ff ; Shaanxi Provincial Institute of Archaeology 1998) while the main production system of Southern celadon is the Longquan kiln in modern day Zhejiang province (Wood 2011, 75ff; Medley 1989, 146ff). These solely are the main kiln systems that are most commonly used for classifications. Further production sites in the surrounding areas are known. Northern celadon is e. g. well-known from kiln sites in Henan province like Baofeng and Neixiang (Feng Xiaoqi 2005, 355f + 435ff). Southern celadon is e. g. produced in the province of Jiangsu as well (Mino / Tsiang 1986, 16; Zhang Min / Huo Hua 2008, 150f). Yaozhou and especially Longquan celadons are part of almost any description and collection of Chinese ceramics. A detailed outline of both wares is beyond the scope of the present study. For studies on celadon see esp. Gompertz (1980), Mino / Tsiang (1986) and the analyses of glazes in Wood (2011). Concerning general information about celadon in the spectrum of Chinese ceramics see treatises like Medley (1989), Valenstein (1989), Vainker (1991), Li Zhiyan (1996), He Li (1996), Fang (2005) or Pierson (2009). Furthermore, results of recent studies on Chinese ceramics and technology are published in Kerr / Wood (2004) and include various types of celadon. The specifics of the celadons from Karakorum are described above. Its classification is limited to basic features.

The general classification of ware 5 as celadon is certain. The question, however, remains which kind of celadon is imported to Karakorum. A common description of Longquan ware is that “[t]he

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body material varies, apparently at all kilns, from a heavy, compact grey stoneware to an almost white porcellaneous material. Except in the finest whitish bodied pieces the exposed foot burns a bright reddish brown, a characteristic which easily distinguishes the southern type of celadon from that of the northern provinces.” (Medley 1989, 147). Yaozhou ware is described as having “a grey body and olive green or olive brown transparent glaze.” (Medley 1989, 115). Fragments with both characteristics are documented in Karakorum. In particular, a compilation of bases in ware 5 leaves no doubt that celadons from various production sites are present in the city throughout all settlement layers (Fig. 14). This accounts for varying body features as well as for varying glaze features. Still, a distinction according to the characteristics stated above remains vague as fragments with a gray body that did not burn reddish brown are not necessarily glazed olive green or olive brown.

Further problems arise when comparing findings from excavations at the Yaozhou and Longquan kiln sites with definitions of those wares given in the literature on Chinese ceramics. First, exposed clay from northern celadons of the Yaozhou kiln site can burn reddish brown as well. This is proven by findings from excavations at this kiln site (Shaanxi Provincial Institute of Archaeology 1998, Color Plate 11, Fig. 2). Second, vessels that are produced at the Longquan kiln sites can be glazed olive green to olive brown as e. g. findings from excavations of the Longquan Dongyu kiln site prove (cf. Zhejiang Institute of Archaeology 2005, Color Plates). What remains an indicator for the distinction of both wares is the body color that is assumed to be lighter on southern celadons than on northern celadons (see above and Elikhina 2014, 58; Janssen-Kim 2005, 187). Concerning the recorded findings from Karakorum, the body of 90% of ware 5 is light gray. About 10% of the fragments have a gray or dark gray body. The latter are partly but not necessarily covered with an olive green to brown glaze.

The estimation that the majority of ware 5 from Karakorum is celadon produced in southern China is in accordance with the fact that nearly all of the comparable findings to this ware are classified as Longquan ware. Regardless of whether these classifications are correct or not, it is striking that none of the fragments of ware 5 is decorated with the deep carvings that are characteristic for Yaozhou celadon (see above and Shaanxi Provincial Institute of Archaeology 1998). Neither are the findings from Karakorum comparable to e. g. northern celadons produced at kiln sites in Henan (cf. Feng Xiaoqi 2005, esp. 355f + 435ff). Most of them are best comparable to vessels from Longquan kiln sites in Zhejiang province (see above and Zhejiang Institute of Archaeology 2005 + 2009) and especially the cargo of the Sinan shipwreck which is likewise classified as southern celadon (Shen Qionghua 2012; Bureau of Cultural Properties, Ministry of Culture and Information 1985). The dominance of southern celadon in the spectrum of Karakorum is noticeable as the production sites of northern celadon are much closer to the city. It is known that the production of northern celadon declined during the Yuan dynasty (Mino / Tsiang 1986, 24). Nevertheless, it belongs to the export products that are traded as far as Africa and into several Asian countries (Shaanxi Provincial Institute of Archaeology 1998, 698). A fragment of Yaozhou celadon is even known from Zaragoza, Spain (Heidenreich 2007, 448, Fig. 64). Generally, the number of any celadon is very low in Karakorum during the Song dynasty and rises significantly with the beginning of the Yuan dynasty. About 93,8% of the datable findings of ware 5 belong to the Yuan dynasty and only 6,2% are to be dated to the Song dynasty.

Overall, a detailed study on celadon from Karakorum is needed for a better distinction of northern and southern wares and their specifics. Such a research is promising in terms of the town history as well as for studies on Chinese celadon at large. A special status of ware 5 can be concluded from its décor which includes auspicious designs. Furthermore, it is one of the few wares in which the shape of incense burners is recorded. Concerning its use, the range of ware 5 includes common export / domestic wares such as bowls with incised floral designs, vessels for religious use with designs like the Eight Trigrams, high quality vessels for domestic use with auspicious designs like a pair of fish and even single findings of vessels with an imperial décor like the

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phoenix (see above). Through the high rate of repairs on ware 5 a high value of these ceramics is indicated.

Ware 6

Designation: Celadon-imitations

Glaze: Celadon-like with opaque yellowish parts

Coat: thin to medium

Body: gray, rarely light gray

Temper: very fine

Hardness: very hard

Average Thickness: thin/ 0,53 cm

Structure: hardly translucent

Ware 6 is defined as having a gray (rarely light gray) porcellaneous body with an irregular Celadon-like glaze that includes opaque yellowish parts. This ware appears to be an imitation or badly manufactured variant of ware 5.

Only very few fragments of ware 6 are found. In total, one base fragment, two rim fragments and eight body fragments are documented (Fig. 15).

Ware 6 – Shapes

Both rim fragments found are of Rim Type 2, i. e. s-shaped. The fragments clearly belong to two different bowls and differ slightly in shape (Plate 12, fig. 6–7). Their diameter is determinable on one fragment only. This is ID 10263 with a diameter of 16 cm.

The base fragment found is of Base Type 1.1. and likely to belong to a plate because of its very flat shape. The diameter of the footring measures 5,5 cm. Apart from the outer ridge of the footring the base is fully glazed (Plate 12, fig. 8).

In total, at least three different vessels are documented in ware 6: two bowls and one plate.

Ware 6 – Décor

There is no décor documented on ware 6.

Ware 6 – Signs of Repair

Signs of repair are documented once on ware 6. This is a non-piercing drill hole with a diameter of 3 mm on the outside of body fragment ID 8398 (Fig. 15, right).

Ware 6 – Marks

There are no marks documented on the findings of ware 6.

Ware 6 – Comparable Findings

Comparable findings are unknown to the author. Closest to ware 6 are a few findings from excavations in Lin'an, Hangzhou. These are rim fragments of yellow speckled celadon which are found in the so-called 'mansion of empress Gongshengrenlie' which is dated to the Southern Song dynasty. The fragments are classified as deriving from the Longquan kiln (Hangzhou Municipal Institute of Cultural Relics and Archaeology 2008, 188, Plate 90).

Ware 6 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. As it is only vaguely comparable to very few findings, its origin is uncertain. It is likely to be an imitation or badly manufactured variant of ware 5 to which it is related. For the base fragment ID 7782 an early dating, i. e. Song,

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can be assumed as the base is fully glazed. Generally, fragments of ware 6 are found throughout all layers in Karakorum. A time factor as distinctive criterion to ware 5 can be excluded. Ware 6 could additionally be another type of celadon from e. g. South Asia. These ceramics are out of the scope of the present study. As findings of ware 6 are highly underrepresented in the spectrum of ceramics from Karakorum no further research is conducted on this ware.

Ware 7

Designation: Grayish blue glazed porcellaneous ware

Glaze: Grayish Blue

Coat: thin to medium

Body: light brownish gray **Temper:** very fine

Hardness: very hard

Average Thickness: thin/ 0,53 cm

Structure: slightly translucent

Ware 7 is the last ware in the group of porcellaneous ceramics from Karakorum. It is defined as having a light brownish gray body and a grayish blue glaze.

In color and décor this ware is strikingly different than the others. Still, it is a kind of celadon or celadon-like ware. In total, only three fragments of ware 7 are documented. These fragments are likely to belong to the same vessel.

Ware 7 – Shapes

No rim or base fragments are documented in ware 7. However, the shape of body fragment ID 10801 implies that the fragments derive from a plate.

Ware 7 – Décor

All the fragments are decorated with radial lines as in-glaze décor (Plate 65, fig. 1–2). This décor is singular in Karakorum and documented on ware 7 only.

Ware 7 – Signs of Repair

There are no signs of repair documented on ware 7.

Ware 7 – Marks

There are no marks documented on ware 7.

Ware 7 – Comparable Findings

The only finding known to the author that is slightly comparable to ware 7 is a bowl excavated from an imperial ancestral temple in Lin'an. This bowl appears similar in color but has no décor. It is dated to the Southern Song dynasty and assigned to the Longquan kilns (Hangzhou Municipal Institute of Cultural Relics and Archaeology 2007, 242, Plate 100, Fig. 2).

Ware 7 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. Its origin is uncertain. The associations are similar as those on ware 6. It appears to be some sort of celadon that could be produced in the Longquan kilns. However, due to its singular décor that is completely foreign in Chinese ceramics, this seems unlikely. Furthermore, the color of the glaze is extremely uncommon in wares from the Longquan kilns. An origin from e. g. South Asia seems probable but this kind of ceramics is out of the scope of the present study. Ware 7 is highly underrepresented

3. 3. Stonewares – Wares 8–38

in the spectrum of ceramics from Karakorum. All the findings are surface findings only. Therefore, no further research is done on this ware.

3. 3. STONEWARES – WARES 8–38

The common feature of stonewares is a hard to very hard body with a dense structure that is almost entirely to entirely sintered. Stonewares are the only ceramic group from Karakorum with different tempers. Most common are fine tempered wares. Least common are medium tempered wares. Different body colors and different glazes appear.

Varying glazes are the main criterion for the subdivision of the stonewares found in Karakorum. Following this, further subdivisions according to varying tempers and body colors are made. To provide comparability to previous classifications that lack the definition of body features, wares as comparable as arguable are subsumed together. Further divisions according to e. g. glaze specifics and décor are possible but not carried out in this study. This remains the subject of detailed studies on selected wares. Included in the range of this study is a first and partly broad classification only.

The group includes wares 8–38. The wares are characterized by a clear glaze (wares 8–9), white glaze (wares 10–15), greenish glaze (wares 16–17), turquoise glaze (wares 18–19), thick blue or green glaze (wares 20–21), brown to green ‘tea dust’ glaze (wares 22–27), black glaze (ware 28–34), black and white glaze (ware 35–37) and mud colored glaze/slip (ware 38). Wares with a coarse temper are almost exclusive to the group of brown to green glazed wares. Furthermore, they do appear in the group of black glazed wares and are exceptional in black and white wares and white wares. Wares of any other group are finely tempered only.

In total, stonewares are the major ceramic group from Karakorum with a share of about 80% of all documented findings.

3. 3. 1. STONEWARES WITH A CLEAR GLAZE – WARES 8–9

The first group in the category of stonewares are wares with a clear glaze. General features of this group are a fine tempered body with few brown to black particles and a dense, almost entirely sintered structure as well as a clear to slightly greenish glaze that is thinly applied. Two wares belong to this group. This is ware 8 and 9.

The subdivision of these wares is conducted on the basis of their body features. While the body of ware 8 is marbled, the body of ware 9 is plain in color. Ware 9 is additionally subdivided according to body colors which range from off-white to light gray and brownish.

Ware 8

Designation: Marbled stoneware

Glaze: clear to slightly greenish

Coat: thin

Body: off-white and dark brown (marbled)

Temper: fine

Hardness: very hard

Temper particles: fine brown to black particles (few)

Structure: dense, entirely sintered

Average Thickness: thin/ 0,53 cm

Ware 8 is defined as having a stoneware body that is marbled. Its body colors are off-white and dark brown. The share of off-white body parts is larger than that of the dark brown body parts. The latter are incorporated into the body to form marbling patterns. Included in the body are few

3. 3. Stonewares – Wares 8–38

fine brown to black particles. The glaze on this ware is clear and only rarely a bit milky or greenish. In one case, the rim of a marbled vessel is glazed white. Furthermore, parts of a vessel like e. g. the rim can be plain without a marbling pattern (Plate 65, fig. 3). The marbling patterns on the findings vary.

Marbled stoneware is one of the wares that are only very rarely found in Karakorum. In total, only 17 fragments of ware 8 are documented. This is a share of less than 0,1% of all glazed ceramics.

Ware 8 – Shapes

Most of the fragments found are body fragments (= 8), closely followed by rim fragments (= 7). In contrast, only two base fragments are documented. The clear majority of rims (71%) is of Rim Type 3 (Plate 12, fig. 10). The remaining rims are of Rim Type 2.1. (Plate 12, fig. 9) The base fragments found belong to Base Type 1.1. (Plate 12, fig. 11). There are no special shapes appearing in this ware. Assumingly, all the fragments belong to bowls or plates.

Ware 8 – Décor

The marbling patterns on the findings of ware 8 vary. In total, four different patterns are documented. These are classified as marbling patterns I–IV (Plate 65, fig. 3–6). Pattern I is the most irregular marbling pattern. The other patterns are only partly irregular and differ in their shape. While the marbling of pattern II appears a bit spiky, patterns III and IV consist of rounded arcs. These arcs are much smaller in pattern III than in pattern IV.

Ware 8 – Signs of Repair

Signs of repair are documented on fragment ID 1995 only. This is a fully marbled rim fragment that belongs to Rim Type 2.1. On the outside of this fragment is a non-piercing drill hole which has a diameter of 4 mm.

Ware 8 – Marks

There are no marks documented on ware 8.

Ware 8 – Comparable Findings

The marbled ceramics found in Karakorum are e. g. comparable to findings from Inner Mongolia that date to the Yuan dynasty. A bowl which is excavated in Wulanchabu has the same pattern and most likely the same shape as ID 2046 from Karakorum (Plate 65, fig. 4; cf. Ta La / Chen Yongzhi 2008, 233). The only difference is the white glazed rim on ID 2046. Another bowl excavated in Yanjialiang has the same pattern and rim shape as ID 1995 (Plate 65, fig. 5; cf. Ta La et al. 2010, Color Plate 134, Fig. 3). A marbled base that fits the same shape as the bowl from Yanjialiang is included in the old findings from Karakorum (Meitoku / Ochir 2007, 32, Plate 5, 91 + 16, Fig. 3, 91). Furthermore, a marbling pattern similar to marbling pattern IV on ID 15904 (Plate 65, fig. 6) is applied on a stem cup excavated at the Tuchengzi city site (Ta La / Chen Yongzhi 2008, 189). Stemcups that are identical in shape and marbling pattern are excavated in Yanjialiang (Ta La et al. 2010, Color Plate 134, Fig. 5) and in Jininglu (Chen Yongzhi 2004, 209, Plate 151). The latter is not only dated to the Yuan dynasty but attributed to the Cizhou kiln system as well. The same applies to another stem cup which is comparable to the previous samples and part of the collection of the Palace Museum, Beijing (Ye Peilan 1998, 192). Any of the other abovementioned findings lack an assignment to a specific kiln system.

Apart from the samples listed above, ceramics comparable to ID 2046 (Plate 65, fig. 4) are especially known. A plain or white glazed rim on a bowl with marbling pattern II is e. g. documented in findings from Fenyang and Datong, Shanxi. Both bowls are dated to the Jin

3. 3. Stonewares – Wares 8–38

dynasty (Shi Jinming / Liu Yan 2008, 148). The bowl from Datong derives from a Jin tomb and is more precisely dated to the year 1161 (Shi Jinming / Liu Yan 2008, 83). A third bowl in this group is excavated in Shemu, Shaanxi and dated to the Northern Song or Jin dynasty. This bowl is furthermore attributed to the Dangyangyu kiln in Henan (Liu Yunhui et al. 2008, 170).

Song dynasty findings from the Dangyangyu kiln are in general comparable to marbled ceramics from Karakorum (cf. Feng Xiaoqi 2005, 258 + 242). Fragments found at this kiln site in modern day Henan province e. g. show marbling pattern II that is labeled “weaving design” (Feng Xiaoqi 2005, 264) or marbling pattern III which is labeled “feather design” (Feng Xiaoqi 2005, 263).

A bowl that is comparable to ID 1908 (Plate 12, fig. 10), i. e. with an unglazed rim and a pattern like marbling I, is excavated in Zibo, Shandong and dated into the Jin dynasty (Xie Zhixiu et al. 2008, 165).

Plates like ID 15904 appear to be more uncommon than the other marbled ceramics from Karakorum and lack good comparability apart from their marbling pattern (see above).

Ware 8 – Origin and Interpretation

According to Evtiukhova (1965, 258) who published the ceramics from the Russian excavations in Karakorum, marbled ware is attributed to the Jun kiln system in Henan. This classification cannot be followed based on the sighted studies. Meitoku / Ochir (2007) who later republished the same findings as Evtiukhova, refrain from attributing this ware to a specific kiln site.

In general, marbled ceramics are developed during the Tang dynasty and of northern Chinese origin (Liu Taozhu 2004, 40). None of the findings from Karakorum resembles marbled wares that are dated to the Tang or Liao dynasty (cf. Ta La / Chen Yongzhi 2008, 82; Xie Zhixiu et al. 2008, 71f; Sun Xinmin / Yang Ailing 2008, 94; Zhang et al 2008, 84; Feng Xiaoqi 2005, 126ff). This is well-determinable because marbled wares are datable by their patterns and appearance (Liu Taozhu 2004, 40). The patterns documented in Karakorum belong to the Song and Yuan dynasties. Most of them are comparable to findings associated with Song wares from the Dangyangyu kiln (Liu Taozhu 2004, 40; Feng Xiaoqi 2005, 298ff). At this kiln site in modern day Henan province marbled wares are primarily produced during the Song dynasty (Feng Xiaoqi 2005, 242). Furthermore, marbled wares are known to be secondary products of the Cizhou kiln system in modern day Hebei during the Yuan dynasty (Ye Peilan 1998, 160). Often, marbled ceramics of this time are classified as ‘Cizhou type wares’ (cf. Liu Taozhu 2004, 40; Chen Yongzhi 2004, 209; Kerr 2004, 69). Whether the findings from Karakorum derive from Henan or Hebei cannot be determined. Both options are supposable. Due to the dating of Karakorum the origin from another Cizhou type production site than Dangyangyu is likely as this kiln operated in the Song dynasty only (Feng Xiaoqi 2005, 242).

What is surprising about marbled wares in Karakorum is the fact that these ceramics are generally classified as funerary potteries (Medley 1989, 87; Kerr 2004, 70; Vainker 1991, 81). Furthermore, they are considered to be pre-Yuan export wares that are e. g. found in Japan (Feng Xianming 1981, 69) and Korea (Kerr 2004, 70). Although marbled ceramics mainly are wares from the Tang and Song dynasties, none of the findings from Karakorum date to this time. According to the stratigraphy all the findings of ware 8 are to be dated to the Yuan dynasty. Their interpretation remains unclear.

3. 3. Stonewares – Wares 8–38

Ware 9

Designation: Stoneware with a clear glaze and an off-white body (= ware 9.1.)
a light gray body (= ware 9.2.)
a brownish body (= ware 9.3.)

Glaze: clear, rather mat to slightly glossy (= ware 9.1.) **Coat:** thin
slightly glossy (= ware 9.2.)
rather glossy (= ware 9.3.)

Body: off-white (= ware 9.1.) **Temper:** fine **Hardness:** hard to very hard
off-white to light gray (= ware 9. 2)
light brownish gray, gray (= ware 9.3.)

Temper particles: fine brown to black particles (few) **Structure:** dense, not entirely sintered

Average Thickness: thin/ 0,47 cm (= ware 9.1.)
thin/ 0,55 cm (= ware 9.2.)
very thick/ 1,02 cm (= ware 9.3.)

Ware 9 is subdivided into three types according to varying body colors. As a common feature, it is defined as stoneware with a clear glaze and a fine temper. Few fine brown to black particles appear. The glaze is thinly applied and clear to slightly greenish in color. Varying numbers and sizes of spur marks are documented on the inside of the bases on this ware.

The subdivision of ware 9 is applied due to reasons of comparability in the classification system. Whether the varying body colors are to be ascribed to varying production sites or the production process in general cannot be determined for certain. It is noticeable that the average thickness of ware 9.3. is almost twice as high as that of the other subtypes. Furthermore, only base and body fragments are found in this subtype. Therefore, the body color of ware 9.3. may be due to firing processes and thicker vessel parts. Concerning subtype ware 9.2. not only the body color but also the shapes vary in comparison with the other two types. In this case an association with a different origin is more likely.

Ware 9 is related to ware 11 in its appearance and characteristics but lacks the white slip underneath the glaze that is applied on ware 11.

In total, only 84 fragments of ware 9 are documented in 78 datasets. Therefore, this ware holds a share of only 0,4% of all fragments documented. Most fragments are classified as ware 9.1. with a share of about 76,2 %. The other subtypes are comparatively underrepresented. Ware 9.2. holds a share of about 14,3% and ware 9.3. holds a share of about 9,5% of ware 9 in total.

Ware 9 – Shapes

As expected most of the findings are body fragments with a share of 61% in total. Rim fragments and base fragments are equal in number and hold a share of 19% each for ware 9 in total. It is striking that no rim fragment is documented in subtype ware 9.3. About two thirds of all rim fragments and all base fragments belong to subtype ware 9.1. which holds the highest share of fragments in ware 9 in general.

Only one complete shape is documented in ware 9. This is bowl ID 6368 that is classified as subtype ware 9.1. (Plate 13, fig. 1). Its rim belongs to Rim Type 2.1. which is documented in ware 9.1. only. This shape is one of two rim types that are recorded in this subtype and holds a share of 16,7% of the rims in ware 9.1. The base on ID 6368 belongs to Base Type 1.1. which is the only base type documented in ware 9 overall. The diameter of the bowl measures 22 cm. Its footrings measures 7,7 cm in diameter. Around the inside base eight spur marks are visible. The bowl is covered with scorch marks.

As mentioned above, the rim shapes of ware 9 differ according to its subtypes. No rims at all are documented in subtype ware 9.3. Concerning subtype ware 9.1. two rim shapes are recorded.

3. 3. Stonewares – Wares 8–38

Most common on this ware is Rim Type 3, i. e. a straight rim, with a share of 75% (Plate 13, fig. 2). The second shape is Rim Type 2.1. (Plate 13, fig. 1). This type holds a share of 16,7% in ware 9.1. The remaining 8,3% of rims in this ware are not determinable in shape. Irrespective of the shape, the average diameter of vessels made of ware 9.1. is 20 cm. Most of the vessels have a diameter of 20–22 cm. Apart from one exception with a diameter of 8 cm only (ID 12188) the diameter measures at least 16 cm in this group. The rims are assumed to derive from bowls and plates.

The rim shapes of subtype ware 9.2. differ in all aspects from those in ware 9.1. In this ware, all of the rims belong to Rim Type 5, N that is associated with pots (Plate 13, fig. 3). The diameters of these pots range from 6–7 cm. Therefore, concerning the findings from Karakorum ware 9.2. is used for producing small pots only.

Concerning base types there is no difference in the subtypes of ware 9. Any determinable base shape in this group belongs to Base Type 1.1. The diameter of the footrings ranges from 6–9,7 cm with an average of 7,6 cm. The majority of the footrings in subtype ware 9.1. measure less than 8 cm in diameter while the majority of footrings in subtype ware 9.3. measure 9 cm or more. Only one base is documented in ware 9.2. Its footring has a diameter of 9 cm.

In total, the spectrum of shapes that are produced in ware 9 consists of bowls and plates concerning wares 9.1. and 9.3. while vessels made of ware 9.2. are small pots only. Neither lids or handles nor spouts are documented in any of the types of ware 9.

Ware 9 – Décor

Décor is documented on subtype ware 9.1. only. There, the share of fragments with décor is about 23,4%. All the motifs are simple spot and line designs painted in brown (Plate 65, fig. 7–9). Most common are circular brown lines of varying size. The décor is painted on the inside. Only in two cases circular lines on the outside are additionally documented. Overall, the décor and outer appearance of ware 9 is related to findings of the white glazed stonewares of ware 11.

Ware 9 – Signs of Repair

On one fragment of subtype ware 9.3. signs of repair are documented. This is body fragment ID 6037 with a non-piercing drill hole on the outside. This drill hole has a diameter of 3 mm.

Ware 9 – Marks

Two findings with partly preserved marks are documented in ware 9. Both belong to subtype ware 9.1 and are written in black ink (Plate 78, fig. 11–12). The mark on ID 9446 is not readable and consists of two dotted black lines only. The mark on ID 6353 appears to be a Chinese writing that is not fully preserved. Its interpretation is vague. Characters like 寺 (*si* = temple) or 宇 (*yu* = house) are supposable and comparable to contemporaneous writings on the findings from Yanjialiang. There, a similar mark is interpreted as 寺家 (*si jia* = temple community) (Ta La et al. 2010, Color Plate 284, Fig. 2). Furthermore, there are parallels to a mark that is translated as 蛮子 (*manzi* = northern Chinese people) (Ta La et al. 2010, Color Plate 285, Fig. 2) which is a supposable interpretation for the mark from Karakorum as well.

Ware 9 – Comparable Findings

Comparable findings to ware 9 from Karakorum are hardly found. This is due to two problems: First, most of the ceramics with clear glaze do have a white slip applied underneath the glaze which is not the case in ware 9 from Karakorum. Second, the few findings that are glazed without a slip are listed somewhere in the findings with slip and hard to find.

3. 3. Stonewares – Wares 8–38

A sample from a stoneware plate with clear glaze and brown décor is excavated in Chaoyang, Liaoning. It is dated to the Jin dynasty and attributed to the Lizhou kiln in Liaoning (Liaoning Provincial Institute of Archaeology 2011, 75). However, this plate has a more complex décor than the findings from Karakorum and lacks spur marks. Other clear glazed findings from the same excavation are dated to the Liao dynasty and attributed to the Gangwa kiln in Liaoning (Liaoning Provincial Institute of Archaeology 2011, 81ff). All the findings have four large spur marks on the inside of the base. Unfortunately, this does not correlate to findings of ware 9 from Karakorum.

Concerning the décor, a plate from Yanjialiang is comparable to the findings from Karakorum as it is painted with a simple spot design and circular lines (Ta La et al. 2010, Color Plate 79, Fig. 2). The difference to ware 9 is a white slip underneath the glaze as well as an unglazed circle on the inside base. The décor of this plate is considered characteristic during the Yuan dynasty (Yu Yue 2014, 36). Another possible sample from Yanjialiang is clear glazed on the outside and white glazed on the inside (Ta La et al. 2010, Color Plate 75, Fig. 5). Its décor is comparable to ID 2190 as far as the preserved parts of the piece are concerned.

Generally, a group of clear glazed ceramics is documented in Yanjialiang (Ta La et al. 2010, 391ff). Astonishingly, these differ strikingly from ware 9. Clear glazed wares from Yanjialiang are decorated with white spots on the glaze. Such findings are not recorded at all in Karakorum.

Ware 9 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. Its origin cannot be determined. According to the analogies stated above it is likely to be of northern Chinese origin and possibly deriving from modern day Liaoning. Other or further origins are supposable at the present state of research. Different production sites of the subtypes of ware 9 are likely. Some of the findings may be interpreted in correlation to ware 11 to which ware 9 is partly related.

The appearance of ware 9 is not limited to a specific settlement period in Karakorum. Still, all findings of subtype ware 9.3. date to the Yuan dynasty according to their stratigraphy. Findings of subtype ware 9.2. date in their majority to the Song dynasty while subtype ware 9.1. is documented throughout all layers and thus is dated Song – Yuan. Relating to the shapes and décor of ware 9 it appears to be a ware that is made for domestic use.

3. 3. 2. STONEWARES WITH A WHITE GLAZE – WARES 10–15

Stonewares with a white glaze are the most common group of glazed ceramics found in Karakorum. About 28% of all recorded fragments fall into this category. General features of white glazed wares from Karakorum are a hard, not entirely sintered body and a cream white glaze that consists of a combination of white slip and thinly coated clear glaze. Different tempers and temper particles appear and are subject to the classification of the ceramics. Differing glazes are used as criteria if their structure is strikingly different from other glazes. Concerning the classification, no distinction is made between glossy and mat glaze on white slip. The transition between both kinds of glaze is fluent. Numerous variations that sometimes are hardly distinguishable from each other appear in the material. Sometimes mat and glossy glazes are even used on the same vessel; e. g. the outside is glaze glossy while the inside is glazed mat. The inside of about 7% of the white wares is glazed with clear glaze only, i. e. no slip is used. Included in the group of white glazed ceramics are wares 10–15. Their specific distinctive features are as follows:

Ware 10: irregularly applied white glaze on a finely tempered stoneware

Ware 11: stonewares with a fine temper and a white glaze,
subdivided according to varying body colors

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Ware 12: finely tempered stoneware with a spotted glaze and irregular firing

Ware 13: very finely tempered stoneware with a craquelling white glaze

Ware 14: white glazed stoneware with a medium temper
subdivided according to varying body colors

Ware 15: white glazed stoneware with a coarse temper.

Although different white wares are to be distinguished, this group is largely dominated by fine tempered ceramics of ware 11, resp. its major subtype ware 11.1. that is characterized by an off-white to beige body. About 82% of all documented white wares are classified as ware 11.1. Approximately 92% of the white glazed findings generally belong to ware 11.

Ware 10

Designation: Stoneware with an irregularly applied white glaze

Glaze: Cream White (white slip with irregularly applied clear glaze)

Coat: thin

Body: off-white, buff, beige/ partly irregularly burnt

Temper: fine

Hardness: hard

Temper particles: fine brown to black particles (few)

Structure: dense, not entirely sintered

Average Thickness: thin/ 0,59 cm

Ware 10 is the first ware in the group of white glazed stonewares from Karakorum. It is distinctive through its irregularly applied white glaze (Fig. 16). This glaze consists of a white slip that is irregularly coated with a strikingly clear glaze. Due to the very clear glaze, the whiteness of this ware appears brighter and purer than that of the other white wares. The body of ware 10 is off-white, buff or beige in color and partly irregularly burnt. A few brown to black particles may appear.

In total, 232 fragments of ware 10 are documented in 194 datasets. Therefore, this ware holds a share of about 1,1% of all recorded fragments. It belongs to the minor wares which are documented in Karakorum.

Ware 10 – Shapes

No complete shapes, lids, handles or spouts are documented in ware 10. Most of the fragments are body fragments with a share of 75%. Rim fragments hold a share of 19% of the documented fragments and base fragments hold a share of 6%.

Concerning the shapes ware 10 differs from many other wares found in Karakorum. The most common rim shape is Rim Type 6.2., i. e. inverted to straight rims with a rounded lip. This type holds a share of 84% of the rim fragments in this ware and appears in slightly varying forming (Plate 13, fig. 6–7). The vessel shape that is associated with this rim type is that of a pot. Concerning the findings from ware 10 most of the vessels with Rim Type 6.2. indeed appear to be pots. However, some of the fragments may derive from bowls. The diameters of these vessels range from 17–28 cm with an average of 24 cm. Only a few of the determinable findings have a diameter smaller than 22 cm. Therefore, most of the vessels with Rim Type 6.2. in ware 10 are comparatively large.

Two further rim shapes rarely appear in ware 10. This is Rim Type 2.1., i. e. s-shaped rims, with a share of 7% (Plate 13, fig. 4) and Rim Type 3, i. e. straight rims, with a share of 5% (Plate 13, fig. 5). The fragments with Rim Type 2.1. are very likely to belong to bowls and measure 17–24 cm in diameter. In contrast, the fragments of Rim Type 3 are very small and measure 9 cm in diameter only. They are assumed to belong to small pots.

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The base shapes in ware 10 are exceptional as none of them belongs to Base Type 1.1. which is the most common type in Karakorum overall. Concerning ware 10 the most common base shape is Base Type 2.1. with a share of 64%. The shape itself is uniform but the widths of the footrings vary from small to very large (Plate 14, fig. 1–4). The diameters of the footrings range from 9–11,2 cm with an average of 10,4 cm. Only one of the findings has a diameter of less than 10 cm. The second base type that is documented in ware 10 is Base Type 3 with a share of 29% (Plate 14, fig. 5–6). The diameters of this type range from 7,5–11 cm. However, the small diameter of 7,5 cm is an exception. It is measured on ID 2185 which appears to belong to a vase or small and high pot (Plate 14, fig. 6). This finding is exceptional in shape in ware 10. The average diameter on Base Type 3 in ware 10 is 11,5 cm.

Just like the rim fragments the base fragments in ware 10 generally leave the impression to derive from pots in the most parts.

In total, most of the vessels made of this ware seem to be pots. Thus, ware 10 appears to be a simple domestic ware that is used for storage, cooking and the like.

Ware 10 – Décor

There is no décor documented on ware 10.

Ware 10 – Signs of Repair

Only one fragment of ware 10 shows signs of repair, resp. the remains of a metal handle. It is rim fragment ID 13131 with shape Rim Type 6.2. (Fig. 16, right). The non-piercing drill hole on the outside of the rim appears comparatively large with a diameter of 5 mm. However, the diameter may be wrongly estimated as metal remains cover the drill hole. Whether these metal remains belong to a clamp (for repairs) or a handle cannot be reconstructed.

Ware 10 – Marks

There are no marks documented on ware 10.

Ware 10 – Comparable Findings

Comparable samples for ware 10 are rare. Comparisons are hindered by a lack of adequate pictures of potentially comparable findings as their descriptions often lack information about a regular or irregular application of the glaze. A bowl of comparable whiteness and with a comparable rim shape is excavated from a Liao tomb in Chifeng, Inner Mongolia, that dates to the year 941 (Ta La / Chen Yongzhi 2008, 22). The base of this bowl differs from those documented in ware 10 and is of Base Type 1.1. Another finding from the same tomb clearly differs in shape from the fragments from Karakorum but is glazed equally irregular.

White glazed vessels from coetaneous sites to Karakorum like e. g. Jininglu and Yanjialiang are only scarcely and vaguely comparable to ware 10. On each of these sites a pot with a comparable shape and a very white glaze is found (Ta La / Chen Yongzhi 2008, Color Plate 99, Fig. 3 + 376, Plate 14, Fig. 2; Chen Yongzhi 2004, 157, Plate 112). The pot from Yanjialiang has no attribution to a production site or a dynasty while the pot from Jininglu is attributed to the Ding kiln system and dated to the Jin dynasty (Chen Yongzhi 2004, 157). Both vessels appear comparable but slightly different in shape and much smoother in appearance than the findings from Karakorum.

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glossy glaze and only about 22 % of fragments with a rather mat to mat glaze. The inside of 8,8% of ware 11 in total is glazed with clear glaze only, i. e. no slip is used.

The main subtype in this group is ware 11.1. with an overwhelming majority of 86,6%. Findings of subtype ware 11.2. constitute 3,7% of ware 11 and findings of subtype ware 11.3. hold a share of 9,7%. Therefore, subtype ware 11.1. is very dominant in the group of white glazed stonewares.

Overall, ware 11 is the major ware found in Karakorum. Documented are 5490 fragments in 4276 datasets. This represents a share of 26% of all recorded ceramics.

Ware 11 – Shapes

The share of body fragments in ware 11 equals 65%. With a share of 23% about twice as many rim fragments than base fragments are documented. The latter hold a share of 11%. Fragments of lids and handles together hold a share of less than 0,4%. Handles are recorded in subtype ware 11.1. only. One lid fragment is defined as subtype ware 11.3. The remaining lid fragments belong to subtype ware 11.1. Spouts are not documented in ware 11 at all.

There are 22 datasets with complete shapes recorded in ware 11 (Plate 15, fig. 1–10; Chart 7). This equals a share of 0,46% of the datasets in this ware. Most of these findings are classified as subtype ware 11.1. with 18 completely preserved vessels. Two vessels belong to subtype ware 11.2. and another two are defined as subtype ware 11.3. In total, 45,5% of the completely preserved vessels are flat bowls and 22,7% are bowls. Other shapes are exceptional. These include 9,1% deep plates and the same amount of pots. Deep bowls, plates and bottles hold a share of 4,5% each. These are single findings only. Their precise shapes vary. Most common are flat bowls with Rim Type 3 and Base Type 1.1. which hold a share of 18%. Flat bowls of this type measure 10–13 cm in diameter at the mouth with an average of 11,6 cm and 4,7–6 in diameter at the base with an average of 5,3 cm. Three out of four of these flat bowls belong to subtype ware 11.1. One is defined as subtype ware 11.3. The same combination of rim and base shape is applied to vessels with differing proportions as well. This is deep plate ID 2154 with a diameter at the mouth of 16 cm and 7 cm at the base as well as plate ID 11607 with a diameter of 16 cm at the mouth and 4 cm at the base. Both are defined as subtype ware 11.1. A very similar shape is documented on flat bowl ID 2038 with Rim Type 3 and Base Type 1.2. It belongs to subtype ware 11.1. as well and measures 12 cm in diameter at the mouth and 5,2 cm at the base. Strongly related to this shape are two bowls and two flat bowls with Rim Type 2.1. and Base Type 1.1. One of these flat bowls and the two bowls are defined as subtype ware 11.1. and are very similar to each other. Their diameter ranges from 18–20 cm at the mouth with an average of 19 cm and from 6–7,7 cm at the base with an average of 6,8 cm. The other flat bowl with this shape belongs to subtype ware 11.3. and is much smaller in diameter. This finding measures 10 cm in diameter at the mouth and 4 cm at the base. Another popular shape in subtype ware 11.1. are bowls with Rim Type 2, R and Base Type 1.1. Documented in this type are two bowls and one deep bowl. All of which are very similar to each other. Their diameters range from 18–20 cm at the mouth with an average of 19,2 cm and 6,6–7,6 cm at the base with an average of 7,1 cm. Two further findings are generally the same in shape but lack the rillings outside, i. e. Rim Type 2 with Base Type 1.1. This is a bowl with a diameter of 18,5 cm at the mouth and 7 cm at the base as well as a deep plate with a diameter of 13 cm at the mouth and 5 cm at the base. Both belong to subtype ware 11.1. Interestingly, the base shape of flat bowls in ware 11 varies whether the rim is more distinctively S-shaped. The three flat bowls with Rim Type 2.2. are shaped in Base Type 1.2. at the bottom. Two of them are defined as subtype ware 11.1. and one belongs to subtype ware 11.2. Their diameters range from 11–12 cm at the mouth with an average of 11,5 cm and from 4,5–5 cm at the base with an average of 4,7 cm. Any shape other than those described above is exceptional in the spectrum of completely preserved vessels in ware 11. This includes a bottle of subtype ware 11.1. with Rim Type 5, N and a rounded base which is a miniature vessel and furthermore two pots. One of these pots belongs to subtype ware 11.1. Its rim is shaped in Rim

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Type 6.1. and the base belongs to Base Type 1.1. The other pot is classified as subtype ware 11.2. with Rim Type 6.2. and Base Type 2.1. Their sizes are comparable. The first pot measures 17,5 cm at the mouth and the second measures 17 cm. The bases measure 7,5 cm and 9 cm.

ID	Ware	Shape	Rim Type	Base Type	Height (cm)	Ø (Mouth) (cm)	Ø (Base) (cm)
6616	11.1.	Bowl	RT 2	BT 1.1.	7,2	18,5	7
2174	11.1.	Deep Plate	RT 2	BT 1.1.	3,2	13	5
7780	11.1.	Bowl	RT 2, R	BT 1.1.	8,6	19,5	6,6
7138	11.1.	Bowl	RT 2, R	BT 1.1.	8,8	20	7,6
2168	11.1.	Deep Bowl	RT 2, R	BT 1.1.	9,2	18	7
1366	11.1.	Bowl	RT 2.1.	BT 1.1.	7,8	18	6
1905	11.1.	Bowl	RT 2.1.	BT 1.1.	8,2	20	7,7
1226	11.1.	Flat Bowl	RT 2.1.	BT 1.1.	6,1	19	6,8
2541	11.3.	Flat Bowl	RT 2.1.	BT 1.1.	3,1	10	4
2015	11.1.	Flat Bowl	RT 2.2.	BT 1.2.	3,9	11	4,5
6531	11.2.	Flat Bowl	RT 2.2.	BT 1.2.	3,8	11,5	4,5
1188	11.1.	Flat Bowl	RT 2.2.	BT 1.2.	4,1	12	5
11607	11.1.	Plate	RT 3	BT 1.1.	2,8	16	4
2154	11.1.	Deep Plate	RT 3	BT 1.1.	3,8	16	7
1252	11.1.	Flat Bowl	RT 3	BT 1.1.	3,1	11,5	6
10699	11.1.	Flat Bowl	RT 3	BT 1.1.	3,6	12	5
11723	11.1.	Flat Bowl	RT 3	BT 1.1.	3,5	13	5,3
1852	11.3.	Flat Bowl	RT 3	BT 1.1.	3,6	10	4,7
2038	11.1.	Flat Bowl	RT 3	BT 1.2.	4,2	12	5,2
4689	11.1.	Bottle	RT 5, N	Rounded	3,8	2,6	/
2179	11.1.	Pot	RT 6.1.	BT 1.1.	11,5	17,5	7,5
10664	11.2.	Pot	RT 6.2.	BT 2.1.	10,6	17	9

Chart 7: Overview on completely preserved shapes in ware 11 and their sizes.

The spectrum of shapes in ware 11 is generally broad. In total, twenty rim shapes and seven base shapes are documented (Chart 8 + 9). This is a higher variety than in most of the other glazed ceramics from Karakorum. The widest spectrum is recorded in subtype ware 11.1. which includes any of the rim shapes of ware 1 (Plate 15–21).

Although many rim shapes are documented, three, resp. four, types are clearly dominant in ware 11. First, this is Rim Type 3 with a share of 47,7% of all recorded rim fragments. Most of the vessels with this rim shape are assumed to be bowls with a diameter from 9–26 cm. Their exact shaping and appearances vary slightly (Plate 15, fig. 5–7 and Plate 17, fig. 3–8). Additionally, two exceptions are included in Rim Type 3. These are ID 2112 and ID 15632 (Plate 18, fig. 1–2). Both of which are similar in shape to the average of Rim Type 3 but differ entirely in orientation. They are assumed to derive from bottles with a diameter of 5 cm.

The second most common rim shape on ware 11 is Rim Type 2.1. which holds a share of 13,9% (Plate 16, fig. 10–12). This shape is used on bowls and plates with a diameter from 10–25 cm. Moreover, the variant Rim Type 2.1., R is documented on 8% of the rim fragments in ware 11 (Plate 17, fig. 1). This shape is applied on bowls with a diameter from 12–23 cm. Both rim shapes together hold a share of 21,9% in ware 11.

The third most common rim shape on ware 11 is Rim Type 6.1. with a share of 11,6% (Plate 19, fig. 6 and Plate 20, fig. 1–4). This rim type is associated to the shape of pots. The diameter of vessels with this shape ranges from 11–30 cm with an average of 22,5 cm.

Any other than the rim types listed above is exceptional in the spectrum of shapes in ware 11. Included are e. g. Rim Type 1 that is attributed to the shape of plates (Plate 16, fig. 5–6), Rim Type 2 which appears on bowls and pots in ware 11 (Plate 15, fig. 2 and Plate 16, fig. 8–9), Rim Type 2.2. on bowls (Plate 15, fig. 4), Rim Type 5 (Plate 18, fig. 6) and variants of it like Rim Type

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5, N (Plate 18, fig. 7–8) or Rim Type 5, C on pots (Plate 18, fig. 9–10), Rim Type 5, B + C on bottles (Plate 19, fig. 4–5) as well as Rim Type 6.2. on pots (Plate 20, fig. 5–9) and Rim Type 7 on bottles (Plate 21, fig. 2). In total, most rim shapes and fragments are associated with the shape of bowls and plates. Second to this are pots which are documented with and without handles. Least common are bottles of several shapes.

	11.1.	11.2.	11.3.	fragments, total	share in rim shapes	diameters	average diameter
RT 1	15	/	1	16	1,22%	13–28 cm	22 cm
RT 1-4	1	/	/	1	0,08%	28 cm	/
RT 2	56	1	2	59	4,50%	5–25 cm	14 cm
RT 2, R	7	/	1	8	0,61%	18–22 cm	19,7 cm
RT 2.1.	175	2	5	182	13,88%	10–25 cm	18,3 cm
RT 2.1., R	88	15	2	105	8,01%	12–23 cm	18,7 cm
RT 2.2.	12	2	1	15	1,14%	9–15 cm	11,7 cm
RT 3	566	9	50	625	47,67%	5–26 cm	16,6 cm
RT 3, C	9	/	2	11	0,84%	14–18 cm	16,8 cm
RT 4	1	/	/	1	0,08%	not definable	/
RT 5	1	/	1	2	0,15%	6 cm	6 cm
RT 5, B, C	4	/	1	5	0,38%	3–4,5 cm	3,8 cm
RT 5, C	8	2	8	18	1,37%	12–28 cm	19,2 cm
RT 5, N + C	18	1	3	22	1,68%	6–24 cm	12,8 cm
RT 5, N	24	1	2	27	2,06%	2, 6–18 cm	11,6 cm
RT 6.1.	136	5	11	152	11,59%	11–30 cm	22,5 cm
RT 6.2.	11	9	8	28	2,14%	12–26 cm	18,2 cm
RT 6.3.	5	/	/	5	0,38%	26–30 cm	28,4 cm
RT 7	1	/	/	1	0,08%	7 cm	/
RT 7, L	1	/	/	1	0,08%	6 cm	/
not definable	24	/	3	27	2,06%	/	/

Chart 8: Rim Types of ware 11.

Concerning the base shapes of ware 11 about 84% of all base fragments are defined as Base Type 1.1. (e. g. Plate 15, fig. 1–3). This type is not attributable to specific shapes and appears on bowls, plates and pots. The diameters of these bases range from 3,8–11 cm with an average of 6,5 cm. Second most common is the related Base Type 1.2. with a share of 5,7%. It is documented only on flat bowls in terms of completely preserved vessels of ware 11 (Plate 15, fig. 4 + 7). The diameters on this type range from 2,8–7 cm with average of 4,9 cm. The third most common shape is Base Type 2.1. with a share of 2,25% (Plate 21, fig. 4). Its diameters measure from 6–15 cm with an average of 10,1 cm. This type as well as Base Type 2.3. (Plate 21, fig. 6–7) and Base Type 3 (Plate 21, fig. 9) appear to be associated with the shape of pots. The latter two hold a share of 0,81% each in the spectrum of base shapes on ware 11. Bases of type 2.3. range from 6–11 cm in diameter with an average of 7,7 cm. Bases of type 3 are the largest with an average diameter of 13,8 cm and a range from 10–22 cm. The smallest bases are those of Base Type 4.1. and Base Type 4.2. which belong to the shape of stem cups. Their diameter ranges from 3,5–4,3 cm with an average of 3,8 cm. An exception in Karakorum is the rounded base on ID 4689 (Plate 15, fig. 10). This shape is not documented in any other ware or on any other fragment.

3. 3. Stonewares – Wares 8–38

	11.1.	11.2.	11.3.	fragments, total	share in base shapes	diameters	average diameter
BT 1.1.	486	11	24	521	83,9%	3,8–11 cm	6,5 cm
BT 1.2.	27	6	2	35	5,64%	2, 8–7 cm	4,9 cm
BT 2.1.	2	8	4	14	2,25%	6–15 cm	10,1 cm
BT 2.3.	4	0	1	5	0,81%	6–11 cm	7,7 cm
BT 3	4	1	0	5	0,81%	10–22 cm	13,8 cm
BT 4.1.	4	0	0	4	0,64%	3,5–4,3 cm	3,8 cm
BT 4.2.	0	0	1	1	0,16%	3,7 cm	/
rounded base	1	0	0	1	0,16%	not definable	/
not definable	32	2	1	35	5,64%	/	/

Chart 9: Base Types in ware 11.

Findings of lids and handles are few in ware 11. Still, their shapes vary (Plate 15, fig. 11–12 and Plate 16, fig. 1 + 4). Concerning the lids, hollow lids of type I are most common (Plate 15, fig. 11–12). These are manufactured in differing sizes and assumed to have a knob handle (Handle Type III, Plate 16, fig. 4). Their diameter ranges from 5–22 cm with an average of 12,8 cm. None of the lids of type I is completely preserved. There is, however, a completely preserved sample known from a survey in the surroundings of Karakorum (Heussner 2012, 68, Fig. 2). A second type of lid is represented with a single find only. This is lid type II on ID 1946 with a diameter of 3 cm (Plate 16, fig. 1). Regarding the handles on ware 11, Handle Type I is by far the most common. This is doubled loop handles with a rounded profile which are documented on rims of pots and bottles (Plate 16, fig. 2 and Plate 19, fig. 2 + 5). Exceptional are knob handles (Plate 16, fig. 4) and handles of type II which have a ribbed profile (Plate 16, fig. 3).

In total, the spectrum of shapes in ware 11 is that of a domestic ware that is mainly used for cooking and eating and possibly some storing. It is striking that no fragments of pitchers or jugs are found. Spouts are hardly documented in any ceramic from Karakorum at all. As they do not appear on such a widely distributed ware with a broad spectrum of shapes like ware 11, it is indicated that e.g. pitchers made of leather are used in Karakorum.

Judging from the shapes of the rim fragments it is assumed that ware 11 consists of about 78% of bowls and plates, 17% pots and 3% bottles. The remaining 2% are not attributable. In comparison with the other glazed ceramics from Karakorum, the share of pots and bottles is high in this ware.

Ware 11 – Décor

Décor is documented on 17,12% of all fragments of ware 11 (Plates 65–68). The highest share of décor is documented in subtype ware 11.3. with 29,9%. The other subtypes are about the average share with 15,9% in ware 11.1. and 19,9% in ware 11.2. Most of the décor consists of brown paintings which hold a share of 85,8% of the decorations in total. Other techniques of decoration that are used on ware 11 are underglaze paintings with a share of 6,1%, cut-glazed décor with a share of 6,8% and colored glaze (brown splashes) with a share of 1,4% (Chart 10).

	11.1. (fragments)	11.2. (fragments)	11.3. (fragments)	share in total (of decorated fragments)
painted (brown)	684	20	104	85,8%
underglaze paintings (black)	56	0	0	6,1%
colored glaze (brown)	10	0	3	1,4%
cut-glaze décor	21	17	26	6,8%

Chart 10: Overview of decoration techniques of ware 11.

It is striking that 69% of the décor is applied on the outside of a vessel and only 31% on the inside. Although bowls and plates are the most common shapes in ware 11, décor is most common on pots. This is especially evident on fragments with décor on the outside and a clear glaze or no glaze on the inside which hold a share of 28,3% of all fragments with décor.

3. 3. Stonewares – Wares 8–38

Painted décor on ware 11 is very simple for the most parts (Plate 65–67). All of it is painted in brown or black. Most of the motifs are ornamental. Various simple spot and leaves designs are documented. Some fragments are painted with floral designs. All the recognizable flowers are chrysanthemums and seem to be swiftly painted. Few of the documented fragments are assumed to be decorated with the figural design of fish. All of them are only fragmentarily preserved (e. g. Plate 68, fig. 1). Exceptional are findings ID 3236 and ID 6512 on which fragments of Chinese characters are preserved that are painted in brown on the inside of these vessels (Plate 68, fig. 2 + 3). Neither of them is decipherable.

Décor which is applied as underglaze painting generally appears more carefully drawn than the other painted motifs. It is documented on subtype ware 11.1. only. The range of motifs is low (Plate 68, fig. 4–9). Best recognizable are clouds and bamboo leaves as motifs. Furthermore, Chinese script is documented on the outside of ID 7422 (Plate 68, fig. 9). Most of the writing is not preserved. The only character which is still readable is 管 (*guan*) which can be translated as 'official'.

The most elaborately executed designs on ware 11 are documented in the spectrum of cut-glazed décor (Plate 68, fig. 10–19). These are all applied on the outside of vessels. Most are floral. In few cases the figural motif of fish is recorded. Cut-glazed décor which is more simply executed is documented on the inside of the vessels only. Most fragments with this technique of decoration are defined as subtype ware 11.3. These are about 40% of the findings with cut-glazed décor in this ware.

Concerning décor with colored glaze, the only use of this technique is made for simple brown splashes. Most of these are used for putting and accentuation on handles.

Overall, the décor on ware 11 is a simple domestic decoration for the most part. A closer analysis of the motifs and the techniques is assumed to allow a subtler classification of the white wares from Karakorum.

Ware 11 – Signs of Repair

Signs of repair are documented on 2,7% of ware 11 in total. Concerning the share of repairs in the subtypes, most repairs occur on ware 11.3. (4,8%) while the frequency of repairs is about the average in ware 11.1. (2,5%) and slightly below average in ware 11.2. (1,9%).

Most repairs consist of one or more non-piercing drill hole on the outside of a vessel. The diameters of the holes range from 2–4 mm. Sometimes a metal clamp or fragments clamps are preserved.

The shape of the repaired vessels can be determined on 40,7% of the fragments with signs of repair. It is noticeable that 63% of these vessels are pots and only 37% are bowls. Proportionally, most repairs are documented on pots with Rim Type 6.1. This is 26% of the vessels with determinable shape and 41,4% of the repaired pots which is not surprising as Rim Type 6.1. is the most common shape on pots in ware 11. It is striking that most of the décor as well as most of the repairs in ware 11 are documented on pots.

The frequency of repairs rises over time. This applies to all the subtypes of ware 11. About 1,4% of the findings that date to the Song dynasty have signs on repair on them. This share rises to about 4,9% for findings from the Yuan dynasty. It is to be concluded that the need for repairs and/or the possibilities for repairing ceramics increase over time.

Ware 11 – Marks

There are 58 fragments with marks documented in 46 datasets of ware 11 (Plate 78, fig. 13–18, Plates 79–80 and Plate 81, fig. 1–10). This equals a share of 1,1% of all documented fragments. Most of these belong to subtype ware 11.1. In subtypes ware 11.2. and ware 11.3. marks are extremely exceptional with one case each. The fragment with a mark in ware 11.2. is ID 1388 (Plate 79, fig. 7). The fragment with a mark in ware 11.3. is ID 1936 (Plate 79, fig. 12).

3. 3. Stonewares – Wares 8–38

Concerning the subdivisions of ware 11 this results in a share of fragments with marks of 1,2% in ware 11.1., 0,63% in ware 11.2. and 0,24% in ware 11.3.

The marks can be subdivided into two categories:

- a) marks written with black ink
- and
- b) carved marks.

An exception is ID 8124. In this case red color is randomly applied on the fragment. Although this is a red splash only, this fragment is included in the category of marks as red color does not appear on any other fragment of ware 11. Only a black splash is documented on ID 2058. It is included as a mark for the same reasons as ID 8124.

Concerning the categories of marks in general, carved marks are interpreted as potter marks since there is a need to apply these marks in the unfired body. Marks written with black ink can be applied any time after the production process. As translated samples from Karakorum and other contemporaneous sites show, written marks include for example dating, owner's marks and good wishes. (cf. Nagel 2002, Evtiukhova 1959, 189ff; Ta La et al. 2010, 629ff + Color Plates 268ff).

Carved Marks

Carved marks from Karakorum are not previously known and published. They are documented in ware 11 only. Two out of the three carved marks belong to subtype ware 11.1. (ID 1393 on Plate 79, fig. 8 and ID 2178 on Plate 80, fig. 8) while the third is defined as subtype ware 11.2. (ID 1388 on Plate 79, fig. 7). Each of them derives from a different settlement layer. Thus, carved marks are recorded throughout all settlement periods in Karakorum.

The earliest carved mark that is recorded is ID 1393 which dates to the Song dynasty. It is a sign that is assumed to be the Chinese character 安 (*an*) which can be a family name or translated as 'peaceful'.⁶ The mark is applied on the base of a heavy pot.

The other two carved marks are to be dated to the Yuan dynasty. One of them is ID 1388 that is a carved cross. Its meaning remains unclear. The cross as a mark appears in the written marks as well. This includes a cross on ID 1226 which is classified as ware 11 (Plate 78, fig. 13) as well as a cross on ID 4067 that is classified as ware 5 (Plate 78, fig. 10). A carved cross is furthermore documented on a black glazed bowl from the city site of Yanjialiang, Inner Mongolia (Ta La et al. 2010, 400, Plate 435, Fig. 8). The second carved mark that dates to the Yuan dynasty is ID 2178. Parts of the base are lost and the mark is possibly not fully preserved. However, there is a carved mark known from the city site of Yanjialiang that is similar to the preserved pieces on ID 2178 (Ta La et al. 2010, 346, Plate 389, Fig. 3). Whether parts of the mark are missing it could still be comparable to the mark on another vessel from Yanjialiang (Ta La et al. 2010, 353, Plate 395, Fig. 2). Although comparability is given, the interpretation of this mark remains unknown.

Overall, carved marks are limited to ware 11 in Karakorum and well-comparable to marks documented on ceramics from Yanjialiang.

Written Marks

There are 41 written marks documented in ware 11 (Plate 78, fig. 13–18, Plates 79–80 and Plate 81, fig. 1–10). All but one belong to subtype ware 11.1. The exception is ID 1936 that is defined as subtype 11.3. As typical for black ink marks, all of them are applied on the unglazed body on

⁶ Thanks to my colleague Patrick Wertmann for interpreting the marks from Karakorum. All the translations of the Chinese marks are made by him, resp. at least cross-checked with him.

the outside base of a vessel. The preferred spot for marks is inside the middle ring of the base. Still, additional writings around this ring might appear (e. g. Plate 79, fig. 6 or Plate 80, fig. 4).

Written marks are documented throughout all settlement layers. Most of them are only fragmentarily preserved and therefore not readable. All the marks are different. Whether decipherable marks are included, their script is Chinese. Three of the Chinese inscriptions are published in a previous study already (Nagel 2002). This is ID 1270, ID 1275 and ID 2153. The writing on ID 1275 is not decipherable. The character on ID 1270 is interpreted as Chinese character '*jing*' by Nagel (2002, Plate XVII, fig. c) but left without translation or interpretation. Concerning ID 2153 the preserved character is interpreted as '*wan*' (Nagel 2002, Plate XVII, fig. b). It could possibly be part of the Chinese wish for a long life '*wan shou*'.

Further Chinese writings on ware 11 include the Chinese character '*guan*' (管) on ID 1263. This can be translated as 'official' which indicates that this vessel is was used by an official or for official reasons. The character on ID 1265 possibly reads '*dang*' (當) and can be translated as 'workshop'. This is a translation that fits very well into the interpretation of the city centre of Karakorum as the Chinese craftsmen quarter. Still, indications for other businesses are documented in the marks as well. This is the mark on ID 1274 which can be interpreted as '*shi dian*' (食店, 'foodstore') or the mark on ID 1943 that could be '*cha*' (茶, 'tea') and possibly deriving from a teahouse. Apart from good wishes and businesses, family names are written on the bases of the vessels. This includes the name 'Zhou' (周) on ID 2173. Regarding names the character on ID 2154 is most interesting as the name 'Zhang' (張) is part of it. This name is furthermore documented on two findings in ware 20 as well as possibly on ID 2001 (Plate 80, fig. 4 and Plate 82, fig. 4 + 10). All the fragments are found nearby and could belong to the same household. Moreover, the name Zhang is documented at the city site of Yanjialiag as well (Ta La et al. 2010, Color Plate 276, Fig. 3).

In addition to Chinese marks other scriptures are documented on ware 11. Some of these are unknown to the author. This is especially true for the writings on ID 1904 and ID 3530 that stylistically appear to be between Chinese script and 'phags-pa script. Signs as on ID 1860 completely lack resemblance. The fragments of the mark on ID 11103 appear as Tibetan writing which is too badly preserved to be decipherable. Furthermore, simple signs like a cross on ID 1226 are used as marking. The sign of a cross is used in the carved marks as well and moreover known on other wares from Karakorum and from further sites like Yanjialiag (see above and Ta La et al. 2010, 372, Plate 411, Fig. 8). Fragments of some sort of black ink painting are documented next to the writings on ID 2001 (Plate 80, fig. 4).

Overall, most of the marks on ware 11 are no longer legible. Judging from the interpretable fragments, the written marks include good wishes, family names, affiliations to businesses or uses ('official') and at least three different languages incl. Chinese and Tibetan. Most of the marks appear to be written in Chinese. Simple signs such as a cross are used as marks as well.

Ware 11 – Comparable Findings

The comparison and correlation of ware 11 to known ceramics is easy at first sight and complicated in detail. Generally, many of the findings are comparable to wares that are attributed to the Cizhou kiln system in modern day Hebei province (cf. Mino 1980; Ye Zhemin 2009a + b). This includes e. g. cylindrical pots from the city site of Jininglu which are the same in shape and similar in décor as inter alia ID 1827 from Karakorum as well as white glazed plates and pots with cut-glazed décor found in Jininglu that are well-comparable to findings of ware 11 from Karakorum like ID 3048 (Plate 68, fig. 15; cf. Chen Yongzhi 2004, 198ff + 207). Concerning the contemporaneous city site of Yanjialiag, Inner Mongolia, ceramics which are classified as 'white glazed with flower paintings' (Ta La et al. 2010, 343ff) are highly comparable in shape and décor to painted findings of ware 11 from Karakorum. Excluded from the comparability are several lid shapes that are not documented in Karakorum. This refers especially to triangular lid shapes from

Yanjialiang (Ta La et al. 2010, 359, Plate 400). Most of the fragments without décor from Karakorum are comparable to findings classified as ‘thick white glazed ceramics’ (Ta La et al. 2010, 366ff) in Yanjialiang. Some shapes differ between the findings of both city sites but the majority is alike. Further comparable findings from Yanjialiang are included in a group classified as ‘ceramics with incised, carved and imprinted décor’ (Ta La et al. 2010, 396ff). This refers to some pieces with cut-glazed décor from Karakorum. However, the classification at Yanjialiang includes ceramics with differing glazes and thus many findings that are not comparable to ware 11. Overall, none of the ceramics from Yanjialiang is specifically attributed to a kiln site although some of them are thought to originate in the Cizhou kiln system (Ta La et al. 2010, 646). Other potential production sites for the ceramics from Yanjialiang are kiln sites in Shanxi province and the Lingwu kiln in Ningxia province (Ta La et al. 2010, 646). Differences and detailed specifics in the correlations of findings to kiln sites are not stated. All the production sites mentioned for the ceramics from Yanjialiang are supposable for the wares found in Karakorum as well.

The short remarks on the classification of white wares from Yanjialiang already warn of the characteristics for the problematic in this group. The features of ware 11 are documented at several production sites. Based on general definitions in glaze and body characteristics, a correlation to a specific kiln system is impossible. Similarities between the kiln sites are too strong. Small varieties in body and glaze may appear inside a kiln system as well as between kiln systems and do not necessarily imply different origins. The production sites of white glazed stonewares are widely distributed, especially across northern Chinese regions (cf. Hughes-Stanton / Kerr 1981). Thus, comparable findings to ware 11 are correlated to a broad variety of kiln sites. Samples of these are listed below. Due to the large quantity of fragments and varieties the remarks on comparable findings to ware 11 are not as detailed as those on smaller ware groups. Further samples are known. Included in the overview are the best comparable pieces to a selection of production sites in order to display the spectrum of origins. Additional correlations to smaller production sites that are poorly published or not excavated thus far are to be assumed.

Concerning popular Chinese wares, one of the most common classifications of white glazed stonewares of the Song and Yuan dynasties is an attribution to the Cizhou kiln system in modern day Hebei province. On some fragments from Karakorum a correlation of ware 11 to products from this kiln system is evident. This includes especially fragments with the brown painted décor ‘Chrysanthemum Scroll I’ and ‘Fish’. Various pots with a comparable décor are known from collections and ascribed to the Cizhou kiln system (Mino 1980, 210f; Ye Zhemin 2009b, 200). Comparable findings from Karakorum belong to a variant of subtype ware 11.1. that is characterized by an off-white body without visible temper particles and a mat white glaze on the inside. All these findings date to the Yuan dynasty. It is 126 fragments in total which vary in décor. Motifs included are e. g. ‘Chrysanthemum II’ as well as ‘Lines and Dots I + II’. This subtype is defined individually in the initial record of the ceramics but included in ware 11 as the differences to other previously distinguished wares are marginal. When required, queries on these fragments can be made in the original database. One of the excavated kiln sites that belong to the Cizhou system is the Guantai kiln in Hebei province. In contrast to the fragments attributed to the Cizhou kilns system that are described above, products of the Guantai kiln are defined as having a grey, light grey or brownish grey body and partly a “coarse” temper (Beijing University Archaeology Department 1997, 587ff, esp. 597 + 600). Much of the décor on these ceramics is not as simple as most of the motifs documented in Karakorum. Still, fragments of subtypes ware 11.2. and ware 11.3. with a cut-glaze décor are comparable to products from the Guantai kiln.

Overall, all subtypes of ware 11 include fragments that can be attributed to the Cizhou kiln system. The spectrum of these ceramics includes décor that is more extensive than many of the samples from Karakorum as well as shapes that are not documented in Karakorum. (esp. cf. Ye Zhemin 2009a + b; Beijing University Archaeology Department 1997). Shapes missing in Karakorum are particularly pillows. In general, the variety of Cizhou wares is very broad and widely copied (Ye Zhemin 2009a, 36ff; Medley 1989, 123ff). Due to this many of the findings from Karakorum are

not only comparable to Cizhou wares but also to ceramics defined as ‘Cizhou type wares’ which is a common classification. Comparable findings of this kind are e. g. published in Ta La / Chen Yongzhi (2008, 217), Xie Zhixiu et al. (2008, 186) and Sun Xinmin / Yang Ailing (2008, 232).

A second production site that is already mentioned in matters of comparable findings from Yanjialiang is the Lingwu kiln in Ningxia province. At this site white, glazed ceramics are produced amongst others from the 11th century on. During this time, the Western Xia rule in this territory. The body of these ceramics is described as “hard and compact, [...] [containing] a few grains of sand, and [having] a pale yellow or grayish-white colour.” (Chinese Institute for Social Sciences and Archaeology 1995, 223). Furthermore, ceramics from the Lingwu kiln site are described as “strongly influenced by the Dingyao and Cizhou wares” (Chinese Institute for Social Sciences and Archaeology 1995, 223). This includes inter alia vessels with cut-glazed décor that is very similar to the motifs known from the Cizhou kiln system (cf. e. g. Chinese Institute for Social Sciences and Archaeology 1995, Plate 53, Fig. 1 with the samples from the Guantai kiln stated above). Therefore, fragments of subtype ware 11.1. with cut-glazed décor could derive from the Lingwu kiln. In general, the description of the body features of ceramics from the Lingwu kiln matches better with the findings from Karakorum than that of the Cizhou Guantai kiln (see above). Roughly 86,5% of ware 11 are defined as subtype ware 11.1. with a buff or off-white body while about 13,5% belong to subtypes ware 11.2. + 3. which are gray to brownish gray in body color. Nevertheless, most of the published findings from the Lingwu kiln site are black glazed ceramics. Due to this and a general lack of publications on this site, detailed comparisons between ceramics from the Lingwu kiln and ware 11 from Karakorum are hardly possible. Similarities in shapes, décor, body and glaze are generally provided (cf. Chinese Institute for Social Sciences and Archaeology 1995).

Further possible production sites of ware 11 that are little explored are e. g. the Lizhou kiln in Liaoning province, the Gangwa kiln in Inner Mongolia and the Jiangguantung kiln in Liaoning. At these kiln sites stonewares with a white slip and clear glaze are produced in the 13th and 14th century (Liaoning Provincial Institute of Archaeology 2011, 66ff). Their body and glaze features appear to be comparable to those documented in Karakorum. In general, there are only minor differences in clay between northern white wares of the time which is proven by chemical analyses (Kerr / Wood 2004, 176). White wares with a similar composition are already produced in the region of modern day Inner Mongolia during the 10th–12th century under the reign of the Liao dynasty (Lu Jing 2008, 209–210 with reference to Cong Wenyu 1992; Eisenhofer-Halim 1996). Many of the Liao white wares differ in shape from those found in Karakorum. Still, vases with e. g. cut-glazed décor similar to the motifs from Karakorum already are documented in these earlier wares (Lu Jing 2008, 672, Cat.-No. 572 + 573). The painted décor on ware 11 is in most parts characteristic for northern white wares of the Yuan dynasty (Yu Yue 2014, 36). It is not characteristic for Liao wares. Parts of the painted décor can be included in the range of motifs from the Jin dynasty (Yu Yue 2014, 36).

Overall, white wares with similar characteristics as ware 11 from Karakorum are produced at various kiln sites in northern China from the 10th century on. Their distribution is wide-spread. Comparable findings are attributed to various dynasties which include Liao (cf. Lu Jing 2008; Eisenhofer-Halim 1996), Jin (Ye Zhemin 2009b, 66; Wang Hui et al. 2008, 71) and Xi Xia (i. e. Western Xia; Wang Hui et al. 2008, 43 + 127ff). All of which are associated to nomadic lifestyles. In terms of Chinese dynasties, comparable ceramics date into the Song and Yuan dynasties (cf. Ye Zhemin 2009b, 32ff + 362f; Ye Peilan 1998; He Li 1996; Medley 1989). This kind of ceramic is more common in the north of China than in the south (cf. Ta La / Chen Yongzhi 2008 on northern wares). Nevertheless, samples are documented in southern China as well and classified as imports from northern Chinese production sites such as Cizhou (Hangzhou Municipal Institute of Cultural Relics and Archaeology 2007, 285ff).

3. 3. Stonewares – Wares 8–38

Ware 11 – Origin and Interpretation

White wares are included in most, if not all, previous publications on the ceramics from Karakorum. Evtiukhova (1965, 222) includes them in the spectrum of the Cizhou ceramics. In the classifications from Elikhina (2010, 45), these wares are attributed to the Cizhou or the Ding kiln system which equals the rating of Janssen-Kim (2005, 195ff). Concerning the study of Meitoku / Ochir (2007, iii–iv), white glazed stonewares are categorized as ceramics of uncertain provenance. Possible production sites mentioned are the Gangwa kiln, Inner Mongolia, the Cizhou Guantain kiln, Hebei, as well as several minor kilns where Cizhou wares are fired in Hebei, Henan and Shanxi province. Relating to the definition of ware 11 from Karakorum the comparability with Ding wares is low as these are most commonly defined as being porcellaneous (see chapter on ware 2 above). Any other of the previous classifications reflect the impressions from the comparison of ware 11 to common Chinese wares.

As shown above, a classification of ware 11 as Cizhou or Cizhou type ware is possible. Basically, all of the other kiln sites mentioned are said to be influenced by the Cizhou kiln system (Ye Zhemin 2009a, 36ff). Nevertheless, it is assumed that much of ware 11 is produced at kiln sites in Inner Mongolia that are closer to Karakorum and under a stronger influence of nomadic cultures than the Cizhou kilns are. The latter aspect is evident in the décor (see above). Therefore, a classification as Cizhou or Cizhou type ceramics raises the wrong implications on the material from Karakorum. A neutral classification of ware 11 as e. g. ‘thick white glazed ceramics’ (Ta La et al. 2010, 366; Palace Museum 2006) is to be preferred. Detailed research on its places of production is to be part of a separate study on Chinese white wares. The expected spectrum of production sites is broad and includes especially the regions of modern day Inner Mongolia, Liaoning, Hebei, Henan and Shanxi. It is presumable that kiln sites on the territory of modern day Mongolia exist where white wares could have been produced. A correlation of parts of ware 11 to specific kiln sites is probable upon closer examinations. Judging from the known comparable findings to ware 11, relevant indicators for this research are: more detailed body and glaze characteristics, décor, shapes and spur marks. Additionally, the carved marks on three of the findings from Karakorum may be useful for the determination of provenance wherever comparable marks are found at a kiln site. The determination of production sites of ware 11 and the elaboration of criteria for distinguishing all these white wares is an extensive subject of research. In terms of the present study ware 11 remains a compilation of white wares that originate from the northern regions of the territory of the Yuan dynasty.

Concerning its interpretation ware 11 is considered to be made for domestic use. Its shapes are primarily designed for functions like cooking, eating and storing. Although the plain décor on this ware is partly associated with a northern ‘nomadic’ taste (see above), its shapes are not. Characteristic shapes of the Liao dynasty that are attributed to nomadic lifestyles are not included in the spectrum of findings from Karakorum (cf. Eisenhofer-Halim 1996).

Ware 12

Designation: Stoneware with a spotted glaze and irregular firing

Glaze: Beige to Gray

Coat: thin

Body: beige and dark gray **Temper:** fine

Hardness: very hard

Temper particles: fine brown to black particles (few)

Structure: dense, entirely sintered

Average Thickness: thin/ 0,46 cm

3. 3. Stonewares – Wares 8–38

The characteristic of ware 12 is an irregular firing that results in a two-colored body as well as a spotted glaze. Another special feature on this ware are distinct throwing marks as on the outside of ID 6245 (Fig. 17).

Findings of ware 12 in Karakorum are only marginal. In total, six fragments are documented.

Ware 12 – Shapes

Two of the six fragments that are recorded as ware 12 are rim fragments. Both belong to Rim Type 3, i. e. straight rims (Plate 22, fig. 1). Their diameter is determinable only on one of the fragments and measures 19 cm in this case.

Ware 12 – Décor

There is no décor documented on ware 12.

Ware 12 – Signs of Repair

There are no signs of repair documented on ware 12.

Ware 12 – Marks

There are no marks documented on ware 12.

Ware 12 – Comparable Findings

There are no comparable findings to ware 12 known to the author.

Ware 12 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. As there are no comparable findings known, the origin of ware 12 cannot be determined. At first sight, this ware appears to be a sub-standard production of ware 11, resp. it appears like fire damage on ware 11. Still, the distinct throwing marks on ID 6245 are not documented on ware 11 at all. Therefore, an autonomous origin of ware 12 is assumed. It could be a local production or local copy of other wares. According to the stratification of Karakorum the findings are to be dated to the Yuan dynasty. An interpretation concerning the use of ware 12 cannot be provided.

Ware 13

Designation: Stoneware with a craquelling white glaze

Glaze: Cream White, craquelling (reddish cracks)

Coat: very thin

Body: off-white

Temper: very fine

Hardness: very hard

Average Thickness: very thin/ 0,35 cm

Structure: dense, almost entirely sintered

Strictly speaking ware 13 is a stray find only. Due to its very special appearance it is classified as an autonomous ware (Fig. 18).

Ware 13 – Shapes

The only finding in this ware is base fragment ID 1990 that belongs to Base Type 1.1. The diameter of the footring measures 3,6 cm. On the outside of the footring five little spurs are still

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preserved. On the inside little spur marks are visible as well. The fragment derives from a bowl (Plate 22, fig. 2).

Ware 13 – Décor

There is no décor documented on ware 13.

Ware 13 – Signs of Repair

There are no signs of repair documented on ware 13.

Ware 13 – Marks

There are no marks documented on ware 13.

Ware 13 – Comparable Findings

Judging from its outer appearance a pot excavated from the Sinan shipwreck seems to be comparable to ware 13. It is attributed to the Zhangzhou kiln in modern day Fujian province and dated to the Yuan dynasty (Shen Qionghua 2012, 234). Unfortunately, there is no description on the body of the pot given.

Generally, vessels with a craquelling glaze from the Song and Yuan dynasties are attributed to the Guan or Gege kiln systems (Ye Peilan 1998, 275ff). These systems are in turn associated with the production of celadons and dark gray cracks in the glaze (Vainker 1991, 108; Wang Qingzheng 2002, 156; Medley 1989, 152ff). Both attributes do not correlate with the finding of ware 13 from Karakorum.

Ware 13 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. According to its outer appearance, i. e. its thinly potted body, the spurs and the shape, the finding is best comparable to white porcellaneous wares like ware 2. Still, the hardness of the body is too soft to be porcellaneous. Furthermore, the body appears sandy (but entirely sintered) when examining it with a microscope. There is no translucency. The latter feature is a criterion for the exclusion of an origin from e. g. the Guan or Ge kiln system (see above).

The only finding known to the author that is comparable to ware 13 is a pot dated to ca. 1323 and attributed to the Zhangzhou kiln system in modern day Fujian province (see above). This kiln system is primarily known for producing blue-and-white porcelains for maritime trade during the Ming and Qing dynasties. Information about the characteristics of Yuan ceramics produced at the Zhangzhou kiln are unknown to the author. Therefore, the determination of the origin of ware 13 remains vague. Due its outer appearance, i. e. the shape and the spurs, it is assumed to be a Chinese ware. However, its body characteristics, i. e. the sandy but sintered structure, is unknown from the other ceramics documented in Karakorum. A dating of ware 13 in correlation to the finding from the Sinan shipwreck, i. e. about 1323, is possible as the fragment is found in the upper layers from Karakorum. Its use remains unclear. The finding differs strikingly from the other ceramics found.

Ware 14

Designation: White glazed stoneware with a medium temper and a buff body (= ware 14.1.)
a gray body (= ware 14.2.)
a reddish body (= ware 14.3.)

Glaze: Cream White (white slip, clear glossy glaze) **Coat:** thin

Body: off-white, buff, beige (= ware 14.1.)
light gray, gray (= ware 14.2.)
reddish yellow (= ware 14.3.) **Temper:** medium **Hardness:** hard

Temper particles: black and brown particles **Structure:** dense, almost entirely sintered
only ware 14.3.: rounded black particles

Average Thickness: thin/ 0,51 cm (= ware 14.1.)
thin/ 0,5 cm (= ware 14.2.)
thin/ 0,55 cm (= ware 14.3.)

In ware 14 white glazed stonewares with a medium temper are subsumed. The glazes are alike to those of white glazed stonewares with a fine temper (ware 11), i. e. they consist of a white slip with a clear to slightly greenish, mostly glossy glaze. The subdivision of ware 14 is conducted according to body colors and particles:

Ware 14.1.: Off-White, Buff or Beige body, black and brown particles

Ware 14.2.: Light Gray or Gray body, black and brown particles

Ware 14.3.: Reddish Yellow body, rounded black particles.

The subtypes ware 14.1. and ware 14.2. are the medium tempered variants of ware 11.1. (buff body color) and ware 11.3. (gray body color). The transition between both wares is fluent as the share of particles in the body may vary, i. e. fragments with less/few particles are defined as ware 11 and fragments with more visible particles are defined as ware 14. An exception is subtype ware 14.3. as a reddish yellow body with rounded black particles does not appear in the wares with a fine temper. It is specific for white glazed stonewares with a medium temper.

The share of ware 14 is low in Karakorum. In total, 170 fragments are documented in 155 datasets. This equals a share of 0,8% of all documented fragments (0,95% of all datasets). Concerning the subtypes of ware 14, ware 14.1. is the most common with a share of 75%. The other two subtypes appear exceptionally only. This is a share of 8% concerning subtype ware 14.2. and a share of 17% regarding subtype ware 14.3.

Ware 14 – Shapes

In all subtypes of ware 14, most of the documented fragments are body fragments with a total share of 60%. Second most common are rim fragments with a share of 33%. The number of base fragments is strikingly low with a share of 5%. Only one completely preserved vessel as well as one fragment of a lid are documented. Both belong to subtype ware 14.1. Handles and spouts are not recorded in ware 14.

The only completely preserved vessel in ware 14.1. is ID 2161 with Rim Type 3 and Base Type 1.1. (Plate 22, fig. 3). It is a flat bowl that measures 10 cm in diameter at the mouth and 4,7 cm at the base. The only lid documented in this ware is ID 5552 with a diameter of 19 cm (Plate 22, fig. 4). This is a hollow lid of the same shape as Lid Type I in ware 11.

The spectrum of shapes in ware 14 generally equals that of ware 11 but is smaller in its range (Chart 11). The shares of the specific rim types in this ware are comparable to those of ware 11 as well. Most common is Rim Type 3 with a share of 45%, followed by Rim Type 2.1. with a share of 21%. Only Rim Type 7 is – with a share of 10% – much more common in ware 14 than in ware

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11. Further rim shapes are documented on a few findings only. This is Rim Type 1, Rim Type 2, Rim Type 3, C, Rim Type 6.1. and Rim Type 6.2. (Plates 22–23).

Fragments with Rim Type 3 are assumed to derive from bowls. The diameter of these measure 9–25 cm with an average of 19 cm. Vessels with Rim Type 2.1. are assumed to be bowls as well. These measure 14–22 cm in diameter with an average of 17,4 cm. The documented fragments of Rim Type 7 are too small for defining their diameter. Depending on the diameter this shape could derive from bowls or bottles. Vessels with Rim Type 6.1. are pots with a diameter of 22–28 cm. Their average diameter is 25 cm. The only fragment with a determinable diameter in Rim Type 6.2. is the miniature pot ID 15493 with a diameter of 6 cm (Plate 23, fig. 3).

In general, vessels in ware 14 are very well comparable to ware 11 but slightly larger in their average diameter. An exception is ID 7774 that is classified as Rim Type 1 and belongs to subtype ware 14.3. (Plate 22, fig. 5). Although Rim Type 1 appears in ware 11 as well, its peculiar forming is different in that case. The variant of Rim Type 1 in ware 14.3. is closer to the forming of this type in ware 16 which is fine tempered greenish glazed stoneware (Fig. 19).

	14.1.	14.2.	14.3.	fragments, total	share in rim shapes	diameters	average diameter
RT 1	/	/	1	1	1,72%	15 cm	/
RT 2	1	/	/	1	1,72%	11 cm	/
RT 2.1.	8	1	3	12	20,7%	14 – 22 cm	17,4 cm
RT 3	17	3	6	26	44,8%	9 – 25 cm	19 cm
RT 3, C	2	/	/	2	3,45%	/	/
RT 6.1.	3	1	1	5	8,62%	22 – 28 cm	25 cm
RT 6.2.	2	/	/	2	3,45%	6 cm	/
RT 7	6	/	/	6	10,3%	/	/
not definable	2	1	/	3	5,17%	/	/

Chart 11: Overview of Rim Types in Ware 14.

Concerning the base shapes only Base Type 1.1. is documented in Ware 14 (Plate 22, fig. 3). Other types do not appear. The diameter of the bases measures from 4,7–7 cm with an average of 6,2 cm. The spur marks on these bases are like those on bases of ware 11 (Fig. 20).

An exception in the shapes is body fragment ID 5553 that is very likely to belong to a small bottle (Fig. 21). It is the only fragment with such a shape documented in Karakorum thus far.

In total, the assumed spectrum of shapes in ware 14 subsumes to about 85,4% bowls and 14,6% pots. Few shapes of bottles or pitchers are indicated in the fragments.

Ware 14 – Décor

Décor is documented on 8,8% of all fragments of ware 14. Concerning the subtypes, no décor is documented on ware 14.2. In ware 14.1. about 8,7% of the fragments are decorated with brown paintings. Due to the small total numbers, the highest share of fragments with decoration is documented in ware 14.3. In this case, four documented fragments with décor equal 13,8% of all fragments of this subtype. As in subtype ware 14.1. the décor is painted. The colors vary between brown to black and gray.

On most findings with décor the motifs are not recognizable anymore as only parts of (circular) lines are preserved. Exceptions are fragments ID 866 and ID 14671 with the motif of Small Leaves (Plate 68, fig. 20–21). Generally, 57% of the décor is applied on the inside of the vessel and 43% of the fragments with décor are painted on the outside.

Ware 14 – Signs of Repair

Five fragments with signs of repair are documented in ware 14. This equals a share of about 3% of the total fragments. Concerning the subtypes, no signs of repair are documented in ware 14.2.

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Three out of the five fragments with repairs belong to subtype ware 14.1. The remaining two fragments belong to subtype 14.3. Apart from one exception the signs of repair are non-piercing drill holes on the outside of a vessel with a diameter of 3 mm. The exception is ID 3008 (subtype ware 14.1.) with a non-piercing drill hole on the inside of a flat bowl. The reason for this drill hole remains unclear. This fragment dates to the Song dynasty.

Overall, signs of repair on ware 14 are documented in any settlement period. Their number is very low.

Ware 14 – Marks

There are no marks documented on ware 14.

Ware 14 – Comparable Findings

Due to its body characteristics, the comparability of ware 14 to Chinese ceramics is low. Although some white wares from popular kiln sites are described as having a ‘coarse’ body, the temper particles as well as their size and quantity is not defined well enough to allow comparisons (cf. Beijing University Archaeology Department 1997, 597ff). It is a problem that in many compilations of Chinese ceramics only glaze colors are described. Judging from the outer appearance wares from the Jiaxian kiln and the Bacun kiln sites in Henan province could be comparable to ware 14 but do not seem to be of the same temper as no particles are visible on the pictures (cf. Feng Xiaoqi 2005, 467ff + 492ff). Descriptions on body characteristics are missing. Generally, a reddish yellow body as on subtype ware 14.3. is not characteristic for any popular Chinese ware. This subtype is the only one that is not comparable to the fine tempered white wares of ware 11 in terms of its body characteristics. Concerning subtypes ware 14.1.–2. the transitions to ware 11.1., resp. ware 11.3., are fluent. In these cases, the comparability is restricted due to a lack of descriptions of temper particles. These wares are comparable in term of their outer appearances and shapes.

Ware 14 – Origin and Interpretation

The origin of ware 14 remains unknown at the present state of research. Based on the similarities to ware 11 in large parts, ware 14 is classified as belonging to the spectrum of white wares that are produced in the northern regions of the territory under the reign of the Yuan dynasty during the 13th and 14th centuries. The degree to which ware 14 differs in temper and body color from ceramics that are produced in the region of modern day northern China is hardly predictable from the available sources. It is supposable that parts of ware 14 are produced at currently undiscovered kiln sites in the region of modern day Mongolia. This is especially assumed for subtype ware 14.3. which differs in body color as well as in temper particles from wares 14.1.–2. and ware 11. Judging from its shapes and décor ware 14 is interpreted as being a simple ware for domestic use.

Ware 15

Designation: White glazed stoneware with a coarse temper and a gray body

Glaze: Cream White (white slip, clear glossy glaze)

Coat: thin

Body: gray

Temper: coarse

Hardness: very hard

Temper particles: irregularly shaped transparent to white particles and few fine black particles

Structure: dense, almost entirely sintered

Average Thickness: thick/ 0,84 cm

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Ware 15 is defined as white-glazed stoneware with a coarse temper. Its body is gray in color and irregularly shaped transparent to white particles as well as few fine black particles appear. This ware is exceptional and uncommon in Karakorum. Generally, coarse tempered wares are glazed green to brown (“Tea Dust”) or black.

Only four fragments of ware 15 are documented (Fig. 22). All of them are body fragments, i. e. their shapes are unknown. Most likely the fragments derive from storage vessels or the like. Fragment ID 10570 has some green glaze outside additionally to the white glaze.

Ware 15 – Shapes

There are no fragments with determinable shapes documented in ware 15.

Ware 15 – Décor

There is no décor documented on ware 15.

Ware 15 – Signs of Repair

There are no signs of repair documented on ware 15.

Ware 15 – Marks

There are no marks documented on ware 15.

Ware 15 – Comparable Findings

There are no comparable findings to this ware known to the author.

Ware 15 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. Furthermore, there are no comparable ceramics known to the author. A local production of ware 15 somewhere around Karakorum is possible but cannot be proved on the current state of research. All the findings are recorded in the upper layers from Karakorum and thus dated to the mid to late Yuan dynasty, i. e. the 14th century. Due to its coarse temper and appearance ware 15 is interpreted as domestic ware that is possibly made for storing.

3. 3. 3. STONEWARES WITH A GREENISH GLAZE – WARES 16–17

Stonewares with a greenish glaze belong to the minor ware groups found in Karakorum. In total, about 3% of the documented findings are assigned to this category.

General features of these wares are a hard body with a dense, not entirely sintered structure and a thinly applied greenish glaze. This group is subdivided into two wares according to different body colors which correlate with a differing temper and different glazes:

Ware 16: with a fine temper and a rather glossy to glossy greenish glaze and

Ware 17: with a very fine temper and a mat greenish glaze.

Ware 16 is again subdivided into two types according to varying body colors. It is related to ware 11 and ware 3 in its appearance.

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The clear majority of findings from this group is classified as ware 16.1. which holds a share of about 88% of all greenish glazed stonewares. Ware 16.2. is represented with a share of 9,4% and ware 17 holds a share of 2,6% only.

Ware 16

Designation: Stoneware with a greenish glaze, a fine temper and a buff body (= ware 16.1)
a gray body (= ware 16.2)

Glaze: Greenish **Coat:** thin

Body: off-white, buff, beige (= ware 16.1.) **Temper:** fine **Hardness:** hard
light gray, gray (= ware 16.2.)

Temper particles: fine brown to black particles **Structure:** dense, not entirely sintered
(very few)

Average Thickness: thin/ 0,52 cm (= ware 16.1.)
thin/ 0,5 cm (= ware 16.2.)

Ware 16 is the major ware in the category of greenish glazed stonewares. It is defined as stoneware with a fine temper and (mostly glossy) greenish glaze. Few fine brown to black particles are visible in the body. Analogue to the classification of white glazed stonewares, ware 16 is subdivided into two types which differ in their body color:

Ware 16.1.: Off-white, Buff or Beige body,

Ware 16.2.: Light Gray or Gray body.

In contrast to the white wares (i. e. ware 11) fragments with a (light) brownish gray body do not appear in ware 16. Concerning the classification of different subtypes, no distinction is made between glossy and mat glaze. As on white wares as well, the transition between both kinds of glaze is fluent. Numerous variations that sometimes are hardly distinguishable from each other appear in the material. About 84% of ware 16.1. and 100% of ware 16.2. have a glossy glaze. In general, ware 11 and ware 16 are very much alike and could be subtypes of each other. Mainly, the white slip underneath the clear glaze is missing in ware 16. Furthermore, ware 16 is in its appearance closer to porcellaneous wares, i. e. ware 3, than ware 11. It appears to be between both wares. The transitions between all these wares are quite fluent.

In total, 581 fragments of ware 16 are documented in 521 datasets. This equals a share of 2,7% of all recorded fragments from Karakorum. Most of these fragments are classified as subtype ware 16.1. which holds a share of 91,5% in this ware.

Ware 16 – Shapes

As common in Karakorum, most of the documented fragments are body fragments with a share of 62%, followed by rim fragments with a share of 24%. These appear about twice as often as base fragments with a share of 12%. No spouts are documented in ware 16. Lids are uncommon. Only one fragment of a lid is documented in subtype ware 16.1. Handles are recorded separately in three cases and additionally on some rim fragments.

Completely preserved vessels are documented in five cases in subtype ware 16.1. These are four deep plates and one deep bowl (Plate 23, fig. 6–8). These vessels are alike in terms of their rim and base shapes. This is Rim Type 3 and Base Type 1.1. Their sizes differ only slightly. The diameters of the deep plates measure from 15–16 cm at the mouth and from 6–7,2 cm at the base. The average is 15,8 cm, resp. 6,8 cm. The height of these plates varies from 3,1–3,7 cm

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with an average of 3,6 cm. Deep bowl ID 2151 measures 9,5 cm in diameter at the mouth and 3,6 cm at the base. Its height is 9,5 cm.

The spectrum of shapes in ware 16 is low (Plates 23–24). There are no differences between the shapes of the subtypes in this ware. Concerning rim shapes the most common variant is Rim Type 3 with a share of 75% of all rim shapes in total. Analogous to the completely preserved vessels, most of these findings are assumed to be deep plates. Their diameters range from 9,5–24 cm in diameter with an average of 19,3 cm. The smallest diameter belongs to deep bowl ID 2151. Any other determinable diameter measures at least 11 cm.

The second most common rim shape on ware 16 is Rim Type 2.1. with a share of 17% (Plate 24, fig. 4–5). These findings are assumed to be flat bowls or deep plates. Their diameters measure from 17–22 cm with an average of 19,3 cm.

Any rim shape other than those described above is documented only occasionally on ware 16. This includes Rim Type 5, N + C with a share of 3% (Plate 24, fig. 8). Fragments with this shape derive from pots with handles that measure from 14–17 cm in diameter. Their average diameter is 15,3 cm. The handles on this shape are small double loop handles with a rounded profile. Judging from their size these handles are made to pull a rope through them. The same applies to vessels with the related shape Rim Type 5 B, C that is specific for bottles. It is documented once in ware 16. On this fragment parts of a handle are preserved. Its diameter is 5 cm.

Rim Type 1 is documented on 2% of the rim fragments in ware 16. This is three fragments only. These all differ slightly in shape. Interestingly the shapes of these findings are variants of Rim Type 1 that are documented on porcellaneous wares such as ware 3 and 5 and stonewares such as ware 11. It is a highly individual shape that is used on plates for the most part. The documented variants in ware 16 correlate to its body characteristics which are also between porcellaneous wares and stonewares.

Concerning the base shapes in ware 16, the clear majority of fragments belongs to Base Type 1.1. that holds a share of 83%. The diameters of these bases range from 3,6–9 cm in diameter with an average of 6,6 cm. About 4% of the base fragments in this ware belong to Base Type 1.2. The findings measure from 4–7 cm in diameter with an average of 5,3 cm. The remaining 13% of base fragments are not determinable concerning their shape.

In total, the spectrum of shapes as well as the general appearance of ware 16 is between stonewares and porcellaneous wares. The assumed distribution of shapes according to rim fragments results in a share of 96% bowls and plates, about 3,3% pots and 0,7% bottles.

Ware 16 – Décor

Décor is documented on 25,9% of the fragments of ware 16.1. and on 11,5% of the fragments of ware 16.2. (Plate 68, fig. 22–25 and Plate 69, fig. 1–4). Most common are brown paintings with a share of 90% of all décor on ware 16. Incised motifs are recorded on 5% of the findings with décor and brown glaze splashes hold a share of 2%. Furthermore, unglazed circles on the inside base are documented. Whether these are spur marks only or décor at the same time is unclear.

As far as motifs are recognizable, all the painted motifs are ornamental, i. e. Leaves Scrolls/Designs, and all of the incised motifs are floral, e. g. a Peony. Just like the general features and the shapes, the décor of ware 16 is between stonewares and porcellaneous wares. The painted motifs are closely related to the painted décor of ware 11 and 3 while the incised motifs are closely related to the décor of ware 3 (Fig. 23). Incised motifs do not appear in ware 11. The incised flowers on ware 16 and 3 are partly different. Most of the motifs in ware 3 are lotus flowers while most of the motifs in ware 16 are peonies.

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Ware 16 – Signs of Repair

Signs of repair are documented on ID 9081 only. This is a base fragment of Base Type 1.1. with a non-piercing drill hole on the outside. The hole has a diameter of 3 mm. The finding itself is to be dated to the Yuan dynasty.

Ware 16 – Marks

Two fragments with marks are documented in ware 16 (Plate 81, fig. 11–12). None of them is decipherable and both date to the Yuan dynasty. Fragment ID 1261 is classified as an exceptional representative of subtype ware 16.1. as its characteristics differ slightly from the average, i. e. the glaze on this fragment is greener than on the others. The mark on this fragment is written in Chinese script. Its meaning is unknown. Fragment ID 4235 is classified as subtype ware 16.2. This mark is not well enough preserved to determine the script. Corresponding to other findings from Karakorum it could be 'phags-pa or Chinese.

Ware 16 – Comparable Findings

Comparable findings to ware 16 are not known from any catalogue or collection of Chinese ceramics. It does not belong to the group of well-known wares. Similarities are given between ware 16 and findings from excavations at the Chaoyang Road site in Liaoning (Liaoning Provincial Institute of Archaeology 2011, 76ff). Most of these are attributed to the Gangwa kiln in Inner Mongolia. This refers to bowls which are comparable in appearance and have e. g. four spur marks in the middle like e. g. ID 2151. Furthermore vessels with an unglazed circle in the middle as ID 9081 seem to be similar to the findings from Liaoning. The glaze colors on these samples vary from white to yellow in their appearance. Furthermore, vessels with incised and painted décor are attributed to the Gangwa kiln site. Few comparable findings from the Chaoyang Road site are associated with the Lizhou and Jianguantun kiln sites in Liaoning province. Comparable pots are not known.

Ware 16 – Origin and Interpretation

Ware 16 is not defined in any of the previous studies on ceramics from Karakorum. It is assumed that findings of this ware are subsumed in the classifications of Cizhou and/or Ding wares. These are the most common northern Chinese white wares.

As stated in the chapter on comparable findings, ware 16 cannot be correlated with commonly known Chinese wares and kiln sites. Due to the similarities between ware 16 and northern Chinese white wares like ware 11 (stoneware) and ware 3 (porcellaneous ware) its origin in the same region is assumed. This is confirmed by the attribution of similar ceramics to the Gangwa kiln site in Inner Mongolia. Since the characteristics of ware 16 are not comparable to popular Chinese white wares from Hebei as e. g. Cizhou, an origin in less explored provinces as Inner Mongolia and Liaoning is most likely. At the present state of research too little information is available for a more detailed research on the production sites of ware 16. The number of fragments of this ware lessens over time. Most of it is dated to the Song and early Yuan dynasty. Judging from its shapes and décor, ware 16 appears to be made for domestic use.

Ware 17

Designation: Stoneware with a mat greenish glaze, very fine temper and a reddish body

Glaze: Greenish, mat / outside brown slip possible

Coat: thin

Body: reddish yellow, partly light brick-red

Temper: very fine

Hardness: very hard

Average Thickness: medium/ 0,7 cm

Structure: dense, almost entirely sintered

Ware 17 is defined as having a reddish yellow, partly light brick-red body without any visible temper particles. Its glaze is mat and greenish. Some fragments do have brown slip applied on the outside (Fig. 24). As stated above it differs from ware 16 in body color, temper particles and glaze. Furthermore, it is more thickly potted than the other greenish glazed wares with an average body thickness of 0,7 cm.

In total, only 15 fragments of ware 17 are documented in 14 datasets. This ware is highly uncommon in Karakorum.

Ware 17 – Shapes

The findings of ware 17 include two base fragments and one rim fragment (Plate 25, fig. 1–2). The rim fragment belongs to Rim Type 3 and is associated with the shape of a bowl. Its diameter is not determinable. Both base fragments are of Base Type 1.1. and likely to derive from bowls. Their footrings measure 7 cm in diameter.

Ware 17 – Décor

There is no décor documented on ware 17.

Ware 17 – Signs of Repair

There are no signs of repair documented on ware 17.

Ware 17 – Marks

There are no marks documented on ware 17.

Ware 17 – Comparable Findings

There are no comparable findings to this ware known to the author.

Ware 17 – Origin and Interpretation

This ware is not documented in previous studies on Karakorum. Furthermore, there are no known comparable findings to ware 17. The shapes documented in this ware are comparable to those known from Chinese wares. However, neither the characteristics of its body nor those of the glaze are documented in these ceramics. As for most wares from Karakorum with an undeterminable origin, a local production appears possible but cannot be proven. According to the layers in which ware 17 is found it dates from the mid to late Yuan dynasty only. It is assumed to be a domestic ware.

3. 3. Stonewares – Wares 8–38

3. 3. 4. STONEWARES WITH A TURQUOISE GLAZE – WARES 18–19

Stonewares with a turquoise glaze are only exceptionally found in Karakorum. Their share on the total of the documented ceramics is 0,17%.

General features of this group are a hard, not entirely sintered body and a thinly applied turquoise glaze. As body colors, temper, temper particles and glazes vary, the group is subdivided into two wares:

Ware 18: Stoneware with a clear turquoise glaze and

Ware 19: Stoneware with a turquoise lead glaze.

According to the applied system of classification ware 18 is again subdivided into two types with differing body colors. The majority of stonewares with a turquoise glaze belongs to subtype ware 18.1. which holds a share of 76%. Second are findings of ware 19 with a share of 21%. Ware 18.2. consists of a stray find only (Fig. 25).

Overall, most of the turquoise glazed ceramics found in Karakorum are made of earthenware and discussed in the correlating chapter below. These are wares 42 and 43.2. In total, about 37,5% of the turquoise glazed ceramics recorded in Karakorum are stonewares and 62,5% are earthenwares.

Ware 18

Designation: Stoneware with a turquoise glaze and a buff body (= ware 18.1.)
a reddish body (= ware 18.2.)

Glaze: Turquoise (clear) **Coat:** thin

Body: off-white, buff (= ware 18.1.) **Temper:** very fine **Hardness:** hard to very hard
reddish yellow (= ware 18.2.)

Average Thickness: medium/ 0,64 cm (= ware 18.1.) **Structure:** dense, not entirely sintered
thin / 0,5 cm (= ware 18.2.)

As a common feature ware 18 is defined as turquoise glazed stoneware with a very fine temper. No temper particles are visible. The turquoise glaze is clear and glassy. Ware 18 is subdivided into two groups according to varying body colors. Albeit ware 18.2. consists of a stray finding only.

The total share of fragments of ware 18 in the glazed ceramics from Karakorum is marginal with 0,13% only. Ware 18 is the major group of the stonewares with a turquoise glaze with a share of almost 80% of all turquoise glazed stonewares and a share of almost 30% of all wares with a turquoise glaze, i. e. earthenwares and stonewares.

Ware 18 – Shapes

Concerning subtype ware 18.2. the only documented fragment derives from a hollow lid with an inner diameter of 9 cm (Plate 25, fig. 3).

Lids are not documented in ware 18.1. In this case, most of the fragments are body fragments (50%) and rim fragments (38%). Only a few base fragments are documented (12%).

The spectrum of shapes in ware 18 is very low. All but one of the determinable rim fragments belong to Rim Type 3 (Plate 25, fig. 4–5). The vessels from which the rim fragments derive appear to be low and are thus assumed to be plates. Their diameters range from 18–20 cm with an average of 18,5 cm.

An exception in the spectrum of rim shapes is ID 7040 that is classified as Rim Type 5, N (Plate 25, fig. 6). This fragment is assumed to derive from a pot. Its diameter is not definable.

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Concerning the shapes of bases only Base Type 1.1. is documented in ware 18 (Plate 25, fig. 7). As these fragments are painted inside and flat in shape they are assumed to derive from plates. The diameters of the footrings measure 5–6 cm with an average of 5,3 cm.

In total, a variety of shapes appears to be produced in ware 18. Despite the fact that only a few fragments of this ware are documented its spectrum of shapes is comparatively high. Still, most vessels from this ware appear to be plates.

Ware 18 – Décor

Décor is documented on ware 18.1. only. Almost 82% of the fragments of this subtype are decorated with underglaze paintings. No other technique of decoration is applied on ware 18. The paintings are generally black (Plate 69, fig. 5–9). There is one exception, ID 1839, on which the lines are painted in brown. The motifs are ornamental, floral and figural. Most common is the motif defined as ‘Floral Design I’ which is documented on three fragments. Bamboo painted on the outside is documented on two fragments. The only figural motif is a fish which is documented on base fragment ID 8735 only.

Ware 18 – Signs of Repair

Signs of repair are documented on the lid ID 1823 of subtype ware 18.2. only. This is a non-piercing drill hole on the inside of the lid with a diameter of 3 mm. The function of this drill hole remains unclear. There are no metal remains documented in or around it.

Ware 18 – Marks

There are no marks documented on ware 18.

Ware 18 – Comparable Findings

Comparability to Chinese wares is exemplified but vague. Turquoise glazed wares are described as so-called peacock green glazed ceramics and generally attributed to the Cizhou kiln system (Feng Xiaoqi 2005, 486; Ye Peilan 1998, 155ff).

Concerning the lid made of subtype ware 18.2., findings from the Bacun kiln site in Henan are comparable in body color and glaze as well as dated to the Yuan dynasty (Feng Xiaoqi 2005, 518f). However, the shape of a lid is not included in these findings. The Bacun kiln is described as production site where Cizhou type wares are produced during the Jin and Yuan dynasties (Feng Xiaoqi 2005, 486). As the body color of any depicted sample from this kiln site is reddish yellow, these findings are not comparable to subtype ware 18.1. Definitions of the body colors from ceramics made at the Bacun kilns are not provided.

The only fragment of subtype ware 18.1. which is comparable is ID 7040 with Rim Type 5, N. Large jars with an identical rim shape, similar glaze and a light body color are e. g. included in Japanese Museum collections and classified as Cizhou wares from the Yuan dynasty (Ye Zhemin 2009b, 364f; Ye Peilan 1998, 182, Fig. 285). These jars are part of the collection of the Osaka City Museum of Fine Arts and the Tokyo National Museum. Another comparable vessel that is classified as Yuan Cizhou ware is published by Ye Zhemin (2009b, 210). Furthermore, a comparable jar of the same shape is excavated from a Yuan dynasty hoard in modern day Jilin province (Wang Xingzhong 2008, 442 + Color Plate 13, Fig. 6). Any of the other findings of ware 18.1. lack comparability in shape and décor to the Chinese findings. Although fragment ID 2124 with the bamboo painted on the outside appears distantly related to a Yuan Cizhou ware pot with a leaf design painted on the outside (Ye Peilan 1998, 182, Fig. 286).

Ware 18 – Origin and Interpretation

Ware 18 is documented in the Russian excavations at Karakorum already and generally included in the range of white wares of uncertain provenance or Cizhou type (Evtiukhova 1965, 236 + Plate XXII, Fig. 3; Meitoku / Ochir 2007, iv + Plate 7, Fig. 139–147). As stated above, comparable findings to ware 18 are classified as Cizhou type ware and dated to the Yuan dynasty. Still, the comparability of shapes and décor is limited (cf. Ye Peilan 1998, 182–184). Apart from lid ID 1823 (ware 18.2.) the body colors of findings from Karakorum are not comparable to findings from the Bacun kiln site (see above). Turquoise wares of Cizhou type with an off-white body are e. g. produced at the Guantai site but appear to be less in quality than the findings from Karakorum (cf. Beijing University Archaeology Department 1997, Color Plate 34, Fig. 2).

It is striking that no plates with black underglaze painting are documented in Chinese Cizhou type wares. This is a feature which is far more common on 13th–14th century findings from the Middle East as e. g. in Kashan (Iran) or Raqqa (Syria) (cf. Jenkins-Madina 2006, 84ff). Chemical analyses of these findings are e. g. published by Keblow Bernsted (2003). Unfortunately, these are not comparable without analyses of the findings from Karakorum. The style of the décor on these findings differs from the motifs documented on ware 18 from Karakorum.

Overall, it is assumed that ware 18 can be of northern Chinese origin and that it is influenced by Islamic wares from the Middle East as e. g. other turquoise glazed Chinese ceramics described by Wood (2011, 213ff). Findings of this kind are not limited to specific settlement layers but date to the Yuan dynasty for the most part. Their interpretation remains unclear. Findings of ware 18 do not seem to fit in the common spectrum of domestic ceramics that are otherwise documented. Their turquoise glaze makes their appearance differ strikingly from the commonly used ceramics.

Ware 19

Designation: Stoneware with a turquoise (lead) glaze and a reddish-brown body

Glaze: Turquoise (lead) on white slip

Coat: very thin

Body: light reddish brown

Temper: (very) fine

Hardness: hard

Temper particles: mat white particles (few)

Structure: dense, not entirely sintered

Average Thickness: medium/ 0,66 cm

Ware 19 is defined as having a light reddish-brown body with few fine mat white particles and a turquoise lead glaze on white slip. The structure of the body is dense and almost entirely sintered. This ware is the least common turquoise glazed ware from Karakorum. It holds a share of barely 8% of all recorded turquoise glazed fragments, i. e. stonewares and earthenwares together. In the total documented glazed ceramics from Karakorum ware 19 holds a share of 0,03% only.

Ware 19 – Shapes

Included in the few findings of ware 19 is a fully preserved plate with Rim Type 1–2 and Base Type 1.1. (Plate 25, fig. 8). It measures 14 cm in diameter. The footring measures 8,5 cm in diameter.

All of the rim fragments documented in ware 19 are also classified as Rim Type 1–2. As a result, all of the rim fragments from Karakorum made of ware 19 are assumed to derive from plates with the shape of ID 1232 or similar. Their diameters range from 12–14 cm.

There is no additional base fragment found and thus the only documented shape is Base Type 1.1. with a diameter of 8,5 cm on ID 1232. Three spur marks are visible on the edge of the interior base.

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Differing shapes than plates made of ware 19 are to be assumed as body fragment ID 1233 is curved and likely to derive from an incense burner.

Ware 19 – Décor

On all but one fragment of ware 19 molded décor is applied. Only the Chrysanthemum on the inside of plate ID 1232 is completely preserved (Plate 69, fig. 10). On fragment ID 1233 parts of a Dragon are recognizable on the outside (Plate 69, fig. 12). Fragment ID 1903 shows parts of a Leaf Scroll on the inside (Plate 69, fig. 11).

Ware 19 – Signs of Repair

There are no signs of repair documented on ware 19.

Ware 19 – Marks

There are no marks documented on ware 19.

Ware 19 – Comparable Findings

Findings that are comparable to ware 19 are few. Excavated from the cargo of the Sinan shipwreck is e. g. a plate of similar shape and body color which is described as ‘peacock blue plate’ (Shen Qionghua 2012, 48–49). Its molded décor is a phoenix design and thus completely different from the Chrysanthemum motif documented in Karakorum. The glaze on the plate from the Sinan wreck is very fragmentarily preserved but appears to be comparable. This finding dates to the mid-Yuan dynasty as the ship sank in the year 1323 (Shen Qionghua 2012, 18). There is no assignment to a production site.

Another plate that is similar in shape but darker blue in color is published with a classification as Cizhou ware plate from the Yuan dynasty (Ye Peilan 1998, 184, Fig. 295). Its rim décor is slightly comparable to that of ID 1903 (Leaves Scroll) but the main décor is a pair of fish molded onto this plate. Additionally, five spur marks are visible on the interior base. On plate ID 1232 only three spur marks are visible. The classification of the dark blue plate as Cizhou ware is surprising as neither molded nor turquoise glazed plates generally appear in the spectrum of otherwise published Cizhou type ceramics.

Ware 19 – Origin and Interpretation

Similar plates as ID 1232 are documented in the Russian excavations at Karakorum already. It is striking that hardly any fragments of ware 19 are documented but at least four fully preserved plates are. Three of these plates are excavated during the 1948/49 excavations (Evtiukhova 1965, 240). One of them appears to be missing as only two are later republished by Meitoku / Ochir (2007, ex.001 + ex.0016). The fourth plate is ID 1232 from the excavations in 2000–2005 (see above). These findings are decorated with a molded chrysanthemum though every plate is individual in its décor. It is possible that rim fragment ID 1903 is part of plate ex.001 (Meitoku / Ochir 2007, 38, Plate 11) that appears to have the same shape and leave décor. The plates from Karakorum differ in terms of the spur marks on their interior base. Documented are three spur marks on ID 1232, five on ex.016 (Meitoku / Ochir 2007, 42, Plate 15) and seven on ex.001 (Meitoku / Ochir 2007, 38, Plate 11). The fourth plate cannot be compared in this context. It is neither published with a picture nor are its spur marks described.

The classification of these findings according to previous publications is problematic. Evtiukhova (1965, 240) describes them as ‘Tze zhou or Pu zhou’ type wares with a yellowish-rosy body color. An incense burner that is included in Evtiukhova’s classification is republished by Elikhina (2010, 45 + 46, Fig. 7, g) and also defined as ‘Pu zhou’. Similar findings as this incense burner appear in

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the ceramics from the present study but are classified as earthenware (ware 42; see below). The definition of wares thus differs in the present and the previous studies. Furthermore, a type of ceramic named 'Pu zhou' does not appear in any of the sighted literature.

Concerning the classification of this ware by Meitoku / Ochir (2007), the plates are included in the description of white wares of uncertain provenance. It is stated that “[e]xamples with similar motifs can be found among the pieces excavated from the Muchuan site in Nankai he village, Ci county, Hebei province, in what is thought to be a sunken vessel from the early 14th century.” (Meitoku / Ochir 2007, iv). As the cargo of this ship largely consists of products from Henan and Hebei, the turquoise plates from Karakorum are assumed to be produced in this region as well (Meitoku / Ochir 2007, iv). Unfortunately, no quote is given on this excavation site and it is unknown to the author. A verification of this comparison is therefore not possible. Generally, the latter classification correlates with the attribution of a comparable plate to Cizhou wares as those are produced in Henan and Hebei (see above). Still, it is surprising that this ware is neither documented in collections of Chinese wares from Henan, Hebei or Cizhou type wares nor in contemporaneous settlements like Jininglu and Yanjialiang. The shape of ware 19 as well as its body characteristics and the use of molds for producing a thickly potted ware are features that do not correlate to Chinese ceramics of the 13th–14th century. Apart from body fragment ID 1233 which is slightly different in its appearance and clearly different in dating, it is doubted that ware 19 is of Chinese origin. This fragment is the only one that derives from an early layer, i. e. dates to the early to mid-13th century. It is furthermore harder in its body structures and features a stripe of darker red in its body color. Due to its close resemblance to the other findings and lack of comparable findings it is still classified as ware 19. All other findings of ware 19 date to the late 14th century.

The use of ware 19 remains unclear. Through its extensive molded décor, it does not appear to be made for simple domestic use. It could be an export ware made for the Middle East or even deriving from there.

3. 3. 5. STONEWARES WITH A THICK BLUE OR GREEN GLAZE – WARES 20–21

This group consists of thickly glazed stonewares that often are irregularly fired. Body colors as well as glaze colors vary. Subdivisions are mainly made according to ranges of glaze colors. These wares all belong to ware 20. The only exception is the distinction between ware 20 and ware 21. As ware 21 appears to be an imitation of ware 20 and differs strikingly in body color and glaze texture, it is classified as autonomous ware.

Next to white glazed stonewares, thickly blue or green glazed stonewares are the second largest ceramic group documented in the glazed ceramics from Karakorum. This group in sum holds a share of slightly more than 19% of all fragments recorded for this study. As white glazed stonewares hold a share of 28%, both groups together constitute almost 50% of the findings from Karakorum.

Concerning thickly blue or green glazed wares, the major subtype is ware 20.1. with a share of 94% of these wares and a share of 18,5% of all recorded ceramics in total.

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Ware 20

Designation: Thickly blue or green glazed stoneware

Glaze: shades of blue: Moon Blue, Pastel Blue, Blue, Dark Blue (= ware 20.1) **Coat:** thick
shades of Pastel Green (= ware 20.2.)
clear, slightly brownish or greenish (= ware 20.3.)
Dark Blue, mat (= ware 20.4.)
Pastel Blue, dotted (= ware 20.5.)

Body: irregularly fired, buff to gray **Temper:** very fine to fine **Hardness:** hard
(= wares 20.1. – 2.)
off-white, light gray, gray (= ware 20.3.)
dark gray (= ware 20.4.)
gray (= ware 20.5.)

Temper particles: fine brown to black particles (few) **Structure:** dense, not entirely sintered
(= wares 20.1. – 3.)
none (= wares 20.4. – 5.)

Average Thickness: medium/ 0,69 cm (= ware 20.1.)
medium/ 0,7 cm (= ware 20.2.)
medium/ 0,65 cm (= ware 20.3.)
thin / 0,47 cm (= ware 20.4. – 5.)

As a common feature ware 20 is defined as thickly blue or green glazed stoneware. Its body is often irregularly fired and includes fine brown to black particles. The body color varies from buff to gray. Partly, the body features vary according to a specific glaze. The glaze of this ware is medium to thick in its coat. Varying shades of blue and green constitute the range of possible glaze colors on ware 20 that is subdivided in five groups according to its glaze. Fragments with a blue glaze are classified as ware 20.1. (Fig. 26) while fragments with a green glaze are classified as ware 20.2. (Fig. 27). The other subtypes of ware 20 consist of glazes that are special and few in number. Most common in the special glazes is ware 20.3. with clear, slightly brownish or greenish fragments (Fig. 28). Ware 20.4. consists of few fragments with a mat dark blue glaze (Fig. 29). Defined as ware 20.5. are fragments with a dotted pastel blue glaze (Fig. 30).

The main subtype is ware 20.1. with a share of 94% of all documented fragments of ware 20 in total. Second to this is subtype ware 20.2. with a share of 5%. Any other subtype consists of stray finds only.

Ware 20 is one of the two major ceramic groups found in Karakorum. It holds a share of 19,3% of all documented fragments (19,7% of all datasets). This is the second largest share in the spectrum of glazed ceramics from Karakorum. Together with ware 11 – the major ware found in Karakorum – ware 20 holds a share of 45% of the recorded fragments. White glazed and thickly blue glazed ceramics are by far the most common wares in the city.

Ware 20 – Shapes

The spectrum of shapes in ware 20 is largely based on findings from its main subtype ware 20.1. Rim fragments of any other subtype solely belong to Rim Type 3. The only exception is a rim fragment of subtype ware 20.2. that is classified as Rim Type 3, C. All the base fragments of subtypes wares 20.2.–5. belong to Base Type 1.1.

As usual, body fragments are the most common kind of fragments found with a share of about 63% of all fragments. This is followed by rim fragments with a share of about 25,5% and base fragments with about 10,5%. The total share of complete shapes is 0,7%. The number of fully

3. 3. Stonewares – Wares 8–38

preserved shapes is relatively high with 22 datasets of ware 20.1. and one dataset of ware 20.2. Fragments of handles, lids or spouts are very exceptional in ware 20.

Considering that ware 20 is the second most common ware in Karakorum, its spectrum of shapes is comparatively low (Plate 25, fig. 9–12, Plate 26–27 and Plate 28, fig. 1–2). All the completely preserved shapes that are documented are plates and bowls. This is 15 bowls and eight plates in total. The spectrum of shapes on bowls is limited to Rim Type 3 and Base Type 1.1. (e. g. Plate 26, fig. 1–3). The diameters of the mouth range from 15,2–21 cm with an average of 18,2 cm. The footrings of the bases range from 5,3–10,5 cm in diameter with an average of 6,2 cm. The only documented exception from this is the small bowl ID 7929 with Rim Type 3 and Base Type 3 (Plate 26, fig. 4). The diameter of this bowl is 9 cm at its mouth and 7,5 cm at the base.

The spectrum of plates is a little wider than that of the bowls. Six out of eight fully preserved plates are shapes with Rim Type 3 and Base Type 1.1. Their diameters range from 14–19 cm at the mouth with an average of 16,2 cm and from 5–7 cm at the base with an average of 6 cm. All of these shapes are deep plates only. Different from this standard is the foliated plate ID 1422 with Rim Type 3, F and Base Type 3 (Plate 26, fig. 5). Its diameter is 12 cm at the mouth and 6 cm at the base. The other exception is the flat plate ID 2060 with Rim Type 2 and Base Type 1.1. (Plate 25, fig. 9). Its diameter measures 11 cm at the mouth and 4,5 cm at the base. All the exceptional shapes in ware 20 derive from lower excavation layers and are to be dated to the Song dynasty. The standard shapes are found in lower as well as in upper layers and thus date Song to Yuan.

Concerning the rim shapes on ware 20 in general, all but Rim Type 3 are exceptional. About 92% of all rim fragments belong to this type. The diameters of the vessels with this shape generally range from 12–24 cm. Four exceptions are larger and measure up to 29 cm in diameter. Two exceptions are smaller with a diameter of 6, resp. 9 cm. The average diameter of vessels with Rim Type 3 in this ware is 18,6 cm. The vessels from which these rim fragments derive are assumed to be bowls for the most part and secondly, deep plates.

Two of the further rim types that appear in ware 20 are subtypes of Rim Type 3. Those are Rim Type 3, C, i. e. a straight rim with cordons (Plate 27, fig. 3–5) and Rim Type 3, F, i. e. a foliated straight rim (Plate 26, fig. 5). Especially Rim Type 3, F is exceptional with a share of only 1,1% of all rim fragments in total. These fragments appear to derive from vessels that are identical in shape to the fully preserved plate ID 1422 (Plate 26, fig. 5). As an exception, the rims of fragments ID 7079 and ID 11227 are pointed instead of square. The determinable diameters of the foliated plates range from 12–14 cm with an average of 13 cm.

Rim Type 3, C holds a share of 3,1% of the fragments in ware 20. The peculiar forming of the cordons on these rims differs slightly (Plate 27, fig. 3–4). In the exceptional case of fragment ID 14970 two cordons are documented on the rim instead of one (Plate 27, fig. 5). All of the vessels with this rim type are assumed to be bowls. Their diameters range from 16 – 28 cm with an average of 19,2 cm.

Apart from Rim Type 3 and its variations, Rim Type 1, Rim Type 2, Rim Type 2.1., Rim Type 4 and Rim Type 5 are documented in ware 20. Findings with these shapes are few to exceptional (Plates 26–27). The most common type from this range is Rim Type 2.1. with a share of 1,9% of all documented rim fragments in ware 20. The forming of this shape varies (Plate 26, fig. 12–13 and Plate 27, fig. 1). It appears mostly on bowls and rarely on plates. Exceptional in this type is rim fragment ID 11494 that is likely to derive from a bottle or a miniature bowl as its diameter is 5 cm. Apart from this exception the diameter on vessels with Rim Type 2.1. ranges from 11–22 cm with an average of 16,3 cm.

Rim Type 1, the horizontally bent rim, is documented on 1% of the rim fragments of ware 20 (Plate 26, fig. 9–11). Most of these rims are slightly rolled at the end in order to form a gorge on the horizontal line which is filled with glaze. All of them derive from plates. The diameters range from 13–18 cm with an average of 18,2 cm.

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All of the other rim shapes in ware 20 are stray finds only. Rim Type 2 is documented twice. Once on the fully preserved plate ID 2060 that is described above and second on another fragment which derives from a plate. The only measurable diameter is documented on ID 2060 with 11 cm. Rim Type 4 is documented only on ID 8081 (Plate 27, fig. 6). This fragment is likely to derive from an incense burner. Its diameter is 9 cm. The only fragment that derives from a pot is ID 6279 with Rim Type 5 which again is documented solely once in ware 20 (Plate 27, fig. 7). Its diameter is 17 cm. This pot is high in shape with a very straight body. Apart from the latter two mentioned rim shapes, any other rim documented in ware 20 is assumed to derive from bowls and partly from plates.

The spectrum of base types in ware 20 is even more limited than that of the rim types. About 97% of all documented base fragments belong to Base Type 1.1., i. e. hollow footrings (Plate 25, fig. 9–12). The range of diameters is exceptionally wide with measurements from 3,2–22 cm. Most of the footrings have a diameter from 4–8 cm. The average is 6,2 cm. It is striking that all of the bases with a diameter of 18 cm or larger are fully glazed (Fig. 31). In the case of ID 10425 even the footring is completely glazed. Mostly, the base of the footring is left unglazed. These bases are found in the lower layers of the excavation and mainly date to the Song dynasty. Few might date to the late Song or early Yuan dynasty, i. e. their size as well as the glazing is a dating criterion. Bases which are glazed on the outside in between the footring date to the Song dynasty or early Yuan dynasty only. Still, glazing that ends irregularly somewhere before the footring on the outside appears throughout both dynasties. A glazing up unto the footring is likely to date to the Song dynasty but exceptions in the Yuan dynasty are documented. Concerning the size, exceptionally small or large bases date to the Song to early Yuan dynasty only. None of the bases which date to the Yuan dynasty is larger than 11 cm or smaller than 4 cm in diameter. Average sized bases are produced throughout both periods.

Further base shapes that are documented in ware 20 are Base Type 1.2., Base Type 2.1. and Base Type 3 (Plate 28, fig. 1–2 and Plate 26, fig. 4–5). All of which are stray finds only. Fragments with Base Type 3 are found in layers which date to the Song dynasty only. Apart from one fragment these findings belong to fully preserved vessels. These are ID 1422 with a foliated rim and miniature bowl ID 7929 (Plate 26, fig. 4–5). Their base diameters range from 6–7,5 cm.

Base Types 1.2. and 2.1. (Plate 28, fig. 1–2) are, in contrast, recorded solely in layers which date to the Yuan dynasty. Fragment ID 6073 with Base Type 1.2. is a singular find. Its diameter is 4 cm. Two fragments with Base Type 2.1. are documented. Their diameters range from 4–6,6 cm. The flat shapes of the latter findings indicate that these bases derive from plates.

Apart from rim and base fragments, two fragments of handles as well as one fragment of a spout and one fragment of a possible lid are documented in ware 20 (Plate 26, fig. 6–8). Overall, almost no other shapes than bowls and plates are traceable in the spectrum of this ware.

Ware 20 – Décor

Décor is documented in subtypes wares 20.1. and 20.2. only. The share of datasets with fragments with décor is 4,7% in both wares (Plate 70, fig. 1–4). In general, the number of fragments with décor is higher in ware 20.1. with a share of 4,8% and lower in ware 20.2. with a share of 3,1%.

The décor on ware 20 exclusively consists of colored glaze, i. e. purple to green splashes on the blue resp. green ground (Plate 70, fig. 1–4). In two exceptional cases, the colorations form a pattern. This is a serrated pattern on ID 1822 and curved lines on ID 6487.

All of the décor is applied on the inside of the vessels and only partly leaking outside. Exceptional is a dark splash on the inside of ID 1999. It cannot be ascertained whether this is an intentional décor or a scorch mark on this vessel.

Findings with décor are recorded throughout all layers but decrease in number from the beginning of the 14th century on, i. e. the majority is to be dated to the late Song to early Yuan dynasty.

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Ware 20 – Signs of Repair

Signs of repair are documented on 1,4% of the fragments of ware 20 in total. About 93% of these repairs occur on ware 20.1. The remaining 7% are documented on ware 20.2. No repairs are found on any of the other subtypes of ware 20.

All the signs of repair are non-piercing drill holes on the outside of a vessel. The diameters of these holes range from 2,5–6 mm with an average diameter of 3,5 mm. In few cases remains of a metal clamp are preserved. The maximum number of documented drill holes on a single vessel is five (ID 10738 on Fig. 32, left). Usually, one to three drill holes are recorded on one fragment.

It is noticeable that vessels with obvious mistakes in production are not only used in Karakorum but repaired as well. An example is ID 2074 with massive defects in glaze on the outside as well as two non-piercing drill holes from a repair (Fig. 32, right).

Fragments of ware 20 with signs of repair are documented throughout all settlement layers but most frequently in layers which date to the late 13th century, i. e. the early Yuan dynasty.

Ware 20 – Marks

Marks are documented in 39 datasets of ware 20 (Plate 81, fig. 13–21, Plate 82 and Plate 83, fig. 1–13). This equals a share of 1,2% of all documented fragments in this ware. Apart from a few exceptions all the marks are applied on vessels that are classified as ware 20.1. Three marks are applied on ware 20.2. (ID 1228, ID 2108 and ID 6139), one is applied on ware 20.3. (ID 2149).

All the marks are written with black ink. Many of them are not legible as only fragments are preserved or the writings are unclear. As recognizable characters appear to be Chinese, reliable translations are subject of research for a specialized sinologist.⁷ At first sight, the marks on ware 20 include annual details, e. g. on ID 1272 which is previously documented and published in a first study on Chinese inscriptions on the ceramics from Karakorum (Nagel 2002, 100 + Plate XVI, Fig. e–f). Furthermore, characters that could be interpreted as assignments to localities, i. e. ‘*tang*’ (堂 = assembly hall) on ID 2007 (Plate 82, fig. 8), or private owner marks, i. e. ‘*san jie*’ (三姐 = three sisters or third sister) on ID 1002 (Plate 81, fig. 13) and ‘*huang*’ (黄 = possibly a surname, literally ‘yellow’) on ID 1192 (Plate 81, fig. 17), are documented.

In the context of private owner’s marks two samples are striking. These are ID 1810 and ID 2171; both of which are found in different layers but in the same locality (Plate 82, fig. 4 + 10). They include a character that is interpreted as Chinese surname Zhang (張). The same character is recorded a few meters away in an earlier settlement layer. This is ID 1228 on which the writing is arranged differently but generally comparable. These findings are an indication of a Chinese family named Zhang that could have lived and worked at a workshop in Karakorum in the late Song to early Yuan dynasty. Interestingly, a Zhang-mark which is very similar to that of ID 1228 is documented at the city site of Yanjialiang, Inner Mongolia, as well (Ta La et al. 2010, Color Plate 276, Fig. 3).

Apart from the exception of the Zhang-marks described above, all the marks of ware 20 are different. The spectrum includes marks that are atypical for any script known to the author, e. g. ID 1278 (Plate 82, fig. 3). Similar characters are interpreted by Evtiukhova (1965) as “imitations of hieroglyphs” (246 + Plate XXVII) which is highly doubtful. The interpretation of this mark as symbol or unknown scripture is more likely. Symbols are reliably proved in the spectrum of marks on ware 20. This is e. g. ID 2108 with a painted flower as mark on the base (Plate 83, fig. 12).

Marks on ware 20 are documented throughout all settlement layers with a slight focus on layers which are to be dated to the early Yuan dynasty.

⁷ The interpretation of the Chinese marks in the present study is given by Patrick Wertmann who helped the author analyze them. He is, however, not specialized in this subject. Neither is the author.

Ware 20 – Comparable Findings

Comparable findings to ware 20 in general are numerous. All of them are classified as so-called Jun ware and dated to the Song, Jin and Yuan dynasties. This very popular Chinese ware is mainly produced in the region of modern day Henan. It is part of most museum collections and described in almost any treatise on Chinese ceramics of the 10th–14th century. Short treatises in English about Jun wares from European and Chinese collections are e. g. Kerr (2004, 31–39), Vainker (1991, 101–105), Medley (1989, 118–122), He Li (1996, 135–136 + 142) and Li Zhiyan (1996, 110–111). Chinese publications with English abstracts on Jun ware collections and kiln sites are e. g. Palace Museum (2013), Henan Provincial Institute of Cultural Relics and Archaeology (2008) as well as Feng Xiaoqi (2005). The glazes of Jun wares are e. g. analyzed and described by Wood (2011, 118–125). Due to the very special and easily identifiable glaze of Jun wares, it has a high recognition value.

Concerning their shapes, the majority of findings from Karakorum are defined as bowls. This matches the general spectrum of shapes of Jun ware where bowls are the most common shape (Medley 1989, 120; Vainker 1991, 102). Simple shapes that are made for daily life are very popular and sometimes called '*minjun*', i. e. 'folk/domestic Jun' (Palace Museum 2013, 23). In the compilation of the Palace Museum (2013) '*guanjun*', i. e. 'official Jun' (Palace Museum 2013, 169), is differentiated from the domestic Jun ware productions. It is striking that the findings from Karakorum are comparable only to vessels classified as 'folk jun'. Therefore, the findings cannot be considered as imperial ware although Jun ware in general is considered to belong to the Five Classic wares of the Song dynasty (see introduction above or Kerr 2004, 26).

Generally, Jun ware bowls of comparable shape and color to those from Karakorum are amongst others excavated at kiln sites in Henan like Lushan, Hebi, Anyang, Qixian, Jiaxian, Xinan, Bacun, Linru and the eponymous Jun kiln site itself (Feng Xiaoqi 2005). These sites are samples only as simple bowls are produced at any Jun kiln site. More detailed attributions of the findings from Karakorum to specific kiln sites need insight studies on glazes, colors and body structures as well as scientific analyses. A feature that is striking in the given classification already is e. g. green Jun ware (subtype ware 20.2.) which differs from blue Jun ware in its glaze composition and is partly assigned to the Linru kiln site (Wood 2011, 122; Kerr 2004, 38). Chronological characteristics in the glaze colors which sometimes are postulated (Vainker 1991, 102) cannot be confirmed in the findings of Karakorum at first sight. The same applies to décor on Jun ware from Karakorum that is documented throughout all settlement layers and not limited to a specific time (cf. Krahl 2000, 179 for assumed differences in their dating).

As Jun ware is a very popular northern Chinese ware in the 10th–14th centuries, differences and commonalities in special shapes and décor are more important for the interpretation of ware 20 than a general classification via the most common shapes and appearances which are subsumed above. Concerning the comparable and coexisting city sites of Jininglu and Yanjialiang it is striking that the spectrum of shapes at both sides includes pots with handles and vessels with molded décor (Chen Yongzhi 2004, 124–125 + 129; Ta La et al. 2010, 460 + 463 + Color Plate 156). None of this is documented in Jun ware from Karakorum. Instead, the findings include specialties that are documented neither in Jininglu nor in Yanjialiang. These are shapes like miniature bowl ID 7929 and the foliated plate ID 1422 (Plate 26, fig. 4–5), plates with a horizontally bent rim like ID 1933 (Plate 26, fig. 9), everted and slightly S-shaped rims on bowls like ID 6547 and ID 7061 (Plate 26, fig. 13 and Plate 27, fig. 1) as well as bases of type 1.2. and especially type 2.1. like ID 6073 and ID 1249 (Plate 28, fig. 1–2). Few of these shapes even lack comparability to published Jun ceramic whatsoever. This is the base ID 1249 and foliated bowl ID 1422. Although some foliated Jun ware vessels are known, none of them equals the exact shape of plate ID 1422 (cf. Feng Xiaoqi 2005, 485 + 543; Sun Xinmin / Yang Ailing 2008, 162). Best comparable is a plate that is excavated from a Jin dynasty tomb in Datong, Shanxi (Shi Jinming / Liu Yan 2008, 168). Additionally, décor patterns like on ID 1822 or ID 6487 are completely

unknown up to date. These features appear to be unique in the spectrum of findings from Karakorum. Other shapes may not be documented in Jininglu and Yanjialiāng. Straight rims with cordons of type 3, C are e. g. documented in Yanjialiāng (Ta La et al. 2010, 456 + Color Plate 152) but not in Jininglu. A slightly S-shaped rim on a Jun ware bowl is e. g. documented in a hoard at Shigu, Henan (Sun Xinmin / Yang Ailing 2008, 161). This finding is dated to the Jin dynasty and attributed to the Yuzhou kiln. Concerning plates with a horizontally bent rim like ID 1933 it appears rather surprising that those shapes are not found in Jininglu and Yanjialiāng. A comparable plate is e. g. part of the Eumorfopoulos collection in the Victoria and Albert Museum, London, and published several times (i. a. Kerr 2004, 34; Wood 2011, 121). Another sample is part of the collection of the Palace Museum, Beijing, and attributed to the Jun kiln site (Feng Xiaoqi 2005, 585). Furthermore, a plate of the same shape is excavated from a tomb in Xuanhua, Hebei, that is dated to the year 1277 (Xuanhua District Office of Preservation of Cultural Relics in Zhangjiakou City 2008, 52, Fig. 7). Comparable rim fragments are amongst others excavated at the Bacun kiln site (Feng Xiaoqi 2005, 489).

Two findings from the excavations Karakorum have especially striking parallels to other published Jun wares. First is plate ID 2060 (Plate 25, fig. 9) which is very similar to a plate that is part of the Palace Museum collection. This plate is dated to the Song or Jin dynasty and attributed to the Baguadong kiln site which is part of the Jun kiln complex (Feng Xiaoqi 2005, 563). Jun plates of the same shape are generally known and e. g. excavated in Chaoyang, Liaoning, as well, though the color of these findings differ (Liaoning Provincial Institute of Archaeology 2011, 37f). This shape is mostly dated to the Northern Song or Jin dynasty and has a fully glazed base (cf. Palace Museum 2013, 46–19). This is different on ID 2060 from Karakorum that is not fully glazed and excavated from a Yuan dynasty layer.

The second finding in ware 20 with striking parallels to other findings is the flower mark on ID 2108 (Plate 83, fig. 12). It is the most well-comparable mark which is recorded in Karakorum. At least three similar flower marks are documented on Jun ware bowls from Yanjialiāng (Ta La et al. 2010, 454–455). These marks are all painted slightly differently. Still, all of them are simple flowers with five to six petals. In the case of Yanjialiāng other, far more complex, flower marks like a lotus and a peony are further documented (Ta La et al. 2010, Color Plate 288, Fig. 4 + 5). Concerning Karakorum, there is only one additional flower mark known. This mark is different in style than ID 2108 but likewise applied on Jun ware. It derives from the survey in the surroundings of the city (Heussner 2012, 70, Fig. 7). Additionally, the same kind of flower mark as ID 2108 is known from Jininglu. In contrast to the other findings this mark is applied on a Qingbai ware plate and not on Jun ware (Chen Yongzhi 2004, 20, Plate 7). This kind of ceramics equals ware 4 in the present study.

Apart from the flower marks, vessels with the surname Zhang written on them are documented in Karakorum as well as in Yanjialiāng (see above and Ta La et al. 2010, Color Plate 276, Fig. 3).

Ware 20 – Origin and Interpretation

Due to its very specific glaze and appearance, the classification of ware 20 as so-called Jun ware is consistent throughout the publications on ceramics from Karakorum (cf. Evtiukhova 1965, 219–221; Meitoku / Ochir 2007, iv; Elikhina 2010, 45). Due to its high recognition value, the classification of ware 20 as Jun ware is beyond doubt.

The main production region of this ware is the modern-day province of Henan. As stated above, the findings from Karakorum are comparable to various excavated kiln sites in this region. This includes e. g. the eponymous Jun kiln site for blue glazed ceramics (Feng Xiaoqi 2005, 523ff) and the Linru kiln site for green glazed ceramics (Wood 2011, 122; Kerr 2004, 38). Therefore, it is to be assumed that parts of ware 20 from Karakorum are produced at kiln sites in Henan. Still, Jun ware is also produced at kiln sites in modern day Hebei and Inner Mongolia (Wood 2011, 118; Meitoku / Ochir 2007, iv).

3. 3. Stonewares – Wares 8–38

During continuative studies on Jun ware from Karakorum it is likely that some of the findings can be assigned to specific kiln sites. Already striking specifics in glazing, shapes and décor indicate potential in research on regional and chronological characteristics of Jun ware. This includes e. g. shapes which are hitherto unknown, fully glazed bases and peculiar décor patterns.

Concerning the present study, it is to be concluded that ware 20 can be classified as Chinese Jun ware. The precise production sites of the findings are assumed to be in Henan, Hebei or Inner Mongolia. Most likely Jun ware from various kiln sites is imported into Karakorum. All the comparable shapes belong to the category of domestic Jun wares. Few shapes are specific for findings from Karakorum only. It is striking that some of the marks on this ware are comparable to contemporaneous city sites in Inner Mongolia. Ware 20 is a very common kind of ceramic in Karakorum and is widely used.

Ware 21

Designation: Jun-Imitation

Glaze: Pastel Green, mat

Coat: thin to medium

Body: off-white, buff, light pinkish

Temper: very fine

Hardness: hard

Temper particles: none

Structure: dense, not entirely sintered

Average Thickness: medium/ 0,7 cm

Ware 21 is strongly related to ware 20 but still strikingly different in its glaze and body features. Only six datasets are recorded in this ware (Fig. 33). Therefore, the share of ware 21 in the documented ceramics in total is slightly below 0,04%.

Ware 21 – Shapes

Documented in ware 21 is one complete shape and four rim fragments (Plate 28, fig. 3). Concerning the rim shapes these findings belong to Rim Type 3. The completely preserved shape ID 7779 is that of a bowl with a diameter of 18,5 cm. Generally, all the fragments are assumed to derive from bowls. Their diameters range from 18–20 cm with an average of 18,9 cm. The base on ID 7779 belongs to Base Type 1.1. and measures 6,8 cm in diameter. Overall, the shapes equal the most common shapes on ware 21.

Ware 21 – Décor

There is no décor documented on ware 21.

Ware 21 – Signs of Repair

There are no signs of repair documented on ware 21.

Ware 21 – Marks

There are no marks documented on ware 21.

Ware 21 – Comparable Findings

There are two sites at which comparable findings to ware 21 are excavated and published. One is the site of a ceramic hoard in Dunhua, Jilin province, which is dated to the Yuan dynasty (Wang Xingzhong 2008, 442). Included in this hoard are five vessels which appear comparable to the findings of ware 21. These are classified as ‘qing ciqi’ (青瓷器) plates with a diameter of 14 cm at

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the mouth, 6,3 cm at the base and a height of 4,3 cm. There is no drawing of the shape published. Still, it appears to be same as on ID 7779 but with the proportions of a plate instead of a bowl. The classification of these findings is highly interesting. Literally, ‘*qing ciqi*’ can be translated as ‘blue or green glazed ceramics’.⁸ Technically, this expression is often used and translated as a term for celadon, i. e. porcellaneous wares with a jade-like celadon glaze. Accordingly, the findings from the Dunhua hoard are grouped together with celadon (Wang Xingzhong 2008, 441–442). Celadon is defined as ware 5 in the present study. Both wares very clearly differ from one another. Neither their body characteristics nor their glazes are comparable. The given classification can thus only be followed in a literal sense of the term ‘*qing ciqi*’ but not regarding the content and implications of the term.

The second site where comparable vessels are documented is that of an imperial ancestral temple in Lin’an, Zhejiang province (Hangzhou Municipal Institute of Cultural Relics and Archaeology 2007, 259–262, Color Plates 117–120). This site is dated to the Song dynasty and the findings include a broad range of similar bowls. All of which are classified as green glazed ceramics from the Ding kiln system. This classification is similarly surprising as that of the findings from Dunhua. Comparable findings are neither included in the Palace Museum collection of Ding wares nor documented in excavations at Ding kiln sites (cf. Palace Museum 2012; Qin Dashu et al. 2014).

Ware 21 – Origin and Interpretation

Ware 21 is not classified in previous studies on the ceramics from Karakorum. Still, a published base fragment appears to be attributable to this ware. The fragment is classified as ‘moon white glazed ware’ and affiliated with Jun ware (Meitoku / Ochir 2007, 11 + 35, Plate 8, Fig. 181).

Although comparable findings to ware 21 are known, its origin cannot be determined. Furthermore, there is no homogenous classification. It is surprising that the attributions of the comparable findings relate to celadon and not to Jun ware. Judging from the characteristics of ware 21 it is much closer to Jun ware (ware 20) than to celadon (ware 5). This refers to its shape, its glaze and its body. Thus, an origin from southern Chinese celadon production sites as stated for the findings from the Dunhua hoard is considered unlikely. An origin from the Ding kiln system is supposable according to the findings from Lin’an but lacks sufficient proof. Judging from the appearance of ware 21 only it can be rated as a Jun imitation which might have been produced in modern-day Mongolia or Inner Mongolia.

Concerning the dating of ware 21, all the findings from Karakorum derive from layers that are dated to the Yuan dynasty, mainly from the 14th century on. There is no connection in time to the findings from Lin’an but to the findings from the Dunhua hoard only. In relation to the findings of ware 20, ware 21 is assumed to be made for domestic use.

3. 3. 6. STONEWARES WITH A BROWN TO GREEN GLAZE – WARES 22–27

Stonewares with a brown to green glaze are the most manifold ware from Karakorum. This refers to glazes as well as to bodies. Various kinds of mat to glossy green and brown glazes are documented. Partly, glazes of both colors are applied on the same vessels and overlap. Concerning the body features, coarse tempered wares in this group vary more than in any other ware group.

About 12% of all documented fragments belong to this category. General features are a hard body with a dense, not entirely sintered structure. The glaze is very thinly to thinly applied. Included in the color range are various shades of brown to green which partly overlap. Glossy as

⁸ The term ‘*qing*’ (青) refers to color shades which can be blue or green according to a European color perception.

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well as mat glazes appear. Tempers and temper particles differ. The subdivision of this ware group is as follows:

Ware 22: Brown glazed stoneware with a fine temper

Ware 23: Stoneware with a Tea Dust (green to brown) glaze, fine temper and a buff body

Ware 24: Stoneware with a Tea Dust (green to brown) glaze and a gray body, fine temper

Ware 25: Stoneware with a fine temper and a very dark brown glaze

Ware 26: Stoneware with Tea Dust (green to brown) glaze and a medium temper

Ware 27: Stoneware with a Tea Dust (green to brown) glaze and a coarse temper.

These wares are again subdivided according to varying glazes and/or body features. Ware 23 and 24 are related to each other but divided so as to provide a better overview and comparability to other wares from Karakorum. In ware 27 many different coarse tempered wares with a small number of findings and bad comparability are subsumed. The main subtype of this ware is 27.1. which are coarse tempered storage jars. This is the main ware in this category in general as 63,4% of the stonewares with brown to green glaze are classified as ware 27.1.

Ware 22

Designation: Brown glazed stoneware with a fine temper

Glaze: Brown slip or very mat Brown glaze (= ware 22.1.)

Coat: very thin

Dark Brown, partly brown slip only (= ware 22.2.)

Brown, uneven / inside partly Tea Dust Green or Brown (= ware 22.3.)

Dark Brown, mat (= ware 22.4.)

Body: beige, rarely off-white or buff
(= wares 22.1. – 3.)

Temper: very fine to fine

Hardness: hard

light brownish gray, rarely light gray (= ware 22.4.)

Temper particles: fine brown to black particles (very few) (= wares 22.1.-3.)

Structure: dense, not entirely sintered

only ware 22.4.: fine black particles (very few)

Average Thickness: thick/ 0,93 cm (= ware 22.1.)

thick/ 0,98 cm (= ware 22.2.)

thick/ 0,9 cm (= ware 22.3.)

thick/ 0,96 cm (= ware 22.4.)

Ware 22 is subdivided into four groups according to varying glaze characteristics. Partly, the body features vary according to a specific glaze. As a common feature ware 22 is defined as brown glazed stoneware with a fine temper.

The share of ware 22 in the spectrum of glazed ceramics from Karakorum is low. In total, 109 fragments are documented in 95 datasets. This is 0,52% of all recorded fragments. Concerning the subtypes, the major type in this group is ware 22.2 with a share of 71,6% of ware 22 in total. Subtype ware 22.1. holds a share of 13,7%. The share of subtype ware 22.3. is 5,2% and ware 22.4. holds a share of 9,5%.

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Ware 22 – Shapes

About 92% of the fragments in ware 22 are body fragments. Therefore, only a few shapes are documented. This includes three rim fragments and five base fragments. Most of which differ in shape. Additionally, one handle is recorded.

In terms of rim shapes all the findings differ (Plate 28, fig. 5–7). This is ID 266 with Rim Type 3.1., ID 13821 with Rim Type 5, C and ID 8653 with Rim Type 6.2. The latter two fragments derive from pots. Both belong to subtype ware 22.2. The diameter of these vessels is not determinable. The rim shape of ID 266 belongs to a bowl with a diameter of 18 cm. This fragment is defined as subtype ware 22.4.

Concerning the base shapes three out of five fragments belong to Base Type 1.1. (Plate 28, fig. 8–9). All of them are defined as subtype ware 22.2. The diameter on these bases is determinable on two fragments and measures 5 cm on ID 12814 and 16 cm on ID 5470. A further fragment of subtype ware 22.2. belongs to Base Type 1.2. and measures 5 cm in diameter (Plate 28, fig. 10). The fifth documented base fragment is classified as subtype ware 22.4. and Base Type 2.3. This is ID 11432 with a diameter of 10 cm (Plate 28, fig. 10). It can be clearly associated with the shape of a pot.

The only handle in ware 22 is very large and belongs to subtype ware 22.2 (Fig. 34, left). It is part of a pot. Overall, most of the documented shapes in this ware are pots. Bowl ID 266 appears to be an exception. This impression is confirmed by many body fragments with a fluted shape that is to be associated with pots (Fig. 34, right).

Ware 22 – Décor

Décor is highly uncommon in ware 22. Documented are three samples only. These fragments belong to subtype ware 22.2. On two of them lines are carved in the outside glaze. The third has an unglazed circle on the inside which could be merely a spur mark as well.

Fluted body shapes appear but are not defined as décor.

Ware 22 – Signs of Repair

Signs of repair are documented on two fragments of subtype ware 22.2. Both have a non-piercing drill hole on the outside that measures 3 mm in diameter. Furthermore, both findings derive from the uppermost layers of the excavation and are to be dated to the late 14th century.

Ware 22 – Marks

There is one mark documented in ware 22. This is a black ink mark on ID 1280 that belongs to subtype ware 22.2. and Base Type 1.2. (Plate 83, fig. 14). It is not decipherable. This fragment is published already in a previous study on ceramics from Karakorum. There, its inscription is interpreted as being Chinese script (Nagel 2002, 101 + Plate XVII a, left). The fragment itself is classified as “(Huizhou-) earthenware” (Nagel 2002, 99) in this article.

Ware 22 – Comparable Findings

The comparability of ware 22 is limited. For the most part Chinese stonewares of the Song and Yuan dynasty are glazed in white or black. Often, brown glazed ceramics are subsumed in the category of black glazed wares and barely described or depicted. This applies e. g. to the findings from the contemporaneous city site of Yanjialiang, Inner Mongolia, where comparable ceramics are found. Here, the glaze color is defined as “soy” (Chin. *jiang*, 酱; Ta La et al. 2010, 398). Although none of the pot shapes from Yanjialiang is comparable to the pot with handles ID 12381 from Karakorum, the shape of the handles is well documented in Yanjialiang (Ta La et al. 2010, 408f). Furthermore, several vessels (mostly bottles) with fluted bodies are found (Ta La et al.

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2010, 411f) as well as a pot with a brown slip that is well comparable to subtype ware 22.1. (Ta La et al. 2010, Color Plate 119, Fig. 4). Concerning their classification, brown glazed wares from Yanjialiang are subsumed in the group of simple wares that could be produced inter alia in the Cizhou kiln system in Hebei province or at the Lingwu kiln in Ningxia province (Ta La et al. 2010, 646).

Brown glazed ceramics do not belong to the main wares produced at any of the popular Chinese kiln sites. Comparable findings are few. Most of the ceramics from the Lingwu kiln are glazed in black. Still, brown wares with a “pale yellow or grayish-white” (Chinese Institute for Social Sciences and Archaeology 1995, 223) body are known to be produced at this site. Especially the shapes of the handles from Lingwu pots are comparable to those found in Karakorum (cf. Chinese Institute for Social Sciences and Archaeology 1995, 102). Relating to the Cizhou kiln system, published brown glazed ceramics from this kiln are rare. This system is primarily known for its white wares. Nevertheless, some comparable brown glazed vessels are included in the findings from excavations at the Cizhou Guantai kiln site in Hebei. This is e. g. a large bottle with a fluted body as well as small pots with and without handles (Beijing University Archaeology Department 1997, Color Plates 23–24). The shapes of the handles from this site generally differ from those documented in Karakorum.

Ware 22 – Origin and Interpretation

Brown glazed ceramics are not previously defined in the treatises on ceramics from Karakorum. Partly, these wares appear to be subsumed in the category of black glazed ceramics from Henan, Hebei and Shanxi (cf. Meitoku / Ochir 2007, iv). In the course of the Russian excavations brown glazed wares are included in the group of ‘Henan type’ ceramics (Evtiukhova 1965, 250–257). It is assumed that parts of these wares could have been locally produced somewhere around Karakorum (Evtiukhova 1965, 253). Janssen-Kim (2005, 187) supposes that the local production of ‘dark glazed’ ceramics only refers to coarse tempered wares.

In sum, little is known about ware 22. The comparisons to findings from Yanjialiang as well as to the kiln sites of Lingwu and Guantai indicate an origin in northern China. As most of the documented shapes are pots, this ware appears to be primarily made for storing. It is documented evenly throughout all settlement periods in Karakorum. At any given time only a few fragments are found. Therefore, ware 22 always is an uncommon type of ceramics in the city.

Ware 23

Designation: Stoneware with a Tea Dust (green to brown) glaze and a fine temper

Glaze: Tea Dust Brown to Green or Brown, mat (= ware 23.1.) **Coat:** very thin
Tea Dust Green on Brown, mat (= ware 23.2.)
Dark Green, mat, on Brown, glossy, rather clear (= ware 23.3.)
Green to Dark Green, glossy, on Brown, glossy, both rather clear
(= ware 23.4.)

Body: buff, beige, rarely off-white **Temper:** very fine to fine **Hardness:** hard
Temper particles: fine brown to black particles **Structure:** dense, not entirely sintered
(very few)

Average Thickness: thick/ 0,85 cm (= ware 23.1.)
medium/ 0,77 cm (= ware 23.2.)
medium/ 0,74 cm (= ware 23.3.)
thick/ 0,95 cm (= ware 23.4.)

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Ware 23 is subdivided into four groups according to varying glaze colors. As a common feature, it is defined as tea dust (green to brown) glazed stoneware with a fine temper and a buff body. It is partly related to ware 24 which is gray in its body color but brown to green glazed as well. Furthermore, similarities to the brown glazed ware 22 are exhibited.

In total, 236 fragments of ware 23 are documented in 207 datasets. This equals a share of 1,12% of all recorded fragments. The main subtype is ware 23.2. with a share of 50,8% of ware 23. This is followed by subtype ware 23.1. with a share of 28,8%, subtype 23.3. with a share of 11,9% and last subtype ware 23.4. with a share of 8,5%.

Ware 23 – Shapes

The spectrum of fragments in ware 23 consists of 79% of body fragments, 13% base fragments and 8% rim fragments. Furthermore, one handle and one completely preserved vessel are recorded. Neither lids nor spouts are documented in this ware (Plate 29).

The only completely preserved vessel in ware 23 is miniature bottle ID 2025 that belongs to subtype ware 23.1. (Plate 29, fig. 1). Its rim shape is defined as Rim Type 5 B, C and its base is of Base Type 1.3. The bottle measures 2,2 cm in diameter at the mouth and 1,6 cm at the base. Its height is 4 cm. Fragments of similar bottles are not recorded.

The most common rim shape on ware 23 is Rim Type 3 with a share 26% of all rim fragments. Due to the small number of findings, this is five fragments only. Vessels with this rim shape are assumed to be bowls. Their diameters are determinable on two findings only. This is miniature bowl ID 15322 with a diameter of 6 cm and medium sized bowl ID 14270 with a diameter of 14 cm.

Generally, bowls are rather uncommon in the spectrum of shapes in ware 23. Any other rim shape than Rim Type 3 is attributed to pots or bottles. The number of findings with these shapes varies from one to three. Included are Rim Type 5 B, C, an exceptional variant of Rim Type 5, C, Rim Type 5, N + C, Rim Type 5, N, Rim Type 6.2. and Rim Type 6.3. (Plate 29). The documented bottles measure 4 cm in diameter. The diameters of the pots measure from 9–16 cm on the vessels with variants of Rim Type 5 and from 10–21 cm on pots with variants of Rim Type 6.

Relating to base shapes Base Type 2.1. is most common with a share of 52%. All of these findings are associated with the shape of pots. The diameters of these bases measure from 7–21 cm in diameter with an average of 11 cm. The second most common base shape on ware 23 is Base Type 1.1. with a share of 32%. Most of these bases are attributed to bowls and plates. Their diameters range from 5,3–8 cm with an average of 6,5 cm. The third base shape documented on ware 23 is Base Type 1.3. which is recorded on miniature bottle ID 2025 only. About 13% of the base fragments are not determinable in shape.

The handle which is documented in ware 23 equals in shape the handle found in ware 22 (Plate 29, fig. 2 and cf. Plate 28, fig. 4).

In total, most of the vessels in ware 23 are pots. Additionally, some bowls or plates and few bottles are documented. Miniature vessels appear in the shape of bottles and bowls.

Ware 23 – Décor

Décor is documented on 9,3% of the findings of ware 23. Half of these are base fragments with an unglazed circle on the inner base that appears to be a spur mark and décor at the same time. The other half of the findings with décor consists of fragments with lines that are cut into the glaze on the outside. Apart from a floral scroll on ID 13279 and fragments of a script on ID 1664, none of the motifs is recognizable (Plate 70, fig. 5–6). An exception in ware 23 is fragment ID 2090 that appears to be some kind of molded shape (Plate 70, fig. 7).

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Ware 23 – Signs of Repair

Signs of repair are documented on 3,4% of ware 23. This is two fragments of subtype ware 23.1. and five fragments of subtype ware 23.2. On both of the remaining subtypes no signs of repair are documented. These are non-piercing drill holes on the outside of vessels. The holes vary in diameter from 2–5 mm with an average of 3,3 mm. Most of the fragments are to be dated to the (late) Yuan dynasty with a share of 71,4%. The remaining 28,6% of the findings with repair date to the Song dynasty.

Ware 23 – Marks

Four base fragments with marks are documented in ware 23 (Plate 83, fig. 15–18). Three of them are fragments of bowls or plates with an unglazed circle on the inside base and the shape of Base Type 1.1. The fourth cannot be determined in shape or décor as only the middle of the base is preserved. All the marks are written in black ink. The marks on ID 1850 and ID 4183 are not legible. The marks on ID 1259 and ID 15143 consist of Chinese characters (Plate 83, fig. 17–18). Both contain signs that can be interpreted as the Chinese character for ‘horse’ (chin. *ma*, 马). Furthermore, the last character of the writing on ID 1259 may be interpreted as ‘market’ (chin. *shang*, 商).⁹

Apart from ID 15143 all the marks are to be dated to the Yuan dynasty. ID 15143 dates to the Song dynasty.

Ware 23 – Comparable Findings

The comparison of ware 23 based on pictures and descriptions is difficult. Depending on the light conditions on the pictures, the darker green and brown glaze colors on this ware may appear black. Furthermore, on many samples the body features are not described. Therefore, the findings are comparable to various wares in the spectrum of tea dust glazed stonewares from Karakorum and partly to black glazed wares as well.

Overall, the relations between ware 22 and 23 are so close that their comparability to published findings and its classification is about the same, i. e. at the Lingwu kiln site in Ningxia and in the Cizhou kiln system in Hebei similar ceramics are known to be produced (see above). As an example, miniature bottles that are related to ID 2025 (Plate 29, fig. 1) are included in the findings from the Lingwu kiln as well as from the Cizhou Guantai kiln (Beijing University Archaeology Department 1997, Plate 56; Chinese Institute for Social Sciences and Archaeology 1995, Plate 52). None of these shapes is alike. Still, all of them are similar with the samples from the Guantai kiln being a bit closer in shape to the findings from Karakorum.

Other comparable findings from the Guantai kiln are e. g. pots with a tea dust colored glaze (Beijing University Archaeology Department 1997, Plate 34). In general, the body of ceramics from this kiln site is described as ‘grey’ (Beijing University Archaeology Department 1997, 597). In this case it is to be correlated with ware 24 instead of ware 23. Unfortunately, there are no definitions on the mentioned body colors given. Often, the vessels appear as being buff or beige in body on the picture. Due to these problems, precise correlations between the various tea dust glazed wares cannot be concluded. Overall, the number of published comparable findings is low. Pots with a buff body, tea dust glaze and a shape that equals Rim Type 5, N from Karakorum are e. g. attributed to the Jiangguantun kiln in Liaoning province (Liaoning Provincial Institute of Archaeology 2011, 111 + 118). Little is published about this kiln as it does not belong to the popular Chinese kiln sites of the time. Pots that are comparable in shape to Rim Type 5, N + C are e. g. excavated in Shandong province but not related to a kiln site (Xie Zhixiu et al. 2008, 206).

⁹ Thanks to my colleague Patrick Wertmann for this interpretation.

3. 3. Stonewares – Wares 8–38

Concerning the ceramics produced at the Lingwu kiln, the descriptions of the body characteristics equal the definitions of ware 23 (cf. Chinese Institute for Social Sciences and Archaeology 1995, 223). Furthermore, the décor on these wares is highly comparable to that documented on ware 23. This is cut-glazed décor as the floral scroll on ID 13279 (cf. Chinese Institute for Social Sciences and Archaeology 1995, Plate 4), unglazed circles on the inside base and especially characters that are incised in the glaze (cf. Chinese Institute for Social Sciences and Archaeology 1995, Plate 141). Some of these are similar to the script on ID 1664 (Plate 70, fig. 6). Additionally, samples with unglazed circles on the inside are inter alia known from the Duyaotai kiln site in Henan (Li Guige 2014) and from findings that are attributed to the Cizhou kiln system or the Gangwa kiln in Inner Mongolia (Liaoning Provincial Institute of Archaeology 2011, 63 + 90ff).

Ware 23 – Origin and Interpretation

The classification of ware 22 in previous studies on ceramics from Karakorum is the same as that on ware 22, i. e. these wares are not separately defined but subsumed in the category of black glazed wares or ‘Henan type’ ceramics (see above). Parts of these ceramics are assumed to have been locally produced in the surroundings of Karakorum (Evtiukhova 1965, 253; Janssen-Kim 2005, 187).

Judging from the comparable findings to ware 23, an origin at kiln sites in the northern region of the Yuan dynasty territory is assumed. This includes production sites in Inner Mongolia as the Lingwu kiln, sites in Liaoning province as the Jiangguantun kiln, sites in Henan province as the Duyaotai kiln and kiln sites that belong to the Cizhou kiln system like the Guantai kiln in Hebei province (see above). A local production close to Karakorum can neither be proved nor excluded as no corresponding kiln sites are known from this area. From a technological perspective, it is supposable that such kiln sites existed. Strikingly different in shape from published findings are e. g. ID 10152 with Rim Type 5, C (exception) and ID 8113 with Rim Type 6.3. (exception) (Plate 29, fig. 5 + 11). This is an indicator for previously unknown wares and production sites that could be located closer to Karakorum than the other sites or be more closely related to nomadic and Central Asian cultures than the ceramics from the kiln sites listed above.

Ware 23 is documented throughout all settlement layers and not limited to a specific period. Still, the number of fragments of this ware rises over time. Most of them date to the mid to late Yuan dynasty. Concerning its use ware 23 is assumed to be primarily made for storing as most of its shapes are pots and bottles.

Ware 24

Designation: Stoneware with a Tea Dust (green to brown) glaze and a gray body

Glaze: Tea Dust Green on Brown, mat (= ware 24.1.) **Coat:** very thin
Dark Green, glossy (clear)/ inside partly Gray (= ware 24.2.)
(Dark) Green, glossy on Brown, glossy (= ware 24.3.)

Body: gray, rarely light gray (= ware 24.1.) **Temper:** fine to medium **Hardness:** hard
gray, dark gray, rarely light brownish gray
(= ware 24.2.)
gray, rarely dark gray (= ware 24.3.)

Temper particles: none (= ware 24.1.) **Structure:** dense, not entirely sintered
irregularly shaped transparent to white particles
(= ware 24.2. – 3.)

Average Thickness: thick / 0,95 cm (= ware 24.1.)
thick/ 1, 1 cm (= ware 24.2.)
medium/ 0,73 cm (= ware 24.3.)

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Ware 24 is subdivided into three groups according to varying glaze colors. Its body colors vary slightly in relation to the glazes. As a common feature, this ware is defined as tea dust (green to brown) glazed stoneware with a fine temper and a gray body (Fig. 35). Partly, ware 24 is related to ware 23. Still, some specifics as e. g. shapes differ. Especially subtype ware 24.3. consists of few special fragments that are subsumed in this group.

In total, 78 fragments of ware 24 are documented in 71 datasets. This equals 0,37% of the recorded fragments. Statistically, this ware is negligible. The main subtype is ware 24.2. with a share of 50%. Subtype ware 24.1. holds a share of 41% and subtype ware 24.3. has a share of only 9%.

Ware 24 – Shapes

More than 90% of ware 24 are body fragments. Therefore, very few shapes are documented. Relating to rim shapes, only one fragment is recorded. This is ID 6468 of subtype ware 24.1. with an exceptional variant of Rim Type 5 B (Plate 30, fig. 2). The diameter of this vessel is 6 cm. It is assumed to be a bottle and dates to the Yuan dynasty. In the same subtype, a small fragment of a handle is recorded. Its shape cannot be reconstructed (Plate 30, fig. 1).

Concerning base shapes, one fragment is documented in subtype ware 24.1. and four in subtype ware 24.2. Subtype ware 24.3. consists of body fragments only. The base fragment in subtype ware 24.1. is ID 12858 with Base Type 1.1. and a diameter of 8 cm. A fragment of the same shape and size is documented in subtype ware 24.2. as well. Both derive from pots. The three remaining base fragments in subtype ware 24.2. are of Base Type 3. One of them is fragment ID 12541 which derives from a large pot with a diameter of 18 cm at the base. The other two fragments derive from bottles. Their diameters are 8 cm (ID 9225) and 5,7 cm (ID 8518). The body of ID 8518 is fluted. Three large spur marks are visible on its outer base (Fig. 35, middle).

In total, any of the few documented shapes are bottles or pots. Ware 24 appears to be used for storage only.

Ware 24 – Décor

Décor is documented on two fragments of subtype ware 24.3. only. This is diagonal incised lines which are applied in circles around the outside of a vessel and covered with glaze (Plate 70, fig. 8). Both fragments date to the Yuan dynasty.

Ware 24 – Signs of Repair

Signs of repair are documented on one fragment of subtype ware 24.2. only. This is base fragment ID 12541 with Base Type 3 (Fig. 35, right). On its outside two non-piercing drill holes with a diameter of 3 mm are applied. Furthermore, a metal clamp is preserved inside one of these holes.

Ware 24 – Marks

There are no marks documented on ware 24.

Ware 24 – Comparable Findings

For the most part, ware 24 is not comparable to published Chinese ceramics. The only exceptions are findings that differ from ware 23 in their body color only. Analogous to this ware, these findings could be produced e. g. at the Cizhou Guantai kiln (see above and Beijing University Archaeology Department 1997, 597). This refers especially to the few base fragments with Base Type 1.1. Bases of Base Type 3 are not assumed to be produced at the Guantai kiln site. Although bottles with shapes similar to ID 8518 are excavated at this site, their bases differ

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in shape as all of them have footrings (cf. Beijing University Archaeology Department 1997, 215, Plate 92).

The only documented rim shape in ware 24 is not comparable to shapes of Chinese ceramics. The same applies to subtype ware 24.3. in total. The appearance of these findings rather indicates an origin in Central Asian regions with little to no Chinese influence.

Ware 24 – Origin and Interpretation

In terms of previous studies on ceramics from Karakorum, the classification of ware 24 equals that of ware 22 and 23, i. e. these wares are not separately defined but subsumed in the category of black glazed wares or ‘Henan type’ ceramics and partly assumed to be local products (see above).

Due to the focus of the present study on Chinese ceramics, research on comparable findings is mainly conducted in this spectrum. As stated above, the comparability of ware 24 with Chinese wares is very low. Few findings as e. g. bottle ID 8518 could be produced in the northern China. Generally, an origin of ware 24 at Chinese kiln sites appears unlikely. This refers specially to subtype ware 24.3. as a whole and shapes as on rim ID 6468 that belongs to subtype ware 24.1. Neither the shapes nor the outer appearance of ware 24 fit into the spectrum of common Chinese wares. It is assumed that these ceramics derive from regions with less developed ceramic production sites than China and possibly more nomadic influences. This could be regions in the surroundings of Karakorum or in Central Asia. These are areas where at the present little to nothing is known about kiln sites and ceramics from the 13th–14th centuries. During the present study no further research on the origin of ware 24 is done. The number of findings of this type is negligible in the spectrum of the glazed ceramics from Karakorum.

Concerning the dating of ware 24 the subtypes differ. While subtypes ware 24.1. and 24.3. are documented in all settlement layers, none of the fragments of ware 24.2. dates later than the end of the 13th century. Relating to its use ware 24 appears to be made for storing. This is indicated through the documented spectrum of shapes.

Ware 25

Designation: Stoneware with a fine temper and a very dark brown glaze

Glaze: Very Dark Brown

Coat: very thin to thin

Body: dark gray, gray (= ware 25.1.)
dark reddish brown, partly brick-red
(= ware 25.2.)

Temper: very fine to fine

Hardness: hard

Temper particles: irregularly shaped black and transparent to white particles (= ware 25.1.)
very few, very fine white particles possible
(= ware 25.2.)

Structure: dense, almost entirely sintered

Average Thickness: medium/ 0,74 cm (= ware 25.1.)
medium/ 0,7 cm (= ware 25.2.)

Ware 25 is subdivided into two groups according to varying body colors. As a common feature, this ware is defined as stoneware with a fine temper and a very dark brown glaze (Fig. 36). Partly, there are similarities to ware 24.

In total, 79 fragments of ware 25 are documented in 70 datasets. This equals a share of 0,37% of all recorded fragments. The majority of these is defined as subtype ware 25.2. which holds a share of 72,2% in this group. The remaining fragments are defined as subtype ware 25.1.

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Ware 25 – Shapes

About 78,5% of the documented findings in ware 25 are body fragments. Rim fragments hold a share of 12,7%, base fragments hold a share of 5,1% and fragments of handles are represented with a share of 3,8%. The spectrum of shapes in both subtypes is alike.

Only two rim shapes are documented in this ware. This is Rim Type 5, B and Rim Type 6.1. (Plate 30, fig. 7–9). Rim Type 5, B is recorded on 50% of the rim fragments. It is associated with the shape of bottles. Apart from one exception these vessels measure 7 cm in diameter. ID 1502 measures 5 cm in diameter only. This bottle shape is documented with and without handles.

Rim Type 6.1 is documented on 30% of the rim fragments. The remaining 20% are not determinable in shape. Rim Type 6.1. is attributed to the shape of pots. Vessels with this rim measure 10–12 cm in diameter with an average of 11 cm. The precise shaping of this rim type varies slightly.

Concerning base shapes in ware 25 all the determinable fragments belong to Base Type 3 (Plate 30, fig. 10–11). Their diameter ranges from 6–8,7 cm with an average of 6,9 cm. Most of the fragments are very large and appear to derive from pots.

Overall, all the documented shapes in this ware are bottles and pots. It appears to be used for storage only.

Ware 25 – Décor

The only fragment with décor in this group is an exceptional stray find that is included in subtype ware 25.2. This is ID 14537 which is white glazed on the outside and painted with a brown line. Due to its lack of comparability to other wares, this finding is included in ware 25. Still, it is not representative of this ware. Décor is not characteristic on ware 25. Neither is a white glaze. Finding ID 14537 is most likely a copy of another ware but produced somewhere close to or at the production sites of ware 25.

Ware 25 – Signs of Repair

There are no signs of repair documented on ware 25.

Ware 25 – Marks

There are no marks documented on ware 25.

Ware 25 – Comparable Findings

Neither of the subtypes of ware 25 from Karakorum correlates with common Chinese ceramics of the 13th and 14th century. This refers especially to its shapes and body characteristics. The only comparable finding known to the author is a pot that is part of the cargo of a shipwreck that sank at the coast of Sinan in 1323 (Shen Qionghua 2012, 220). This pot is not attributed to a Chinese kiln site nor classified in any other way.

Ware 25 – Origin and Interpretation

Just like the previously described wares with brown and green glazes, ware 25 is not separately classified in previous studies on ceramics from Karakorum. Presumably, findings of this ware are subsumed in the category of black glazed wares or ‘Henan type’ ceramics and partly assumed to be local products (cf. wares 22–24 above).

Ware 25 is not comparable to commonly known Chinese ceramics. It differs especially in shape from the popular spectrum. Furthermore, neither its body features nor its glaze is characteristic for any Chinese ware. Still, the only comparable finding known to the author is a pot that derives

3. 3. Stonewares – Wares 8–38

from the Sinan shipwreck that is loaded with Chinese ceramics. At the present state of research possible production sites of ware 25 remain unknown. Supposable are kilns in the surroundings of Karakorum, Central Asia or very uncommon and presently unknown kiln sites in China. Findings of ware 25 appear throughout all settlement layers of Karakorum. It is not limited to a specific period. As all the documented shapes in this ware are bottles and pots, it is assumed to be used for storage.

Ware 26

Designation: Stoneware with Tea Dust (green to brown) glaze and a medium temper

Glaze: (Dark) Tea Dust Green, mat / inside partly (yellowish) Brown (= ware 26.1.) **Coat:** thin

Tea Dust Green, mat on Dark Brown/ inside Brown, very thin, mat (= ware 26.2.)

Yellowish Green to Brown (Tea Dust), mat (= ware 26.3.)

Dark Green, glossy (= ware 26.4.)

Body: beige (= ware. 26.1.)

Temper: medium

Hardness: hard

light gray (= ware 26.2.)

light reddish brown (= ware 26.3.)

gray, dark gray (= ware 26.4.)

Temper particles: irregularly shaped black and transparent to white particles (= ware 26.1.)

irregularly shaped transparent to white particles and few irregularly shaped black particles

(= ware 26.2.)

irregularly shaped black to brown and transparent to white particles (= ware 26.3.)

irregularly shaped black and transparent to white particles (many) (= ware 26.4.)

Average Thickness: very thick / 1,25 cm (= ware 26.1.) **Structure:** dense, not entirely

thick/ 0,9 cm (= ware 26.2.) sintered

very thick/ 1,34 cm (= ware 26.3.)

thick/ 0,93 cm (= ware 26.4.)

Ware 26 is subdivided into four groups according to varying glaze colors. The body colors vary in correlation to the glazes. As a common feature, this ware is defined as tea dust (green to brown) glazed stoneware with a medium temper. It is a ware group in which several wares that appear in small numbers only are subsumed. Partly, fragments of ware 26 are related to other tea dust glazed wares from Karakorum such as ware 23, 24 or 27.

In total, very few fragments of this whole group are documented. This is 55 fragments in 50 datasets which equals a share of 0,26% of all recorded fragments. The largest subtype is ware 26.4. which holds a share of 54,6% in this group. Second most common is subtype ware 26.3. with a share of 34,6%. Subtype ware 26.1.–2. consist of stray finds only and are represented with three findings each. This is a share of 5,5% each.

Ware 26 – Shapes

Apart from two matching rim fragments that belong to subtype ware 26.4. only body fragments are documented in ware 26. The rim fragments which both belong to dataset ID 1994 are of Rim Type 5 B (Plate 31, fig. 1). They derive from a large bottle with handles that measures 9,3 cm in diameter.

Ware 26 – Décor

There is no décor documented on ware 26.

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Ware 26 – Signs of Repair

There are no signs of repair documented on ware 26.

Ware 26 – Marks

There are no marks documented on ware 26.

Ware 26 – Comparable Findings

There are no well-comparable findings to these wares known to the author.

Ware 26 – Origin and Interpretation

Presumably, findings of ware 26 are subsumed in the category of black glazed wares or ‘Henan type’ ceramics and partly assumed to be local products in previous studies on ceramics from Karakorum (cf. wares 22–25 above).

Especially subtype ware 26.4. lacks comparability to Chinese wares. Concerning fragments that are comparable to other tea dust wares as ware 23 or 24 an origin from e. g. northern Chinese kiln sites like Guantai or Lingwu cannot be excluded. Still, the low comparability indicates production sites of ware 26 that are unknown at the present and possibly located outside the territory of Chinese kiln sites.

The number of findings is very small throughout any settlement period. Fragments of subtypes ware 26.1.–2. are not documented before the end of the 13th century while findings of subtypes ware 26.3.–4. are recorded in all settlement layers. As the few shapes that are documented in this ware are bottles, it is assumed to be used for storing.

Ware 27

Designation: Stoneware with a Tea Dust (green to brown) glaze and a coarse temper

Glaze: Tea Dust Green to Brown, mat (= ware 27.1.)

Coat: very thin to thin

mostly Brown, uneven, mat (= ware 27.2.)

Tea Dust Green (yellowish), mat/ inside partly Brown (= ware 27.3.)

Brown or Tea Dust Green, mat (= ware 27.4.)

(Dark) Tea Dust Green, rather mat to slightly glossy (= ware 27.5.)

Dark Tea Dust Green, mat (= ware 27.6.)

Dark Green, glossy (= ware 27.7.)

Body: off-white, buff, beige (= ware 27.1. – 2.)

Temper: coarse

Hardness: hard

brown (= ware 27.3.)

red, light reddish brown (= ware 27.4.)

two-colored: off-white and gray or dark gray and light gray (= ware 27.5.)

irregularly fired, mostly dark gray to beige (= ware 27.6.)

dark gray, partly red (= ware 27.7.)

Temper particles: irregularly shaped white, brown and black particles (= wares 27.1. – 3.)

Structure: dense, not entirely sintered

ware 27.4.: as wares 27.1. – 3. plus few mat white particles

irregularly shaped white and black particles (= ware 27.5. – 7.)

Average Thickness: very thick / 1,43 cm (= ware 27.1.)
very thick/ 1,53 cm (= ware 27.2.)
very thick/ 1,72 cm (= ware 27.3.)
very thick/ 1,35 cm (= ware 27.4.)
very thick/ 1,15 cm (= ware 27.5.)
very thick/ 1,1 cm (= ware 27.6.)
very thick/ 1,02 cm (= 27.7.)

Ware 27 is actually an accumulative group for several wares with a coarse temper and brown or green glazes. The main ware in this group is ware 27.1. which appears to be used for storage vessels. Wares 27.1.–3. are related to each other and correlate to the systematic of classification of the other wares from Karakorum. The remaining wares of group 27 are rather individual types which are documented in small numbers only and thus subsumed in the category of coarse tempered stonewares with a green to brown glaze.

In total, 2006 fragments are documented in 1101 datasets. This equals a share of 9,5% of all recorded fragments. A lot of fragments of subtype ware 27.1. are subsumed in one dataset because of their obvious connection to each other although the fragments are not necessarily matching. This subtype holds a share of 81,1% of all fragments in ware 27. Second most common is subtype ware 27.2. with a share of 12,5%. Followed by subtype ware 27.6. with a share of 2,5%. Any other coarse tempered ware with brown or green glaze is only rarely documented in Karakorum. This is subtype ware 27.7. with a share of 1,4%, subtype ware 27.4. with a share of 1,3%, subtype ware 27.3. with a share of 0,6% and finally subtype ware 27.5. with a share of 0,5%.

Ware 27 – Shapes

About 92% of all findings of ware 27 are body fragments. Only 6% rim fragments and 2% base fragments are recorded (Plates 31–36). Furthermore, one completely preserved vessel is documented. This is ID 2180 which belongs to subtype ware 27.7. (Plate 31, fig. 2). It is a crookedly potted bottle with two handles and a fluted body. The rim is of Rim Type 5, B and has a diameter of 4,7 cm. The base is of Base Type 3 and measures 6,4 cm in diameter. It is to be dated to the Song dynasty. A bottle of the same shape but with a fine temper and a smoother glaze is documented in ware 24.2. as well. This is ID 8518 (see above). Most of the other exceptional shapes also belong to ware 27.7. This is rim fragment ID 1276 with Rim Type 7 which derives from another kind of handled bottle and has a diameter of 8,5 cm (Plate 36, fig. 1). It is comparable to ID 1994 of ware 26.4. A complete exception concerning any other shape documented in Karakorum is ID 6891 (Plate 35, fig. 4). These are five fragments of a bowl with a diameter of more than 28 cm and an inwardly folded rim.

The majority of rims in ware 27 are of Rim Type 6.3. which holds a share of almost 78% of all rim fragments. Almost 96% of these fragments belong to subtype ware 27.1. Apart from subtypes 27.6.–7. Rim Type 6.3. appears in any subtype of ware 27. The variation of specific shapes on this type is high (Plates 33–35). All of these fragments derive from large storage jars with a diameter of more than 28 cm.¹⁰ An exceptional variant of these jars is rim ID 2613 which is categorized as Rim Type 6.1. and belongs to subtype ware 27.1. (Plate 32, fig. 1).

Three further rim shapes of pots are documented in ware 27. These are variations of Rim Type 5, (N), Th (Plate 31, fig. 5–6) and Rim Type 6.2. (Plate 32, fig. 2–3) which are documented on five fragments each in subtype ware 27.1. as well as five matching fragments of subtype ware 27.6. that are categorized as Rim Type 5, N + C (Plate 31, fig. 4). The latter is ID 3257 which is a handled pot with a diameter of 17 cm. Concerning the pots with Rim Type 5, (N), only the

¹⁰ During the material record, there was no chart available to determine diameters above 28 cm.

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diameter of ID 5299 is determinable. This is 15 cm. Pots with Rim Type 6.3. are larger. The smallest determinable diameter on this shape is 20 cm. All other diameters exceed 28 cm.

The variety of base shapes in ware 27 is very low (Plate 36, fig. 2–4). As an exception Base Type 2.1. is documented on ID 15336 that belongs to subtype ware 27.1. The diameter of this base is 20 cm. All other documented base shapes on any of the subtypes of ware 27 belong to Base Type 3. The diameters of these bases range from 6,4 cm on bottle ID 2180 up to large jars with 28 cm or more. The average is 18,9 cm. Except for bottle ID 2180 all the bases appear to derive from pots.

Overall, many vessels in ware 27 are large storage jars of subtype ware 27.1. Few other shapes are documented. Almost all of them are pots or bottles. Bowl ID 6891 of subtype ware 27.7. is a striking exception.

Ware 27 – Décor

Décor is documented on subtype ware 27.1. only. This is 18 body fragments with lines incised in the outside glaze (Plate 70, fig. 9–12). On none of them is a motif recognizable. The share of fragments with décor is 1,1% in subtype ware 27.1. All the fragments date to the 14th century.

Ware 27 – Signs of Repair

Signs of repair are documented in 16 datasets of subtype ware 27.1., two datasets of subtype ware 27.3. and one dataset in subtype ware 27.7. This is 19 datasets in total which equals a share of 1,7% of all datasets in this ware. Concerning the subtypes, the share of datasets with signs of repair is 1,8% in ware 27.1., 20% in ware 27.3. and 7,1% in ware 27.7. Due to the very small number of findings the share in the latter two subtypes is not considered to be representative. In terms of subtype ware 27.1. many fragments are subsumed in one dataset. Therefore, the share of fragments with signs of repair is much lower than that of datasets. This is about 1%. Most signs of repair are non-piercing drill holes on the outside of a vessel. The diameters of these holes range from 3–5 mm with an average of 3,4 mm. In two cases remains of a metal clamp are preserved. One of them does not appear to be a repair as it is applied on an intact rim (Fig. 37, left). Its use remains unclear. Furthermore, two non-piercing holes of square shape are documented on the outside of one fragment. These measure 4x2 mm and 7x6 mm. Another exceptional sample is a fragment with a large non-piercing drill hole on the inside. The diameter of this hole is 7 mm. Most special is a bronze fitting on ID 8516. This is singular in the spectrum of findings from Karakorum (Fig. 37, right). In this case the vessel is repaired by applying bronze plates on each side of the crack.

Almost 80% of the documented signs of repair on ware 27 date to the mid to late 14th century. Only four fragments derive from layers that date to the mid-13th century. None are documented from layers that date to the early 14th century. Therefore, the rise of repairs on ware 27 in the later times of Karakorum is striking.

Ware 27 – Marks

There are no marks documented in ware 27.

Ware 27 – Comparable Findings

The comparability of published findings with ware 27 in total is very low. For the most parts, no comparable findings are known at all. Generally, hardly any coarse tempered ware is published in the spectrum of Chinese ceramics from the 13th to 14th century.

An exception is the completely preserved bottle ID 2180 of subtype ware 27.7. (Plate 31, fig. 2). Two very similar bottles are excavated from a Yuan dynasty tomb that is located close to Beijing (Beijing Institute of Cultural Relics 1986, 101). These measure 15 cm in height and are thus

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smaller than the finding from Karakorum which measures 21 cm in height. Further details on the bottles are not given. Neither is a possible production site of these wares stated. The degree to which the body and glaze characteristics are alike can only be estimated from a black and white picture (Beijing Institute of Cultural Relics 1986, 100, Plate 9, Fig. 6). The tomb itself belongs to members of the feudal aristocracy called Tie-ke and his father Wo-tochi. Tie-ke is known from historical records and died in 1313 (Beijing Institute of Cultural Relics 1986, 106 + 114). In contrast, the bottle from Karakorum dates to the mid-13th century. Another bottle from the same tomb is comparable to ID 2180 as well but has no handles attached. Furthermore, a bottle of the same type is excavated from a Yuan dynasty tomb that is located in Hebei province and dates to 1277 (Xuanhua District Office of Preservation of Cultural Relics in Zhangjiakou City 2008, 54). From a technical point of view coarse tempered wares can be produced at kiln sites where fine tempered ceramics with similar glazes and body features are manufactured. This includes e. g. the Duyaotai kiln site in Henan. Here, large pots with Rim Type 6.3. are excavated (Li Guige 2014, 37). Their sizes are not as large as those from Karakorum and detailed descriptions on their bodies are missing. Still, the outer appearance of these pots seems comparable to those of subtype wares 27.1. with Rim Type 6.3. Few coarsely potted vessels are furthermore attributed to the Cizhou kiln system in Hebei province (Ye Zhemin 2009b, 225). However, this refers to black glazed bottles. Large pots with a brown or green glaze are not published from these kiln sites. Apart from these few exceptions no comparable findings to any of the subtypes of ware 27 are known at the present state of research.

Ware 27 – Origin and Interpretation

Coarse tempered wares with a brown or green glaze are documented in previous studies on ceramics from Karakorum. Mainly, this seems to include findings of subtype ware 27.1. Other subtypes of ware 27 are not clearly recognizable in previous descriptions or on pictures. The classification of these wares is the same as that of fine tempered wares with a tea dust glaze, i. e. 'Henan type' ceramics that might have been produced around Karakorum (see above or Evtiukhova 1965, 253; Elikhina 2010, 45; Janssen-Kim 2005, 187).

Due to the extremely low comparability of ware 27, its production sites are not determinable at the present state of research. Referring to a technological point of view, these wares can be produced e. g. in northern China or in the surroundings of Karakorum. Most of the vessels are large storage jars without décor. The number of fragments with a coarse temper in total rises over time. Still, the distribution in time is dependent on the subtypes of ware 27. Subtypes ware 27.1.–4. are rarely documented in early layers and mainly dated to the 14th century. Fragments of subtypes ware 27.5.–7. are exceptional in the later layers and mainly date to the 13th century.

3. 3. 7. STONEWARES WITH A BLACK GLAZE – WARES 28–34

Stonewares with a black glaze are one of the more common ware groups of glazed ceramics found in Karakorum. About 15% of all recorded fragments are assigned to this category.

General features of black glazed wares from Karakorum are a hard, not entirely sintered body and a thinly applied black to black brown glaze. Different tempers and temper particles appear and are subject for the classification of the ceramics. Differing glazes are used as criteria only if their structure is strikingly different from the other glazes. Generally, variations in glaze are documented in the original record but not used as distinctive criteria. The transitions between rather glossy and very glossy black glazes are fluent. In total, about 63% of the black wares are glazed with a rather glossy to glossy black glaze while the glaze on 37% is very glossy.

Included in the group of black glazed ceramics are wares 28–34. Their specific distinctive features are as follows:

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Ware 28: Stoneware with a fine temper and a black glaze

Ware 29: Stoneware with a pinkish body and a black glaze

Ware 30: Stoneware with a medium temper, black glaze and a reddish body

Ware 31: Stoneware with a medium temper, black glaze and a gray body

Ware 32: Stoneware with a black glaze and a coarse temper

Ware 33: Stoneware with a dark brown “chocolate brown” glaze, a coarse temper and a reddish gray body

Ware 34: Stoneware with a coarse body and a glossy black glaze.

Although different black wares are to be distinguished, this group is largely dominated by fine tempered ceramics of ware 28 which hold a share of almost 63% of the black wares in total. This ware is the black glazed equivalent to the white glazed ware 11. Second most common are black wares with a coarse temper of ware 32 which hold a share of almost 30%. Any other type of black glazed ceramics is rather exceptional in Karakorum.

Ware 28

Designation: Stoneware with a fine temper and a black glaze

Glaze: Black, Black Brown, partly Rust or Brown

Coat: thin

Body: off-white, buff, beige (= ware 28.1.)
light brownish gray, brownish gray (= ware 28.2.)

Temper: very fine to fine

Hardness: hard

light gray, gray, dark gray (= ware 28.3.)

Temper particles: fine brown to black particles
(very few)

Structure: dense, not entirely sintered

Average Thickness: medium/ 0,67 cm (= ware 28.1.)
medium/ 0,7 cm (= ware 28.2.)

medium/ 0,66 cm (= ware 28.3.)

Ware 28 is subdivided into three groups according to varying body colors. As a common feature, this ware is defined as black glazed stoneware with a fine temper. In terms of its body characteristics it is related to the white glazed ware 11.

The number of fragments in the subtypes of ware 28 is comparatively evenly divided. Most common is subtype ware 28.2. with a share of 40,8%. This is followed by subtype ware 28.1. with a share of 32,3%. Least common are fragments of subtype ware 28.3. with a share of 26,9%.

In total, 2003 fragments of ware 28 are documented in 1682 datasets. This equals a share of 9,46% of all recorded fragments from Karakorum.

Ware 28 – Shapes

The spectrum of fragments in ware 28 consists to 77% of base fragments, 13% rim fragments and 9% base fragments. Furthermore, eleven fragments of handles and three fragments of lids are documented which together hold a share of about 1%. In six cases, completely preserved shapes are recorded. These are two bowls, one flat bowl and three miniature bowls (Plates 36–41). The two completely persevered bowls are of subtype ware 28.1. and 28.3. (Plate 36, fig. 5 +

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7). Although both shapes are defined as Rim Type 3 and Base Type 1.1. the variants of the rim shapes differ. Bowl ID 1951 of subtype ware 28.1. has an everted straight rim while bowl ID 12468 of subtype ware 28.3. has an inverted and slightly curved straight rim. The diameter of ID 1951 is 15 cm and ID 12468 measures 19 cm in diameter. Flat bowl ID 10280 belongs to subtype ware 28.2. and measures 15,6 cm. Its shape is the same as that of the other bowls, i. e. Rim Type 3 and Base Type 1.1. Still, this is a further variant of this rim shape which is slightly inverted and thus closer to ID 10280 than to ID 1951. The bases of these bowls do not vary as much as the rims do. The smallest base is that of ID 10280 with a diameter of 4 cm. The base of ID 1951 measures 6 cm in diameter and the largest base is that on ID 12468 with a diameter of 7 cm. The miniature bowls are homogeneously shaped. Two of them belong to subtype ware 28.1. and one belongs to subtype ware 28.3. Their shape is Rim Type 3 and Base Type 3. The diameters at the mouth measure from 6–6,5 cm with an average of 6,2 cm. The diameters at the base measure from 2,7–3 cm with an average of 2,8 cm. All the miniature bowls date to the Yuan dynasty while the norm-sized bowls are not limited to a specific period. The rims and the outside of the miniature bowls are left unglazed.

The distribution of rim shapes is about equal in the subtypes of ware 28. In any subtype, the majority of rims are of Rim Type 3. The total share of rim fragments with this shape in ware 28 is 58%. As miniature bowls as well as norm-sized bowls are included in the range of this shape, the diameters of vessels with Rim Type 3 measures from 5–24 cm with an average of 16,3 cm. Most of these vessels are bowls with a diameter from 14–19 cm. Few plates may appear. The precise shaping of this rim type varies and the overall shape of these vessels is highly dependent on the curving of the body (Plate 38, fig. 1–7).

Second most common in ware 28 in total is Rim Type 2.1. with a share of 8%. Vessels with this shape appear to be bowls and flat bowls. The precise forming varies but is more similar to each other than the variants of Rim Type 3 (Plate 37, fig. 7–12). The diameters range from 11–24 cm with an average of 18,3 cm. Relating to subtype ware 28.2. fewer fragments of this shape are documented than in the other subtypes.

Third most common are variants of Rim Type 6.2. with a share of 7% (Plate 39, fig. 13–14 and Plate 40, fig. 1–2). Vessels with this rim shape are pots that measure 9–28 cm in diameter with an average of 16,6 cm. Quite common are furthermore bowls with Rim Type 3.1. that hold a share of 6% in ware 28 (Plate 38, fig. 9). Their diameters range from 12–20 cm with an average of 16,4 cm.

All other rim shapes in ware 28 are represented with a few findings only. There is a high variation in the shapes. Comparatively many exceptional shapes are included. This is e. g. rim ID 1219 which lacks comparability to any of the other findings from Karakorum (Plate 40, fig. 5). The same applies to rim ID 1805 which is of Rim Type 5 B with cordons and ID 12692 which is Rim Type 5, B with rillings (Plate 39, fig. 1–2).

Most of the documented rim shapes in ware 28 are associated with shapes of pots and bottles. Handles or remains of handles are recorded on several findings. Generally, these are loop handles with rillings as ID 1950 (Plate 37, fig. 3). Only three fragments of lids are documented (Plate 37, fig. 1–2). These are hollow lids of two different types. The third lid is not determinable in shape.

Judging from the rim shapes about 75% of the vessels in ware 28 are bowls with numerous slight variations in shape. The remaining 25% are pots and bottles with and without handles in manifold shaping. Variations of rim shapes are high in this group. The same applies to base shapes although these variations are less than on the rims (Chart 12).

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	28.1.	28.2.	28.3.	fragments, total	share in rim shapes	diameters	average diameter
RT 1	1	/	/	1	0,37 %	/	/
RT 2	1	2	1	4	1,47 %	19 cm	19 cm
RT 2.1.	11	2	10	23	8,42 %	11–24 cm	18,3 cm
RT 3	65	38	56	159	58,24 %	5–24 cm	16, 3 cm
RT 3, C	1	1	/	2	0,73 %	18–20 cm	19 cm
RT 3.1.	7	2	8	17	6,23 %	12–20 cm	16,4 cm
RT 5, B	/	6	1	7	2,56 %	4–8 cm	6 cm
RT 5 B with cordon	/	2	/	2	0,73 %	11 cm	11 cm
RT 5 B with rillings	1	/	/	1	0,37%	5 cm	/
RT 5, B, C	/	2	3	5	1,83 %	2,6–10 cm	6,7 cm
RT 5, N	1	1	/	2	0,73 %	6–9 cm	7,5 cm
RT 5, N + C	/	7	5	12	4,40 %	13–20 cm	16 cm
RT 5, (N), Th	3	/	1	4	1,47 %	15–22 cm	19, 3 cm
RT 6.1.	2	4	2	8	2,93 %	10–26 cm	19, 2 cm
RT 6.2.	10	5	5	20	7,33 %	9–28 cm	16,6 cm
RT 6.3.	1	1	1	3	1,10 %	19 cm	/
exception	/	/	1	1	0,37 %	13 cm	/
not definable	/	2	/	2	0,73 %	/	/

Chart 12: Overview of Rim Types in Ware 28.

The most common base shape on ware 28 is Base Type 1.1. with a share of 70% (Plate 40, fig. 6–7; Chart 13). The diameters of these bases range from 3,5–11,5 cm with an average of 6 cm. It is used on bowls, plates, pots and bottles and thus not attributable to specific vessel shapes. Second most common are simple flat bases of Base Type 3 with a share of almost 10% (Plate 41, fig. 4). These are used on miniature bowls as well as on pots and bottles. Their diameters range from 2,7–20 cm with an average of 11,4 cm. Third most common is Base Type 2.2. with a share of almost 9% (Plate 41, fig. 1–2). This base shape is associated with pots in ware 28. The diameters range from 10–19 cm with an average of 13,1 cm.

Another common base shape is Base Type 2.1. with a share of 5% (Plate 40, fig. 10–12). It appears to be used on pots and possibly a few bowls. The diameters range from 7–12 cm with an average of 8,9 cm. All other base shapes in ware 28 are documented on stray findings only. This includes Base Type 1.2., Base Type 1.3., Base Type 2.3. as well as the exceptional finding of a rounded and pointed base (Plate 40, fig. 8–12 and Plate 41, fig. 1–5). About 4% of the base fragments are not determinable in shape.

	28.1.	28.2.	28.3.	fragments, total	share in base shapes	Diameters	average diameter
BT 1.1.	67	26	28	121	69,94 %	3,5 – 11,5 cm	6 cm
BT 1.2.	1	/	/	1	0,58 %	5 cm	/
BT 1.3.	/	/	1	1	0,58 %	2,6 cm	/
BT 2.1.	3	5	1	9	5,20 %	7 – 12 cm	8,9 cm
BT 2.2.	2	8	5	15	8,67 %	10 – 19 cm	13,1 cm
BT 2.3.	1	/	/	1	0,58 %	7 cm	/
BT 3	7	6	4	17	9,83 %	2,7 – 20 cm	11,4 cm
rounded and pointed	1	/	/	1	0,58 %	not definable	/
not definable	3	3	1	7	4,05 %	/	/

Chart 13: Overview of Base Types in Ware 28.

Overall, ware 28 consists mostly of bowls. Still, the variety and share of pots and bottles is very high in this ware. The share of exceptional shapes is unusually high as well. Many vessels differ from the common spectrum of shapes of glazed ceramics from Karakorum.

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Ware 28 – Décor

Décor is documented on 21% of the fragments of ware 28 in total (Plate 71). The individual shares in the subtypes are 24% in subtype ware 28.1., 17% in subtype ware 28.2. and 25% in subtype ware 28.3. Most common is the technique of colored glaze as decoration with a share of 61% of all décor in ware 28. Colored glazes are the major décor in subtype wares 28.2.–3. and the second most common variant in subtype ware 28.1. The motifs vary from so-called Oil Spots to larger or smaller Russet Streaks as well as the enhancement of shapes. In few cases white glazed rims or leave prints are documented.

Apart from colored glazes, unglazed circles on the inside base are very common in ware 28 with a share of 23,3%. It is the most common décor on subtype ware 28.1. Another cut-glaze décor on ware 28 holds a share of 14,7%. Unfortunately, hardly any motifs are preserved. Recognizable in the findings is e. g. a floral scroll on the outside of ID 1155 and lines that appear to be script on the outside of ID 13765 (Plate 71, fig. 19–20).

The décor described above sums up to 99% of all décor on ware 28. This is two thirds colored glazes and one third cut-glazed décor. Most of the latter are unglazed circles. The remaining findings with décor are exceptional. This is three fragments with incised lines of subtype ware 28.3. and one rim fragment that is an exception is subtype 28.1. because of its clear glaze and brown painting on the inside (Plate 71, fig. 21). The motif of this painting is a flower.

Overall, the variation of glazes with at least two colors is high in ware 28. All other décor is simple and without much variety in the motifs. Apart from the exceptions all techniques are documented in all subtypes (Chart 14). It is striking that most of the fragments of subtypes ware 28.2.–3. are decorated with colored glaze while the major décor on subtype ware 28.1. is an unglazed circle on the inside base.

	28.1.	28.2.	28.3.	fragments, total	share in décor	motifs
colored glaze	52	95	110	257	61,05%	e. g. russet streaks, oil spots and hare's fur glaze
cut-glaze	74	14	10	98	23,3%	unglazed circle
	26	26	10	62	14,7%	floral, script, lines
incised	/	/	3	3	0,71%	lines
painted	1	/	/	1	0,24%	flower

Chart 14: Overview of décor in Ware 28.

Ware 28 – Signs of Repair

Signs of repair are documented on 18 datasets of ware 28 in total. This equals a share of 1,07%. The share of repairs is lowest in subtype ware 28.1. and highest in subtype ware 28.3. This is 0,54% in subtype ware 28.1., 1,2% in subtype ware 28.2. and 1,5% in subtype 28.3. About 90% of the repairs are non-piercing drill holes on the outside of vessels. These measure 2–4 mm in diameter with an average of 3,2 mm. Partly, up to five drill holes are documented on one fragment. Exceptions are two piercing drill holes with diameters of 2 and 2,5 mm. Furthermore, the single finding ID 4173 with a metal handle is included in this category as drill holes for handles or for repairs cannot be distinguished on the other fragments. ID 4173 is a rim fragment of subtype ware 28.3. and Rim Type 2.1. with a very glossy glaze. On the outside a large metal handle is applied with non-piercing drill holes of unknown size (Fig. 4, right).

Overall, the signs of repair on ware 28 equal the commonly documented repairs from Karakorum. All of them date to the Yuan dynasty.

Ware 28 – Marks

Marks are documented on nine findings in ware 28 (Plate 84, fig. 1–9). None of them belong to subtype ware 28.2. In subtype ware 28.3. only one mark is recorded. All other fragments with marks belong to subtype ware 28.1. The share of findings with marks in this subtype is 1,45%. The total share of marks in ware 28 is 0,54%. All of them date to the Yuan dynasty. Two thirds of them are applied on black glazed bowls or plates with an unglazed circle on the inside base. The mark on ID 1862 of subtype ware 28.3. is applied on a bowl that is decorated with large Russet Streaks inside. It is assumed to be the Chinese character 金 (*jin*) that can be translated as “gold” or a surname (Plate 84, fig. 9).¹¹ Marks on subtype ware 28.1. are for the most part very fragmentarily preserved and not decipherable. Exceptions are ID 14522 and ID 1281. The first is interpreted as Chinese character 赤 (*chi*) which means “red” (Plate 84, fig. 8). The mark on ID 1281 is either ‘phags-pa or Tibetan (Plate 84, fig. 2). It is previously published in an article about inscriptions on pottery from Karakorum. There, it is interpreted as ‘phags-pa signum with a terminus postquem of 1268 (Nagel 2002, 99). An identical mark is documented on ID 1258 of the porcellaneous ware 4.1. (see above). Fragments of a mark that is possibly the same are found on ID 1266 of ware 5 which is porcellaneous as well (see above and Nagel 2002, Plate XVI, Fig. a–c). These findings derive from different excavation sections and layers and date to the Yuan dynasty. Another supposable interpretation of these marks is the translation as Tibetan character “*gra*” (གྲ). This is the name of an ancient Tibetan clan or an abbreviation of a Tibetan word for “monk” (see above on mark ID 1258 in ware 4, resp. Das 1979, 237; Goldstein 2001, 196; Krang-dbyi-sun 1999, 387; Jäschke 1965, 75).

Ware 28 – Comparable Findings

Comparable findings to ware 28 are manifold (cf. Shenzhen Museum 2012). Generally, Chinese black wares are associated with tea drinking customs as well as the attempt to copy lacquer wares (Mowry 1996, 24). Bowls that are attributable to tea ceremonies can be referred to as ‘temmoku ware’ which is actually a Japanese term (Mowry 1996, 25; Wood 2011, 137; Coolidge Rousmaniere in Mowry 1996, 43–58.). Relating to ware 28 from Karakorum the Chinese category of ‘black glazed ceramics’ is to be preferred as many of the findings are pots and bottles and thus not made for drinking tea. This classification is e. g. used for the findings from Yanjialiang (cf. Ta La et al. 2010). It is a neutral description of an entire category of ceramics with different provenances. The classification and attribution of black wares to kiln sites is partly problematic. All too easy findings are e. g. attributed to the Southern Chinese Jian kiln system that is located in modern day Fujian province and known as one of the most popular production sites of high-quality tea bowls during the Song and Yuan dynasties (Mowry 1996, 29ff; Medley 1989, 162f; Wood 2011, 137ff).

Several findings from the contemporaneous city site of Jininglu in Inner Mongolia are attributed to the Jian kiln (Chen Yongzhi 2004, 167ff). This is especially true for bowls with so-called ‘hare’s fur’ and ‘oil-spot’ glazes. These terms refer to Chinese descriptions from historical sources (Mowry 1996, 25). They have been commonly used up to the present day in the description of black glazes. Detailed descriptions and analyses of these glazes are published by Wood (2011, 149–151). The body of the findings from Jininglu is described as gray and firing dark gray when exposed (Chen Yongzhi 2004, 167). This, however, is not reproducible from the depicted vessels. Their bodies appear light gray and buff on the published pictures. Although oil-spot glazes in particular are assumed to be invented at the Jian kiln site, these glazes are widely copied at e. g. the Cizhou kiln system (Mowry 1996, 30). Therefore, the outer appearance and the glaze itself are no reliable criteria for an attribution to a specific kiln site. It is additionally complicating that

¹¹ Thanks again to my colleague Patrick Wertmann for the interpretations of the Chinese marks.

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“[a]t least a dozen varieties of black ware glaze, of essentially similar compositions, are recognized from the Jian kiln alone.” (Wood 2011, 137). In terms of body characteristics, Jian wares are described as having “a coarse, slate gray body that usually fires purplish brown where exposed” (Mowry 1996, 30), resp. as “very hard, coarse grained, but well compacted dark brown or blackish stoneware” (Medley 1989, 162) or “very high iron-oxide stoneware” (Wood 2011, 148) that is comparable to modern day Etruria marl, a red stoneware clay (Wood 2011, 148). This does not apply to any of the findings from Karakorum. Nor are these features recognizable on the published samples from Jininglu. All the findings with oil-spot glaze from Karakorum belong, for instance, to subtypes ware 28.2. or 28.3., i. e. their bodies are light gray, light brownish gray and rarely gray or brownish gray. None is dark in its body color. Almost all of them date to the 13th century. Judging from the definitions above, these findings are more likely to derive from a kiln site of the Cizhou kiln system instead of the Jian kiln system. Sites that are known to produce Cizhou-type wares with oil-spot glazes are e. g. the Huaiyuan kilns in Shanxi province and the Zibo kiln in Shandong province (Mowry 1996, 33).

Overall, the comparability of black wares from Karakorum to northern black wares is higher than to southern black wares. The main criterion for this is the dark body of the southern black wares, esp. Jian wares, that is not documented in Karakorum (see above and for analyses of these wares Farrell 1996, esp. 67, Table 1 + 71, Table 4; Wood 2011, 137–158). Supposable southern black wares in Karakorum could derive from the Jizhou kiln system in modern day Jiangxi province. These are characterized by a light gray body (Farrell 1996, 71, Table 4). Wood (2011) describes these bodies as “putty-grey-white to light-biscuit” (151) which is comparable to samples from Karakorum as well. Their glaze is often splashed. Paper-cut as well as leaf décor are considered characteristic on Jizhou black wares (Wood 2011, 152; Medley 1989, 158). Findings that possibly derive from this kiln system are e. g. ID 6882 and ID 14574 with a leaf print on the inside (Plate 71, fig. 16+17). There are no findings with paper-cut décor documented in Karakorum. The number of fragments with (possible) leaf prints is very small. It sums up to 18 datasets which equals 4,3% of the datasets with décor and 1,1% of all datasets in ware 28. This décor appears in all subtypes. Most of the findings date to the late 13th century. Additionally, the so-called ‘tortoise shell’-glaze is considered an invention at the Jizhou kiln system (Mowry 1996, 36). This glaze is documented on some fragments from Karakorum as well (e. g. Plate 71, fig. 7). An attribution of the findings described above and others to the Jizhou kiln system is possible but not certain. It is striking that none of the paper-cut décor that is characteristic for Jizhou wares is documented.

Generally, most of the black wares of the time are supposed to be produced in northern Chinese provinces (He Li 1996, 139). High-quality northern black wares are considered to derive from the Ding kilns in Hebei province and the Yaozhou kilns in Shaanxi province (Mowry 1996, 27). Ding wares are defined as having a body that is “pure white and faintly translucent” (Mowry 1996, 29), i. e. porcellaneous. None of the documented black glazed wares is porcellaneous in its body characteristics. Some fragments are harder in their body structure and lighter in their body color than most others. Still, these bodies are neither pure white nor translucent and do not correlate to the definitions of porcellaneous wares given in the present study. Thus, black Ding wares are not considered to be part of the spectrum of glazed ceramics from Karakorum. Ceramics from the Yaozhou kiln sites are described as having bodies that are “opaque and pale gray, the exposed body clay often with a buff-colored skin. [In comparison to the Ding glazes] [t]he russet-skinned Yaozhou glaze is often of a slightly more reddish hue and it typically has a subtle metallic luster” (Mowry 1996, 29). A metallic luster is evident on some of the findings from Karakorum as e. g. the rim fragment ID 4173 with a metal handle on the outside (Fig. 4, right) or ID 2206 which is a rim fragment of an identical shape. Both fragments are of subtype 28.3. ID 4173 dates to the early Yuan dynasty, i. e. the end of the 13th century and ID 2206 dates to the late Yuan dynasty, i. e. the mid-14th century. In total, on a share of 7,25% of ware 28 a metallic shimmer of the glaze is documented. This includes fragments of all subtypes. Least common is this kind of glaze on

fragments of subtype 28.1. which hold a share of 9,8% of the findings with metallic shimmer. About 24,6% of these fragments belong to subtype ware 28.3. Most common is a metallic shimmer on fragments of subtype ware 28.2., i. e. on fragments with a light brownish gray to grayish brown body. These hold a share of 73,8%. About 80% of the findings with a metallic shimmer date to the 13th century. The representation of this feature on pictures varies as it is highly influenced by light conditions. In the main the Yaozhou kilns are better known for the celadon produced at these sites than for black wares (Hughes-Stanton / Kerr 1981, 96–97). Only few celadon from this kiln system is recorded in Karakorum (cf. chapter on ware 5).

Apart from the special black wares described above, a vast range of domestic black wares is produced e. g. in the northern Chinese Cizhou kiln system. This includes “six categories of visually distinct but technically related dark-glazed ceramics: wares with monochrome glazes; wares with partridge-feather glazes; wares with oil-spot glazes; wares with painted decoration; wares with ribbed decoration; and wares with cut-glaze decoration” (Mowry 1996, 31). Findings with oil-spot glazes and their relation to the Jian and Cizhou kiln systems are already described above. Interesting is furthermore a description of Cizhou-type wares in relation to Ding wares. These are described as “virtually indistinguishable from their dark-glazed Ding models except for their greater weight and opaque gray stoneware bodies. [...] Some Cizhou-type dark-glazed bowls have white rims that were designed to imitate the silver bands occasionally affixed to dark-glazed Ding bowls.” (Mowry 1996, 31). This is a technique of decoration that is inter alia documented at the Cizhou Guantai kiln site in Hebei province. There, it is described “as the *“heiyou baibian”* (black glaze, white border) décor” (Beijing University Archaeology Department 1997, 588) and considered popular. It is a décor that is documented on thirteen findings from Karakorum (e. g. Plate 71, fig. 18). Parts of the black glazes on these vessels have a metallic shimmer (e. g. ID 1076 of ware 28.3. on Plate 71, fig. 18). This underlines the problematic of the attribution of fragments to a specific kiln system. Half of them belong to subtype ware 28.3., two are defined as subtype ware 28.2. and the remaining findings are of subtype ware 28.1. These fragments all date to the Yuan dynasty. Most date to the end of the 13th century. They are classified as northern black ware with a possible provenance at Cizhou kilns like the Guantai kiln. It is a heterogeneous group as their glazes and detailed body features differ.

Another characteristic of parts of ware 28 that can be correlated to northern Chinese Cizhou-type black wares are Russet Streaks as décor, especially if their glaze has a metallic sheen (Mowry 1996, 32). Here, especially the Guantai kiln is listed as being well-known for such glazes. Unfortunately, many of the pictures in the publication on findings at the Guantai kiln site are black and white and lack information about these features (cf. Beijing University Archaeology Department 1997). Several variants of small and large Russet Streaks are documented on 52 findings of ware 28 (e. g. Plate 71, fig. 13–15). These are about evenly distributed across all subtypes. The share of fragments with Russet Streaks in the group of findings with colored glaze décor is 20,2%. The overall share in the findings of ware 28 is 3,1%.

Much of the findings with a less glossy and very dark black glaze are comparable to vessels excavated at the city site of Yanjialiang, Inner Mongolia (cf. Ta La et al. 2010, 398–424 + Color Plates 114–132). Interestingly, findings with Russet Streaks as described above are not documented at this site. Concerning their classification, black glazed wares from Yanjialiang are subsumed in the group of simple wares that could be produced inter alia in the Cizhou kiln system in Hebei province or at the Lingwu kiln in Ningxia province (Ta La et al. 2010, 646), i. e. they are classified as northern Chinese black wares. Indeed, shapes of pots and bowls as well as the descriptions of body and glaze criteria from findings excavated at the Lingwu kiln partly correlate to findings of ware 28 from Karakorum (cf. Chinese Institute for Social Sciences and Archaeology 1995, esp. 223–224). The body of these ceramics is defined as pale yellow or grayish-white. Included in the spectrum of comparable vessels are special findings as ID 13765 with script in the outside glaze and ID 6701 with a clear glaze and a painted flower inside (cf. Chinese Institute for Social Sciences and Archaeology 1995, 141; Chinese Institute for Social

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Sciences and Archaeology 1995, Plate 28, Fig. 5). However, much of the ceramics from the Lingwu kiln site is decorated with cut-glaze décor. This does not apply to the findings from Karakorum. A high comparability of simple findings of ware 28 is observed with findings from excavations at the Yingzhou Road site in Liaoning province that are attributed to the Gangwa kiln site in Inner Mongolia (cf. Liaoning Provincial Institute of Archaeology 2011). This includes miniature bowls like ID 2077 (Plate 36, fig. 8) as well as bowls and plates with an unglazed circle on the inner base which partly have spur marks on them as e. g. ID 1865 from Karakorum (Fig. 38).

Pots from the Yingzhou Road site that are similar to parts of ware 28 are attributed to the Jiangguantun kiln in Liaoning province and the Cizhou kiln system in Hebei province (Liaoning Provincial Institute of Archaeology 2011, 116–118 + 65). Related to black glazed bowls with unglazed circles on the inside base, these are not only attributed to the Gangwa kiln but to the Cizhou kiln system as well (Liaoning Provincial Institute of Archaeology 2011, 63). It is additionally complicating that similar bowls are documented at the southern Chinese Jingdezhen kiln site in Jiangxi province (cf. Jiangxi Provincial Institute of Cultural Relics and Archaeology / Jingdezhen Kiln Museum 2007, Color Plate 158, Fig. 4 + Color Plates 155–163.). Without closer examinations and comparisons of body and glaze features as well as décor and shape, an attribution to specific kiln sites is hardly possible.

A further indicator for possible provenances of ware 28 is the so-called angle design on findings like plate ID 1878 (Fig. 39). Similar plates are e. g. excavated at kiln sites in Henan province like the Lushan kiln and the Baofeng kiln (Feng Xiaoqi 2005, 177, Fig. 133 + 402 + 368). At both sites, further comparable black wares are produced. This includes bowls with a rust colored rim or rust spots as well as pots with handles at the site of Lushan (Feng Xiaoqi 2005, 176–179). Concerning the site of Baofeng, bowls with rust colored rims as well as bowls with oil-spot glaze are comparable (Feng Xiaoqi 2005, 400–403). At both sites ribbed pots are documented as well. These are missing in the spectrum of findings from Karakorum.

Overall, comparable black wares to ware 28 are well-known from sites in e. g. Inner Mongolia, Shanxi and Shandong provinces but often not attributable to a specific kiln site (see above or cf. Ta La / Chen Yongzhi 2008, 120–126 + 190–194; Shi Jinming / Liu Yan 2008, 156–165 + 218–221; Xie Zhixiu et al. 2008, 104–105 + 140–141 + 205–206). Black glazed ceramics are widely distributed across China and produced at many of the traditional kiln sites in northern and southern China. Additionally, even kiln sites that are located afield from the traditional production regions manufactured similar wares (see above and cf. Huang Daoqin 2008, 145–147). Black glazed ceramics from various kiln sites are export wares and documented on ship cargo as that of the Sinan shipwreck. This includes bowls in northern Chinese ‘Cizhou style’ and southern Chinese productions from the Jian and Dehua kilns in Fujian province (Shen Qionghua 2012, 116–119). The comparability of all these wares with the findings from Karakorum on the basis of their publications is limited. Features of the ceramics need to be studied in detail for a determination of provenance of the manifold fine tempered black wares found.

Ware 28 – Origin and Interpretation

Already in the first publication on ceramics from Karakorum, the problematic of determining the origin of black glazed wares is evident. Evtiukhova (1965, 222) includes parts of these findings in the spectrum of ‘Cizhou type wares’. Furthermore, black glazed ceramics are included in the range of ‘Henan type wares’ (Evtiukhova 1965, 250–251). In this case, the group of black glazed findings is additionally subdivided into ceramics that might derive from the Chinese Jian kiln in Fujian province (Evtiukhova 1965, 250) and wares with fine and coarse temper that might have been produced around Karakorum (Evtiukhova 1965, 253). Miniature bowls with a dark glaze are subsumed as an individual group with no information about possible provenances (Evtiukhova 1965, 260). These are assumed to be defined as “cups for diluting paint” (Elikhina 2010, 45) in

3. 3. Stonewares – Wares 8–38

later studies. Generally, Elikhina (2010) as well as Evtiukhova (1965) classify the black wares from Karakorum as deriving from northern and southern Chinese kiln sites. Possible production sites that Elikhina (2010, 45) lists in a short overview are the Jian kiln and the Wu xing kiln. The Wu xing kiln did not appear in any of the sources used by the author. It is assumed to be a northern Chinese kiln site. In a later publication Elikhina (2014, 58) states that parts of these ceramics derive from the Cizhou kiln system and others from the Jian kiln system. The latter especially refers to so-called tea ceramics. Meitoku / Ochir (2007, iv) do not relate the black wares from Karakorum to any kiln system but assume an origin in Henan, Hebei and Shanxi provinces. Janssen-Kim (2005, 187) names the Jian and the Jizhou kilns as possible places of production.

As stated above in the chapter on comparable findings, supposable provenances of ware 28 from Karakorum are manifold. This is additionally reflected in previous studies on these ceramics. It is to be concluded, that fine tempered black wares used in Karakorum are imported from several production sites. Most of the determinable indicators on these wares refer to an origin in northern Chinese regions as inter alia kiln sites in Inner Mongolia, Ningxia, Henan, Hebei or Shanxi provinces (see above). Findings with e. g. paper-cut décor that is characteristic for southern Chinese Jizhou wares are not documented. Neither are fragments with a dark brown body that is supposed to be characteristic of Jian wares. The same applies to fragments that could be related to the rare northern Chinese black Ding wares with a pure white body. It cannot be excluded that these high-quality black wares are used in Karakorum. Possibly, fragments of these wares are not excavated yet or not identified correctly due to the huge similarities between the various black wares. However, they do not appear to exist in large quantities in Karakorum. Otherwise, their features would have been better determinable in the spectrum of fine tempered black glazed ceramics. Therefore, the majority of ware 28 is assumed to derive from northern Chinese regions. Little may be produced at southern Chinese kiln sites. Closer examinations of the findings are needed to provide a better overview on the provenances of the black wares. It is striking that hardly any black wares with cut-glaze décor are documented. These are commonly known to come from Inner Mongolia during the Western Xia and Jin dynasties. Few exceptional rim shapes of ware 28 furthermore lack comparability with known findings and thus indicate an origin at previously unknown sites. The distribution of ware 28 over time depends on its subtypes as well as on the different excavation areas in Karakorum. Comparatively, many of the findings are pots. This supports the estimation that much of this ware is not connected with southern Chinese ceramics for tea ceremonies. Still, a few of the bowls surely belong to the latter category. Concerning its use, ware 28 is interpreted as consisting of a mixture of vessels that are made for domestic use, as e. g. storing, as well as vessels that are possibly made for tea ceremonies. Generally, the most valuable black wares of the time (Jian and Ding wares) are not verifiable in the spectrum of findings from Karakorum. It is basic domestic wares for the most parts.

Ware 29

Designation: Stoneware with a pinkish body and a black glaze

Glaze: Black or Black Brown

Coat: thin

Body: pinkish

Temper: fine

Hardness: hard

Temper particles: irregularly shaped transparent particles (many)

Structure: grainy, medium sintered

Average Thickness: thick/ 0,88 cm

Subsumed in ware 29 are four fragments with an unusual pinkish body (Fig. 40). Neither the body color nor the body structure of this ware is common in Karakorum. Thus, these findings are striking stray finds in the range of black glazed ceramics. The glazes on the findings vary. Common features are the body characteristics.

3. 3. Stonewares – Wares 8–38

Ware 29 – Shapes

There are no shapes documented in ware 29. All the findings are body fragments only.

Ware 29 – Décor

There is no décor documented in ware 29.

Ware 29 – Signs of Repair

There are no signs of repair documented in ware 29.

Ware 29 – Marks

There are no marks documented in ware 29.

Ware 29 – Comparable Findings

There are no comparable findings to ware 29. Similar body characteristic as those of ware 29 are not described in any treatise on Chinese ceramics.

Ware 29 – Origin and Interpretation

Ware 29 is unknown from previous studies on ceramics from Karakorum. Its body characteristics are exceptional and lack comparability to other wares. The number of findings is marginal. They are found in the upper layers of the excavation and dated to the Yuan dynasty. Their interpretation remains unknown.

Ware 30

Designation: Stoneware with a medium temper, black glaze and a reddish body

Glaze: Black, Black Brown, partly Rust or Brown

Coat: thin

Body: reddish yellow

Temper: medium

Hardness: hard

Temper particles: rounded black particles

Structure: dense, almost entirely sintered

Average Thickness: thick/ 0,86 cm

Judging from its outer appearance ware 30 is a medium tempered variant of the fine tempered black ware 28. However, neither the reddish yellow body color nor rounded black particles are documented in fine tempered wares. Ware 30 is thus considered to derive from differing production sites.

The number of documented fragments of this ware is very low. In total, 34 fragments are documented in 31 datasets. This equals a share of only 0,16% of all documented fragments.

Ware 30 – Shapes

The spectrum of fragments in ware 30 consists to 76% of body fragments. Rim fragments and base fragments each hold a share of 12%. There are no completely preserved shapes, lids, handles or spouts documented.

Concerning the four recorded rim fragments, three of them belong to Rim Type 6.1., i. e. they derive from pots (Plate 41, fig. 7). Only one diameter of these vessels is determinable. This measures 20 cm. The fourth fragment is of Rim Type 3.1. It appears to belong to a miniature bowl that is comparable to ID 2077 of ware 28 (Plate 41, fig. 6 and cf. Plate 36, fig. 8). The diameter of this vessel is 7 cm. Its base is not preserved.

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The four base fragments of ware 30 belong to three different base types (Plate 41, fig. 8–10). Two are defined as Base Type 2.1. None of these is determinable in diameter. Both are assumed to derive from pots. A single fragment of Base Type 1.1. measures 5 cm in diameter and is associated with the shape of a bowl or plate. The last fragment is of Base Type 2.3. and has a fluted body. It appears to derive from a bottle. Its diameter is 9 cm.

In total, the few vessels of ware 30 appear to be mostly pots. Furthermore, several bowls and one bottle are recorded.

Ware 30 – Décor

There are three fragments with décor documented in ware 30 (Plate 72, fig. 1–2). Due to the very small number of findings this already equals a share of 8,8%.

One of these fragments is ID 12479 with a rust colored circular line on the inside glaze. The other two findings have cut-glazed décor. This is lines on the outside of ID 12826 and an unglazed circle on the inside of base ID 15501 (Base Type 1.1.).

Ware 30 – Signs of Repair

There are no signs of repair documented on ware 30.

Ware 30 – Marks

There are no marks documented on ware 30.

Ware 30 – Comparable Findings

Due to a lack of information on body characteristics, there are no comparable findings to ware 30 known. In its outer appearance, it is generally related to ware 28. Parts of the findings that are comparable to ware 28 are comparable to ware 30 as well. This refers primarily to northern black wares from e. g. Inner Mongolia or Ningxia like the miniature bowl ID 2077 that is similar to products from the Gangwa kiln (Liaoning Provincial Institute of Archaeology 2011, 95). However, rounded black particles in the body are not described in any of the definitions on black wares.

Ware 30 – Origin and Interpretation

Ware 30 is not separately defined in previous studies on ceramics from Karakorum. It is likely to be subsumed in the group of dark glazed wares that possibly are produced in the surroundings of Karakorum (Evtiukhova 1965, 253). Based on its relation to ware 28 a provenance at northern Chinese kiln sites in Inner Mongolia and Ningxia or even closer to Karakorum is supposed. Proof of this assumption is the subject of further research. Ware 30 is documented in all settlement layers but dates predominantly to the Yuan dynasty. Due to the documented shapes in this ware it appears to be made for domestic use.

Ware 31

Designation: Stoneware with a medium temper, black glaze and a gray body

Glaze: Black Brown

Coat: thin

Body: light gray

Temper: medium

Hardness: hard

Temper particles: irregularly shaped transparent to white particles and few very fine black particles

Structure: dense, almost entirely sintered

Average Thickness: very thick/ 1,37 cm

3. 3. Stonewares – Wares 8–38

Ware 31 is the black glazed equivalent to the green glazed ware 26.4. The body features of both wares are alike. Only six fragments of ware 31 are documented. One of them is severely damaged by fire and glazed reddish brown inside (Fig. 41).

Ware 31 – Shapes

There are no shapes documented as all the findings are body fragments.

Ware 31 – Décor

There is no décor documented in ware 31.

Ware 31 – Signs of Repair

Signs of repair are documented on one finding in ware 31. This is a non-piercing drill hole with remains of a metal clamp on the outside of ID 10983. The diameter of the hole is 3 mm. The fragment dates to the late 13th century.

Ware 31 – Marks

There are no marks documented in ware 31.

Ware 31 – Comparable Findings

Neither comparable findings to ware 31 nor to its related ware 26.4. are known.

Ware 31 – Origin and Interpretation

Ware 31 is not defined in previous studies on ceramics from Karakorum. Presumably, findings of this kind are subsumed in the category of black glazed wares that are assumed to be local products (Evtiukhova 1965, 253; Janssen-Kim 2005, 187). Due to the lack of comparable findings the origin of ware 31 remains unknown. A local production appears possible but remains unproven. All the documented fragments date to the Yuan dynasty. The interpretation of this ware remains unknown.

Ware 32

Designation: Stoneware with a black glaze and a coarse temper

Glaze: Black, Black Brown, partly Brown or Rust

Coat: thin

Body: off-white, buff, beige (= ware 32.1.)
light brownish gray, brownish gray (= ware 32.2.)
light gray, gray, dark gray (= ware 32.3.)

Temper: coarse **Hardness:** hard

Temper particles: irregularly shaped white, brown and black particles (= wares 32.1. + 3.)
ware 32.3.: as above plus mat white particles possible

Structure: dense, not entirely sintered

Average Thickness: very thick/ 1,35 cm (= ware 32.1.)
very thick/ 1,31 cm (= ware 32.2.)
very thick/ 1,21 cm (= ware 32.3.)

Ware 32 is subdivided into three groups according to varying body colors. As a common feature, this ware is defined as black glazed stoneware with a coarse temper. It is the coarse tempered equivalent to the fine tempered ware 28.

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The major subtype is ware 32.1. with a share of 76,2%. This is followed by subtype 32.2. with a share of 18,4%. Least common is subtype ware 32.3. with a share of 5,4%.

In total, 928 fragments are documented in 547 datasets. This equals a share of 4,38% of all recorded fragments and 3,34% of the datasets. Comparatively many fragments of ware 31 are found together and thus subsumed in one dataset.

Ware 32 – Shapes

About 94% of the findings in ware 31 are body fragments. Rim fragments hold a share of 4%. Base fragments are represented with 2% only. There is one complete shape documented in subtype ware 32.1. and one single handle in subtype ware 32.2. Neither spouts nor lids are recorded in this ware (Plates 42–44).

The completely preserved vessel ID 14678 of subtype ware 32.1. is a very thickly potted flat bowl with a special shape (Plate 42, fig. 1). Its rim is an exceptional variant of Rim Type 3. The diameter at the mouth measures 18 cm. The base is of Base Type 3 and has a diameter of 17 cm. It is a very heavy vessel that presumably is a mortar. The finding is singular in Karakorum and dates to the late Yuan dynasty, i. e. the end of the 14th century.

Concerning rim shapes on ware 32 in general, the clear majority is of Rim Type 6.3. which holds a share of 86,5%. The variants of this type are manifold (Plate 42, fig. 7–8, Plate 43 and Plate 44, fig. 1–4). Apart from one exception these fragments derive from large pots. Their diameter is not determinable because it measures more than 28 cm. During the material record no sheet for measuring these sizes has been available. An exception that is included in this group is ID 656 of subtype ware 32.2. This rim fragment belongs to Rim Type 6.3. but derives from a bowl with a diameter of 16 cm. Its body is thinner than that of the other findings.

Rim shapes apart from Rim Type 6.3. are stray finds only. This is fragment ID 2316 of subtype ware 32.2 that belongs to Rim Type 5 (N), Th as well as two fragments of Rim Type 5, N + C that belong to subtypes ware 32.2. and 32.3 (Plate 42). The fragment of the latter subtype is a pot with handles that measures 19 cm in diameter. All of the other fragments derive from pots that are not determinable in diameter. Additionally, one fragment of Rim type 6.1. is documented in subtype ware 32.2. and measures 16 cm in diameter. It could derive from a large bottle. The last finding is of Rim Type 6.2. and subtype ware 32.2. Its diameter is not determinable and its shape is attributed to a pot.

Most of the base fragments in ware 32 are of Base Type 3 which holds a share of 76,5% of the bases. This shape is largely attributed to pots (Plate 44, fig. 7). The diameters of these measure from 12–20 cm with an average of 16,3 cm. Partly, stones are documented in the glaze on bases of this type (Fig. 42). Other base shapes are exceptional in ware 32. This is two fragments of Base Type 1.2. that belong to subtype wares 32.1. and 32.2. as well as one fragment of Base Type 2.1. that belongs to subtype ware 32.2. (Plate 44, fig. 5–6). The latter has a diameter of 5 cm and is assumed to derive from a pot. The two fragments of Base Type 1.2. cannot be attributed to a specific shape. Only one of them is determinable in diameter and measures 9 cm.

In total, the majority of vessels in ware 32 are thickly potted pots with Rim Type 6.3. and Base Type 3. Whether more thinly potted vessels of differing shapes are documented these belong to subtypes ware 32.2. and 32.3. Bowls are an exception in this ware. The completely preserved shape of a flat bowl is a very heavy and thick vessel that is assumed to be a mortar.

Ware 32 – Décor

Décor is documented on two findings of subtype ware 32.1. only. One of these is flat bowl ID 14678 with molded flowers on the outside (Plate 72, fig. 3). The other is rim fragment ID 9913 of Rim Type 6.3. with a line cut in the outside glaze. Both findings with décor are excavated from the upper layers of Karakorum and thus date to the late 14th century. Generally, décor on ware 32 is highly uncommon.

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Ware 32 – Signs of Repair

There are a total of ten findings with signs of repair documented in ware 32. None of them belongs to subtype ware 32.3. Seven are of subtype ware 32.1. and three of subtype ware 32.2. The share of datasets with signs of repair is 1,8% in total; 1,9% in subtype ware 32.1. and 2,1% in subtype ware 32.2.

The signs of repair are non-piercing drill holes on the outside of the findings. Their diameters measure from 3–5 mm with an average of 3,9 mm. In three cases remains of metal clamps are preserved. Two of these belong to subtype ware 32.1. and one to subtype ware 32.2. Apart from one finding of subtype ware 32.2. all the fragments with signs of repair derive from the upper layers of the excavation and date to the late Yuan dynasty, i. e. the mid to late 14th century.

Ware 32 – Marks

There are no marks documented on ware 32.

Ware 32 – Comparable Findings

Relating to ware 32 from Karakorum, there is a finding known that is similar to flat bowl ID 14678 (Plate 72, fig. 3). This is a black glazed mortar with an unglazed rim and molded flowers on the outside that is dated to the Jin dynasty (Shenzhen Museum 2012, 134, Fig. 94). It measures 15,1 cm in diameter at the mouth and 14,8 cm in diameter at the base. The flowers on the outside are fewer than on ID 14678. This finding is not attributed to a kiln site. Whether its temper is coarse or fine cannot be estimated from the pictures. Its body characteristics are not described.

At large, hardly any coarse tempered black wares are published. Thus, the comparability of ware 32 in general is low. Large pots with black glaze are e. g. excavated at the Duyaotai kiln site in Henan province where black glazed and tea dust glazed wares are produced (cf. Li Guige 2014, 37, Plate 3, Fig. 1). Findings from this kiln site are comparable with black glazed ceramics of ware 28 (fine temper) as well as with tea dust glazed ceramics of ware 23 (fine temper) and 27 (coarse temper). Parts of subtype ware 32.1. are black glazed variants of parts of subtype ware 27.1. that is glazed brown to black and has a coarse tempered buff body as well.

From a technological point of view, ware 32 can be produced at any kiln site where black glazed ceramics are manufactured, i. e. in many of the northern Chinese kilns for example. The body and glaze characteristics of subtypes ware 32.2. and 32.3. e. g. correlate with the description of ceramics produced at the Cizhou Guantai kiln site in Hebei province (cf. Beijing University Archaeology Department 1997, 597 + Plate 51–53). Differing production sites for subtypes ware 32.1. and subtypes ware 32.2.–3. match with the fact that thinly potted shapes are documented in the latter wares only. It is supposable that subtype ware 32.1. is a local ware or a ware that is produced in Inner Mongolia or Ningxia as it is assumed for the related subtype ware 27.1. as well (see above).

Ware 32 – Origin and Interpretation

Concerning the classification of ware 32 in previous studies on ceramics from Karakorum, it is not separately defined. Wares of this kind are subsumed in the group of dark glazed or 'Henan type' ceramics of which especially the coarse tempered wares are assumed to be local products (Evtiukhova 1965, 253; Elikhina 2010, 45; Janssen-Kim 2005, 187).

The few comparable findings and relations to other wares from Karakorum stated above support the classification of the previous studies. Presumably, especially subtype ware 32.1. is of a local and/or very northern Chinese origin. Subtypes ware 32.2.–32.3. are potentially relatable to the Cizhou kiln system in Hebei province but not necessarily produced in this system only. In sum, there are far too few publications about coarse tempered wares to give a well-grounded

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classification. The number of findings of ware 32 rises significantly over time. Almost two thirds of the recorded fragments date to the 14th century. They appear to be primarily made for storing. Additionally, a mortar is documented. It is thus a coarse domestic ware.

Ware 33

Designation: Stoneware with a dark brown “chocolate brown” glaze, a coarse temper and a reddish gray body

Glaze: Dark Brown (“Chocolate”)

Coat: thin

Body: reddish gray

Temper: coarse

Hardness: hard

Temper particles: irregularly shaped white, brown and black particles (many), partly mat white particles

Structure: dense, almost entirely sintered

Average Thickness: thick/ 0,9 cm

Ware 33 consists of four fragments only. The body and the glaze of this ware is striking and clearly differs from other black or brown glazed wares found in Karakorum.

Ware 33 – Shapes

The only fragment of ware 33 with a determinable shape is ID 1657 (Fig. 43). This rim fragment belongs to Rim Type 6.2. and is assumed to derive from a pot. Its diameter is not definable.

Ware 33 – Décor

There is no décor documented on ware 33.

Ware 33 – Signs of Repair

There are no signs of repair documented on ware 33.

Ware 33 – Marks

There are no marks documented on ware 33.

Ware 33 – Comparable Findings

At the current state of research there are no known comparable findings to ware 33.

Ware 33 – Origin and Interpretation

Ware 33 is not documented in previous studies on ceramics from Karakorum. Especially in terms of the striking body characteristics there are no known comparable findings to this ware. Judging from its appearance and shape this ware could derive from regions like modern-day Inner Mongolia, Mongolia or Central Asia. However, this estimation cannot be proven at the current state of research. According to the position of the findings in the stratigraphy, all of them date to the late 13th century, i. e. the early Yuan dynasty. Their interpretation remains unknown.

Ware 34

Designation: Stoneware with a coarse body and a glossy black glaze

Glaze: Black, Black Brown, glossy

Coat: thin to medium

Body: often two-colored, light gray, gray, dark gray
(= ware 34.1.)
reddish brown to dark gray (= ware 34.2.)

Temper: coarse

Hardness: hard

Temper particles: many irregular transparent to white particles and fewer irregular black particles
(= ware 34.1.)

Structure: dense, almost entirely sintered

irregular transparent to white particles and black particles (= ware 34.2.)

Average Thickness: very thick/ 1,81 cm (= ware 34.1.)
thick/ 0,82 cm (= ware 34.2.)

Ware 34 is subdivided into two groups according to varying body colors (Fig. 44). As a common feature, it is defined as stoneware with a coarse temper and a glossy black glaze. The actual group almost exclusively consists of subtype ware 34.1. with a share of 97,1%. Subtype ware 34.2. consists of six fragments only and is negligible. It is clearly different from subtype ware 34.1. in its body features. The glaze on subtype ware 34.1. is black-green to black. This subtype is related to subtype ware 27.5. that is green glazed and alike in its body features.

In total, 204 fragments of ware 34 are documented in 160 datasets. This equals a share of 0,96% of all recorded fragments.

Ware 34 – Shapes

There are no shapes documented in subtype ware 34.2. as this consists of body fragments only. The description of shapes is therefore limited to subtype ware 34.1. that amounts to 95,5% of body fragments. In total, only seven rim fragments and two base fragments are documented.

Four out of the seven rim fragments in subtype ware 34.1. belong to Rim Type 6.3. that is attributed to pots (Plate 45, fig. 2). Neither of these findings is determinable in diameter because they are larger than the available measuring sheet, i. e. above 28 cm. Their shaping is quite homogenous. A single small rim fragment is defined as Rim Type 6.2. (Plate 45, fig. 1). Its diameter is not definable and it derives from a pot. Furthermore, a fragment with an exceptional rim shape is documented (Plate 45, fig. 3). This is ID 5298 which is assumed to derive from a bottle with a diameter of 7 cm. The last documented rim fragment is not definable in shape and diameter.

Out of the two documented base fragments only one is determinable in shape. This is ID 15704 of Base Type 3 (Plate 45, fig. 4). Its diameter is not definable. The fragment derives from a large pot. Some stones are stuck to the glaze of this base.

Overall, most vessels in subtype ware 34.1. appear to be large pots. The shapes in subtype ware 34.2. cannot be rated. Presumably, these are pots as well.

Ware 34 – Décor

There is no décor documented in ware 34.

Ware 34 – Signs of Repair

Signs of repair are documented in subtype ware 34.1. only. This is seven findings with non-piercing drill holes on the outside. The holes measure 4–6 mm in diameter with an average of 5,2 mm. This is larger than most of the drill holes on other wares that commonly measure 3 mm in diameter. On one of the findings remains of a metal clamp are preserved inside the drill hole.

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Apart from one exception all the fragments with repair date to the Song dynasty, i. e. the mid-13th century.

Ware 34 – Marks

There are no marks documented in ware 34.

Ware 34 – Comparable Findings

There are no known comparable findings to ware 34. This applies to both subtypes. Subtype ware 34.1. is related to the green glazed subtype ware 27.5. However, to this ware no comparable findings are known.

Ware 34 – Origin and Interpretation

Ware 34 is not defined in previous studies on ceramics from Karakorum. Judging from the available pictures it does not seem to be part of these findings. If it is, it is assumed to be subsumed in the group of dark glazed or ‘Henan type’ ceramics just like most black glazed wares are. Especially the coarse tempered wares in this group are considered to be of local origin (Evtiukhova 1965, 253; Elikhina 2010, 45; Janssen-Kim 2005, 187).

Since comparable findings are missing, the production places of ware 34 remain unknown. In comparison with other dark glazed findings from Karakorum a local origin or a provenance from northern Chinese kiln sites is supposable. This correlates with previous classifications of the ceramics from Karakorum (see above).

More than half of the findings of ware 34 date to the mid-13th century, i. e. the Song dynasty. It is striking that the number of fragments lessens over time from the beginning of the Yuan dynasty on. This is the end of the 13th century. Only about 17% of this ware dates to the 14th century. A change in production or in sources of supply with the turn of the dynasties is supposable. It is noticeable that the number of coarse tempered black wares of ware 32 rises as those in ware 34 falls. Potentially, these wares replace each other. Concerning their use, these wares appear to be primarily made for storing and thus are very simple domestic ceramics.

3. 3. 8. STONEWARES WITH A BLACK AND WHITE GLAZE – WARES 35–37

Stonewares with a black and white glaze hold a share of 2,97% of all recorded fragments.

General features of this group are a hard, not entirely sintered body as well as a mixture of black and white glazes that are thinly applied. Often, the inside of a vessel is glazed black while the outside is glazed white or vice versa. Dark brown glazes are included in the range of black glazes on these wares. Except for very glossy white glazes and black glazes with a metallic shimmer or special glaze colors as e. g. hare’s fur glaze, all kinds of varying black and white glazes are applied. As in solely black or white glazed wares as well, the transitions between these glazes is fluent. Their variety, however, is less. The glazes are no criteria for distinction in the present study. Subject for the classification are differing tempers that appear. Partly, the wares are furthermore subdivided according to body colors. Generally, the classification of black and white glazed ceramics is as follows:

Ware 35: Stoneware with a black and white glaze and a fine temper

Ware 36: Stoneware with a black and white glaze and a medium temper

Ware 37: Stoneware with a black and white glaze and a coarse temper.

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The group is largely dominated by fine tempered wares of ware 35 which holds a share of 75,8%. Second to this are coarse tempered wares with a share of 23,7%. Medium tempered black and white wares are merely stray finds and represented with a share of only 0,5%

In parts, black and white glazed wares are related to black and/or white glazed wares classified and described above. Similarities are stated in the correlating chapters. This refers especially to parts of wares 35 that are related to parts of wares 11 and 28. Still, some body features are characteristic for black and white wares only and do not appear in previously defined ceramics.

Ware 35

Designation: Stoneware with a black and white glaze and a fine temper

Glaze: Cream White and Black/Black Brown

Coat: thin

Body: off-white, buff, beige (= ware 35.1.)
light gray, gray (= ware 35.2.)
reddish brown (= ware 35.3.)

Temper: very fine to fine

Hardness: hard

Temper particles: fine brown to black particles (few)
(= ware 35.1. – 2.)

Structure: dense, not entirely sintered

fine black particles (few) (= ware 35.3.)

Average Thickness: medium/ 0,79 cm (= ware 35.1.)

medium/ 0,65 cm (= ware 35.2.)

thin to medium/ 0,6 cm (= ware 35.3.)

Ware 35 is subdivided into three groups according to varying body colors. As a common feature, it is defined as black and white glazed stoneware with a fine temper. In terms of its body characteristics it is partly related to the white glazed ware 11 and the black glazed ware 28. The relations are dependent on the subtypes of these wares. Subtype ware 35.1. with an off-white to beige body is related to wares 11.1. and 28.1. Few fragments with a brown glaze are furthermore relatable to wares 22.1.–2. Fragments with a light gray to gray body of subtype ware 35.2. are related to wares 11.3. and 28.3. A brownish gray body as on wares 11.2. and 28.2. is not documented in ware 35. The reddish-brown body on subtype ware 35.3. is neither recorded in ware 11 nor in ware 28 or any other fine tempered black or white glazed ware. It is specific for black and white glazed wares and documented on six stray finds only.

In total, 476 fragments of ware 35 are documented in 380 datasets. This equals a share of 2,25% of all recorded fragments. The main subtype is ware 35.1. with a share of 79,2% in ware 35. This is followed by subtype ware 35.2. with a share of 19,5%. As mentioned above, findings of subtype ware 35.3. are marginal. Their share is 1,3% only.

Ware 35 – Shapes

About 83% of all recorded fragments in ware 35 are body fragments. Another 10% are rim fragments and base fragments hold a share of 7%. There are no lids, handles or spouts documented. Concerning subtype ware 35.3. only body fragments are recorded. In subtype ware 35.1. two complete shapes are preserved (Plates 45–47).

Both completely preserved shapes are bowls of different types (Plate 45, fig. 5–6). This is ID 1991 with Rim Type 2 and Base Type 1.1. which measures 19 cm at the mouth and 7 cm at the base. Furthermore ID 2116 with Rim Type 2.2. and Base Type 2.1. which is smaller in size. Its diameter is 11,5 cm at the mouth and 4,5 cm at the base. The first is a stray find that cannot be dated. Bowl ID 2116 dates from the Song dynasty, i. e. the mid-13th century.

In relation to the number of documented fragments, the spectrum of rim shapes in ware 35 is comparatively broad. Most common is Rim Type 3, C with a share of 37%. This shape is attributed to bowls and appears in slightly varying forming (Plate 46, fig. 2–5). These bowls range from 17–24 cm in diameter with an average of 20,1 cm. Their rims and insides are glazed in white

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while the outside is glazed dark brown to black below the rim. Second most common is the related shape Rim Type 3 that is attributed to bowls and plates and holds a share of 16% (Plate 45, fig. 8 and Plate 46, fig. 1). These vessels measure 16–20 cm in diameter with an average of 18,4 cm. On two thirds of the findings, the color compositions are the same as on findings with Rim Type 3, C; i. e. a white inside and white rim while the outside is dark glazed. On the remaining third, only the rim is glazed white which is followed by a clear glaze and dark glazes on both sites. Per definition these fragments are in between black wares with a white rim and black and white wares but much closer in their overall appearance to the other findings of ware 35 than to ware 28 and thus subsumed in this group. These fragments belong to subtype ware 35.2. and date into the mid to late 14th century.

The habitualness of other rim shapes in ware 35 is dependent on its subtypes (Chart 15). Most of these are associated with the shape of pots. This is Rim Type 6.2. in subtype ware 35.2. with an overall share of 12% (Plate 47, fig. 1) and Rim Type 5, N in subtype ware 35.1. with a share of 10% (Plate 46, fig. 6–7) in ware 35 in total. Neither shape is documented in the each different subtype. Pots with Rim Type 6.2. measure 14–26 cm in diameter with an average of 18 cm. Pots with Rim Type 5, N are larger. Their diameters range from 15–23 cm with an average of 20,3 cm. Pots with Rim Type 6.2. are glazed black on the outside and white on the inside while pots with Rim Type 5, N are glazed black on the inside and white on the outside. The only shape of pots that is documented in both subtypes of ware 35 is Rim Type 6.1. with a share of 4%. In this case, the only determinable diameter is 22 cm. Another rim shape that is commonly attributed to pots is Rim Type 6.3. Concerning ware 35 a variant of this shape is documented that is associated with large bowls (Plate 47, fig. 2). All these belong to subtype ware 35.1. The share of Rim Type 6.3. in total is 8%. The size of the findings is uniform and measures ca. 30 cm in diameter.

Additionally, few variants of Rim Type 2 are documented exclusively in subtype 35.1. All of which are attributed to bowls. This is Rim Type 2 itself on the completely preserved bowl ID 1991 (Plate 45, fig. 5), Rim Type 2.1. on two fragments (Plate 45, fig. 7) and Rim Type 2.2. on four fragments, including the completely preserved bowl ID 2116 (Plate 45, fig. 6). Bowls with Rim Type 2.2. are generally small with an average diameter of 8,9 cm. Bowls with Rim Type 2.1. averagely measure 14,5 cm in diameter.

	35.1.	35.2.	fragments	share in rim shapes	diameters	average diameter
RT 2	1	/	1	1,96%	19 cm	/
RT 2.1.	2	/	2	3,92%	10–19 cm	14,5 cm
RT 2.2.	4	/	4	7,84%	8–11,5 cm	8,9 cm
RT 3	4	4	8	15,69%	16–20 cm	18,4 cm
RT 3, C	16	3	19	37,25%	17–24 cm	20,1 cm
RT 5, N	5	/	5	9,80%	15–23 cm	20,3 cm
RT 6.1.	1	1	2	3,92%	22 cm	/
RT 6.2.	/	6	6	11,76%	14–26 cm	18 cm
RT 6.3.	4	/	4	7,84%	30 cm	30 cm
not definable	/	/	/	0%	/	/

Chart 15: Overview of Rim Types in Ware 35.

Relating to base shapes in ware 35, two thirds of the fragments belong to Base Type 1.1. (Chart 16; Plate 45, fig. 5) Their diameters range from 6–8 cm with an average of 6,9 cm. This shape can be used on any kind of vessel. Second most common is Base Type 2.1. with a share of 15%. These findings differ in their specific forming (Plate 47, fig. 3–4). Obviously, this shape is used on pots and bowls. Their diameters range from 4,5–20 cm with an average of 11,3 cm. Furthermore, Base Type 2.2. is documented once in each subtype (Plate 47, fig. 5). This is a small pot with a diameter of 3,7 cm in subtype ware 35.1. and a larger vessel with a diameter of 16 cm in subtype ware 35.2. The last documented base shape is Base Type 3 with a share of 12%. It is recorded on fragments of subtype ware 35.1. only and associated with the shape of large pots (Plate 47, fig. 6). These measure 18–21 cm in diameter with an average of 19,5 cm.

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	35.1.	35.2.	fragments, total	share in base shapes	diameters	average diameter
BT 1.1.	19	3	22	66,67%	6 – 8 cm	6,9 cm
BT 2.1.	3	2	5	15,15%	4,5 – 20 cm	11,3 cm
BT 2.2.	1	1	2	6,06%	3,7 – 16 cm	9,9 cm
BT 3	4	/	4	12,12%	18 – 21 cm	19,5 cm
not definable	/	/	/	0%	/	/

Chart 16: Overview of Base Types in Ware 35.

Overall, ware 35 consists of pots and bowls. Some shapes are documented in subtype wares 35.1. and 35.2. while others are characteristic for one subtype only. Shapes like Rim Type 6.3. on bowls are distinctive for black and white wares and do not appear on other findings from Karakorum. The high share of fragments with Rim Type 3, C is characteristic for these wares as well. Although this shape is recorded on white ware 11 and black ware 28 as well, its share is never as high as in ware 35. Furthermore, the precise shaping is slightly different. Concerning the classification of ware 35 it is striking that some features clearly differ from solely white or black glazed ceramics.

Ware 35 – Décor

Décor is documented on 219 fragments in ware 35 which equals a share of 46% (Plate 72–74). Due to the small number of findings, the highest share of fragments with décor is documented in subtype ware 35.3. In this case, four out of six fragments, i. e. 66,7%, are decorated. All of which is comparable to décor on subtype ware 35.1. which has a share of 48,3% of fragments with décor. Concerning subtype ware 35.2. the share is 34,4%.

The preferred techniques of decoration vary in relation to the subtypes of ware 35. Most common in subtype ware 35.1. are underglaze paintings with a share of 64% in this subtype. Recognizable motifs are chrysanthemums and bamboo (Plate 73). Furthermore, various small leaves and fragments of presumably figural motifs are documented. About 95% of the underglaze paintings are applied on the outside of a vessel, i. e. most likely on pots. Only 5% are applied on the inside as e. g. on the large bowl ID 2067 with Rim Type 6.3.. These are dark paintings on a white ground that are covered with a clear to slightly milky glaze. The insides, resp. the outsides, of these vessels are glazed plain dark, i. e. brown to black. Some parts are left unglazed.

In addition to underglaze paintings, 21,3% of the décor on subtype ware 35.1. is painted brown to black. About half of this décor is applied on the inside on the vessels while the other half is applied on the outside. Generally, findings with painted décor rather date to the mid to late 13th century while underglaze décor dates to the late 13th or 14th century. Though parts of the findings date earlier or later, an overall shift in the technique of decoration on subtype ware 35.1. is traceable. The painted motifs are only fragmentarily preserved. Much appears to be spot designs on the inside of bowls as well as ornamental designs, bamboo leaves or floral motifs on the outside. The latter show parallels to motifs painted as underglaze décor. Painted décor as well as underglaze décor on ware 35 is partly related to décor on the white glaze ware 11. The last common technique of decoration on subtype ware 35.1. is colored glaze with a share of 14%. This category consists solely of findings with white glazed rims on both sides which is considered a deliberately applied décor.

Fragments with cut-glaze décor are an exception in subtype ware 35.1. (Plate 74, fig. 4–5). This is the most common technique of decoration in subtype ware 35.2. with a share of 37,5% in this subtype. These findings are glazed black on the outside and white on the inside. Their motifs are not preserved but appear to be floral in parts. Whether this décor is documented on rim fragments, these belong to pots with Rim Type 6.2. or Rim Type 6.1. Except for one fragment these findings date to the 13th century. This technique or this ware is not common in Karakorum from the turn of the 14th century on. Further décor on subtype ware 35.2. correlates with the

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descriptions on the décor on subtype ware 35.1. The only striking exception is ID 7844 with an ornamental décor painted on the outside that appears to be influenced by Islamic décor (Plate 72, fig. 7). This finding is singular and dates to the mid-13th century.

The décor on subtype ware 35.3. consists of paintings and underglaze paintings that are comparable to subtype ware 35.1. This is especially evident on fragment ID 13615 with a leaf scroll outside that is similar to ID 2050 of subtype ware 35.1. (Plate 72, fig. 13). Both findings date to the mid-13th century.

Overall, in décor as well as in the shapes differences between the subtypes of ware 35 are traceable (Chart 17). Furthermore, differences and similarities to solely black or white glazed wares become evident. Throughout all subtypes more décor is applied on the outside of vessels, i. e. pots, than on the inside. Some of the décor additionally is an indicator for the dating of the wares. While most findings with paintings or cut-glazed décor date to the 13th century, most of the fragments with underglaze painting date to the 14th century.

	35.1. (fragments)	35.2. (fragments)	35.3. (fragments)	share in total (of decorated fragments)
underglaze paintings (brown to black)	117	5	2	56,62%
painted (brown)	39	6	2	21,46%
colored glaze (white rim on both sides)	25	9	/	15,53%
cut-glaze décor	2	12	/	6,39%

Chart 17: Overview of décor in Ware 35.

Ware 35 – Signs of Repair

There are 20 findings with signs of repair documented in ware 35. This equals a share of 4,2%. Compared to other wares from Karakorum this share is very high. None of these findings belongs to subtype ware 35.3. Only two fragments are of subtype ware 35.2. Therefore, the share of fragments with repair in subtype ware 35.1. is 4,77% and 2,15% in subtype ware 35.2. About half of these findings date to the 14th century and the other half to the 13th century. This is striking again as most of the signs of repair in other wares date to the 14th century, i. e. the later times of Karakorum. As common the signs of repair are non-piercing drill holes with a diameter of 3–5 mm. Their average diameter is 3,2 mm. Metal clamps or remains of metal clamps are preserved on three of the findings. These date to the Yuan dynasty. An exception is ID 5443 because the metal clamp on this finding is applied on the inside of the vessel.

Ware 35 – Marks

There is one base fragment with a black ink mark documented (Plate 84, fig. 10). This is finding ID 4686 of subtype ware 35.1. that dates to the mid to late 14th century. The mark is not decipherable. The fragment itself is of Base Type 1.1. It is glazed white on the inside and black on the outside. On the inside base spur marks are visible.

Ware 35 – Comparable Findings

The comparability of ware 35 is highly dependent on its subtype and décor. Best comparable to common Chinese ceramics are fragments of subtype ware 35.1. with underglaze paintings such as chrysanthemum scrolls, clouds or presumed figural designs. These are very similar to large pots and bottles classified as Cizhou ware or Cizhou type ware (cf. Ye Zhemin 2009b, 201–205; Yu Ping 2008, 113; Cao Kai 2008, 210; Medley 1989, 131, Fig. 93). Many of these jars are known. Some are glazed black inside and some white. The latter are comparable to ware 11 (see above). The parallels between parts of subtype ware 35.1. and parts of subtype ware 11.1. are especially evident on these samples. Interestingly, a Cizhou ware jar from the Asian Art Museum in San

Francisco is described as consisting of “brick red stoneware” (Mino 1980, 206). This appears as being more similar to subtype ware 35.3. Some of these large jars are furthermore part of the cargo of the Sinan shipwreck. In this case, they are attributed to the Cizhou kiln as well (Shen Qionghua 2012, 204). The style of the paintings on these jars varies.

Apart from Cizhou and Cizhou type jars, the comparability of ware 35 is very low. From a technological point of view, these ceramics can be manufactured at any kiln site, where white or black glazed ceramics are produced; i. e. at any supposable production site of ware 11 and 28 (see above). Still, no comparable samples are published from these sites. This refers especially to findings of subtype ware 35.2. with cut-glazed décor in the black glaze outside and white glaze inside to which no comparable findings at all are known at the present state of research. Furthermore, these ceramics are not documented at the otherwise well-comparable city sites of Jininglu and Yanjialiang. Referring to Yanjialiang, some bowls with white glaze inside and black glaze outside are included in the spectrum of white wares (Ta La et al. 2010, Color Plates 85 + 86). However, none of these has cut-glazed décor on the outside. Neither are pots with this kind of glaze and décor published from this site. The findings are included in a group of ceramics that is classified as partly originating from the Cizhou kiln system and partly from other kiln sites in northern China (Ta La et al. 2010, 646).

Vaguely relatable to the southern Chinese kiln system of Jizhou, Jiangxi province, is ID 7844 of subtype 35.2. with its spiral décor outside (Plate 72, fig. 7). Vases with a similar décor are generally attributed to the Jizhou kiln (Ye Peilan 1998, 284; Vainker 1991, 123). However, no further indicators are given for a possible provenance of subtype are 35.2. from this site and the décor appears more complex on Jizhou vases than on the sample from Karakorum.

Concerning the comparable findings and their classification, the parallels between ware 35 and the white glazed ware 11 are closer than between the black glazed ware 28 and ware 35 although it shares features of both wares. Generally, several findings of ware 35 lack comparability at all; especially in terms of subtype wares 35.2. and 35.3.

Ware 35 – Origin and Interpretation

Ceramics with a black and white glaze are not separately defined in previous studies on ceramics from Karakorum. Parts of them are presumed to be included in the range of Cizhou type ceramics (cf. Evtiukhova 1965, 225ff; Elikhina 2010, 45). This refers to findings with white glaze and black or paintings or underglaze décor on the outside. Some fragments with black underglaze painting on the outside and black glaze on the inside are depicted by Meitoku / Ochir (2007, 33, Plate 6). They are not listed in the classification but assumed to belong to the group of white wares with uncertain provenance. Parts of these ceramics are presumed to derive from the Cizhou kiln system (Meitoku / Ochir 2007, iv).

As mentioned in the description of ware 35, it is partly related to fine tempered white glazed wares and dark glazed wares classified above. The correlations depend on the body colors of the wares and are therefore connected to the subtypes of the wares. Concerning white wares subtype wares 35.1.–2. are related to subtype wares 11.1. and 11.3. This is white wares white a fine temper and a buff, resp. gray, body. The same body features are documented in subtype wares 22.1.–2. that are glazed brown and thus e. g. comparable to findings like ID 2067 which has a brown glaze on the outside. In terms of black wares, subtype wares 35.1.–2. are related to subtype wares 28.1. and 28.3. The bodies of all these wares are very similar to each other. Detailed features of the glazes partly vary. It is striking that the body features of subtype ware 35.3. are not related to any of the solely white or black glazed wares. Furthermore, a brownish gray body color as in subtype wares 11.2. and 28.2. is not documented in ware 35. Thus, white glazed ware 11 and black glazed ware 28 are closer related to each other in their body features as they are to the black and white glazed ware 35.

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It is striking that the overall comparability of the black and white wares is higher in relation the white wares than to black wares. Whether comparable findings are known, these are comparable to parts of ware 11 as well. This refers to the large pots of Cizhou type described above. In contrast, no findings that are comparable with ware 28 and ware 35 are known at the present state of research.

Overall, the comparability as well as classification of ware 35 is dependent on its subtypes. Judging from the comparable findings and from the correlation to other wares from Karakorum, fragments of subtype ware 35.1. are assumed to derive from the Cizhou kiln system and kiln systems that produced Cizhou type wares in northern China. Further kiln sites in northern China are supposable. The origin of subtype ware 35.2. remains unclear. Finding ID 7844 described above can be interpreted as an indicator for a provenance from the southern Chinese Jizhou kiln system. However, this is just a remote resemblance and additional references are missing. Generally, the origin of subtype ware 35.2. from kiln sites where black glazed wares are produced is likely. These sites are widely distributed in northern and southern China (see the section on ware 28 above). Finally, fragments of subtype ware 35.3. are not comparable to any of the other wares or published findings. The origin of this subtype remains unclear at the present state of research.

In terms of dating, the number of findings in subtype ware 35.1. rises over time. The majority of these fragments dates to the Yuan dynasty, i. e. mostly to the 14th century. In contrast, most of the findings of subtype ware 35.2. date to the 13th century. Concerning subtype ware 35.3. half of the findings date to the mid-13th century while the other half dates to the late 14th century. Relating to its shapes and décor, ware 35 is included in the range of domestic wares from Karakorum.

Ware 36

Designation: Stoneware with a medium temper and black and white glaze

Glaze: Cream White and Black/Black Brown

Coat: thin

Body: two-colored, grayish brown and light brick-red

Temper: medium

Hardness: hard

Temper particles: black particles, partly rounded and few irregularly shaped white particles

Structure: dense, not entirely sintered

Average Thickness: medium/ 0,72 cm

Ware 36 is defined as Stoneware with a medium temper and black and white glaze. The number of findings in this group is marginal. In total, only three fragments are documented (Fig. 45). This ware is statistically negligible in the spectrum of glazed ceramics from Karakorum.

Ware 36 – Shapes

There are no shapes documented in ware 36 as all the findings are body fragments.

Ware 36 – Décor

The décor on the findings is different (Fig. 45). Fragments ID 2086 and ID 11777 are painted in black-brown. The motifs appear ornamental but are no longer recognizable. Underglaze painting is applied on fragment ID 12813. Only few parts of lines are preserved. All the décor is applied on the outside. The insides of the findings are glazed black-brown.

Ware 36 – Signs of Repair

There are no signs of repair on ware 36.

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Ware 36 – Marks

There are no marks on ware 36.

Ware 36 – Comparable Findings

There are no known comparable findings to ware 36. On one hand, this is due to the fact that body features as they are characteristic on this ware are not described in the studies that have been revised. On the other hand, motifs that could be comparable to the fragments depicted above are not identified during the research.

Ware 36 – Origin and Interpretation

Findings of this kind are not defined in previous studies on ceramics from Karakorum. Whether they are subsumed in e. g. the presumed classification of fine tempered black and white wares described above remains uncertain. Judging from the published depictions of previous findings, fragments of ware 36 seem to be missing in this spectrum (cf. Meitoku / Ochir 2007, 28–44).

Due to a lack of comparable findings, the origin of this ware remains unknown at the present state of research. It is striking, that all the fragments are found in the excavation section that is located slightly south of the excavations at the main road. No such ware is documented at the main excavation area in the middle of Karakorum. The findings date to the late 13th and early 14th century. Their interpretation remains unknown.

Ware 37

Designation: Stoneware with a black and white glaze and a coarse temper

Glaze: Cream White and Black/Black Brown

Coat: thin

Body: light brownish gray (= ware 37.1.)
light reddish brown (= ware 37.2.)

Temper: coarse

Hardness: hard

Temper particles: black, partly rounded particles and irregularly shaped brown particles (= ware 37.1.)
irregularly shaped white, brown and black particles,
rarely mat white particles (= ware 37.2.)

Structure: dense, not entirely sintered

Average Thickness: thick/ 0,86 cm (= ware 37.1.)
very thick/ 1,04 cm (= ware 37.2.)

Ware 37 is subdivided into two groups according to varying body colors. As a common feature, it is defined as black and white glazed stoneware with a coarse temper. The major subtype is ware 37.2. with a share of 91,3%. Concerning subtype ware 37.1. only thirteen body fragments are recorded which equals a share of 8,7%.

In total, 149 fragments are documented in 98 datasets. This equals a share of 0,7% of all recorded fragments.

Ware 37 – Shapes

Shapes are documented in subtype ware 37.2. only as subtype ware 37.1. solely consists of body fragments. In total, 92% of the recorded fragments in ware 37 are body fragments, 7% are rim fragments and 1% are base fragments. There are neither complete shapes nor lids, handles or spouts documented in this ware.

The most common rim shape in ware 37.2. is Rim Type 5, N with a share of 60%. This shape is attributed to pots (Plate 48, fig. 2). The diameters of these vessels measure 16–19 cm with an average of 17,2 cm. Second most common is Rim Type 6.3. with a share of 30%. Usually, this shape is associated with pots but in the case of ware 37 it is used on bowls (Plate 48, fig. 3). This

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correlates with the same bowl shape in the fine tempered ware 35 (Plate 47, fig. 2). The diameters of these vessels range from 24,5–30 cm with an average of 27,3 cm. The last shape that is documented on rims in ware 37 is Rim Type 3 with a share of 10% (Plate 48, fig. 1). It is attributed to bowls. A diameter is not determinable on the recorded fragments.

Concerning base shapes in ware 37 there are only two fragments documented (Plate 48, fig. 4–5). One of them is ID 8143 with Base Type 1.1. Its diameter measures 6,5 cm. This fragment possibly derives from the same bowl as rim ID 8258 (Rim Type 3). These findings correlate to each other in terms of their appearance but do not match. Both are found close to each other and date to the mid-13th century. The other base fragment is ID 5187 of Base Type 3. Its diameter is 23 cm. Whether it derives from a pot or e. g. a bowl with Rim Type 6.3. remains uncertain.

Overall, vessels of ware 37 are primarily large. It is pots as well as large bowls. Both of which are thickly potted and heavy. The exceptions are fragments of a thinner potted bowl with Rim Type 3 and Base Type 1.1. Generally, their shapes correlate with those of the fine tempered black and white glazed ware 35. This is especially evident in terms of Rim Type 6.3. that is documented on bowls in wares 35 and 37 only.

Ware 37 – Décor

The outer appearances of subtypes ware 37.1. and 37.2. are essentially different and thus divided in this chapter. Concerning subtype ware 37.1. almost 77% of the documented fragments are decorated with gray underglaze paintings (Plate 74, fig. 16). Motifs are not recognizable anymore. Mostly, only fragments of lines are preserved. All the décor is applied on the outside while the insides are glazed black-brown.

Relating to subtype ware 37.2. décor is documented on almost 74% of the fragments (Plate 74, fig. 10–15). It is more elaborate than on subtype ware 37.1. and painted brown. All of it is applied on the outside while the insides are glazed in black or brown. Wherever motifs are recognizable, most of them are floral. The motifs are related to some of the painted décor on the fine tempered white ware 11. In one case script as painted décor is documented. This is ID 14571 with a Chinese character that is likely to be “雨” (*yu*) which can be translated as ‘rain’ (Plate 74, fig. 15).¹²

Overall, the décor on subtype ware 37.2. is similar to parts of ware 11 while fragments of subtype ware 37.1. lack comparability with other findings from Karakorum.

Ware 37 – Signs of Repair

Signs of repair are documented on three findings of subtype ware 37.2. This equals a share of 2,2% in this subtype. No signs of repair are documented in subtype ware 37.1.

All the repairs are non-piercing drill holes on the outside of vessels. Their diameters range from 3–4 mm with an average of 3,8 mm. In one case remains of a metal clamp are preserved. This finding dates to the mid-13th century while the other two fragments with repairs date to the mid to late 14th century.

Ware 37 – Marks

There are no marks documented in ware 37.

Ware 37 – Comparable Findings

Due to a lack of descriptions on body features of many published findings, the comparison of ware 37 remains vague. Concerning subtype ware 37.1. no comparable findings are known. In terms of subtype ware 37.2. there are correlations to Cizhou and Cizhou type wares in its outer

¹² Thanks to my colleague Patrick Wertmann for this interpretation.

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appearance. This is reflected in its similarities to parts of wares 11 and 35 described above. It refers to large pots of Cizhou type that are depicted in the classifications of these wares. Especially relations between wares 35 and 37 are evident. As coarse tempered ceramics are known to be produced in the Cizhou kiln system, this provenance is supposable for ware 37 (cf. Beijing University Archaeology Department 1997, 597). However, published findings that are comparable in their outer appearance and their body features are missing at the present state of research.

Ware 37 – Origin and Interpretation

None of the wares with a black and white glaze are separately defined in previous studies on ceramics from Karakorum. In correlation to the fine tempered ware 35, these findings are presumed to be included in the range of Cizhou type ceramics (see above and Evtiukhova 1965, 225ff; Elikhina 2010, 45). Fragments of subtype ware 37.1. appear to be missing in the spectrum of previous findings while some fragments of subtype ware 37.2. are identifiable on the plates published by Meitoku / Ochir (2007, 33, Plate 6, Fig. 133–134 + 32, Plate 5, Fig. 110). However, these are not listed in the classification but assumed to belong to the group of white wares of uncertain provenance. Parts of these ceramics are presumed to derive from the Cizhou kiln system (Meitoku / Ochir 2007, iv).

Overall, the provenance of subtype ware 37.1. remains unknown as no comparable findings are given for a classification. It is surprising that this ware does not appear in previous studies as all but two of the findings derive from layers that date to the 14th century. Subtype ware 37.1. is one of the younger wares from Karakorum. As almost all the fragments are found on the vicinity of the street, it can be speculated whether this ware is atypical for the excavated quarter and more common in another part of town.

Relating to subtype ware 37.2. similarities to Cizhou type wares that are part of the comparable findings to wares 35 and 11 are given. Therefore, an origin in northern China is assumed for these ceramics. Furthermore, local production sites for coarse tempered wares are supposable but unproven so far. About 80% of these findings date to the 14th century. Generally, only a few stray finds of subtype ware 37.2. are documented before the Yuan dynasty. Ware 37 is assumed to be made for domestic use.

3. 3. 9. STONEWARES WITH A MUD COLORED GLAZE/SLIP – WARE 38

This group consists of one special ware only that is hardly comparable to any of the other ceramics and thus separately defined. It is numbered as ware 38.

Ware 38

Designation: Stoneware, medium tempered with a mud colored slip

Glaze: Mud Colored slip

Coat: very thin

Body: light brick-red

Temper: medium

Hardness: hard

Temper particles: irregularly shaped transparent to white particles

Structure: dense, not entirely sintered

Average Thickness: thick/ 0,91 cm

Ware 38 is strikingly coarse in its appearance. Much of these ceramics is covered with slip only. The glaze is muddy in color and often looks soiled (Fig. 46). The share of ware 38 in the glazed ceramics from Karakorum is marginal. Recorded are 102 fragments in 65 datasets which equals a share of almost 0,5% of all documented fragments.

3. 4. Earthenwares – Wares 39–43

Ware 38 – Shapes

Most of the fragments of ware 38 are body fragments. Only three fragments with a determinable shape are documented in two datasets. These are ID 4946 and ID 15935. Both of which are base fragments of Base Type 3, i. e. plain flat bases that are likely to derive from a pot (Fig. 47). Their diameter is 14 cm. As the fragments are found close to each other it is supposable that they derive from the same vessel.

Ware 38 – Décor

On almost 14% of the fragments painted décor is recorded (Plate 74, fig. 17–20). All the décor is applied on the outside of the fragments. The only recognizable motif is a flower on ID 14912. All other décor is very fragmentarily preserved and consists of lines only. All the fragments are glazed with a dirty or mat white on the outside. The decorations are painted brown.

Ware 38 – Signs of Repair

Three fragments with signs of repair are documented in ware 38. This is ID 5130, ID 15395 and ID 16458. Due to the small number of findings this equals a share of almost 3% of the fragments. All the repairs are non-piercing drill holes on the outside of a vessel. The diameters of these holes range from 3–4mm.

Ware 38 – Marks

There are no marks documented on ware 38.

Ware 38 – Comparable Findings

At the current state of research there are no known comparable findings to ware 38.

Ware 38 – Origin and Interpretation

Findings of ware 38 are neither classified nor published in previous studies on ceramics from Karakorum. Their origin is unknown. Remotely comparable ceramics are e. g. known from Central Asia or the Middle East (cf. Boroffka et al. 2005, 273, Fig. 1; Miglus 1999, Plate 94ff). Still, these wares are of much better quality and more neatly in appearance.

It is striking that all the findings from Karakorum derive from Yuan dynasty layers. About 90% of them are recorded in the upper four excavation layers. It is thus a ware which rarely appears in Karakorum before the mid-14th century. This is surprising as quality and appearance are clearly below the standard of the other wares found.

In total, it is assumed that ware 38 is of local or Central Asian origin. A Chinese origin of this ware is highly unlikely. To clarify the origin, a more detailed research on Central Asian wares and/or scientific analyses of ware 38 are required. On account of the small number of findings in ware 38, the author has refrained from conducting further research on this ware in the present study.

3. 4. EARTHENWARES – WARES 39–43

General features of this group are a soft body with a porous structure and a very thinly to thinly applied glaze. Tempers and temper particles of the earthenwares from Karakorum vary only slightly and are not distinctive. Distinctions in the outer appearance correlate with body characteristics. According to this, five wares are classified in the group of earthenwares. These are:

3. 4. Earthenwares – Wares 39–43

Ware 39: Lusterware

Ware 40: Earthenware with multicolored décor (red, green and yellow)

Ware 41: Earthenware with multicolored glaze (green, yellow and white)

Ware 42: Earthenware with turquoise glaze (and an off-white body)

Ware 43: Earthenware with a brick red body (and green to turquoise glaze).

Solely ware 43 is subdivided according to glaze colors that mainly are green but vary to turquoise and silverish white as well.

About 3% of all recorded fragments are classified as earthenwares. It is thus the least common category of ceramics in the spectrum of glazed ceramics from Karakorum. The major wares in this category are ware 40 with a share of 40% and ware 43 with a share of 36% of the earthenwares.

Ware 39

Designation: Lusterware

Glaze: clear, metallic shimmer

Coat: thin

Body: off-white

Temper: very fine

Hardness: soft

Average Thickness: very thin to thin/ 0,45 cm

Structure: porose, sandy

Ware 39 is distinctively different from the common spectrum of ceramics in Karakorum. Because of its metallic shimmer it is classified as lusterware. Findings of this ware are rare. Only four fragments are documented in three datasets (Fig. 48).

Ware 39 – Shapes

There are no shapes documented in ware 39. Judging from the application of the décor, two fragments appear to derive from pots (ID 2129 + ID 14778). These are decorated on the outside only. The remaining two fragments are matching and decorated on both sides. These are assumed to derive from a bowl (ID 2118).

Ware 39 – Décor

All the fragments of ware 39 are painted. The motifs differ and are only fragmentarily preserved (Plate 75, fig. 1–3). The color of the paintings is a rather dark green with brownish or yellowish tendencies. ID 2118 and ID 2129 are similar in style while ID 14778 differs in its appearance.

Ware 39 – Signs of Repair

There are no signs of repair documented on ware 39.

Ware 39 – Marks

There are no marks documented on ware 39.

Ware 39 – Comparable Findings

Concerning Chinese wares – which are the main reference for the present study – ware 39 lacks comparability. Its appearance is to be attributed to Islamic ceramics from e. g. 13th century Syria

3. 4. Earthenwares – Wares 39–43

(cf. Jenkins-Madina 2006, 125ff; Keblow Bernsted 2003, 7–11; Hetjens-Museum 1973, 96–102). Due to the rare appearance of ware 39 in Karakorum no detailed research on comparable findings is done.

Ware 39 – Origin and Interpretation

As stated above, ware 39 is classified as Islamic lusterware that is assumed to derive from a region in Syria or Iran. Concerning the status as a multinational city with connections to the Middle East, the occurrence of such ware in Karakorum is highly interesting. Especially in a part of the town which is considered to be the Chinese craftsmen quarter, such wares are unexpected. Islamic ceramics are previously unknown from Karakorum (cf. Becker 2007, 242). This could be due to the excavation sites themselves and/or the depth of the excavations. All the fragments of ware 39 are found in the lower layers of the excavation and thus are to be dated into the mid-13th century only. Regarding other ceramics from these layers, it is to be considered that the quarter at the main street or the whole city has a stronger Islamic and Central Asian influence in the years before the establishment of the Yuan dynasty when it becomes part of the Mongol-Chinese Yuan Empire. This refers mainly to ware 43 that is considered of Central Asian origin. Due to the extremely low number of findings of these wares, no detailed research on them is conducted in the present study.

Ware 40

Designation: Earthenware with multicolored décor

Glaze: Cream White (clear glaze on white slip)/
Décor: Red, Green, Yellow

Coat: very thin to thin

Body: off-white, buff, beige **Temper:** very fine

Hardness: soft

Temper particles: very few and fine black or brown particles possible

Structure: porose, sandy

Average Thickness: thin/ 0,48 cm

Ware 40 is defined as earthenware with multicolored décor. The colors of the décor are red, green and yellow. Partly, only red and green colors are used. All of it is painted on a white ground that is created by applying a white slip on the body. The body color of these findings is very light and ranges from off-white to buff.

In total, 242 fragments of ware 40 are documented in 227 datasets. This equals a share of 1,14% of all recorded fragments.

Ware 40 – Shapes

The spectrum of fragments in ware 40 consists to 64% of body fragments, 23% rim fragments and 11% rim fragments. Additionally, four findings of completely preserved shapes are recorded which equals a share of 2% (Plates 49–50). These are three deep plates and one bowl. All the deep plates date to the 14th century. The bowl cannot be dated as its finding sheet is lost. Two of the deep plates are alike in shape and similar in their inside décor. The décor on the outsides differ. This is ID 1840 and ID 1923 with Rim Type 2 and Base Type 1.1. (Plate 48, fig. 6 + Plate 75, fig. 18–19). Both findings measure 19 cm in diameter at the mouth. The diameters of the bases differ. These are 7,5 cm on ID 1840 and 5,8 cm on ID 1923.

Deep plate ID 2037 as well as bowl ID 2150 are both of Rim Type 3 and Base Type 1.1. (Plate 48, fig. 8). Finding ID 2037 measures 17,5 cm in diameter at the mouth and 6,5 cm at the base. The diameter of bowl ID 2150 is 13 cm at the mouth and 5 cm at the base. The décor on deep plate ID 2037 is largely damaged. Its motif is no longer recognizable. Bowl ID 2150 is painted on the inside with a flower that is stylistically uncommon on ware 40.

3. 4. Earthenwares – Wares 39–43

The rim shapes on ware 40 are partly related to the dating of the findings. Most common is Rim Type 3 with a share of 56,7% (Plate 49, fig. 5–7). This shape is documented in all settlement layers. It is attributed to plates and bowls as e. g. the completely preserved samples described above. The diameters of these vessels range from 13–21 cm with an average of 17,3 cm. The second most common rim shape is documented in all settlement layers as well. This is Rim Type 2.1. with a share of 18,3% (Plate 49, fig. 4). Fragments with this shape are assumed to derive from bowls or plates with a diameter of 17–19 cm. The average is 18,3 cm. Related to this shape are findings with Rim Type 2 which hold a share of 10% (Plate 49, fig. 3). These all date to the 14th century, i. e. the Yuan dynasty. This shape is attributed to bowls and plates as well. The diameters of these vessels measure 16–19 cm with an average of 18 cm. An interesting shape in ware 40 is Rim Type 1 as all the findings date to the mid-13th century, i. e. the Song dynasty (Plate 49, fig. 1–2). It is represented with a share of 6,7% and attributed to plates. These plates measure 16–23 cm in diameter with an average of 18,7 cm. Any other rim shape than those listed above is exceptional in ware 40. This is two fragments of Rim Type 5, N + C that date to the 14th century (Plate 49, fig. 9) as well as one fragment of Rim Type 3, R that dates to the late 13th or early 14th century (Plate 49, fig. 8). The first are attributed to small pots with a diameter of 6–7 cm. The latter fragment derives from a bowl with a diameter of 18 cm. Additionally, there is one fragment with an exceptional shape documented. This is ID 14361 which is assumed to be a flat lid with a diameter of 7 cm. It is dated to the Yuan dynasty (Plate 49, fig. 10).

The base shapes in ware 40 are very homogenous. Almost 94% of the findings belong to Base Type 1.1. The diameters of these bases range from 5–7,5 cm with an average of 6,1 cm. An exception in the base shapes is ID 10682 of Base Type 1.2. with a diameter of 4,5 cm. This finding dates to the late 13th century. Any of the other base fragments recorded in ware 40 belong to Base Type 1.1. or are not determinable in shape.

Overall, the clear majority of vessels in this ware are bowls and plates with an extensive décor. Rarely, small pots with Rim Type 5, N + C are documented.

Ware 40 – Décor

Per definition all the findings in ware 40 have décor (Plates 75–76). This is paintings in red, green and yellow. Partly, only red and green or solely red painted décor is documented. On many findings only fragments of the original motifs are preserved, i. e. lines of varying sizes or dots and the like. Whether motifs are determinable, most of them are floral. Recognizable are primarily chrysanthemums. In one case, the motif of a lotus is documented. Furthermore, figural motifs are recorded. These appear to be fish. An exception in the motifs is Chinese script on the outside of ID 7153 (Plate 76, fig. 17). This fragment dates to the late 13th century. The meaning of the visible character is unknown. Generally, the motifs on ware 40 are not related to the dating of the findings. Whether the varying painting styles are indicators for different datings or different origins needs to be assessed in future studies.

Ware 40 – Signs of Repair

There are no signs of repair documented in ware 40.

Ware 40 – Marks

Two fragments in ware 40 are marked (Plate 84, fig. 11–12). This equals a share of 0,83% in this ware. One is ID 5556 with a black ink mark written on the outside base. This mark is not decipherable. The finding dates to the mid-14th century, i. e. the Yuan dynasty. On the second fragment in this category parts of a red line are visible on the outside. This is ID 10736 which dates to the late 13th century. The finding is very small. There is no possible interpretation on the red line.

Ware 40 – Comparable Findings

Ceramics with red and green paintings are inter alia known from the coetaneous city sites of Jininglu and Yanjialiang in Inner Mongolia. Concerning the site of Jininglu, these findings are attributed to the Cizhou kiln system in Hebei province (Chen Yongzhi 2004, 11 + 205, Plate 148). The findings from Yanjialiang are classified as deriving from kiln sites in Hebei, Henan and Shanxi provinces. It is stated that the Changzi Bayi kiln in Shanxi province is a possible production site for this ware (Ta La et al. 2010, 647). The colors of the findings from Yanjialiang correlate with the intense colors as e. g. on bowl ID 2150 or fragment ID 2148 (Plate 76, fig. 16; cf. Ta La et al. 2010, Color Plates 135–138). Vessels with pale colors and paintings of chrysanthemums as ID 1840 and ID 1923 (Plate 75, fig. 18–19) are not published from this site. Generally, findings of this kind are not as well comparable to published Chinese ceramics as findings with intense colors.

Overall, ceramics with colored décor are a commonly known product from northern Chinese kiln sites of the Jin and Yuan dynasties. The Chinese term for this ware is *hong lü cai* (红绿彩) which translates as ‘red and green colored’ or ‘red and green enamel’ (Shenzhen Museum 2011; Wood 2011, 229–231). Fragments of it are excavated from more than twenty kiln sites across northern China, including e. g. the Cizhou Guantai kiln in Hebei province and the Changzi Bayi kiln in Shanxi province (Li Baoping 2010, 13; Shi Jinming / Liu Yan 2008, 120–121; Feng Xiaoqi 2005, 187, Fig. 149). Both of which are mentioned in the classification of comparable findings from the sites of Jininglu and Yanjialiang (see above). Unfortunately, only a few of these fragments are published in the excavation report on the Guantai kiln site. The description of their body features does not correlate to the findings from Karakorum as it is stated to be “yellow-gray or brownish-red” (Beijing University Archaeology Department 1997, 595). Findings from the Changzi Bayi kiln site in Shanxi appear more similar. Their bodies are described as “yellow” (Chin. *huang*, 黄), Shanxi Institute of Archaeology 1998, 23). The intensity of the colors cannot be compared as the samples from the Changzi Bayi kiln site are published in black and white only. Still, parts of the motifs like fish and some flowers are comparable (Shanxi Institute of Archaeology 1998, 11, Plate 10, Fig. 1, 3 + 9).

Concerning the comparability of ware 40 from Karakorum it is a general problem that Chinese red and green enamel wares are defined as being high-fired, i. e. they are supposed to be stonewares (Li Baoping 2010, 12; Shenzhen Museum 2011, 257). This does not apply to the findings from Karakorum. These are low-fired, i. e. earthenware. It is supposable that few of the fragments from Karakorum can be defined as stoneware as not all the fragments are tested in terms of their hardness. However, all the tested samples consist of low-fired earthenware that is porous and soft. Whether this major difference between published red and green wares and the findings from Karakorum is a problem of definitions or a reliable indicator for a differing origin of the ceramics cannot be clarified in the present study. It needs to be the subject of research in future studies.

Ware 40 – Origin and Interpretation

Findings of ware 40 are well known from previous studies on ceramics from Karakorum. In these, this ware is classified as Cizhou ceramics, resp. as likely to derive from the Cizhou kiln system (Evtiukhova 1965, 233f; Elikhina 2010, 45; Meitoku / Ochir 2007, iv). The Pengcheng kiln of the Cizhou kiln system or the Yuzhou kiln in Henan are mentioned as possible production sites for parts of the red and green enamel wares from Karakorum (Meitoku / Ochir 2007, iv).

As stated above, parallels to northern Chinese enamel wares are provided. Problematic is their definition as being high-fired while the findings from Karakorum are low-fired. This discrepancy cannot be clarified without research on samples from e. g. Cizhou enamel wares that is out of the scope of the present study. Therefore, ware 40 is classified as being similar to northern Chinese

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wares. It is supposable that at least parts of it are produced at kiln sites in e. g. Hebei or Shanxi provinces. However, an origin from presently unknown kiln sites which are located further north and less advanced in firing stonewares than the traditional northern Chinese kilns is supposable as well. In terms of the dating of ware 40 the number of documented findings rises over time. Slightly more than half of the findings date to the 14th century. About 80% of the datable fragments date to the Yuan dynasty. Concerning its use ware 40 is considered a domestic ware.

Ware 41

Designation: Earthenware with multicolored glaze

Glaze: multicolored, i.e. Green, Brownish Yellow, Cream White

Coat: very thin to thin

Body: off-white (partly pinkish), buff

Temper: very fine

Hardness: soft

Average Thickness: thin/ 0,58 cm

Structure: porose, sandy

Ware 41 is defined as earthenware with multicolored glaze. The colors of the very thinly applied lead glazed are mostly green and yellow. Partly, brown or cream white glazes are used as well. The body color of these findings is very light and ranges from off-white to buff. Especially fragments with an off-white body can have a pinkish tinge in their color.

In total, 121 fragments of ware 41 are documented in 103 datasets. This equals a share of 0,57% of all recorded fragments.

Ware 41 – Shapes

The distribution of the different types of fragments is unusual in ware 41. It consists of 48% of body fragments, 35% rim fragments, 11% base fragments, 5% single handles and one fragment of a lid. There are no completely preserved shapes documented in this ware. Neither are spouts (Plate 50, fig. 1–10).

Half of the rim fragments in ware 41 belong to Rim Type 4 (Plate 50, fig. 5–6). Only slight variations are documented. These rims are largely homogenously shaped. All of them derive from pots. The diameters of these vessels range from 8,5–17 cm with an average of 11,1 cm. Handles are preserved on five of the findings (Plate 50, fig. 2). These are shaped rectangular and correlate to the single handles found in shape and décor. It is striking that this shape resembles the shape of Chinese bronze pots. More than 70% of the findings with this shape date to the Yuan dynasty, for the most part the 14th century. Only few fragments derive from layers that date to the mid-13th century, i. e. the Song dynasty.

Second most common in ware 41 are plain plates or flat bowls with Rim Type 3 that hold a share of almost 31% (Plate 50, fig. 3–4). These vessels measure 12–17 cm in diameter with an average of 14,5 cm. All the findings with this shape date to the Yuan dynasty, mostly the 14th century. Apart from two slight exceptions all the glazes on these rims are solely green. The exceptions are silvery sprinkles on ID 15651 and brownish yellow glaze underneath the rim on the inside of ID 33.

Only one further shape is documented in ware 41. This is Rim Type 5, C on 16,7% of the rim fragments (Plate 50, fig. 7). The shape is attributed to pots. The diameters of these vessels range from 11–13 cm with an average of 12,2 cm. Again, all the findings date to the Yuan dynasty and primarily the 14th century. The fragment of a lid (ID 8411) is very small and belongs to a hollow lid that dates to the mid-13th century (Plate 50, fig. 1).

Concerning base shapes there are three different types documented in ware 41 (Plate 50, fig. 8–10). Most common is Base Type 1.1. with a share of 64,3% (Plate 50, fig. 8). Apart from one exception all these findings are decorated on the inside base and assumed to belong to plates. Furthermore, these fragments date to the 14th century. The diameters of these bases measure

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from 5–10 cm with an average of 6,8 cm. Second most common are small tripod feet of Base Type 5.3. with a share of 28,6% (Plate 50, fig. 10). These are documented in all settlement layers but predominantly in layers that date to the Yuan dynasty. The diameters of these tripods are not determinable. Additionally, another type of tripod feet is represented with a share of 7,1%. This is finding ID 2099 of Base Type 5.1. (Plate 50, fig. 9). It is a large foot that is molded as an animal mask which dates to the 14th century (Plate 77, fig. 3).

Overall, plates, pots and tripods are documented in ware 41. Mainly, shapes that imitate shapes of metal vessels appear to be produced in this ware.

Ware 41 – Décor

Décor is documented on 37,2% of the recorded fragments in ware 41 (Plate 76, fig. 18–22 and Plate 77, fig. 1–9). It consists to 64,4% of incised décor on plates that is accentuated by varying glaze colors. Almost all the recognizable motifs are flowers of different styles. Furthermore, the motif of a peach is documented on ID 15903 as well as a swan on ID 2175 (Plate 77, fig. 1–2). The majority of findings with this decoration technique dates to the 14th century.

The second technique of decoration on ware 41 is molding which is represented with a share of 35,6%. All this décor is applied on the outside of vessels which are assumed to be pots and tripods. Half of the findings are handles (Plate 77, fig. 4–9). Apart from two exceptions these are decorated with an ornamental design. The two exceptions are a cow on ID 1196 and a motif that includes a bird on ID 2021. Further motifs are floral scrolls or fragments of dragons as on ID 3641 that is assumed to derive from an incense burner. Molded floral motifs date to the Song dynasty, i. e. the 13th century while most of the other motifs date to the Yuan dynasty.

Overall, the spectrum of motifs on ware 41 differs a bit from the other ceramics found in Karakorum. It is the only ware on which a swan, a cow or a peach is documented.

Ware 41 – Signs of Repair

There are no signs of repair documented in ware 41.

Ware 41 – Marks

There are three fragments with marks documented in ware 41 (Plate 84, fig. 13–15). This equals a share of 2,5% of the recorded fragments. These marks are written in black ink and date to the mid to late 14th century, i. e. the Yuan dynasty. The mark on rim fragment ID 3555 is only very fragmentarily preserved and not decipherable at all. Both other marks are Chinese writings. The mark on ID 1268 is previously published by Eva Nagel and translated as “*Yang gong*”, “...*ci zuo*”: “potter Yang”; “pottery workshop” (Nagel 2002, 100 + plate XIV). The fragment is decorated with an incised flower. Fragment ID 15903 is decorated with an incised peach. Its mark is interpreted as Chinese character 壽 (*shou*) that is translated as a wish for a long life.¹³

Ware 41 – Comparable Findings

Due to a lack of information on body features, the comparison of ware 41 to published ceramics is largely based on its outer appearance. Comparable findings are e. g. known from the contemporaneous city site of Yanjialiang in Inner Mongolia. These are classified as “*liuli* glazed” ware (Chin. 琉璃; Ta La et al. 2010, 443–453 + Color Plates 139–142). The production sites of these ceramics are stated to be in Hebei, Henan and Shanxi provinces. Partly, they are assumed to be local products (Ta La et al. 2010, 647). The incised décor on the findings from Yanjialiang includes the motif of a peach that is very well comparable to ID 15903 from Karakorum (Ta La et al. 2010, 445, Plate 472, Fig. 4 + 6). Furthermore, the spectrum of comparable findings includes

¹³ Thanks to my colleague Patrick Wertmann for this interpretation.

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tripods with Base Type 5.3., Rim Type 4 and rectangular handles that allow a reconstruction of the shapes documented in Karakorum. Partly, these tripods are decorated with molded dragons on the outside which also correlates to the findings from Karakorum. The same applies to the ornamental décor on the handles (Ta La et al. 2010, 448, Plate 474 + Color Plates 140–142). Most of the flowers on the findings from Yanjialiang differ from those documented in Karakorum. Flowers with brown spots on the petals as on ID 2122 (Plate 76, fig. 21) are not published from Yanjialiang at all. Neither is the motif of a swan.

The term '*liuli*' is rather uncommon in descriptions of Chinese ceramics. Still, further comparable tripods with this classification are published in a compilation of Yuan dynasty ceramics. In this case, turquoise glazed tripods are included in the classification (Ye Peilan 1998, 259ff + 301–302). Generally, the term '*sancai*' (三彩), that translates as 'three colors', is more common for ceramics with green, yellow and white lead glaze (Wood 2011, 199ff). A plate of this kind that dates to the Jin to Yuan dynasty and illustrates what findings with décor as ID 2122 (Plate 76, fig. 21) look like is e. g. excavated at Houma in Shanxi province (Shi Jinming / Liu Yan 2008, 172). Many comparable findings of *sancai* ceramics are excavated at the Sheshou kiln site in Hebei province that operated during the Jin to Yuan dynasties, i. e. from the 12th–14th century (cf. Hebei Xing Kiln Museum 2015). This includes inter alia tripod feet with an animal mask décor that are comparable to ID 2099 from Karakorum (Plate 77, fig. 3; cf. Hebei Xing Kiln Museum 2015, 13, Fig. 18). The bodies of the ceramics from the Sheshou kiln are described as 'gray-white' and partly as 'white' (Hebei Xing Kiln Museum 2015, 11–12). The latter description matches with the off-white bodies documented in Karakorum.

At further kiln sites as e. g. the Bacun kiln in Henan province *sancai*-glazed ceramics are produced during the 13th to 14th century as well. Although a fragment found at the Bacun kiln site is decorated with a duck that is similar in style to the swan on ID 2175, the bodies of ceramics from this kiln are much darker in color than the findings from Karakorum (Feng Xiaoqi 2005, 506, Fig. 509). Samples of Yuan dynasty *sancai* ceramics are furthermore known from the Cizhou kiln system in Hebei province (Beijing University Archaeology Department 1997, Color Plate 31; Ye Zhemin 2009b, 119). However, most of these are pillows. This shape is not documented in Karakorum at all. Additionally, the problematic of the non-matching body features is the same as in ware 40 described above. Cizhou wares generally are classified as stonewares which does not apply to ware 41 from Karakorum.

Ware 41 – Origin and Interpretation

Findings with green and yellow lead glazes are published in the studies of the ceramics from the Russian excavations in Karakorum. For the most parts, these are classified as Liao ceramics and ceramics with a colored glaze of 'Liuli type' or 'green glazed/two-color glazed ware' (Evtiukhova 1965, 237–240; Elikhina 2010, 45; Elikhina 2014, 55; Meitoku / Ochir 2007, iv.). Interestingly, these findings are described as stoneware with a grayish or yellowish body (Elikhina 2014, 55; Evtiukhova 1965, 237). All the fragments in the present study are defined as having an off-white, rarely buff, colored earthenware body. Concerning previous studies the distinction whether the findings are classified as Liao ceramics or Liuli type appears to be dependent on shape and décor. Fragments with incised décor and colored glaze, i. e. plates, are classified as Liao ceramics while fragments of tripods with molded relief décor are classified as Liuli type (Elikhina 2010, 45; Evtiukhova. 1965, Plate XXII + Plate XXIV). According to Meitoku / Ochir (2007) the "so-called Liao three-color ware [is] probably made at a kiln in the northern regions during the Yuan dynasty" (iv). Elikhina (2014) describes these findings as "originating from the territory of Inner Mongolia, Liaoning and Hebei [...] [and being] connected with the Liao Dynasty (947 – 1125)" (55). Ceramics of 'Liuli type' are not attributed to a production region. Most of the findings from the old excavations are extremely similar to those which are part of the present study. Exceptions are plates that include turquoise glaze as well (Meitoku / Ochir 2007, 34, Plate 7, Fig.

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153; Evtiukhova. 1965, Plate XXII, Fig. 6). These are not recorded from the 2000–2005 excavations at the main road. Fragments of ‘Liuli type’ are alike to findings of ware 41 with Rim Type 4, Base Type 5.3. and rectangular handles (cf. Meitoku / Ochir 2007, 34, Plate 7, Fig. 154–161). In the spectrum of Liao type plates from previous excavations in Karakorum, the finding of a base that is decorated with an incised peach or apple is astonishingly similar to ID 15903. Just like on ID 15903 a black ink mark is applied on this finding. It is a Chinese character that is translated as reading “mine” (Evtiukhova 1965, 238 + Plate XXII, Fig. 3; Meitoku / Ochir 2007, 34, Plate 7, Fig.152). An additional finding of ‘Liuli type’ is labeled with Chinese black ink writings as well. This finding is not depicted. Its inscription is translated as “old monk of the Tianshan temple” (Evtiukhova 1965, 240; Evtiukhova 1959, 187).

Generally, the correlation of findings with a multicolored glazed to Liao ceramics given in previous studies on the ceramics from Karakorum is problematic. Although the conclusions that are drawn from the classification in terms of the production regions may be right, the association with the Liao dynasty is not. The shape of the tripods is not characteristic for Liao ceramics. This might be the reason why these findings are classified as ‘Liuli type’. However, neither is the décor on the plates characteristic for Liao ceramics. These differ significantly in their appearance and often in shape as well (cf. Lu Jing 2008; Ta La / Chen Yongzhi 2008, 72ff). It is furthermore striking that hardly any of these findings date to the early settlement periods in Karakorum. Ware 41 is a ware that is predominantly found in layers that date to the 14th century. The same applies to the findings from the Russian excavations (Elikhina 2014, 55).

Overall, the comparable findings to ware 41 support an origin of this ware from kiln sites in e. g. Hebei, Henan, Shanxi, Liaoning or Inner Mongolia as it is implied by the classifications from previous studies on ceramics from Karakorum. What is not supported is a connection to the Liao dynasty. Although it is well-supposable that ware 41 is produced at kiln sites where Liao ceramics are produced several decades before, the association with the Liao dynasty is wrong. Neither many of the shapes nor the décor of ware 41 is related to Liao ceramics. The latter are connected to a nomadic lifestyle and culture that is not reflected in any of the ceramics excavated at the main road in Karakorum (cf. Eisenhofer-Halim 1996; Lu Jing 2008). In terms of dating 81% of the datable recorded fragments derive from Yuan dynasty layers, i. e. the late 13th and 14th century. Most of these date to the 14th century. Only a few findings are documented in early settlement layers of Karakorum. Ware 41 is thus classified as a ware that is produced in northern Chinese regions and largely dates to the 14th century. The shapes in this ware are striking as most of these appear to resemble shapes of metal vessels. Furthermore, many of the documented fragments derive from incense burners. Therefore, vessels made of ware 41 are i. a. used for religious matters.

Ware 42

Designation: Earthenware with turquoise glaze and an off-white body

Glaze: Turquoise

Coat: very thin to thin

Body: off-white (partly pinkish) **Temper:** very fine

Hardness: soft

Average Thickness: medium/ 0,73 cm

Structure: porose, sandy

Ware 42 is defined as earthenware with an off-white body and a turquoise glaze. It is related to the green glazed earthenware ware 41 in its body features. Furthermore, it is the major ware in the spectrum of ceramics with a turquoise glaze found in Karakorum. The share of ware 42 in the turquoise glaze earthenwares and stonewares is 39%.

In total, only 31 fragments of ware 42 are documented in 30 datasets. This equals a share of 0,15% of all recorded fragments.

3. 4. Earthenwares – Wares 39–43

Ware 42 – Shapes

The spectrum of fragments in ware 42 consists to 48% of body fragments, 29% rim fragments, 13% single handles, 7% base fragments and one completely preserved lid (= 3%).

Lid ID 1253 is a deepened solid lid that dates to the late 13th century. It is a singular finding in the spectrum of ceramics from Karakorum. Its diameter is 5,2 cm (Plate 50, fig. 11).

Concerning the rim shapes in ware 42, all but one of the determinable fragments belong to Rim Type 4 (Plate 50, fig. 12–14). This reflects the relation between ware 41 and 42. Just like in ware 41, handles on Rim Type 4 in ware 42 are rectangular and often decorated with the same ornamental décor. These fragments belong to the shape of tripods. The diameters of the tripods in ware 42 are slightly smaller than those on ware 41. They range from 7–15 cm with an average of 10,8 cm. These findings all date to the Yuan dynasty.

An exception in shape is ID 10835 that is subsumed in the rim fragments (Plate 50, fig. 15). Whether the fragment derives from the rim or the base of a vessel is unknown at the present state of research. It has an opening with a diameter of 2 cm and dates to the late 13th century.

The two documented base fragments are very similar in their outer appearance but belong to different base types (Plate 51, fig. 1–2). This is ID 1183 of Base Type 1.1. with a diameter of 7 cm and ID 1987 of Base Type 1.3. with a diameter of 5,6 cm. Both findings date to the mid-13th century. These pots differ in shape as well as in their production. Finding ID 1987 is coated with a brown slip underneath its turquoise glaze.

Overall, rim shapes in ware 42 are the same as in ware 41. The base shapes differ and do not correlate with the rim shapes. All the determinable shapes in ware 42 belong to pots. Furthermore, a lid and a fragment that derives from an unknown vessel are documented.

Ware 42 – Décor

Décor is documented on seven fragments in ware 42 which equals a share of 22,6% (Plate 77, fig. 10–16). This includes the stray find ID 1220 with black underglaze paintings on the inside. All the other décor documented in ware 42 is molded décor on the outside of tripods. This is mostly ornamental designs on rectangular handles. Furthermore, two molded chrysanthemums are recorded. Apart from two handles that date to the late 14th century, all of the fragments with décor date to the late 13th century, i. e. any of the décor derives from layers that date to the Yuan dynasty.

Generally, molded décor on handles is similar to décor on handles of ware 41. Molded chrysanthemums are specific for ware 42 only. The technique of black paintings under a turquoise glaze is related to the turquoise glazed stoneware ware 18. The motif on ID 1220 in ware 42, however, is singular.

Ware 42 – Signs of Repair

There are no signs of repair documented in ware 42.

Ware 42 – Marks

There are no marks documented in ware 42.

Ware 42 – Comparable Findings

First, fragments of ware 42 with Rim Type 4 and/or rectangular handles are best comparable to ware 41. Tripods with this shape are partly subsumed as ‘Liuli type’ when they are glazed green (ware 41) or turquoise (ware 42) (Ye Peilan 1998, 259ff; 301–302). Although décor as the molded chrysanthemum is not documented on green glazed findings, comparable molded

3. 4. Earthenwares – Wares 39–43

chrysanthemums are excavated at the Sheshou kiln site in Hebei where green-glazed tripods are produced as well (Hebei Xing Kiln Museum 2015, 12, Plate 15).

A comparability of the other findings of ware 42 to Chinese ceramics is not provided. The fragments of the bases are best comparable to a jar that is found in China but claimed to be exported from the Middle East, most likely from modern day Iraq (Wood 2011, 212–213). It is dated to the 8th–9th century and thus much older than the fragments from Karakorum. Generally, only few findings of turquoise glazed Chinese ceramics are known and most of these are claimed to be stonewares in contrast to Islamic earthenwares with a turquoise glaze that are exported from the Middle East (Wood 2011, 214). Chinese earthenwares with a turquoise glaze are produced during the Jin dynasty (1115–1234) (Wood 2011, 215). Unfortunately, published samples are very rare. One of them is a bottle that is part of the collection of the Victoria and Albert Museum, London (Wood 2011, 227). This finding, however, that is classified as ‘Cizhou-style ware’ is not similar to ware 42 from Karakorum. Neither are other ‘Cizhou style’ turquoise wares that are e. g. produced at the Guantai kiln site in Hebei during the late 13th and 14th century (Wood 2011, 216; Beijing University Archaeology Department 1997, Color Plate 34, Fig. 2).

Relating to finding ID 1220 with black underglaze painting an origin in the Middle East is supposable. However, contemporaneous findings that are e. g. published from Raqqa, Syria, often appear much better in quality and brighter in color. Furthermore, the motifs on these findings are not similar to the pattern on ID 1220 (cf. Jenkins-Madina 2006, 84ff). Generally, this finding is remotely similar to turquoise glazed stonewares of ware 18.

Ware 42 – Origin and Interpretation

Concerning previous studies on ceramics from Karakorum, there is no distinction made between earthenwares and stonewares. Findings with a turquoise glaze are classified as ‘Cizhou type’ ware (Evtiukhova 1965, 236; Elikhina 2010, 45), ‘Liuli type’ (Evtiukhova 1965, 239; Elikhina 2010, 45) or ‘Pu zhou type’ (Evtiukhova 1965, 240; Elikhina 2010, 45). Included in the latter type is a tripod with Rim Type 4 and a molded chrysanthemum on the outside (Elikhina 2010, 46, Fig. 7, g). Characteristics and provenances of these types are not described. A type of ceramic named ‘Pu zhou’ does not appear in any of the sighted literature. It appears to refer to molded ceramics with a turquoise glaze as findings of ware 19 are also classified as ‘Pu zhou’ (see above). Elikhina (2010) is the only researcher who uses this term.

Through the appearances of the bases that are documented in ware 42, the connection between turquoise glazed wares from the Middle East and turquoise glazed Chinese wares becomes evident. It is, however, at the present state of research not determinable where the findings of ware 42 are produced. An origin in the Middle East for the early findings as the bases is supposable while the findings with Rim Type 4 stylistically are northern Chinese wares. Analyses of their bodies and glazes are needed for a better distinction of these wares and a determination of provenance. Generally, about 23% of the findings in ware 42 date to the mid-13th century. These are base and body fragments only. All the rim fragments date to the Yuan dynasty, i. e. the late 13th and 14th century. About 47% of the documented fragments date to the late 13th century and only 30% to the 14th century. Therefore, the number of fragments rises from the mid to the late 13th century but falls again from the 14th century on. None of the turquoise glazed wares documented in Karakorum is very common. Concerning its use, some of the findings appear to be religiously used. This is the assumed tripods with Rim Type 4. In contrast, vessels with the documented bases rather appear to be used for storing or the like.

3. 4. Earthenwares – Wares 39–43

Ware 43

Designation: Earthenware with a brick red body

Glaze: Green (lead) (= ware 43.1.)

Turquoise (lead) (= ware 43.2.)

whitish silver, shimmering (= ware 43.3.)

Pure White with Turquoise spots (= ware 43.4.)

dark silver (= ware 43.5.)

Coat: very thin

Body: brick-red

Temper: very fine to fine

Hardness: soft

Temper particles: mat white particles

Structure: porose, sandy

Average Thickness: medium/ 0,7 cm (= ware 43.1.)

medium/ 0,61 cm (= ware 43.2.)

medium/ 0,72 cm (= ware 43.3.)

thin/ 0,5 cm (= ware 43.4.)

thin/ 0,55 cm (= ware 43.5.)

Ware 43 is defined as earthenware with a brick red body. According to the classification system, it is subdivided into five groups with varying glaze colors (Fig. 49). About 87% of the findings in this ware belong to subtype ware 43.1. Another 10% belong to subtype ware 43.2. Findings of the other subtypes are stray finds only. Therefore, ware 43 primarily consists of green glazed findings.

In total, 247 fragments of this ware are documented in 200 datasets. This equals a share of 1,17% of all recorded fragments.

Ware 43 – Shapes

The spectrum of fragments in ware 43 consists to 59,1% of body fragments, 30,8% rim fragments, 6,5% base fragments, 1,6% fragments of handles and 1,2% fragments of lids. Additionally, one completely preserved shape and one spout is documented (Plates 51–52).

The completely preserved shape is bowl ID 2012 with Rim Type 2.1. and Base Type 1.1. (Plate 51, fig. 3). It belongs to subtype ware 43.1. and measures 17,5 cm in diameter at the mouth and 6,5 cm at the base. The shape of this bowl represents the second most common shape that is documented on rims of ware 43. This is Rim Type 2.1. with a share of 27,3%. Most of these vessels are assumed to be bowls, though plates may appear as well. The diameters of these findings measure from 16–24,5 cm with an average of 18,5 cm.

The most common rim shape in ware 43 is Rim Type 3 with a share of 32,5%. Most of these findings derive from bowls. However, slight differences in forming that belong to deep bowls and plates are recorded (Plate 51, fig. 12–14). The diameters of these vessels range from 7–26 cm with an average of 17,4 cm.

Apart from the two most common rim shapes in this ware, eight further rim shapes are recorded (Plate 51, fig. 10 and Plate 52, fig. 1–8). Therefore, the spectrum of shapes is manifold. However, these eight shapes are represented with one to four fragments only. Most of them are singular findings. This includes two further rim shapes of bowls which are Rim Type 2 on ID 7865 and Rim Type 3.1. on ID 8952. The diameter of ID 7865 is 10 cm and that of ID 8952 is 12 cm. The exceptional finding of ID 1230 belongs to a bottle with a diameter of 8 cm (Plate 52, fig. 7). Its rim shape is Rim Type 7. This large fragment is classified as subtype ware 43.3. due to its silverish white glaze on the outside. Another special finding is fragment ID 8169 with the exceptional shape of a small vessel with a diameter of 6 cm (Plate 52, fig. 8). Comparable shapes to both findings are unknown in the spectrum of glazed ceramics from Karakorum.

All of the remaining rim shapes that are documented in ware 43 are attributed to pots. This includes three shapes of thinly potted small pots (Plate 52, fig. 2–4). These are Rim Type 4 on finding ID 1205 which is the fragment of a tripod with a diameter of 8,5 cm. Furthermore, fragment

3. 4. Earthenwares – Wares 39–43

ID 2147 of subtype ware 43.2. that derives from a straight and tall pot with Rim Type 5 and a diameter of 7,5 cm. The last shape in this category is Rim Type 5, N which is documented on four findings. It derives from pots with necks that measure 8–11 cm in diameter. Their average diameter is 9,7 cm.

The last shape that is documented on rims of ware 43 is Rim Type 6.3. (Plate 52, fig. 5–6). Two fragments of these heavily potted rims of pots are recorded. Both are very large in diameter with 28 cm to estimated 30 cm.

The base shapes in ware 43 are far less manifold than the rim shapes. In total, all but one of the determinable findings are of Base Type 1.1. (Plate 51, fig. 3). The diameters of these bases measure from 5–7 cm with an average of 6,2 cm. The only differing shape that is documented is Base Type 1.3. on ID 11587 with a diameter of 7 cm (Plate 52, fig. 9).

Concerning the spectrum of shapes in the fragments of lids and handles, most of these findings are of singular shapes (Plate 51, fig. 4–9). Just like spout ID 7062 (Plate 51, fig. 9) these shapes are often not connected to the shapes of rims and bases that are recorded. All these findings imply a very broad range of shapes that is made of ware 43. It is striking that shapes like Rim Type 4 on ID 1205 appear Chinese while shapes like the bottle ID 1230 are not. This finding is rather connectable to the Middle East or Central Asia in its style. However, both shapes imitate shapes of metal vessels.

Ware 43 – Décor

Décor is documented on a single finding of subtype ware 43.1. only. This is ID 14585 which is a molded chrysanthemum (Plate 77, fig. 17). Generally, decorations are not common on ware 43.

Ware 43 – Signs of Repair

There are no signs of repair documented on ware 43.

Ware 43 – Marks

There are no marks documented on ware 43.

Ware 43 – Comparable Findings

The comparison of ware 43 with published findings is partly difficult. On one hand, this is due to missing detailed descriptions of the bodies of findings. On the other hand, hardly any comparable findings are published at all. Few fragments that appear similar to subtype ware 43.1., i. e. green glazed fragments, are documented from the Chaoyang site in Liaoning. These date to the Yuan dynasty but are of unknown provenance (Liaoning Provincial Institute of Archaeology 2011, 134, Fig.171). Generally, some turquoise glazed wares with a red body are produced at kilns of the Cizhou kiln system in Hebei province (Palace Museum 2006, 146, Fig. 106). However, it is assumed that their bodies are made of stoneware and closer to ware 18.2. than to ware 43. The outer appearance of these findings often differs from any turquoise glazed fragments documented in Karakorum. Furthermore, fragments excavated at the Bacun kiln site in Henan province are similar to ware 43 (Feng Xiaoqi 2005, 516–517). In this case, the molded décor on these fragments does not correlate to findings of ware 43 but rather to findings of ware 19. Again, the body features are not described. It remains unclear whether the fragments from the Bacun kiln site are made of stoneware or earthenware.

Overall, the comparability between ware 43 and Chinese ceramics is low. Findings that are more similar to this ware are e. g. published from Raqqa (Syria) (Miglus 1999, 82 + Plate 97, d 82) and from a survey in the southern regions of the Aral Sea (Uzbekistan) (Boroffka et al. 2005, 269 and 281, Plate 27, Fig. 6 + 8–10). Green glazed ceramics are common in Central Asia from the 9th century on while turquoise glazed wares are especially produced during the 12th–14th century

3. 5. Stray Finds

(Boroffka et al. 2005, 269). Unfortunately, ceramics of this kind have not been subject of research in the past decades. Therefore, information on these wares is scarce. The same applies to published findings that are comparable to ware 43.

Ware 43 – Origin and Interpretation

Ceramics with a green glaze and a red body are described by Evtiukhova (1965) in the publication of the findings from the Russian excavations in Karakorum. According to Evtiukhova (1965, 259), these ceramics do not fit into any known Chinese type. They appear in lower layers of the excavation only. Concerning the Kiselov excavations these are layers X–XI. It is assumed that they are produced in the surroundings from Karakorum (Evtiukhova 1965, 260). In most of the other publications on the glazed ceramics from Karakorum, findings of this kind are not included. The only exception is a recent publication from Elikhina (2014) where “[r]oughly made wares, covered by a dark green glaze” (55) are considered to derive from Central Asia (Elikhina 2014, 55). These are a few fragments only. All of which are published solely on black and white pictures (Elikhina 2014, 349).

As stated above in the chapter on comparable findings, ceramics with a similar outer appearance are generally produced in northern China. Still, it is doubted that most of the fragments found in Karakorum derive from these kiln sites. It is presumed that wares from Chinese kilns are stonewares which does not apply to ware 43. Fragments of this kind are more similar to findings from Central Asia. The correlation of ware 43 with Central Asian ceramics is confirmed by Dr. N. Boroffka to whom the author displayed some of the findings from Karakorum.¹⁴ However, some of the shapes in ware 43 are Chinese, e. g. rims of Rim Type 4 that are attributed to tripods. Whether these are copied in Central Asian ceramics or produced e. g. in the surroundings from Karakorum cannot be determined at the present state of research. From a technological point of view, ware 43 is very similar to glazed roof tiles which are assumed to be locally produced.

Overall, ware 43 is classified as Central Asian ceramics. Similarities in the outer appearance and/or shape to Chinese wares are considered to reflect the cultural influences between Central Asia and China. About 76% of the findings of ware 43 date to the mid-13th century. The number of findings decreases strikingly from the late 13th century on. Almost 18% of the recorded fragments date to the late 13th century while hardly 7% date to the 14th century. Therefore, ware 43 is primarily used during the early times of Karakorum. The shapes in ware 43 partly resemble those of metal vessels. It is possibly made for domestic as well as religious use.

3. 5. STRAY FINDS

There are three stray finds documented which are not classified as separate wares because these fragments lack comparability to other findings and appear rather irrelevant for interpretations on the glazed ceramics from Karakorum (Fig. 50).

The first of these findings is ID 1988 with a reddish yellow stoneware body and a mat cream white glaze. The thickness of this fragment is 0,7 cm. It is painted black on the outside. Chances are that this is a Central Asian ware or a ware from the Middle East. This has yet to be proven. The fragment is to be dated to the 14th century.

The second finding is ID 2453 with a light gray stoneware body and a glassy blue glaze that is dark blue on one side and light blue on the other. The thickness of this fragment is 0,5 cm. There is no hypothesis on the origin of this fragment. It is strikingly different from all other wares found. The dating of this fragment is the 14th century.

¹⁴ Thanks to Dr. Nikolaus Boroffka from the German Archaeological Institute for his help in classifying these ceramics.

4. 1. Production Sites of the Glazed Ceramics from Karakorum

The last fragment is ID 7677 with a dark gray earthenware body and a glaze that is purple on the outside and dark silver on the inside. In contrast to the other stray finds, temper particles are visible on this fragment. These are few irregularly shaped transparent to white particles and few mat white particles. The thickness of this fragment is 0,45 cm. Its origin could be in a Central Asian region. Again, proof is missing. The fragment derives from one of the lowest excavation layers and thus dates to about the mid-13th century.

4. ANALYSIS

By summarizing the results from the classification of the glazed ceramics from Karakorum, evidence on their origins, availability and use is given. This provides very rich information concerning the distribution of these wares as well as insights on the daily life in the craftsmen quarter. The evaluation of the findings is conducted according to their differing aspects. These are as follows:

1. The productions sites of the wares and routes of supply that are indicated through them.
2. The compilation of the wares in time and thus their availability in Karakorum.
3. The use of the wares as indicated by their shapes and specific décor.

Due to a lack of data, the findings from Karakorum cannot be compared in detail with findings from coexisting city sites. However, a general comparison with the ceramics excavated at Yanjialiang and Jininglu will be given in order to provide a first impression on the comparability of the findings from the Old-Mongolian capital with findings from contemporaneous city sites.

4. 1. PRODUCTION SITES OF THE GLAZED CERAMICS FROM KARAKORUM

Several production sites, resp. production regions, of the glazed ceramics from Karakorum can be located. It is to be kept in mind that the overview given below is a simplified summary of the presentation and classification given above. Single fragments may vary in their origin or can be attributed more precisely to a kiln site than the group they are subsumed in. The following analysis is based on the assumed production region for most fragments in each group mentioned. An overview on the results is included in Appendix B and Chart 18.

In total, three main production regions of glazed ceramics found in Karakorum can be located. This is northern China, southern China and Central Asia. The latter category is represented by ware 43 which holds a share of only 1,17% of all documented fragments. Its production sites cannot be located at the present state of research. Concerning the production sites of the Chinese wares, potential kiln sites are traceable (Fig. 51). Here, especially the production areas of southern Chinese ceramics are well known. This is the region around Jingdezhen in Jiangxi province in terms of wares 1 and 4 as well as the region around Longquan in Zhejiang province in terms of ware 5. Overall, almost 11% of the documented fragments are attributed to southern Chinese production sites. The clear majority of glazed ceramics from Karakorum is associated with northern Chinese production sites. This is a share of 53%. Additionally, about 23% of the documented ceramics are assumed to be produced in as well as around the traditional northern Chinese production sites, i. e. in modern-day Inner Mongolia, Liaoning or Ningxia provinces. Generally, these wares are not as specialized in their production as southern Chinese ceramics are (cf. Kerr / Wood 2004, 87–88). Thus, their production regions are more extensive and differences between the products of the kiln sites are less specific. An exception is i. a. ware 20 which is a highly specialized ware that is typically produced in the region of modern day Henan

4. 1. Production Sites of the Glazed Ceramics from Karakorum

province and clearly definable as Chinese Jun ware. In addition to the ceramics of determinable provenance, about 12% of the documented fragments cannot be attributed to a production region at the present state of research. This refers in large parts to the coarse tempered ware 27. Many large storage vessels are part of this group. It is supposable that these ceramics are produced in the surroundings of Karakorum at a presently unknown kiln site.

Ware, No.	Description	Share of total (wares)	Assumed production regions (simplified)	Share of total (region)
3	greenish, porcellaneous	3,19%	Northern China + North	22,78%
9	clear glazed StW	0,40%		
14	white StW, medium temper	0,80%		
16	greenish, StW	2,75%		
22	brown glazed StW	1,64%		
23				
28				
30	black glazed StW, various tempers	14,0%		
32				
2	white, porcellaneous	1,56%		
8	marbled ware, StW	0,08%		
10	white StW	27,04%		
11				
18	turquoise StW	0,13%		
20	thick blue StW	19,29%		
35	black and white StW, various tempers	2,95%		
37				
40	earthenware with multicolored décor	1,14%		
41	earthenware with multicolored glazed	0,57%		
42	turquoise earthenware	0,15%		
1	blue-and-white porcelain	0,37%	Southern China	10,85%
4	pale blue, porcellaneous	5,49%		
5	Celadon	4,99%		
13	reddish craquelling	0%		
39	Lusterware	0,02%	Syria / Iran	0,02%
43	brick red earthenware	1,17%	Central Asia	1,17%
6	celadon imitations	0,05%	Unknown	12,28%
7	grayish blue, porcellaneous	0,01%		
12	white StW, irregular	0,03%		
15	white StW, coarse	0,02%		
17	greenish StW, mat	0,07%		
19	turquoise StW, red body	0,03%		
21	Jun imitations, StW	0,04%		
24	brown to green glazed StW, various tempers	10,48%		
25				
26				
27				
29	black glazed StW, uncommon bodies	1,03%		
31				
33				
34	black and white StW, uncommon	0,01%		
36				
38	mud colored slip, StW	0,48%		
44	Stray Finds	0,01%		

Chart 18: Overview on the assumed production regions of the glazed ceramics from Karakorum. StW = stonewares.

4. 1. Production Sites of the Glazed Ceramics from Karakorum

4. 1. 1. NORTHERN CHINESE CERAMICS

Because many of the northern Chinese wares cannot be certainly distinguished from wares that are produced north of the traditional production sites, ceramics of both groups are subsumed in this chapter. The production region of these wares is located in the north of modern-day China. Included are the provinces Shanxi, Henan, Hebei, Inner Mongolia, Ningxia and Liaoning (Fig. 52). The variations of northern Chinese ceramics of the Song and Yuan dynasties are traditionally manifold. This is represented in the spectrum of wares from Karakorum. Included are e. g. porcellaneous white glazed fragments of ware 2 as well as thickly blue or green glazed stonewares of ware 20. Both of which are attributable to traditional northern Chinese production sites. This is the Huoxian kiln site in Shanxi province for large parts of ware 2 and the Jun kilns in Henan province for ware 20 (see their classification above). The latter is one of the main wares imported to Karakorum. Fragments of ware 20 hold a share of about 19% of all documented fragments. An extraordinarily broad spectrum of ceramics is furthermore associated with the northern Chinese Cizhou kiln system; resp. Cizhou type wares (see introduction above and Appendix B). These are primarily produced in Hebei, Henan and Shanxi provinces. Included in this group are inter alia marbled stoneware (ware 8), black and white glazed stonewares (esp. ware 35.1.), wares with multicolored décor or glaze (wares 40 + 41), parts of the black glazed wares (esp. parts of ware 28) and large parts of the white glazed stonewares (esp. ware 11). Particularly stonewares with a white glaze are often associated with traditional northern Chinese kiln sites. However, these wares are copied and produced in a wider area as well. This is e. g. evident in the close resemblances between wares 11 and 16. The latter ware is associated with northern kiln sites in e. g. Liaoning province while ware 11 is in large parts associated with kiln sites in Hebei, Shanxi or Henan provinces. A similar problem is evident in the classification of black glazed wares which traditionally are considered a side product of the Cizhou kiln system only. Still, there are no clearly definable differences between Cizhou black wares and white wares in contrast to more northerly produced ceramics that copy those wares. Thus, the number of wares that derive from the traditional northern Chinese production region is estimated only. In total, about 27% of the documented fragments from Karakorum are assumed to be mainly northern Chinese white wares while about 14% are considered black wares that are produced in northern China and the surrounding areas. Concerning wares that are more likely to be produced north of the traditional Chinese production sites, the majority of these are glazed greenish and have a porcellaneous or stoneware body (wares 3 + 16). Their share in the present documentation is almost 6%.

Overall, about 75% of the documented glazed ceramics from the craftsmen quarter in Karakorum are attributed to an extensive northern Chinese production region. The clear majority of these wares can be described as Cizhou, resp. Cizhou type (Fig. 53). For most of these ceramics production sites across the whole northern area are to be assumed. This is especially wares 11 (white stonewares) and 28 (black stonewares) which together hold a share of 51% of all documented fragments of assumed northern origin. Other wares of the Cizhou type are assumed to be mainly produced in the traditional region of Cizhou products although additional production sites north of this territory are not excluded. This is ware 8 (marbled ware), ware 18 (turquoise glazed stoneware), ware 35 (esp. ware 35.1., black and white glazed stoneware), ware 40 (earthenware with multicolored décor), ware 41 (earthenware with multicolored glaze) and ware 42 (turquoise glazed earthenware). Together these wares hold a share of 6% of the documented northern ceramics.

Second to Cizhou and Cizhou type wares from northern China is the so-called Jun ware, i. e. thickly blue or green glazed stonewares of ware 20. Fragments of this type hold a share of 28% of all northern ceramics. Their production region is more precisely definable than that of Cizhou type wares. Kilns sites where Jun wares are produced during the Song and Yuan dynasties are largely concentrated in Linru county, Henan province. Additionally, Wood (2011, 118) states that

4. 1. Production Sites of the Glazed Ceramics from Karakorum

a Jun kiln site in Inner Mongolia has recently been found. Unfortunately, literature on this site has not been available for the present study.

The two categories of northern Chinese ceramics listed above are the most common types documented in Karakorum. In addition to these wares, further northern Chinese white wares are recorded. This is the porcellaneous ware 2 which can be associated with production sites directly north of the Cizhou wares, namely Huoxian and Ding, as well as the white glazed stoneware ware 10 that is likely to be produced in or around the Ding kiln system (Fig. 52). Both wares together hold a share of about 4% of the northern ceramics.

The last category of northern ceramics documented in Karakorum is not associated with traditional northern Chinese wares and kiln sites. These are greenish glazed porcellaneous wares and stonewares of ware 3 and 16 that are attributed to the Gangwa kiln site in Liaoning province which is north of the traditional Chinese production regions. These wares together hold a share of 9% of the northern ceramics.

Taken as a whole, most of the northern ceramics are associated with Chinese wares and production sites (Chart 19). Concerning the supply of Karakorum with glazed ceramics, this region is to be considered the major source of ceramic imports. Judging from the shapes and appearances of these wares they are primarily made for domestic use.

Ware, No.	Potential kiln sites	Description	share (total record)
2	Huoxian, Ding	Porcellaneous, white	1,56%
3	Gangwa	Porcellaneous, greenish	3,19%
8	Cizhou	Marbled StW	0,08%
9	Lizhou, Gangwa	Clear glazed StW	0,40%
10	Ding	White glazed StW	1,10%
11	Cizhou area, Lingwu, Gangwa, Lizhou,		25,94%
14	Jiangguantung		0,80%
16	Gangwa	Greenish glazed StW	2,75%
18	Cizhou area, Bacun	Turquoise StW	0,13%
20	Jun ware	Thick Blue StW	19,29%
22	Cizhou, Lingwu	Brown to Green glazed StW	0,52%
23	Cizhou, Lingwu, Jiangguantung, Duyaotai		1,12%
28	Cizhou, Huairen, Zibo, Yaozhou, Lingwu, Gangwa, Lushan, Baofeng, few: Jizhou, Jian?	Black glazed StW	9,46%
30	Gangwa		0,16%
32	Guantai, Duyaotai		4,38%
35	Cizhou (area), few: Jizhou?	Black and White glazed StW	2,25%
37			0,70%
40	Cizhou, Pengcheng, Changzhi Bayi, Yuzhou	EW with multicolored décor	1,14%
41	Sheshou, Bacun, Cizhou	EW with multicolored glaze	0,57%
42	Sheshou, Cizhou	turquoise EW	0,15%

Chart 19: Potential kiln sites of northern ceramics found in Karakorum. StW = stonewares / EW = earthenware.

4. 1. Production Sites of the Glazed Ceramics from Karakorum

4. 1. 2. SOUTHERN CHINESE CERAMICS

Concerning the southern Chinese ceramics that are documented in Karakorum, the production regions are far better traceable as those of the northern ceramics. Furthermore, the variety of southern ceramics is far less than that of the northern wares.

Overall, two main production regions which are located close to each other are definable. This is the region around Jingdezhen in Jiangxi province where wares 1 and 4 are primarily produced as well as the region around Longquan in Zhejiang province where ware 5 is primarily produced (Fig. 54). Some fragments of northern celadon that are produced in and around Yaozhou, Shaanxi province (see classification above) may be a part of the latter group. However, at least 70% of ware 5 are classified as southern celadon that derives from the area around Longquan. It is thus accounted to be the main production region of this type of ceramics. In addition to these wares, few parts of (northern) Chinese black wares as well as black and white glazed wares can possibly be produced in southern China (see classification above; Chart 20). The amount of these wares remains uncertain at the present state of research. Most of these fragments are classified as northern ceramics. They are thus included in the summary above.

The total share of fragments with an assumed production site in southern China is almost 11%. Most of these fragments are associated with the Jingdezhen kiln system where blue-and-white porcelains (ware 1) as well as pale blue glazed porcellaneous wares (ware 4) are produced. Both wares together hold a share of about 54% of all documented southern Chinese ceramics. Second to this is celadon (ware 5) with a share of 46% (Fig. 55). Apart from stray finds as ware 13 and potentially small shares of wares 28 and 35, no other southern Chinese ceramics are recorded.

Southern Chinese production sites are secondary in the supply of Karakorum with glazed ceramics. Still, the most valuable pieces in quality, décor and shapes derive from this area. Buddhist décor, for example, is documented on ware 5 only. Special shapes as brush washers are limited to ware 4. In contrast to northern ceramics that appear to be domestic wares for the most parts, southern ceramics are considered to be higher in their value.

Ware, No.	Potential kiln sites	Description	share (total record)
1	Jingdezhen	blue-and-white porcelain	0,37%
4	Jingdezhen	pale blue, porcellaneous	5,49%
5	Longquan, few: Yaozhou?	celadon	4,99%
13	Zhangzhou	white with reddish craquelling	0,00%
(28)	few: Jian, Jizhou?, mainly northern ware	black glazed StW	(9,46%)
(35)	few: Jizhou?, mainly northern ware	Black and white glazed StW	(2,25%)

Chart 20: Kiln sites of southern ceramics found in Karakorum. Added are northern ceramics that might include a small share of southern ceramics. StW = stonewares.

4. 1. Production Sites of the Glazed Ceramics from Karakorum

4. 1. 3. *CENTRAL ASIAN AND ISLAMIC CERAMICS*

Only a very small share of the documented glazed ceramics appears to be of a non-Chinese origin. This is ware 43 which is assumed to originate in Central Asia and ware 39 which is classified as Islamic lusterware. The latter is represented with no more than four fragments. Ware 43 holds a share of about 1% of all documented fragments in the record. For both wares, precise production regions remain unknown at the present state of research.

Still, these findings are of high interpretational value. In its function as the Old-Mongolian capital, Karakorum is considered to be an international and multicultural city. According to the account of William of Rubruck, a Franciscan monk that lived in Karakorum in 1254, people of varying origins lived in Karakorum. Explicitly mentioned in Rubrucks account are two non-Mongolian living quarters. This is a Chinese craftsmen quarter as well as a Muslim tradesmen quarter (Leicht 2012, 169). Implied in the assumable existence of these quarters in the 13th century are contacts to China as well as to the Near East. Further connections to regions far west of Karakorum are mentioned in another section of Rubruck's account. This is the remark that some of the Nestorians who lived in Karakorum get presents from a patriarch that lives in Baghdad (Leicht 2012, 164). Therefore, routes between Baghdad and Karakorum are to be assumed. From an archaeological point of view this implies that ceramics from the Near East are to be found in Karakorum. Because of the previous absence of such findings, it is partly argued that the site where the excavations took place may not match the historical Karakorum (Becker 2007, 242). However, the question of the presumed existence of Islamic ceramics in Karakorum entails several difficulties. First of all, it is to be questioned whether it is a necessity that ceramics from e. g. Baghdad are to be found in Karakorum. What if these wares are not included in the common spectrum of imported goods on these routes? Furthermore, the demand on such ceramics in Karakorum is unknown. How many people lived there that may have wanted to use such ceramics instead of other, more easily available wares? Is it a necessity to use ceramics from the Near East just because of being a Muslim? Or is it luxury that is available for people of higher statuses only? Additionally, the expected location of use, resp. disposal, of such ceramics inside the town is to be considered. If there is a Muslim and a Chinese quarter in Karakorum, does the spectrum of used ceramics differ between the quarters? These questions cannot be answered at the present state of research as e. g. excavations in the assumed Muslim quarter are missing. The present study is based only on ceramics that derive from a part of town which is expected to be part of the Chinese craftsmen quarter. Whether this is the reason for the dominance of Chinese ceramics or not cannot be determined without further research. It is assumed that the spectrum of ceramics differs in other parts of the city.

Despite all the open questions stated above, the proof of especially Islamic ceramics in Karakorum is an indicator for the presumed existence of connections between Karakorum and the Near East. This constitutes progress in the verifiability of international contacts to the Old-Mongolian capital. Furthermore, connections to Central Asia are documented through ware 43. Compared to historical assumptions about Karakorum both influences are underrepresented in the current archaeological record.

4. 1. Production Sites of the Glazed Ceramics from Karakorum

4. 1. 4. WARES OF UNKNOWN PROVENANCE

About 12% of the documented glazed ceramics are of unknown provenance at the present state of research. On one hand, this is due to the focus of the study on Chinese ceramics. On the other hand, it is due to a lack of published comparable findings from e. g. Central Asia, resp. ceramic production sites in the sphere of Karakorum that are non-Chinese and contemporaneous to the city.

Many of these wares are documented in small numbers only (Chart 21). Exceptions are coarse tempered storage vessels of ware 27 – more precisely subtype ware 27.1. that is the most common subtype in this mixed group of coarse tempered ceramics with brown to green glazes. Almost 63% of the fragments with unknown provenance are classified as storage vessels of subtype ware 27.1. A local production of these large and heavy vessels is supposable. Other subtypes as e. g. ware 27.7. appear to be rather Central Asian in their origin as shapes and body features differ from the Chinese ceramics. Brown to green glazed ceramics of e. g. wares 24–26 are remotely comparable to Chinese wares and thus of possibly northern Chinese and/or local origin. The spectrum of contemplable origins is supplemented by a supposable production region in the Near East for ware 19 and possible production sites in South Asia for wares 6 and 7. However, none of these theories is proven at the present state of research.

Overall, much of currently non-determinable ceramics is assumed to be of local origin. Second to this are supposable origins in the Central Asian region. Any provenances other than these appear unlikely.

Ware, No.	Supposable production regions (unproven)	Description	Share (total record)
6	South Asia	celadon imitations	0,05%
7		grayish blue, porcellaneous	0,01%
12	local	white StW, irregular	0,03%
15		white StW, coarse	0,02%
17		greenish StW, mat	0,07%
19	Central Asia / Near East	turquoise StW, red body	0,03%
21	local	Jun imitations, StW	0,04%
24	local (esp. ware 27.1.),	brown to green glazed StW, various tempers	0,37%
25			0,37%
26	partly Central Asia (esp. subtypes of ware 27 as e. g. ware 27.7.)	black glazed StW, uncommon bodies	0,26%
27			9,48%
29			0,02%
31	or northern China (esp. ware 34)		0,03%
33			0,02%
34			0,96%
36	northern China	black and white StW, uncommon	0,01%
38	Central Asia or local	mud colored slip, StW	0,48%
44	Central Asia	Stray Finds	0,01%

Chart 21: Supposable origins of ceramics with unknown provenance.

4. 2. Routes to Karakorum

4. 2. ROUTES TO KARAKORUM

As stated in the introduction on the historical framework as well as on Chinese ceramics of the 13th–14th centuries in general, routes to Karakorum for the supply with ceramics are not as self-evident as it seems at first sight. Some scholars believe that there is nothing like a general trade of ceramics on land routes across the territory of the Yuan dynasty but a distribution of exclusive wares used by the aristocracy only (cf. Wang Xie 2008). Although northern Chinese ceramics are far more common in the spectrum of findings from Karakorum, the share of southern Chinese wares is quite high (11%, see above). Judging from their shapes and décor, only a few of these findings are attributable to the Mongol aristocracy. Furthermore, the share of these ceramics rises significantly when southern China becomes part of the Yuan dynasty (see the compilation over time below). This is about a decade after the Mongol capital is shifted from Karakorum to Dadu (see historical framework above). Moreover, the findings from Karakorum derive from the craftsmen quarter where several workshops are documented (cf. Pohl 2010). Southern Chinese as well as northern Chinese ceramics are evenly distributed across the excavation area and belong to the regular spectrum of glazed ceramics used in this quarter. Therefore, a supply of the city with these wares is to be assumed. Routes between Karakorum and the production sites need to be given.

Generally, trade with ceramics on overland routes across Yuan China and Eurasia is to be assumed and most likely to be conducted by Muslim merchants (cf. Rossabi 1981, 282 and see introduction above). Due to aspects of transportability it is supposed that ceramic trade on overland routes is less than on maritime routes (Xinru Liu 2010, 110; Kerr / Wood 2004, 728). Concerning the routes, Medley (1989, 104) connects the trade with ceramics to the general trade routes of 10th–14th centuries, i. e. the Eurasian network of the Silk Road. Interestingly, these routes correlate to the distribution of blue-and-white porcelain that is produced in Jingdezhen (cf. Carswell 2000, 17). This, however, does not yet include the site of Karakorum. The city is located north of the common trade routes. Concerning the distribution of ceramics across medieval Eurasia, Karakorum is by and large not included in this network (cf. Heidenreich 2007, 171, Fig. 111; Ciociltan 2012, Map 3; Tampoe 1989, 421, Fig. 114d).

Historical documents that include Karakorum in the extensive Eurasian network are known from the capital-times of the city only. By and large these are the 13th century travel reports of John of Plano Carpini and the Franciscan Friar William of Rubruck. The travel routes of both are i. a. published by Shepherd (1926, 102–103). With the relocation of the capital to Dadu in 1264, the commonly described travel routes between Europe and Asia run along the Silk Road to Dadu and do not make a detour across Karakorum (cf. Yule 1966; Toepel 2008). Connections to Karakorum during the Yuan dynasty are documented through the establishment and restoration of postal relay routes between Karakorum and Dadu as well as furthermore in the supply of the city with grain (Franke / Twitchett 2007, 445 + 477, Map 34). These do not imply a general inclusion of the city in the Eurasian network. In terms of trade and continental communication the function of Karakorum during the Yuan dynasty is largely unknown. Nevertheless, the city is included in the mapping of a world system in 1250–1350 published by Abu-Lughod (1989, 172–173, Fig. 7). On the mentioned map, the congruence between trade routes and the spread of the Black Death in the 14th century is depicted. In this case, trade routes connecting Karakorum to Beijing and the Silk Road are mapped. Furthermore, Abu-Lughod distinguishes eight circuits of the thirteenth century world system. Karakorum is assigned to the third circle which encircles the Central Asian steppes, connecting Constantinople to China. China itself, including Shangdu and Beijing, is assigned to the eighth circle by Abu-Lughod (1989, 34, Fig. 1). This circle encompasses the east of modern day China as well as the South-East Asian peninsulas.

Referring to the distribution of ceramics and the connections that are implied in the distribution patterns, research on routes to Karakorum hasn't been a subject of study yet. Due to missing references like excavations in and publications on coetaneous sites near Karakorum the results

4. 2. Routes to Karakorum

of such a study remain vague at the present state of research. In the course of the present study a first approach is given. The results are to be expanded in future studies. As a starting point, the maps mentioned above are subsumed in a map (Fig. 56). It is to be stressed, that the routes on all the maps shown above and below are drawn between cities that – mostly on the basis of historical sources – are known to be connected. The precise course of the routes is not necessarily known but estimated. Furthermore, only main connections that are passed on are depicted. Additional small routes and yet unknown routes – like connections to Karakorum – are supposable.

As subsumed in the previous chapter, three main regions of provenance can be determined concerning the glazed ceramics found in Karakorum. These are northern Chinese ceramics, southern Chinese ceramics and Central Asian ceramics. Excluded from this compilation are findings of unknown provenance. Production sites of the Central Asian wares cannot be determined at the present state of research. In contrast, production sites of Chinese ceramics are well known. Because the correlation of the findings with the production sites needed to be based on available literature, it is not as precise as it could be if scientific analyses were given (cf. Zhao Bing 2015). Nevertheless, production areas as well as supposable kiln sites as places of production are worked out (see above). Additionally, information on the ceramics from few contemporaneous sites in modern day Inner Mongolia is provided. These are the city sites of Yanjialiang and Jininglu where comparable ceramics are excavated. In both cases the spectrum of findings is well-comparable though not completely identical (cf. Ta La et al. 2010; Chen Yongzhi 2004). Another known contemporaneous site in Inner Mongolia is Kharakhoto. This city is even incorporated into the existing route system. Ceramics found at this site are partly comparable as well (cf. Kessler 2012). Unfortunately, a comprehensive publication on the ceramics from Kharakhoto hasn't been available during the present study. Apart from ceramics that are produced at northern Chinese kiln sites, the findings of all the three sites mentioned above include ceramics from southern China, i. e. porcellaneous wares with a celadon glaze (ware 5) or pale-blue glaze (ware 4) as well as blue-and-white porcelain (ware 1). The proportion of northern Chinese wares to southern Chinese wares is unknown for these sites. The same applies to changes in the compositions of wares over time.

By mapping the presently known contemporaneous sites with comparable ceramics, production sites/regions of the ceramics and trade routes as published by Medley (1989, 104, 105 + 146), it becomes evident, that connections to Karakorum are to be added to the presently known network (Fig. 57). Based on an estimation of Dr. Ernst Pohl who headed the excavations at the main street in Karakorum, about two thirds of all excavated ceramics are glazed.¹⁵ Out of the glazed ceramics, about 75% are attributed to an extended northern Chinese production region. Therefore, almost 50% of all ceramics found in Karakorum – whether glazed or unglazed – are assumed to derive from modern-day northern China. This high share can only be explained by well-working connections between Karakorum and the production sites. Although the exchange behind the ceramics (e. g. as tributary goods or trade goods) cannot be resolved at the present state of research, the general existence of connections is evident. By keeping in mind that Central Asian ceramics reached Karakorum as well, three main axes of possible connections of Karakorum to the commonly known route system are to be assumed (Fig. 58). As northern and southern Chinese production regions are already connected in this system, the assumed axes that are to be added and connect Karakorum to the southern Chinese regions as well.

The assumed connections of Karakorum to the commonly known route system across Eurasia are supported by further sources. This is e. g. the postulated congruence of the spread of the plague as mapped by Abu-Lughod (1989, 172–173, Fig. 7) which connects Karakorum to inter alia Beijing and Tashkent. An additional connection of Karakorum to Central Asia is implied in the travel itinerary of William of Rubruck as e. g. mapped by Shepherd (1926, 102–103). The routes

¹⁵ Interview with Dr. Ernst Pohl.

4. 3. The Compilation of Wares over Time

used by Rubruck are assumed to be messenger routes between the Mongol rulers (Leicht 2012, 26). Apart from the great internationality in Karakorum that is described in Rubruck's itinerary but not archaeologically proven yet, Rubruck reports presents from the patriarch in Baghdad for the Nestorian Christians living in Karakorum (Leicht 2012, 164). This is a further indicator of connections from Karakorum to the Eurasian route system. It is supported by the provenances of edibles documented in the city. Parts of the medieval plant remains from the excavations at the main road are analyzed in a preliminary archaeobotanical report (Rösch et al. 2010). The mapping of the main source areas for imported food documented in Karakorum includes Baghdad as one of the sources (Fig. 59). Overall, it correlates to the routes from Karakorum via Tashkent to Baghdad (cf. Rösch et al. 2010, 219, Fig. 1). Connections between Beijing and Karakorum are furthermore historically implied. It is e. g. said that the heir of the throne of the Yuan dynasty – that is seated in Beijing – has its compulsory seat in Karakorum (Barkmann 2002, 17). Generally, the proximity of Karakorum in the vicinity of caravan routes is assumed to be one of the aspects that lead to the founding of the city at the river bank of the Orchon (see historical framework above or i. a. Franken 2012, 26).

By subsuming the information listed above on a map, the evidence for the integration of Karakorum into the Eurasian route system becomes even more obvious. What is missing is a connection between Karakorum and Kharakhoto. Travels between both cities are hindered by the desert Gobi that lies between them. However, parts of the Gobi are crossed on the route from Kharakhoto to Beijing as well. Thus, routes across the desert that connect Karakorum to the main route system are supposable (Fig. 60). Concerning the travel distances, routes that cross the Gobi provide a more direct connection between Karakorum and the production regions of northern Chinese wares than routes via Beijing. Based on these assumptions, two main axes between Karakorum and the production regions of Chinese ceramics are supposed. This is an eastern route via Beijing and a western route, possibly via Kharakhoto or nearby (Fig. 61). Furthermore, connections between Karakorum and the Middle East are implied several times which indicates a more direct connection to the routes, e. g. running between Karakorum and Hami (Fig. 60). This, however, is a first hypothesis on the connection of Karakorum to production sites of ceramics that are used in the city. It needs to be verified or refuted in future studies using additional sources.

4. 3. THE COMPILATION OF WARES OVER TIME

According to the stratigraphy worked out by Pohl (2010, see introduction above) the building phases documented in Karakorum are divided into three settlement periods. This is settlement period I that dates to about 1235–1280, settlement period II that dates to about 1280–1310 and settlement period III that dates to about 1310–1388. Based on data provided by Pohl, almost 80% of the documented glazed ceramics are correlated to these settlement periods.¹⁶ Fragments that could not be attributed to the settlement periods mainly derive from excavation section LH 87–88. Relating to this section no stratigraphy is worked out yet. Apart from these fragments, few findings lack finding sheets or data on the layer they were found in and could thus not be correlated to the system.

As detailed studies on the dating and distribution of each individual ware reach too far for the scope of the present study, the ceramics are subsumed according to their assumed production regions. These are wares from an extended northern Chinese production region, wares from southern China, wares from Central Asia/Islamic wares and wares of unknown provenances. It is suspected that most ceramics that are subsumed in the latter group are of a rather local origin (see above). The share of each group per settlement period is calculated based on the number

¹⁶ Many thanks to Dr. Ernst Pohl for providing the data that was necessary to enable a correlation of the documented ceramics to the stratigraphy.

4. 3. The Compilation of Wares over Time

fragments that are correlated to the settlement periods. The time intervals are subdivided into findings that date to settlement periods I–III as well as surface findings. The results of the compilation of ware groups over time are significant (Chart 22).

Although ceramics that are produced in the extended northern Chinese production region hold the major share throughout all periods, this share declines steadily over time. Especially striking is the decrease of northern wares between settlement period II and settlement period III. While almost 81% of the ceramics of settlement period II are attributed to northern kiln sites, this number drops to almost 66% only in settlement period III. Even more striking are the changes over time in the other ware groups. Southern Chinese wares are represented with a share of about 3% in settlement period I. The share of these wares rises significantly in settlement period II where they are represented with about 13%. During the same interval, a striking decline appears in the Central Asian wares. These hold a share of 6,5% in settlement period I and a share of only 0,5% in settlement period II. The share of – mostly coarse tempered – wares of unknown provenance fluctuates over time. It drops slightly from settlement period I to settlement II and rises again between settlement periods II to III. Concerning the surface findings, the share of ceramics with unknown provenance is disproportionally high. Overall, changes over time in the compilations of the ceramics found in Karakorum are clearly evident in the summary according to production regions.

Whether the changes over time are to be interconnected with historical data or the like needs to be part of future studies. Too much data as e. g. the presentation of other species of findings and their correlation to features and the like is missing at the present state of research. Also of interest is a comparison of the relationship of unglazed ceramics to glazed ceramics over time to get at least an overview on this single species of findings. This, however, is additionally not feasible at the present stage. Therefore, the author refrains from more detailed queries and compilations in the course of the present study.

Production region	Share in Settlement Period I	Share in Settlement Period II	Share in Settlement Period III	Share in Surface Findings	Total share
Northern China (extended)	81,9%	80,6%	65,8%	53,5%	72,8%
Southern China	3,2%	13,2%	14,3%	9,3%	11,8%
Central Asia	6,5%	0,5%	0,2%	0,1%	1,3%
Unknown	8,4%	5,7%	19,7%	37,1%	14,1%

Chart 22: Compilation of datable ceramics over time, sorted by production regions.

Nevertheless, the given numbers are taken as an indicator for four hypotheses. These are as follows:

1. The connections of Karakorum to Central Asian regions are closest during the first settlement period and lose ground from there on.
2. When Karakorum becomes part of the newly found Yuan dynasty at the end of the first settlement period, access to southern Chinese wares is facilitated and thus the share of these ceramics increases.
3. Ceramics from northern Chinese regions are replaced by local productions during the third settlement period.
4. The access to ceramics from Chinese production sites is hindered after the fall of the Yuan dynasty. Thus, the share of local ceramics rises.

4. 4. Horizontal Distribution

As stated above, these hypotheses need to be verified in future studies when more information is available. Concerning hypothesis 2 it is to be stressed that the production regions of northern Chinese ceramics are part of the Mongol Empire from the time of the foundation of Karakorum on. The production regions of southern Chinese ceramics become part of the Yuan dynasty with the defeat of the Song dynasty in 1279, i. e. from then on they are part of the same empire as Karakorum (see historical framework above and Fig. 62). That is from settlement period II on. An additional indicator for hypothesis 4 is given in the share of documented signs of repair on the glazed ceramics over time. Between settlement period II and settlement period III the share of fragments with drill holes rises from 1,8% to 2,9% (Chart 23). The share of fragments with signs of repair is even higher in the surface findings where it rises to about 7%.

	Per. I	Per. II	Per. III	surface
Total (datable fragments)	2577	5921	6863	1119
fragments with signs of repair	33	107	201	80
%	1,3%	1,8%	2,9%	7,1%

Chart 23: The share of fragments with signs of repair over time.

4. 4. HORIZONTAL DISTRIBUTION

Due to methodological problems, an overview on the horizontal distribution of the glazed ceramics from Karakorum is more complicated than an overview on the compilation over time or an overview on the provenances as stated above. Concerning the analyses of the provenances the question of research is related to connections of the city that are indicated by the provenances of the ceramics. It is based on the simple fact that ceramics which are found in the city but not produced in its surroundings need to be transported into the city. The precise routes for this transport and the social relations behind this remain unclear without further research. Still, preliminary results concerning the connections in general are evident solely through the overview on the provenances of the wares.

Relating to an overview on the compilation over time the research question is whether there are changes apparently pertaining to the settlement periods that are worked out separately. This in itself is methodologically more difficult as the durability of the ceramics is neglected in this first overview. Ceramics of a higher value may be handled with more care and thus have a longer durability than wares with a lower value. For the first broad overview, however, the group of glazed ceramics is homogenous enough in its characteristics in order to provide comparable results. Whether the possibly differing durability of the various wares needs to be considered is dependent on the research topic and the research questions of future studies.

In terms of the horizontal distribution of the glazed ceramics the questions of research and thus the methodological problems are different. Generally, an intra-site spatial analysis is applied to gather information on activity zones, functional analysis of rooms or the like. When doing research on activity zones and functions of rooms the objects found need to be considered to be used at their finding spot. Otherwise, the analysis is a documentation on the distribution of waste and waste disposal behavior (cf. Civis 2015). As ceramics are easily movable goods, their use at their finding spot needs to be proven to relate them to possible activity zones (Bernbeck 1997, 182). Concerning the glazed ceramics from Karakorum the majority of the findings are fragments, i. e. ceramics that are not usable anymore and thus assumed to be waste. Whether the remains of the ceramics are found at or close to the area where they were used cannot be determined without additional data. Presently, an analysis of activity zones is underway in a study of S. Reichert concerning the handicraft in Karakorum. The database of the glazed ceramics from

4. 4. Horizontal Distribution

Karakorum includes information on the location of the findings. It is thus referable to the study of S. Reichert once the latter is worked out. Because the analysis of the horizontal distribution of the ceramics is much more promising in relation to the data on activity zones, the author refrains from a detailed spatial analysis at the present state of research. A further future research topic is the comparison of the findings from the excavations at the main street with the findings from the excavations of the so-called 'Great Hall' (Franken 2012; Hüttel 2009a). The buildings at the main street are interpreted as workshops while the Great Hall is a Buddhist temple. Differing ceramics are assumed to be in use at both places. Further possible differences in the intra-site distribution of ceramics are supposable in the comparisons of findings from the main street with findings from the northern part of Karakorum (Hüttel / Erdenebat 2009). These, however, are also not published at the moment.

Keeping the problems of available data in mind the question on the scientific value of a depiction of the horizontal distribution of the glazed ceramics from Karakorum arises. At the present state of research, the data of the distribution of the ceramics is relatable to a tripartite in time and space. This is the settlement periods as worked out by Pohl (2010) concerning the time and the sectioning of the excavation area into parts of a street as well as parts of buildings east and west of the street concerning the space (Fig. 6–9 or Pohl 2010). None of the buildings is fully excavated. In terms of the building remains east of the street only the parts that are located on the roadside are documented while west of the street parts on the roadside as well as parts in the back are documented. The middle part of the building west of the street is not excavated yet. Differences in the building structure of the houses east and west of the street are documented only in settlement period I (cf. Pohl 2010). Whether the distribution of the glazed ceramics alone allows interpretations on different uses of these houses or the like is doubtful. Nevertheless, the distribution of these ceramics is of interest for studies on activity zones as in the already mentioned work of S. Reichert and other future studies that are to come.

In order to provide data for future research, the horizontal distribution of the ceramics documented in the present study is depicted in Appendix D. This refers solely to fragments from excavation sections LH 16–28 as fragments from section LH 87/88 are not relatable to the stratigraphy yet. To be able to present the distribution in a 1m x 1m grid the data on the location of the fragments is converted into x – and y – coordinates which are added on each distribution map. Declarations such as LH 17/56–100 are averaged, i. e. these findings are mapped on LH 17/ 78. This mainly refers to fragments that are located around the street as the data on their location lacks more preciseness.

Several queries of data are given in Appendix D. First, the overall distribution of the glazed ceramics is depicted which is followed by a mapping of the fragments over time, i. e. during the three settlement periods. Surface findings as well as findings that cannot be related to a settlement period remain unmapped. Second, potential relations in the distribution of the ceramics according to their provenances are checked, i. e. the distribution of northern Chinese and southern Chinese ceramics over time is mapped. Third, maps on the distribution of special findings over time are displayed. This is fragments with marks, fragments with signs of repair as well as fragments with a completely preserved shape. The latter are included as it is assumed that fragments on which the shape can be reconstructed are larger than most of the other fragments. Large fragments, again, are considered more likely to get disposed of while it seems unlikely that there is a specific disposal behavior for small ceramic fragments. This assumption is made in relation to the waste disposal behavior in the middle age settlement of Diepensee as there as well as in Karakorum small fragments of ceramics are widely distributed across the excavation area and do not seem to be intentionally disposed of at specific places (Civis 2015, 280). The smaller fragments do not disturb daily life as much as large fragments do. However, whether large fragments are found in the context of a building it appears likely that they got buried in their original context. This is the case for nearly all the ceramics from Karakorum whose shapes can be reconstructed. The fourth section of the appendix on the distributions contains the

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mapping of wares with a share of more than 1%. This is wares 2–5, 11, 16, 20, 22 + 23, 27–28, 35, 40 and 43. Additionally added is ware 1 because of its special status as being the only porcelain found.

As expected the overall results of the distribution maps are very limited without additional data. Well distinguishable is the waste disposal behavior in Karakorum in relation to the area of the street. Only few ceramics are found on the paved street of settlement period I. During the later settlement periods gravel with ceramics is used as pavement. Thus, the number of findings rises significantly. In terms of the areas east and west of the street slight differences appear in settlement period I but reduce over time. One of the distinctive features is the area east of the street in section LH 28/ 3–45. Here, four wooden blocks that are interpreted as anvils are documented in settlement period I (Pohl 2010, 87–88). Relating to findings of ceramics this area is kept cleaner than the other parts of the building east of the street. Overall, the number of special findings such as Central Asian ceramics of ware 43 or southern Chinese ceramics from Jingdezhen like ware 4 is higher in the area east of the street than it is in the area west of the street. Differences in the distribution of ceramics in relation to their distance to the street, i. e. different areas of the buildings, are so far not distinguishable. The data on the compilation of ware groups in the different excavation areas over time is given in Appendix E.

4. 5. THE USE OF GLAZED CERAMICS IN KARAKORUM

The shape of ceramics is connected to their use which, again, is connected to their interpretation (cf. Müller 2006; Juhl 1995). A further indicator for the interpretation of the use of a vessel is its décor. As stated in the introduction on Chinese ceramics of the 13th–14th centuries, some of their shapes and décor are connected to specific interpretations. Samples are vessels with five-clawed dragons as décor that are made for imperial use (Kerr / Wood 2004, 202) or large plates with foliated rims that are export wares for the overseas market (Medley 1989, 178–180). Based on such criteria, Wang Xie (2008) argues, that southern Chinese ceramics which are excavated at northern city sites like Jininglu, Yanjialiang and Karakorum are made for the Mongol aristocracy only and not part of regular trade between these areas. An overview on shapes and décor that are documented in the findings from Karakorum is provided in the present study to give a first impression on the subject. It is mainly based on data that relates to known interpretations of special shapes and décor. Continuative studies in relation to the works of e. g. Juhl (1995) or Müller (2006) are suggested to research social life in Karakorum.

Concerning the findings from Karakorum in general, 3602 datasets from excavation section LH 18–28 are attributed to specific shapes such as bowls, resp. bowls or plates, plates, bottles or pots. This is 30% of the documented findings from this area. Due to their incompleteness in the documentation, findings from LH 87/88 are not included in the query. The association with a specific shape is mainly determined according to rim shapes (see definition of shapes above). Interestingly, the compilation of shapes differs significantly according to the provenances of the ceramics (Chart 24). Apart from wares with an unknown provenance, bowls constitute the major group of documented vessel shapes. Still, the shares of bowls differ. While 46% of the determinable shapes of the northern Chinese ceramics are bowls, the share of this shape is strikingly higher in the southern Chinese ceramics with a share of 71% as well as in the ceramics from Central Asia with a share of 67%. Concerning wares of unknown provenance, only 7% of the determinable shapes are bowls. This group consists to 82% of pots. Pots are rarely documented in ceramics from southern China and Central Asia with a share of 3% each. This amount is higher in the ceramics from northern China with a share of 13%. Pitchers and jugs are hardly documented in any of the groups and determinable on stray findings of spouts only. Bottles rarely appear as well. These are most common in Central Asian wares and wares of unknown provenance with a share of 8% each. Concerning northern Chinese wares their share is 2 % and

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referring to southern Chinese wares it is 1% only. Overall, the majority of the wares of unknown provenance is assumed to be used as storage vessels (cf. Juhl 1995, 28–30) while the vast majority of any other ware group is primarily used for eating and drinking (cf. Juhl 1995, 35). In the latter, ceramics of northern Chinese origin are less specified to the use for eating and drinking than ceramics from southern China and Central Asia because the share of pots is higher. A specificity in the ceramics from southern China is the inclusion of tripods in the spectrum of bowls. These shapes are not associated with eating and drinking but with religious matters. This refers to 4,4% of the vessels that are classified as bowls. Additionally, almost 1% of the southern Chinese wares that are determined as bowls are brush washers (Fig. 9). Referring to ceramics from northern China, exceptions are less. Only 0,15% of the findings that are determined as bowls are assumed to be miniature bowls and thus not made for eating or drinking. Another 0,4% are tripods that are considered to be made for religious use. Generally, exceptions from the assumed uses may appear in small shares in any group. The few findings of pitchers/jugs are determined by fragments of spouts only. It is striking that shapes which are made for liquid transport or storing (cf. Juhl 1995, 30–31) are hardly documented in the spectrum of glazed ceramics from Karakorum. Presumably, leather bags or the like could be used for this function. Interestingly, a variety of bottles and pitchers/jugs is characteristic in the shapes of glazed ceramics from the nomadic Liao dynasty (cf. Eisenhofer-Halim 1996, 58–116; Lu Jing 2008, 111–130). By and large the vessel shapes that are documented in Karakorum correlate to Chinese ceramics that are defined differently in relation to Liao ceramics (cf. Eisenhofer-Halim 1996, 149–255; Lu Jing 2008, 142–179). In this group, again, it is striking that neither shapes of pillows nor shapes of spittoons or boxes are documented in Karakorum. Thus, a certain variety of shapes that is characteristic for the sedentary Chinese lifestyle is missing in Karakorum although the overall spectrum can be considered to be Chinese. This correlates with the classification of the ceramics as these mainly consist of Chinese wares.

	Plates	Plates / Bowls	Bowls	Pots	Bottles	Pitcher / Jugs	share of findings with determinable shapes in total
Total	10%	26%	49%	14%	2%	0,1%	30%
Northern Chinese Wares	10%	30%	46%	13%	2%	0,04%	31%
Southern Chinese Wares	10%	14%	71%	3%	1%	0,2%	40%
Central Asian Wares	3%	18%	67%	3%	8%	1,5%	40%
Wares of unknown provenance	4%	0%	7%	82%	8%	0%	11%

Chart 24: Shapes in LH 18–28 according to the provenances of the ceramics.

In relation to the interpretation of their use, northern Chinese ceramics are considered primarily domestically used. This includes functions of eating, drinking and storing (plates, bowls and pots). The décor on these wares is mainly plain and simple. Mostly, ornamental or floral motifs are applied (Plates 65–76). Judging from the high share of fragments that are documented in Karakorum, these ceramics appear to be widely available. The second group of simple and widely used domestic ceramics appears to be ceramics of unknown provenance that are made for storing. Hardly any décor is documented on these wares. The same applies to Central Asian ceramics. These, however, appear to be primarily used for eating and drinking. Furthermore, their use is largely limited to the first settlement period (see above). Whether shapes and décor are

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documented that can be related to particular interpretations and uses, most of these findings are classified as southern Chinese ceramics. Generally, this correlates to the theory of Wang Xie (2008) that these wares could be luxury goods from the Mongol aristocracy that are not regularly traded into the north. Still, this theory cannot be supported when looking at the findings in more detail. The vast majority of e. g. fragments of ware 5 (celadon) is well-comparable to the export wares that are found in the cargo of the Sinan shipwreck (see above or Shen Qionghua 2012). Further relations to export wares are e. g. given in the décor with black spots on some findings of ware 4 (see above or Crick 2010, 190 + 206–207) or large plates with foliated rims of ware 5 (see above or Medley 1989, 178–180). Especially findings of ware 5 include ceramics that are made for religious use such as tripods with taoistic décor or bowls with Buddhist motifs (see above in the chapter on décor on ware 5). Although these findings could be considered to be luxury goods, they are not necessarily attributable to the aristocracy but rather to religious uses. Concerning ware 1 the finding ID 15657, a stem cup with dragon décor, is classified as product for the domestic market that is used on family altars and shrines (see above or Medley 1989, 187). Therefore, even findings that are clearly attributable to southern Chinese production sites are not attributable to a use that is limited to the aristocracy. The share of southern Chinese wares is almost 11% in the spectrum of glazed ceramics from Karakorum (see above). Furthermore, they are evenly distributed across the excavation area that is considered to be part of the Chinese craftsmen quarter. It is highly doubted that this compilation and distribution can be associated with a Mongol aristocracy. Surely, the spectrum of southern Chinese ceramics includes findings as e. g. brush washer ID 1182 (ware 4.2.) that is interpreted as a scholar's equipment (see above). These, however, do not constitute most southern Chinese findings. Most of them are rather attributable to export wares (see above). Due to their specificities southern Chinese ceramics are considered to be of a higher value than the more widely used northern Chinese ceramics. Nevertheless, they are assumed to reach Karakorum via regular exchange mechanisms.

Overall, shapes and décor on any of the glazed ceramics from Karakorum indicate a primarily domestic use of these wares. Partly, vessels for religious use as well as a scholar's equipment are included. Differences in use are to some extent correlatable to the origins of the ceramics. It is striking that vessels for liquid storing and serving as well as typical Chinese shapes such as pillows are largely missing in their spectrum.

4. 6. COMPARISON TO CONTEMPORANEOUS CITY SITES IN INNER MONGOLIA

The city of Karakorum is special in several aspects. It is a capital that is built by the order of nomadic rulers. After the loss of its function as a capital the city remains the seat of the heirs of the throne (see introduction above). Politically and strategically it is assumed to be a strategic centre throughout its history. Geographically, Karakorum is located at the periphery of the Yuan Empire and outside the major trade routes of the time. Thus, the status of the city and the question whether its particularities are reflected in its material remains is of interest. Unfortunately, too much data is yet missing to enable a study based on central place theories (cf. Ettl / Werther 2013 for recent studies of the subject). Concerning comparisons of glazed ceramics from contemporaneous sites, no data is known from the closer vicinity of Karakorum. In order to provide a first impression on the common spectrum of wares from contemporary cities, the sites of Jininglu and Yanjialiang, both Inner Mongolia, are best suited (Fig. 57). Based on the available publications, detailed comparisons of settlement periods, distributions, uses or precise shares of the ceramics in the overall compilations cannot be provided. Solely the general spectrum of wares can be compared.

The city of Jininglu is founded in 1192 (Chen Yongzhi 2004, 9) and destroyed in 1449 (Chen Yongzhi 2004, 26). Just like Karakorum it is a walled city. It extends 640 m from east to west and

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940 m from north to south. Gates are documented in the eastern and western walls. The streets are straight. Six of them run from north to south and seven run from east to west (Chen Yongzhi 2004, 9). In total 22045 square meter of the city are excavated during several campaigns in the years 1958, 1976–77, 1984, 1988 and 2002. More than 200 fully preserved vessels are found (Chen Yongzhi 2004, 9). Many of these are compiled by Chen Yongzhi (2004). This is the basis for the comparison with the findings from Karakorum. The ceramics from Jininglu are classified as deriving from seven Chinese kiln systems. This is Jingdezhen, Longquan, Jun, Ding, Jian, Cizhou and Yaozhou. The correlation to the findings from Karakorum is as follows:

Jingdezhen kiln system (Chen Yongzhi 2004, 13–77) ~ ware 1 + ware 4 (blue-and-white porcelain and pale blue glazed porcellaneous wares)

Longquan kiln system (Chen Yongzhi 2004, 79–121) ~ ware 5 (celadon)

Jun kiln system (Chen Yongzhi 2004, 123–149) = ware 20 (Jun ware)

Ding kiln system (Chen Yongzhi 2004, 152–165) ~ ware 2 (white glazed porcellaneous wares)

Jian kiln system (Chen Yongzhi 2004, 167–185) ~ parts of ware 28 (black glazed stoneware), though this is classified differently due to its body colors (see above)

Cizhou kiln system (Chen Yongzhi 2004, 187–209) ~ ware 11 (white glazed stonewares), parts of ware 28 (black glazed stonewares), ware 40 (earthenware with multicolored décor) and ware 9 (marbled stoneware)

Yaozhou kiln system (Chen Yongzhi 2004, 211–217) ~ possibly a few findings of ware 5 (celadon).

Concerning their compilation in Jininglu, most of the findings are attributed to the Cizhou, Ding, Jun and Longquan kiln systems and least to the Yaozhou kiln system. Findings of the Jian and Jingdezhen system are about the same in number (Chen Yongzhi 2004, 10). Differences in the compilation in relation to settlement periods or the like are not stated. In comparison to the findings from Karakorum the compilation of the ceramics differs. In terms of the classification from Jininglu, the majority of glazed ceramics from Karakorum derives from the Cizhou and Jun kiln systems. Jun wares hold a share of about 20% in the spectrum of ceramics from Karakorum. Findings that can be associated with the Cizhou type hold a maximum share of about 40% (cf. Chart 19). In contrast, ceramics that possibly derive from the Ding kiln system hold a share of almost 2% only. Other northern Chinese ceramics such as wares that possibly derive from the Gangwa kiln system (4% in Karakorum) are not distinguished in the classification from Jininglu. Judging from the depicted findings it appears that such ceramics are missing at this site. Referring to Yaozhou celadon, this kind of ceramics is not proven with certainty in the spectrum of findings from Karakorum. The same applies to Jian wares. Concerning ceramics from southern China, wares that are attributed to the Longquan kiln system and the Jingdezhen kiln system are represented in Karakorum with a share of 5–6% each (cf. Chart 20). The number of findings from the Jingdezhen kiln system is slightly higher than that of Longquan ceramics. Overall, the compilation of comparable ceramics from Jininglu and Karakorum differs as follows: The amount of Cizhou and Jun ceramics appears to be higher in Karakorum than in Jininglu while the amount of Ding wares appears to be strikingly less in Karakorum. In Jininglu the number of findings from Longquan is higher than that of findings from Jingdezhen. This is the other way around in the ceramics from Karakorum. Finally, Jian and Yaozhou wares are classified in the ceramics from Jininglu but not in the ceramics from Karakorum – at least not without doubt. Wares that are not published from Jininglu but appear in Karakorum are especially all the coarse tempered wares of

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unknown provenance as well as any of the ceramics with a Central Asian / Islamic provenance. Furthermore, northern Chinese ceramics with uncertain origins such as ware 3 are not published from Jininglu. The same applies to turquoise glazed wares of any kind (earthenwares and stonewares), wares with a brown to green glaze as well as many of the ceramics that are represented with very small shares in Karakorum such as wares 6–7, ware 10, ware 17 or the like. Therefore, the spectrum of glazed ceramics from Karakorum is higher than that from Jininglu. The compilation of the wares differs at both sites although most of the main ceramic types are found at each of the cities. Concerning shapes and décor the findings from both sites are comparable. Most published vessels from Jininglu are bowls. Exceptional shapes which are not included in the ceramics that are recorded for the present study are an elephant-shaped stand (Chen Yongzhi 2004, 75) and the figure of a Buddha (Chen Yongzhi 2004, 76–77). Both of which are glazed pale blue (Jingdezhen ware, resp. ware 4). Additionally, no tripods made of Jun ware (ware 20) are documented in Karakorum but a sample is known from Jininglu (Chen Yongzhi 2004, 128–129). Whether the differences in the ceramics from Jininglu and Karakorum are due to time, space and/or excavated areas of the cities cannot be evaluated at the present state of research. It is, however, noteworthy that differences as well as similarities are evident.

The site of Yanjialiang is located slightly closer to Karakorum than that of Jininglu (Fig. 57). The city is somewhat smaller than Jininglu. Its length is 570 m from east to west and 700 m from north to south. In contrast to Karakorum and Jininglu, the city is not walled (Ta La et al. 2010, 642). The area around the settlement of the Yuan dynasty is inhabited from the Neolithic up until today (Ta La et al. 2010, 3). Excavations are conducted in 1983, 1998 and especially 2006. Overall, more than 20000 square meter of the city are excavated (Ta La et al. 2010, 6). According to an estimation of E. Pohl, the published features from Yanjialiang are well-comparable to those from Karakorum.¹⁷ This refers mainly to the floor plan of houses and their heating constructions (cf. Ta La et al. 2010, 125ff). A precise dating of the founding and/or destruction of the city is not given. According to the findings, the main parts of the site are dated to the Yuan dynasty to about 1275–1372 (Ta La et al. 2010, 642). During this time, the city of Yanjialiang is located on postal relay routes that lead from northern China to Kharakhoto and Karakorum via land and water (the Yellow River) (Ta La et al. 2010, 643). It is thus an important site concerning the connection of Karakorum to routes; esp. to the production sites of Chinese ceramics. In contrast to Wang Xie (2008) Ta La et al. (2010, 643) consider the ceramics found at Yanjialiang as being a proof for connections between the south and the north of the Yuan Empire. Although administrative functions for a district or the like are not documented for the city of Yanjialiang, the findings include a scholar's equipment and e. g. inscriptions that indicate the presence of residents with a higher social rank. This is connected to the function of Yanjialiang as a postal station (Ta La et al. 2010, 642–643). Ink inscriptions on the ceramics prove the existence of a commercial area with hotels and shops in the city which again is an evidence for trade in Yanjialiang. Furthermore, religious buildings and objects are documented (Ta La et al. 2010, 644). Through an increased amount of semi finished goods in the middle of the excavation area the existence of a craftsmen quarter with workshops is indicated (Ta La et al. 2010, 645). Continuative studies on the comparison of features and findings from Karakorum and Yanjialiang appear to be promising. Regarding the glazed ceramics from both sites, their classifications and correlations are as follows:

Ceramics with white glaze and painted décor (Ta La et al. 2010, 343–366) ~ findings of ware 11 (white glazed stoneware) with painted décor

Thick white glazed ceramics (Ta La et al. 2010, 366–387) ~ findings of ware 11 without décor

¹⁷ Interview with E. Pohl on the basis of Ta La et al. 2010. Thanks for this information.

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Thin white glazed ceramics (Ta La et al. 2010, 387–391) ~ ware 2 (white glazed porcellaneous ware)

Ceramics with a clear glaze and white painting (Ta La et al. 2010, 391–396) = not documented in Karakorum

White glazed ceramics with incised, carved or imprinted décor (Ta La et al. 2010, 396–398) ~ findings of ware 11 with such décor

Ceramics with black or “soy sauce colored” glaze (Ta La et al. 2010, 398–424) ~ much of ware 28 (black glazed ceramics)

Black and “Soy sauce” glazed ceramics with spots (Ta La et al. 2010, 424–434) ~ findings of ware 28 with e. g. russet streaks as décor

Black and “Soy sauce” glazed ceramics with carved décor (Ta La et al. 2010, 434–438) ~ findings of ware 28 with such décor

Marbled ware (Ta La et al. 2010, 438–440) = ware 8

Red and green colored ceramics (Ta La et al. 2010, 440–443) ~ ware 40 (earthenware with multicolored décor)

Liuli glazed ceramics (Ta La et al. 2010, 443–453) ~ ware 41 (earthenware with multicolored glaze)

Jun ceramics (Ta La et al. 2010, 453–464) = ware 20 (Jun ware)

Qinghua (blue-and-white) ware (Ta La et al. 2010, 464–479) = ware 1 (blue-and-white porcelain)

Ceramics with red inside (Ta La et al. 2010, 479–480) = not documented in Karakorum; a possible exception is ID 7271 (ware 4) with red underglazepainting outside (Plate 58, fig. 6)

Qingbai (pale blue) wares (Ta La et al. 2010, 480–488) ~ ware 4 (resp. 4.2.) (pale blue glazed porcellaneous ware)

Luanbai (egg-white) wares (Ta La et al. 2010, 488–492) ~ ware 4 (resp. 4.1.) (pale blue glazed porcellaneous ware)

Celadon (Ta La et al. 2010, 492–511) = ware 5 (celadon)

Large storage vessels with a brown glaze (= ware 27.1.) are found at Yanjialiang but not separately defined or discussed (cf. Ta La et al. 2010, Color Plates 52–54). Few of the brown glazed findings with a fine temper (= wares 22–25) are comparable to some of the ceramics that are defined as black, resp. “soy sauce” glazed (cf. Ta La et al. 2010, Color Plate 119). Interestingly, neither in Jininglu nor in Yanjialiang any turquoise glazed ceramics (= wares 18–19 + ware 42) or ceramics with a brick red body and green to turquoise glazes (ware 43) are found. Concerning Karakorum these especially are the findings that are connected to Central Asian provenances and influences. Furthermore, the coarse tempered ceramics from Karakorum that possibly are of local origin hardly find any equivalent in the published ceramics from Jininglu and Yanjialiang. The existence of such wares is evident on the plates from Yanjialiang (see above). However, their lack of classification causes problems in their determination of origin and comparability. It is striking that some of the wares from Yanjialiang are not documented in

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Karakorum at all. This refers especially to the group of ceramics with a clear glaze and white décor (cf. Ta La et al. 2010, 391–396 + Color Plates 108–113). From a technological point of view there is no reason for the absence of such ceramics in Karakorum because clear glazed wares and white glazed wares are present in the spectrum of ceramics. Although much of the ceramics from Karakorum and Yanjialiang is comparable (see correlation above), some differences are evident in shapes and décor as well. Especially striking are e. g. white glazed lids with a stupa-like shape and brown paintings (Ta La et al. 2010, 359, Plate 400 or Color Plates 87–88) that do not appear in Karakorum at all. The same applies to black glazed lids of a similar shape (cf. Ta La et al. 2010, 437, Plate 467, fig. 5). Generally, the share of lids seems to be considerably higher in Yanjialiang than it is in Karakorum. Thus, the shapes of the vessels and their use partly differ. This is furthermore evident in the findings of pots from Yanjialiang that are made of Jun ware (= ware 20) (Ta La et al. 2010, 460, Plate 464 + Color Plate 156). Pots with handles are not documented in this ware in Karakorum. Other differing shapes are bowls with an edgy body (e. g. Ta La et al. 2010, 490, Plate 505, fig. 1–2 or Color Plate 107). These as well are not known from Karakorum. Nevertheless, most findings from Yanjialiang are comparable to those from Karakorum. This refers especially to the group of celadon (ware 5; cf. Ta La et al. 2010, 492–511) as well as blue-and-white porcelain (ware 1, cf. Ta La et al. 2010, 464–479 + Color Plates 158–186) from both sites. As a particularity, the ink marks from Yanjialiang and Karakorum are comparable as well (cf. Ta La et al. 2010, Color Plates 268–292). Unfortunately, most of the marks from Karakorum are not as legible as those from Yanjialiang. Best comparable is the flower mark on ID 2108 (Plate 83, fig. 12) to a flower mark from Yanjialiang that appears several times (Ta La et al. 2010, 454, Plate 478, Fig. 1 + 455, Plate 479, Fig. 3–4 + Color Plate 291, Fig. 4). These marks are applied on Jun ceramics. Furthermore, the name “Zhang” is written on Jun wares from Karakorum (e. g. ID 1228, Plate 83, fig. 11) as well as on the same wares from Yanjialiang (e. g. Ta La et al. 2010, Color Plate 276, fig. 3). The similarities of these marks are already discussed in the chapter on marks in ware 20 above. In relation to particular shapes, the shape of a so-called sugarcane brush washer is documented in Yanjialiang (e. g. Ta La et al. 2010, 501, Plate 514, fig. 4), Jininglu (Chen Yongzhi 2004, 87) and Karakorum (e. g. ID 1182, Plate 7, fig. 6). It is interpreted as a scholar’s equipment (cf. Wang Qingzheng 2002, 90 or see the chapter on comparable findings of ware 4 above).

Concerning the origin of the ceramics from Yanjialiang, the findings are subdivided into mass-products, specialized wares, high-class products and ceramics with strong geographical characteristics (Ta La et al. 2010, 646–649). The majority of the findings is at least partly included in the category of mass-products. Their production sites are assumed to be located in the modern-day provinces of Hebei, Shanxi, Henan and Ningxia. This is northern Chinese ceramics as e. g. white or black glazed wares with differing décor as well as ceramics with colored décor or colored glaze, thinly potted white wares from the Huo kiln and Jun wares. Furthermore, some southern Chinese ceramics from modern day Zhejiang and Jiangxi are considered mass-products. This is mainly Qingbai and celadon (Ta La et al. 2010, 646–647). The group of specialized wares consists of selected findings that generally belong to the ware groups listed above. This is e. g. a black glazed pot that is attributed to the Cizhou kiln, some of the findings of Jun ceramics and some of the blue-and-white porcelains that are attributed to the Jingdezhen kiln site (Ta La et al. 2010, 647). Precise information on the distinction of mass-products and specialized products from the same kiln site is scarce. Blue-and-white porcelains as well as thinly potted white wares from the Huo kiln are again mentioned in the category of high-class products (Ta La et al. 2010, 647). Finally, especially white-glazed ceramics with painted décor are partly included in the category of ceramics with strong geographical influences. These are attributed to the Cizhou kiln system (Ta La et al. 2010, 647–648). Overall, the categories are interesting but do not provide sufficient data for a detailed comparison to the findings from Karakorum. The spectrum of ceramics from any of the sites is assumed to include mass-products for the most part as well as some specialized, possibly high-class, products from northern and

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southern Chinese kiln sites. Concerning the site of Yanjialiāng, these ceramics are considered to prove the gathering of merchants that conduct trade between the south and the north as well as the presence of people with a higher social status living in the city (Ta La et al. 2010, 653). Precise information on the compilation of the ceramics from Yanjialiāng is not provided. Most of the findings appear to be white glazed wares as well as Jun wares which would correlate to the major wares from Karakorum.

In summary, the most striking difference concerning the ceramics from Karakorum, Jininglu and Yanjialiāng is the absence of wares with a Central Asian provenance and/or influence at the latter two sites. Whether coarse ceramics of possibly local origin are not found at these sites or not considered to be worthy of publishing remains questionable as some are shown on plates from Yanjialiāng but not discussed. Noticeable in the comparison is the absence of clear glazed ceramics with white décor and certain lid shapes in Karakorum and Jininglu. These appear in Yanjialiāng only (see above). Striking similarities are observed in some of the ink marks from Yanjialiāng and Karakorum (see above). The comparison of findings from Jininglu and Karakorum indicates that the compilation of the ceramics differs at the various sites. Research on the explanation of these similarities and differences is still to be done under enlistment of additional data.

5. CONCLUSION

The glazed ceramics from Karakorum provide immensely rich information for research in Karakorum. By defining and classifying the full body of ceramics, the basics for working with this material are established. Continuative studies with additional data appear promising. This is e. g. more information on features and further categories of findings from Karakorum. Given the limited basis of doing research solely on the glazed ceramics, several valuable results as well as perspectives for future studies emerge.

As a starting point, the glazed ceramics from Karakorum are described as ‘imported Chinese ceramics’ in contrast to unglazed ‘locally produced Mongol ceramics’. Therefore, the first analysis of these ceramics is focused on their classification and origins. In the classifications already, it is evident that not all the glazed ceramics from Karakorum indeed are Chinese ceramics; i. e. ceramics that are produced on the territory of modern-day China. Some findings are associated with a Central Asian provenance while the production areas of others remain unknown at the present state of research. Overall four main categories of the glazed ceramics are distinguished (see details in the analysis of production sites above). These are:

1. Ceramics from kiln sites in modern day northern China
2. Ceramics from kiln sites in modern day southern China
3. Central Asian ceramics, incl. few fragments from the Middle East
4. Ceramics of unknown provenance that partly could be locally produced.

Concerning the compilation of the glazed ceramics, almost 75% of the documented fragments belong to the category of wares from northern China. This is followed by wares from southern China with a share of almost 11%. Ceramics from Central Asia are documented with a share of about 1% only. The remaining 12% are ceramics of unknown provenances. Most of these are coarse tempered, large storage vessels with brown to green glazes (see analysis of production sites above).

Especially in relation to ceramics from southern China, questions arise whether there is something like a land trade route for such wares from north to south across the territory of the Yuan dynasty. Some scholars argue against such an exchange and claim that any of the southern Chinese wares found in the north belong to members of the Mongol aristocracy only and are thus not part of regular trade (cf. Wang Xie 2008). Others again indeed assume regular trade connections (cf. Ta La et al. 2010, 653). As a consequence, a network for the distribution of Chinese ceramics up unto Karakorum is not previously worked out although connections via postal relay routes are known. Based on the determination of origin of the glazed ceramics from Karakorum and the basic trade routes known, an inclusion of Karakorum in a network for the distribution of the ceramics is worked out in the present study. This is an eastern route via Beijing and a western route via e. g. Kharakhoto as supposable main axes of transport (Fig. 61). Central Asian ceramics may reach the city from a route that runs north of the common axes between Karakorum and the Middle East. In this case, no production sites are known and the connections are thus less traceable. Estimatively 50% of any ceramics found in Karakorum – whether glazed or unglazed – are assumed to derive from production sites in modern day northern China. Thus, the existence of well-working routes between Karakorum and these sites is implied. Regular trade is to be assumed because of the high share of these wares as well as their function as domestic goods for the most part (see analysis of uses above). As stated above, conclusions on the kind of exchange that lead to the distribution of southern Chinese ceramics are more complicated. Supposable are exchanges as tributary goods or trade goods for at least part of the ceramics. Special vessels such as brush washers could belong to Mongol officials or aristocrats. Other

particular shapes like incense burners are clearly connected to religious uses in their function and décor. The share of ceramics from southern China rises with the beginning of the Yuan dynasty (see compilation over time above). From this time on, the production sites of these wares belong to the territory of the Yuan – as does Karakorum. At the same time, Karakorum loses its status as capital. Therefore, a higher amount of ceramics from the south is hardly explainable with more aristocrats living in Karakorum but rather with a better availability because the city as well as the production sites belong to the same empire and connections improve. Simultaneously, there is a decrease of ceramics from Central Asia in Karakorum which could be explained politically as the connections to the Yuan rulers increase and connections to the east are impeded through attacks on the city from rival Mongol leaders (see historical framework above). A regular distribution of Chinese wares from south to north is furthermore implied in a comparison of the findings from Karakorum with ceramics from the contemporaneous city sites of Jininglu and Yanjialiang in Inner Mongolia (see above). The main difference in the ceramics from these three sites is the absence of wares from Central Asia in the findings from Jininglu and Yanjialiang. Furthermore, some of the northern Chinese ceramics from Yanjialiang are not documented in Karakorum and Jininglu. Most of the wares and especially ceramics of southern Chinese origins are by and large the same at any of the sites. This particularly includes scholar's equipment like the brush washer mentioned above although aristocrats are not assumed to reside in all of the cities.

Overall, the spectrum of glazed ceramics from Karakorum is the broadest spectrum in comparison with Jininglu and Yanjialiang. Included are findings that are otherwise explicitly defined as being made for the export market. These are e. g. pale blue glazed ceramics of ware 4 with black spots as décor (cf. Crick 2010, 190 + 206–207) or celadon (ware 5) plates with foliated rims (cf. Medley 1989, 178–180) (see analysis of uses above). The distribution of these ceramics via trade is assumed but cannot be proven at the present state of research (see methodical problems in the introduction above). The common agents in trade of the time – Muslim merchants (see historical framework above) – are not traceable in the glazed ceramics only. Concerning the daily life in Karakorum it is noticeable that hardly any vessels for the storing or transport of liquids are documented. Although imitations of e. g. leather flasks have been produced in the spectrum of ceramics from the previous, nomadic Liao dynasty, none of these shapes are known from Karakorum. The same applies to some particular Chinese shapes such as pillows made of ceramics (see analysis of uses above). In summary, the compilation as well as the use of the glazed ceramics from Karakorum is well-comparable to Chinese ceramics in general yet individual in detail and thus provides valuable data for research in the Old-Mongolian capital.

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APPENDIX A: CLASSIFICATIONS OF THE GLAZED CERAMICS FROM KARAKORUM IN COMPARISON

Type of Ceramic	Glaze Color	Ware Group (Name)	Wares (No.)	Ware/ Type according to Evtiukhova	Ware/ Type according to Elikhina	Ware/ Type according to Meitoku and Ochir	Ware/ Type according to Janssen-Kim
Porcelain	Clear	Blue-and-white (Qinghua)	1	Jingdezhen	/	Jingdezhen	Qinghua
Porcellaneous Wares (porc.)	Clear/ white	White, porc.	2	/	Jingdezhen (ornaments executed with thin needle)	/	Dehua
	Greenish	Greenish, por.	3.1. – 3.2.	/	/	/	/
	Pale blue	Pale blue, porc. (Qingbai)	4.1. – 4.2.	Jingdezhen	Ying ting + Ru	Jingdezhen (ying qing + egg-white glaze)	Qingbai
	Celadon	Celadon	5	Celadon	Celadon + Ru	Longquan + celadon	Yaozhou + Longquan
	Celadon-like	Celadon-imitations	6	/	/	/	/
	Grayish blue	Grayish blue, por.	7	/	/	/	/
Stonewares (StW)	Clear	Marbled StW	8	Marbled ware	/	Marbled ware	/
		Clear glazed StW	9.1. – 9.3.	/	/	/	/
	White	White StW (fine to coarse)	10 – 15	Cizhou	Cizhou + Ding	White glazed StW (Cizhou)	Cizhou + Ding (+ Dehua)
	Greenish	Greenish StW	16 – 17	/	/	/	/
	Turquoise	Turquoise StW	18 – 19	Cizhou + Liuli	Cizhou + Pu zhou	White glazed StW (incl. blue-green glaze)	/
	Thick blue or green (Jun)	Jun Ware	20.1. – 20.5.	Jun	Jun	Moon-white (Jun)	Jun
	Pastel green	Jun imitations	21	/	/	/	/
	Brown to green	Tea dust StW (fine to coarse)	22 – 27	Henan type + large vessels + Cizhou	Roughly made vessels + large vessels + Jian	/	Local production + dark glazed
	Black	Black StW (fine to coarse)	28 – 34	Cizhou + Henan type + Jian + temmoku + miniature vessels	Jian + Wu xing + cups for diluting paint + roughly made vessels	Black glazed	Dark glazed (Jian + Jizhou)

Type of Ceramic	Glaze Color	Ware Group (Name)	Wares (No.)	Ware/ Type according to Evtiukhova	Ware/ Type according to Elikhina	Ware/ Type according to Meitoku and Ochir	Ware/ Type according to Janssen-Kim
Stonewares (StW)	Black and white	Black and white StW (fine to coarse)	35 – 37	/	/	/	/
	Mud colored slip	Mud colored StW	38	/	/	/	/
Earthenwares (EW)	White with multicolored décor	EW with multicolored décor	40	Cizhou	Cizhou	White glazed StW (Cizhou)	Cizhou
	Multicolored (green, yellow, brown)	EW with multicolored glaze	41	Liao + Liuli	Liao (+ Liuli)	Three-color-glazed + green glazed/two-colored glaze	/
	Turquoise	Turquoise EW	42	Cizhou + Liuli	Liuli + Puzhou	/	/
	Green to turquoise	EW with a brick red body	43.1. – 43.5.	Ceramics with dark green glaze and a red body	/	/	/

APPENDIX B: ORIGINS OF THE GLAZED CERAMICS FROM KARAKORUM

Ware, No.	N-China	Inner MNG/ Liaoning/ Ningxia	S-China	Central Asia	Islamic	S-Asia?	local?	Chinese kilns / (terms)	Group	share in total
1			x					Jingdezhen, (Qinghua)	Porcelain	0,37%
2	x							Huoxian, Ding	Porcellaneous	1,56%
3	x (?)	x (?)						Gangwa?		3,19%
4			x					Jingdezhen, (Qingbai, Shufu)		5,49%
5	(x?)		x					Longquan, (Qingci), Yaozhou?		4,99%
6						?		/		0,05%
7						?		/		0,01%
8	x							Cizhou, (Jiaotai)		Marbled StW
9	?	x (?)						Lizhou? Gangwa?	Clear glazed StW	0,40%
10	x (?)	?						Ding?	White glazed StW	1,10%
11	x	(x)						Cizhou type, Lingwu? Gangwa? Lizhou? Jiangguantung?		25,94%
12							?	/		0,03%
13			?					Zhangzhou?		0,00%
14	x (?)	x (?)					?	(See ware 11)		0,80%
15							?	/		0,02%
16		x (?)						Gangwa?		Greenish glazed StW
17							?	/	0,07%	
18	x (?)				(?)			Cizhou type? Bacun?	Turquoise StW	0,13%
19	?			?	?			/	0,03%	
20	x							Jun ware	Thick Blue StW	19,29%
21	?						?	/	0,04%	
22	x (?)	x (?)					?	Cizhou? Lingwu?	Brown to Green glazed StW	0,52%
23	x (?)	x (?)					?	Cizhou? Lingwu? Jiangguantung? Duyaotai?		1,12%
24	?	?		?			?	Cizhou?		0,37%
25		?		?			?	/		0,37%
26		?		?			?	/		0,26%
27	?	?		?			?	Duyaotai?		9,48%
28	x	(x)	(x?)					Cizhou, Huairen, Zibo, Yaozhou? Lingwu? Gangwa? Lushan? Baofeng? Jizhou? Jian?		Black glazed StW
29				?			?	/	0,02%	
30		x (?)					?	Gangwa?	0,16%	
31				?			?	/	0,03%	
32	x (?)	x (?)					?	Guantai? Duyaotai?	4,38%	
33		?		?			?	/	0,02%	
34		?					?	/	0,96%	
35	x		(x?)					Cizhou (type), Jizhou?	Black and White glazed StW	2,25%

Ware, No.	N- China	Inner MNG/ Liaoning/ Ningxia	S- China	Central Asia	Islamic	S- Asia?	Local?	Chinese kilns / (terms)	Group	share in total
36		?						/	Black and White glazed	0,01%
37	?							/		0,70%
38				?			?	/	Mud colored Slip	0,48%
39					x			/	Earthenware	0,02%
40	x							Cizhou, Pengcheng, Changzhi Bayi, Yuzhou		1,14%
41	x							(Sancai), Sheshou, Bacun, Cizhou		0,57%
42	(x?)				(x?)			Sheshou? Cizhou?		0,15%
43				x			?	/		1,17%
44				?			?	/	Stray Finds	0,01%

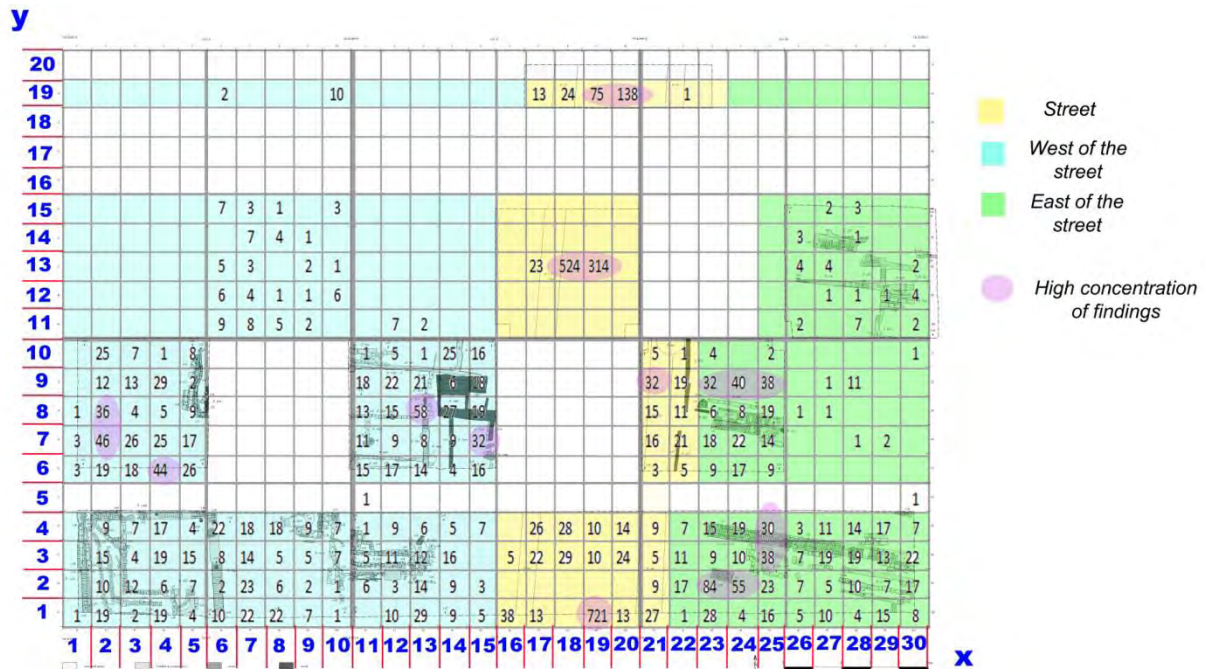
APPENDIX C: SHARE OF WARES PER TIME

Ware No.	Per. I (frgs / % ¹⁸)		Per. II (frgs / %)		Per. III (frgs / %)		surface	undated ¹⁹	share in total (frgs / %)	
1	/		11	0,19%	41	0,60%	2	24	78	0,37%
2	48	1,86%	135	2,28%	98	1,43%	5	44	330	1,56%
3	198	7,68%	164	2,77%	43	0,63%	1	270	676	3,19%
4	37	1,44%	330	5,57%	561	8,17%	62	171	1161	5,49%
5	45	1,75%	439	7,41%	375	5,46%	40	158	1057	4,99%
6	3	0,12%	2	0,03%	4	0,06%	2	/	11	0,05%
7	/		/		/		3	/	3	0,01%
8	/		4	0,07%	7	0,10%	4	2	17	0,08%
9	30	1,16%	21	0,35%	14	0,20%	2	17	84	0,40%
10	30	1,16%	101	1,71%	22	0,32%	2	77	232	1,10%
11	470	18,2%	1583	26,7%	1834	26,7%	201	1402	5490	25,94%
12	1	0,04%	1	0,02%	4	0,06%	/	/	6	0,03%
13	/		/		1	0,01%	/	/	1	0,00%
14	6	0,23%	41	0,69%	66	0,96%	7	50	170	0,80%
15	/		1	0,02%	2	0,03%	/	1	4	0,02%
16	180	6,98%	214	3,61%	41	0,60%	2	144	581	2,75%
17	/		3	0,05%	11	0,16%	/	1	15	0,07%
18	3	0,12%	3	0,05%	14	0,20%	/	7	27	0,13%
19	2	0,08%	/		3	0,04%	2	/	7	0,03%
20	615	23,9%	1467	24,8%	775	11,3%	96	1129	4082	19,29%
21	/		5	0,08%	3	0,04%	/	/	8	0,04%
22	21	0,81%	38	0,64%	11	0,16%	4	35	109	0,52%
23	27	1,05%	47	0,79%	82	1,19%	14	66	236	1,12%
24	12	0,47%	26	0,44%	9	0,13%	2	29	78	0,37%
25	4	0,16%	25	0,42%	27	0,39%	1	22	79	0,37%
26	16	0,62%	17	0,29%	10	0,15%	4	8	55	0,26%
27	96	3,73%	196	3,31%	1162	16,9%	394	158	2006	9,48%
28	285	11,1%	615	10,4%	590	8,60%	75	438	2003	9,46%
29	/		1	0,02%	1	0,01%	/	2	4	0,02%
30	2	0,08%	8	0,14%	11	0,16%	/	13	34	0,16%
31	/		3	0,05%	2	0,03%	1	/	6	0,03%
32	78	3,03%	118	1,99%	496	7,23%	139	97	928	4,38%
33	/		3	0,05%	1	0,01%	/	/	4	0,02%
34	82	3,18%	50	0,84%	29	0,42%	2	41	204	0,96%
35	45	1,75%	105	1,77%	176	2,56%	27	123	476	2,25%
36	/		/		/		/	3	3	0,01%
37	6	0,23%	14	0,24%	105	1,53%	7	17	149	0,70%
38	/		5	0,08%	85	1,24%	4	8	102	0,48%
39	3	0,12%	/		/		/	1	4	0,02%
40	35	1,36%	65	1,10%	73	1,06%	6	63	242	1,14%
41	25	0,97%	14	0,24%	56	0,82%	6	20	121	0,57%
42	6	0,23%	14	0,24%	5	0,07%	1	5	31	0,15%
43	165	6,40%	32	0,54%	11	0,16%	1	38	247	1,17%
44	1	0,04%	/		2	0,03%	/	/	3	0,01%
total	2577		5921		6863		1119	4684	21164	
wares	32		38		41				(44)	

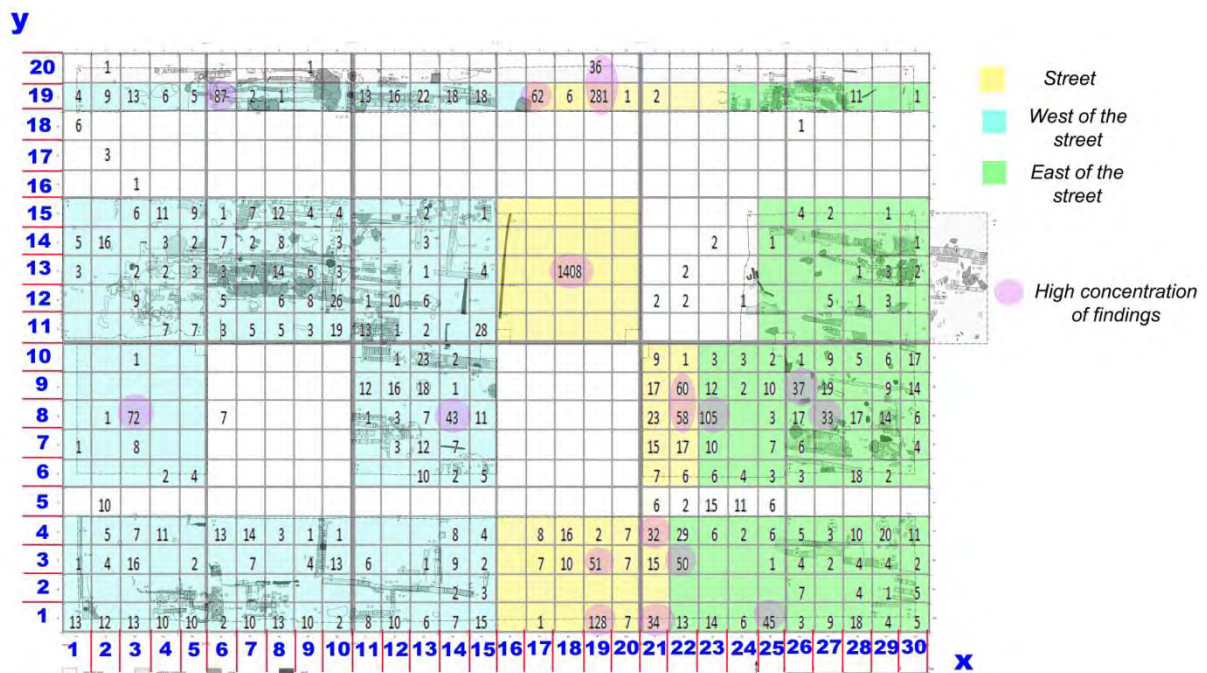
¹⁸ = share of this ware in the given period referring to all documented fragments of all wares in this period.

¹⁹ Most of the undated findings derive from excavation area LH 87/88 which is not analyzed concerning its stratigraphy at the present state of research.

App. D.2.: Distribution of Northern Chinese and Northern Ceramics

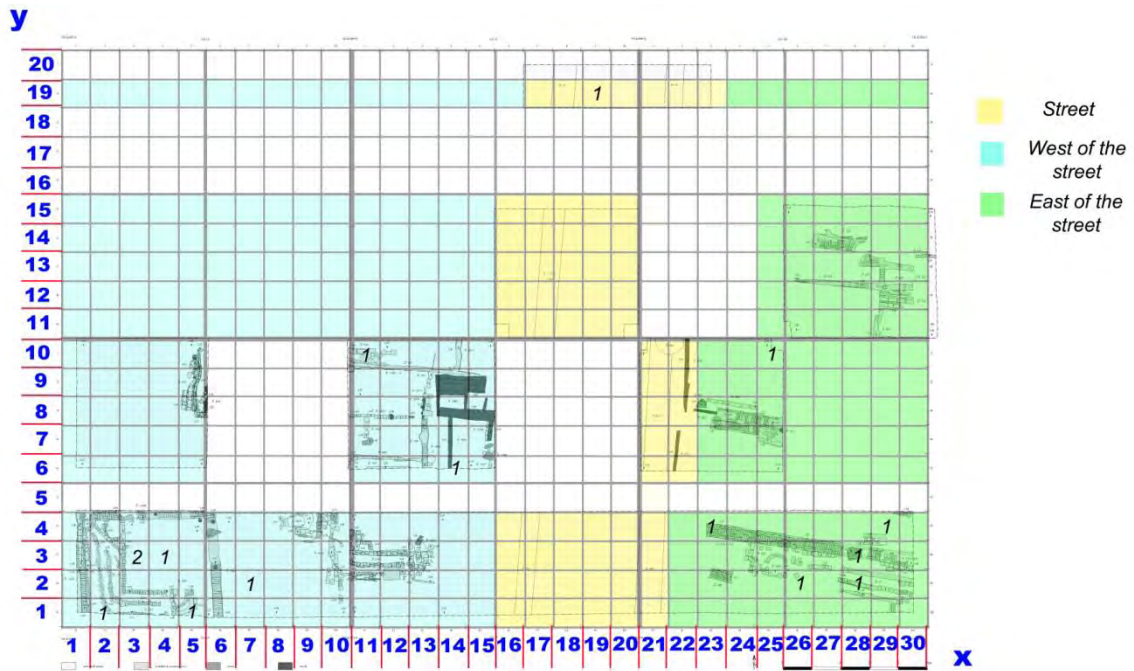


Distribution Map 7: Distribution of Northern Chinese ceramics in settlement period II. Square meters with more than 30 documented fragments are highlighted.

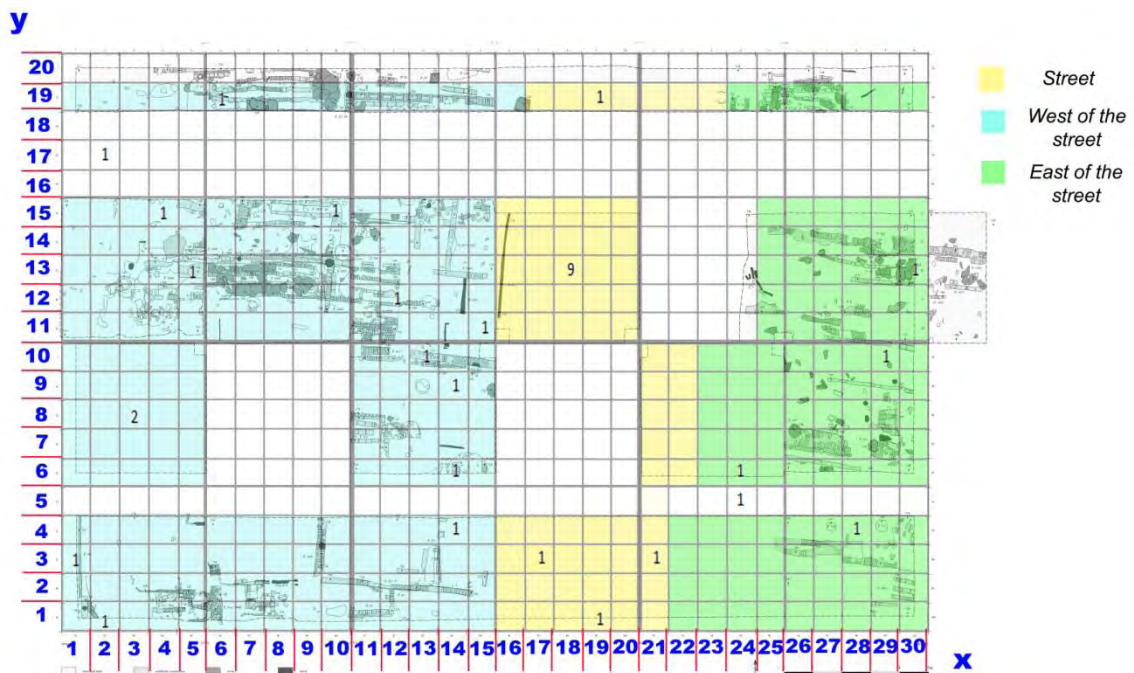


Distribution Map 8: Distribution of Northern Chinese ceramics in settlement period III. Square meters with more than 30 documented fragments are highlighted.

App. D.4.: Distribution of Ceramics with Marks

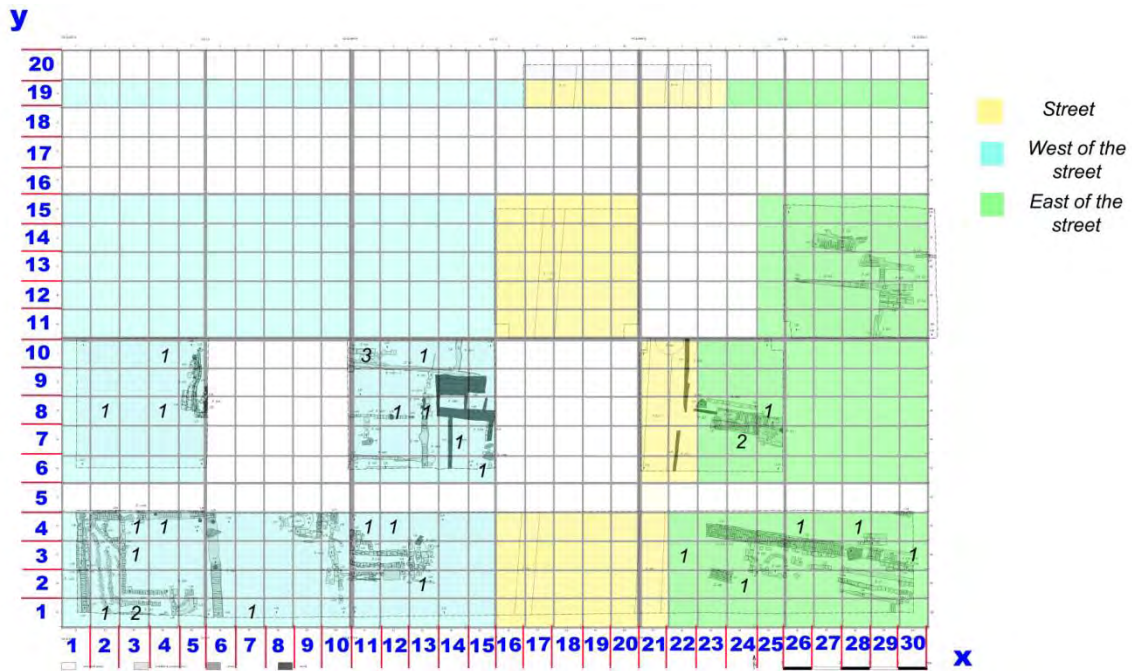


Distribution Map 15: Documented marks in settlement period 2.

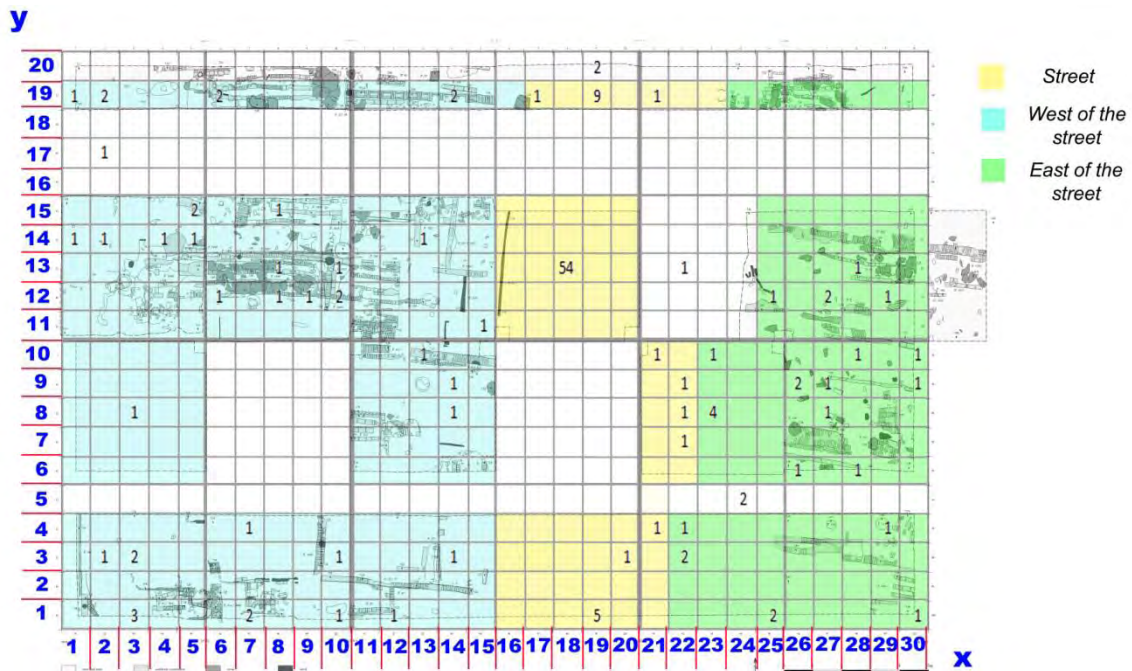


Distribution Map 16: Documented marks in settlement period III.

App. D.5.: Distribution of Ceramics with Signs of Repair

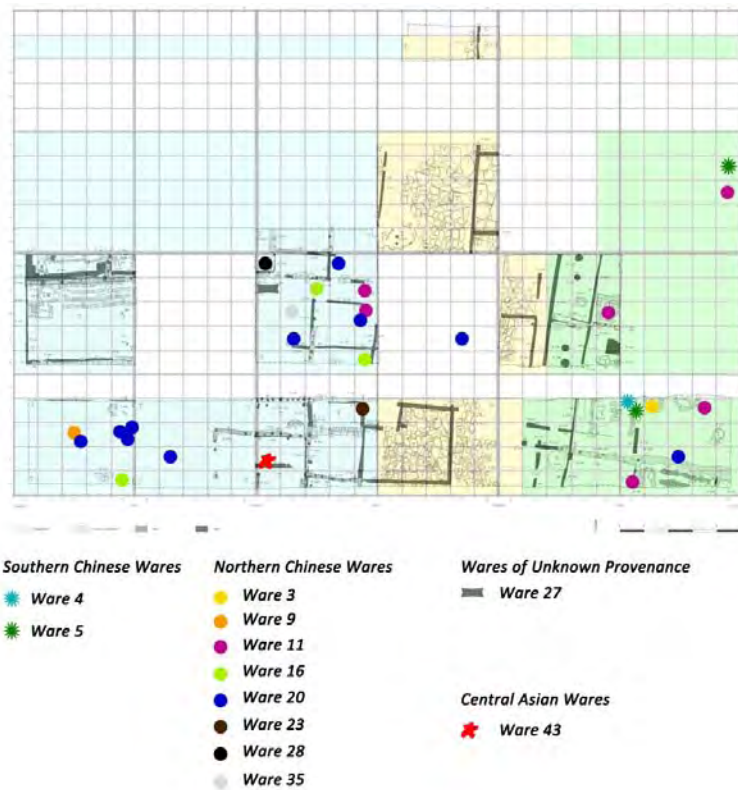


Distribution Map 19: Documented signs of repair in settlement period II.

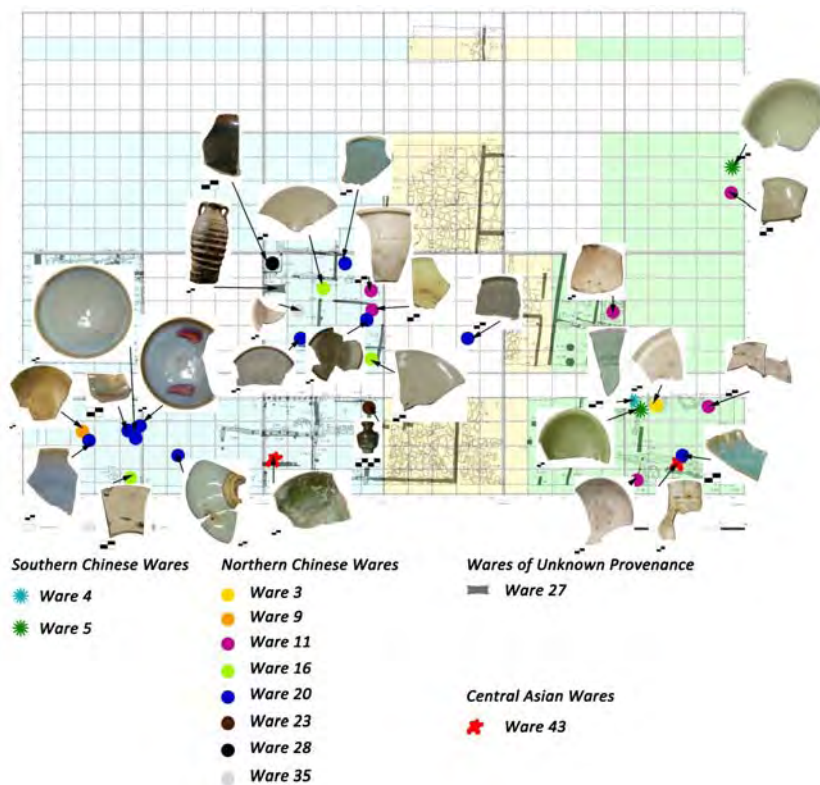


Distribution Map 20: Documented signs of repair in settlement period III.

APP. D.6.: DISTRIBUTION OF FINDS WITH A COMPLETELY PRESERVED SHAPE

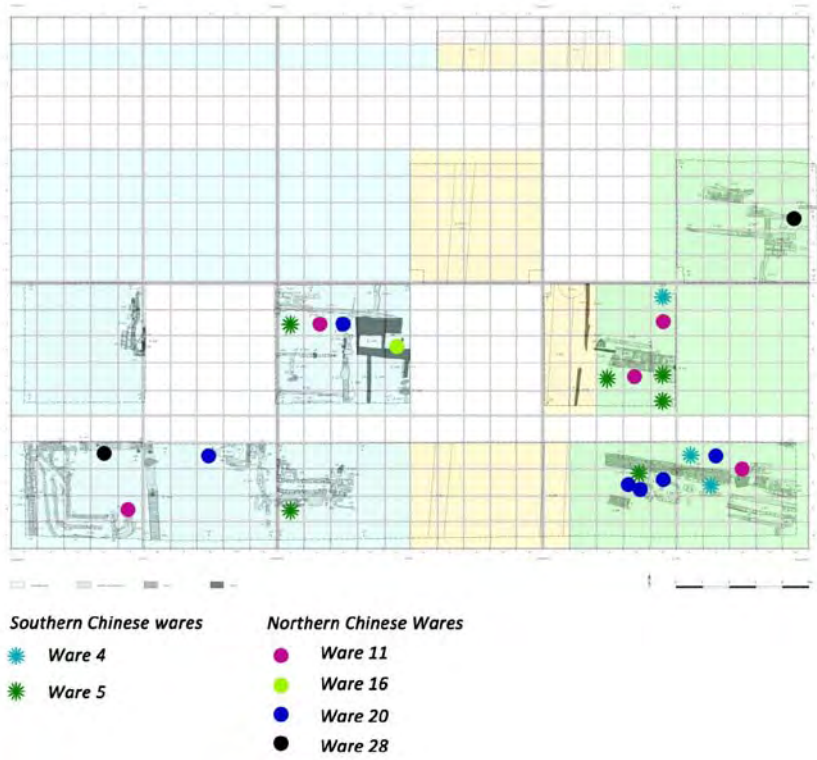


Distribution Map 21: Overview on findings with a fully preserved shape in settlement period I. Each spot marks one vessel.

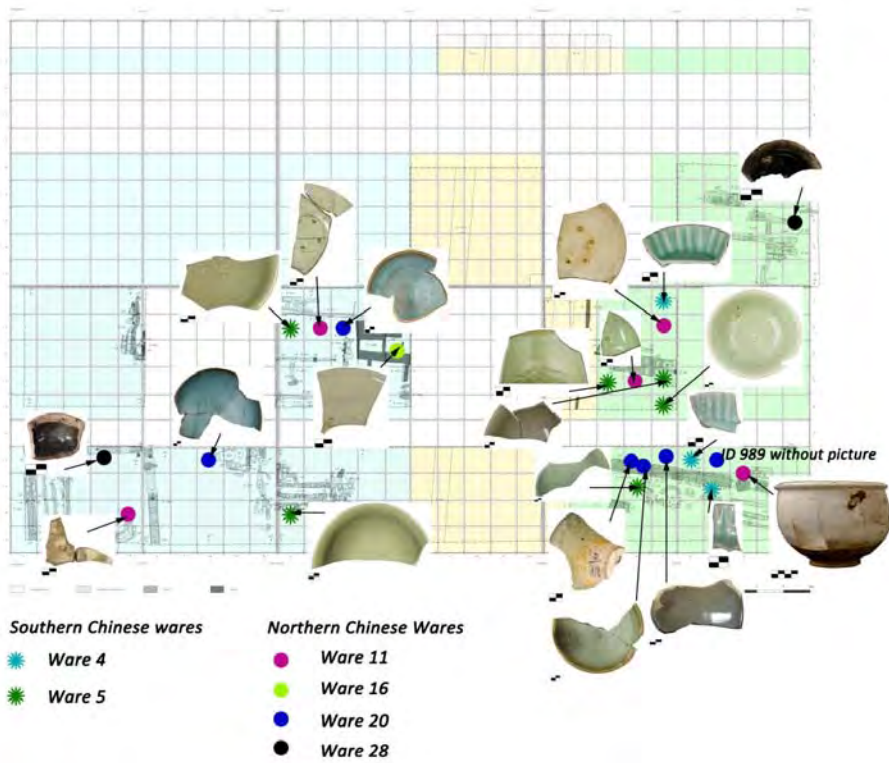


Distribution Map 22: Overview on findings with a fully preserved shape in settlement period I. Each spot marks one vessel. Additionally added is ID 1230 of ware 43 in LH 28:88 which is a large fragment of a Central Asian carafe.

App. D.6.: Distribution of Finds with a Completely Preserved Shape

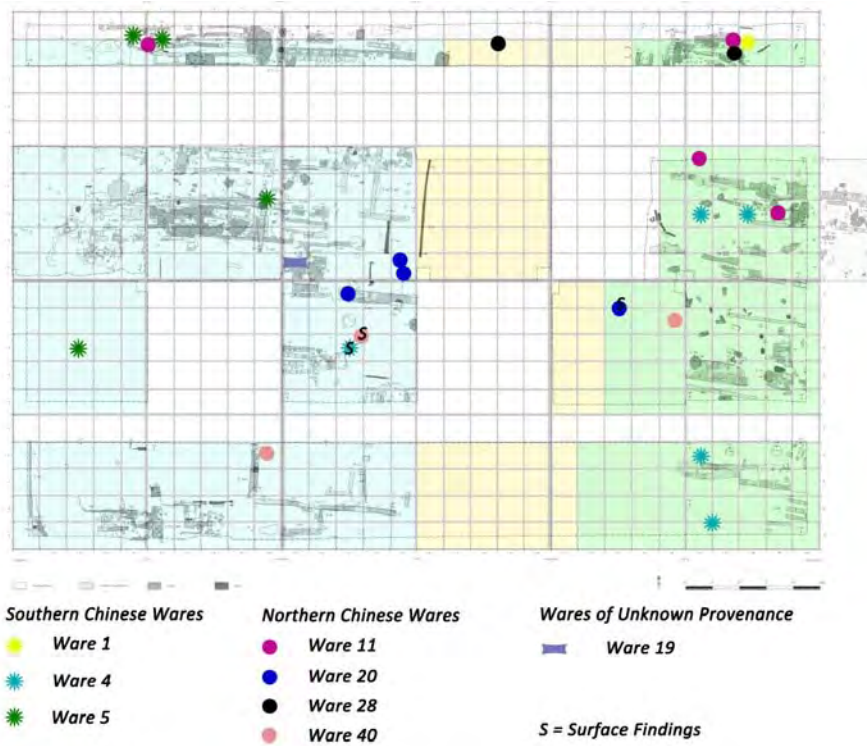


Distribution Map 23: Overview on findings with a fully preserved shape in settlement period II. Each spot marks one vessel.

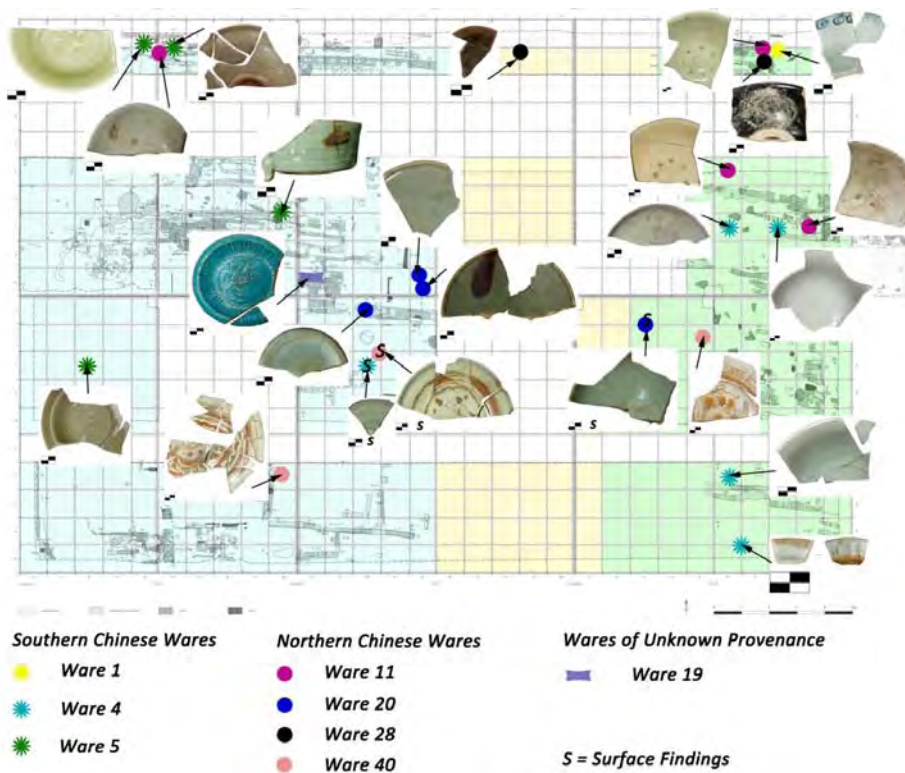


Distribution Map 24: Overview on findings with a fully preserved shape in settlement period II. Each spot marks one vessel.

App. D.6.: Distribution of Finds with a Completely Preserved Shape



Distribution Map 25: Overview on findings with a fully preserved shape in settlement period III. Each spot marks one vessel. Surface findings are marked with an “S”.

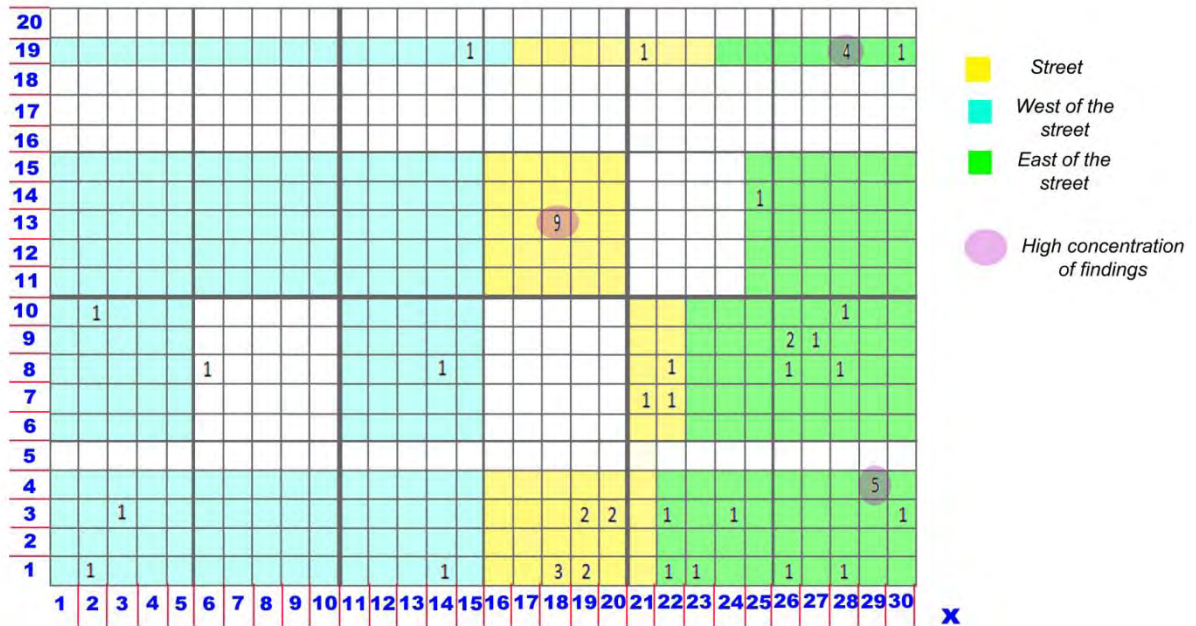


Distribution Map 26: Overview on findings with a fully preserved shape in settlement period III. Each spot marks one vessel. Surface findings are marked with an “S”.

APP. D.7.: DISTRIBUTION OF WARES WITH A SHARE OF MORE THAN 1%

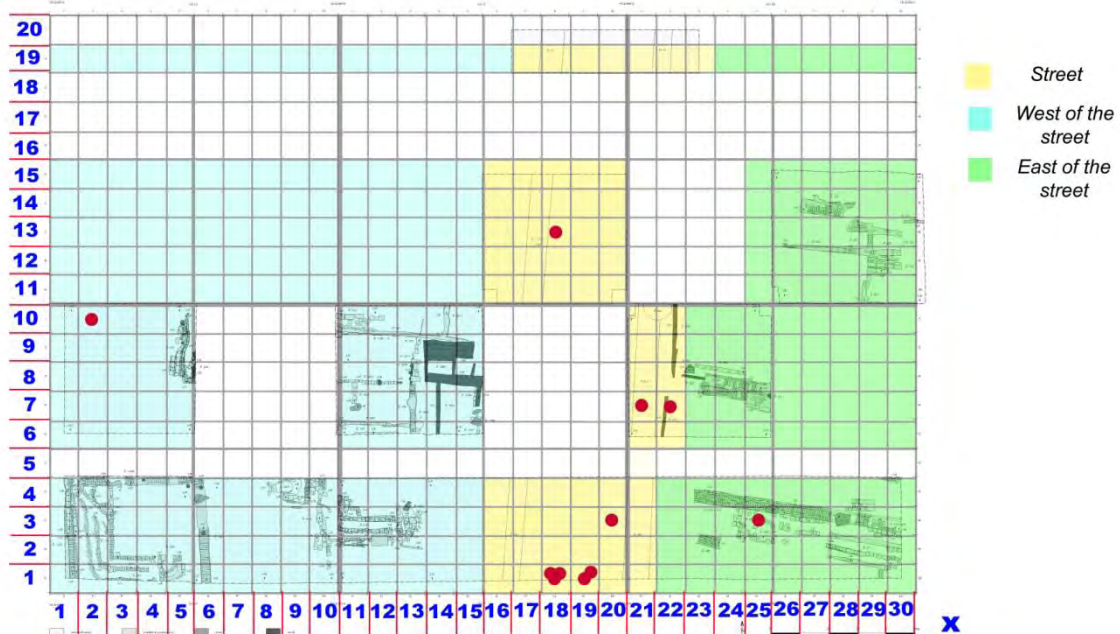
APP. D.7.1.: WARE 1

y



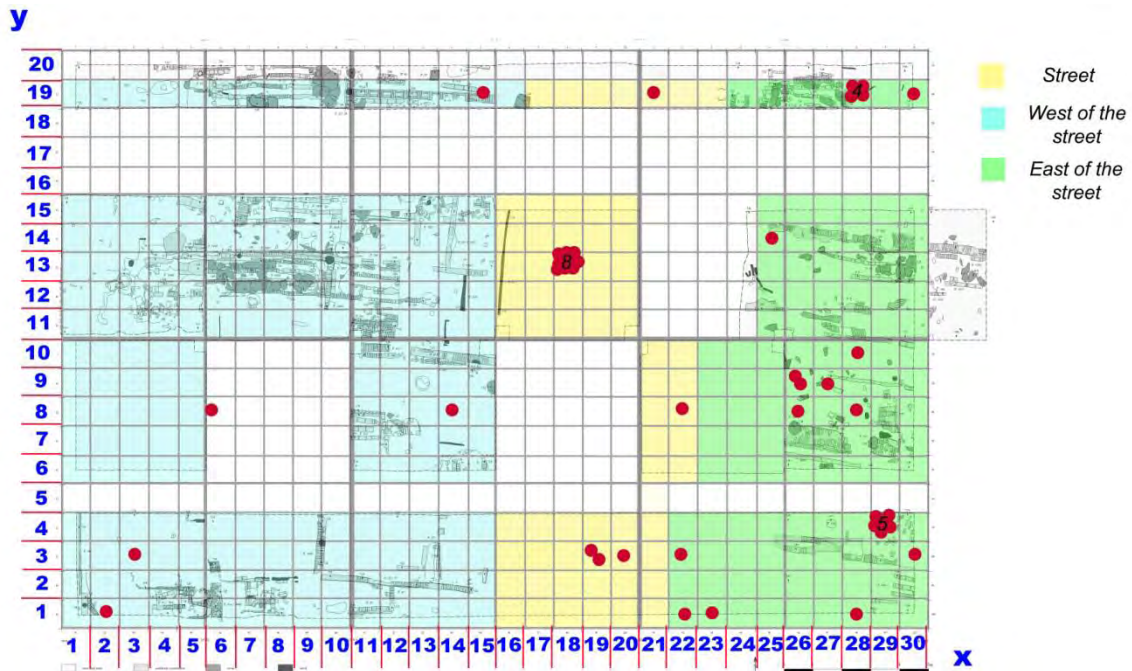
Distribution Map 27: Distribution of Ware 1 in total.

y



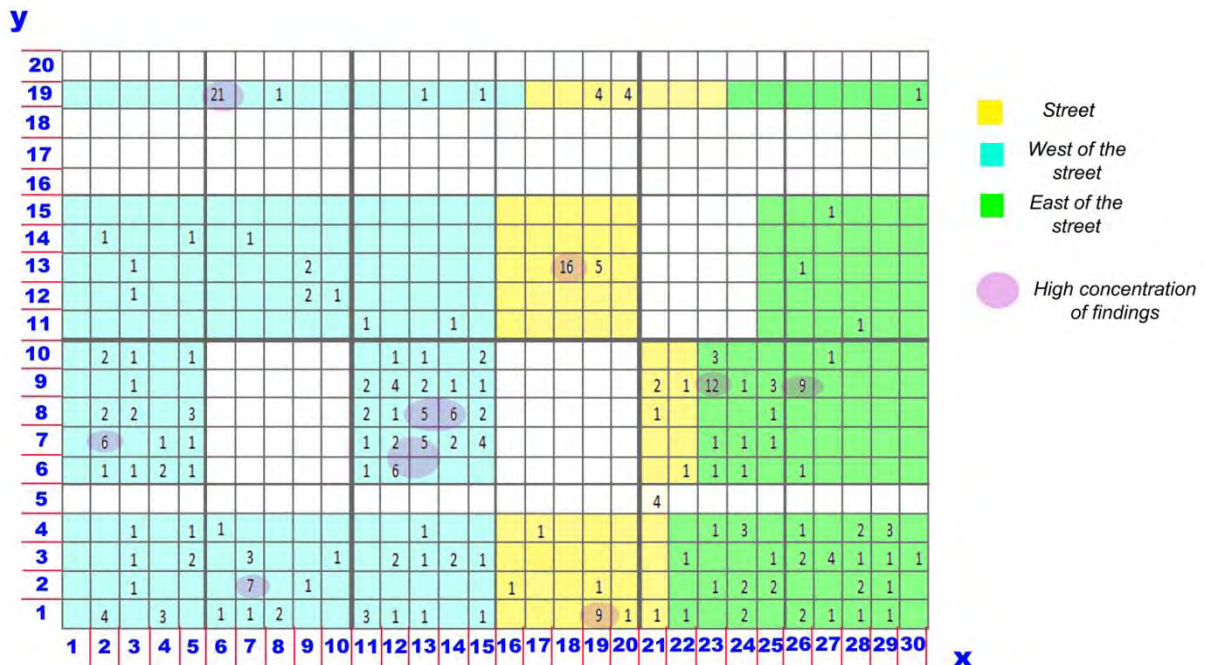
Distribution Map 28: Distribution of Ware 1 in Settlement Period II. Each dot marks one fragment.

App. D.7.: Distribution of Wares with a Share of More than 1%



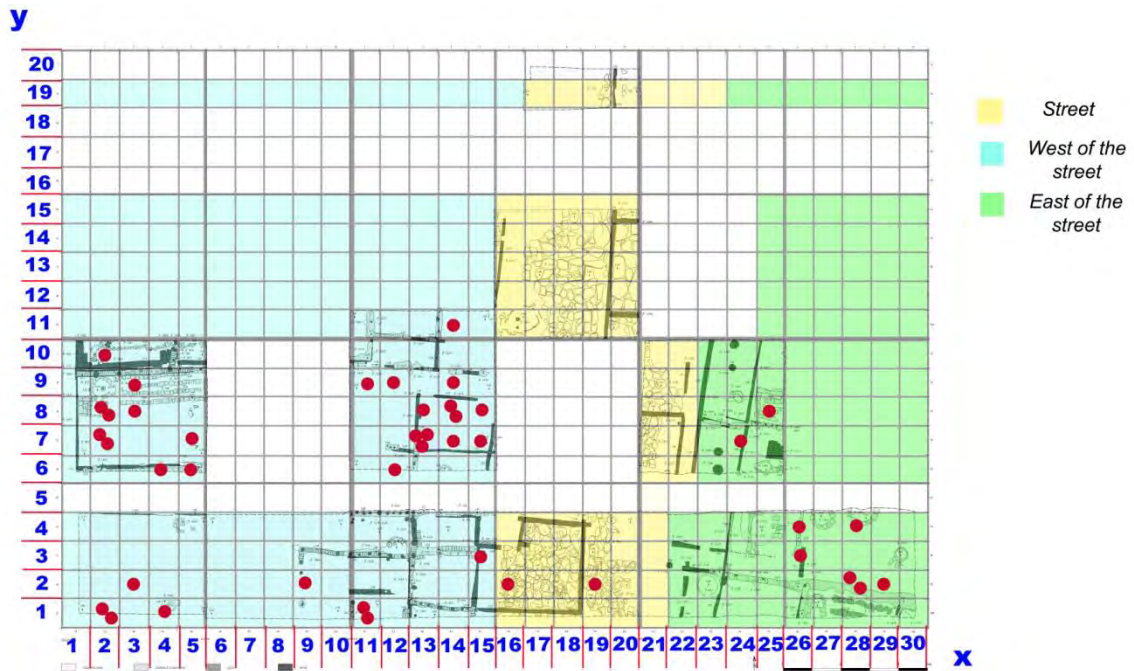
Distribution Map 29: Distribution of Ware 1 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

APP. D.7.2.: WARE 2

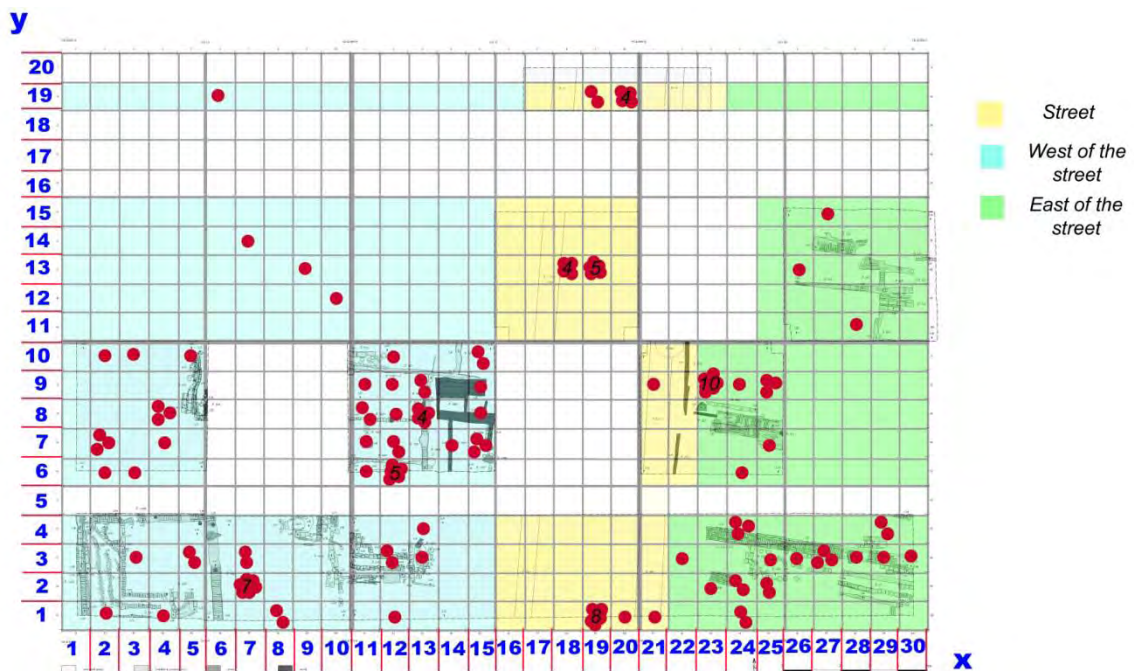


Distribution Map 30: Distribution of Ware 2 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

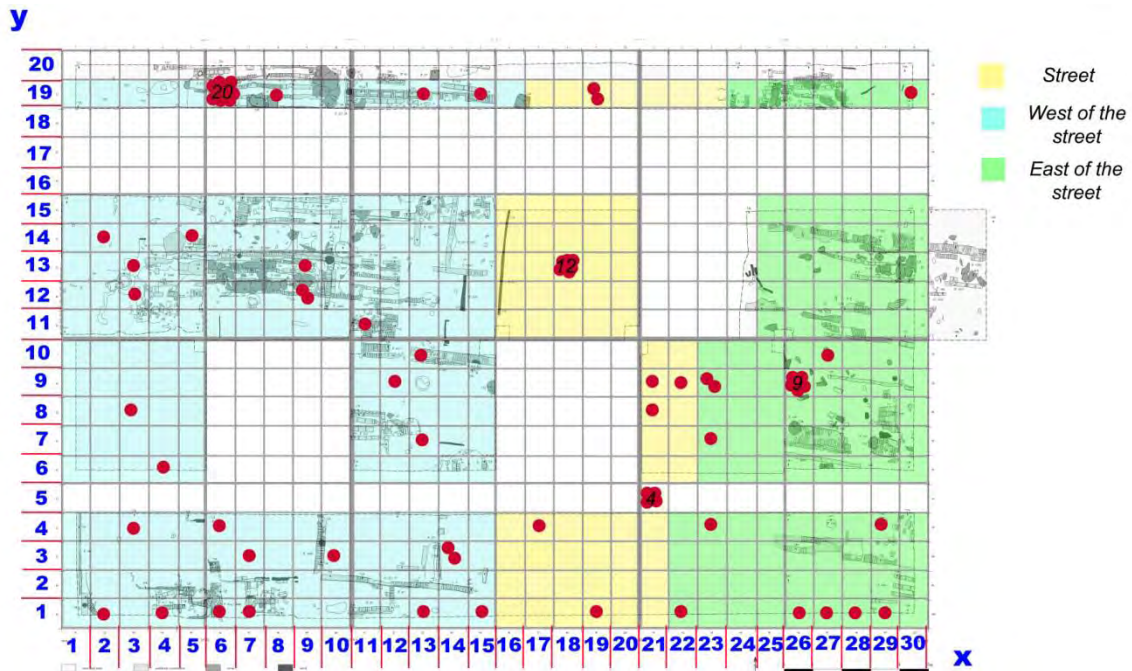


Distribution Map 31: Distribution of Ware 2 in Settlement Period I. Each dot marks one fragment.



Distribution Map 32: Distribution of Ware 2 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

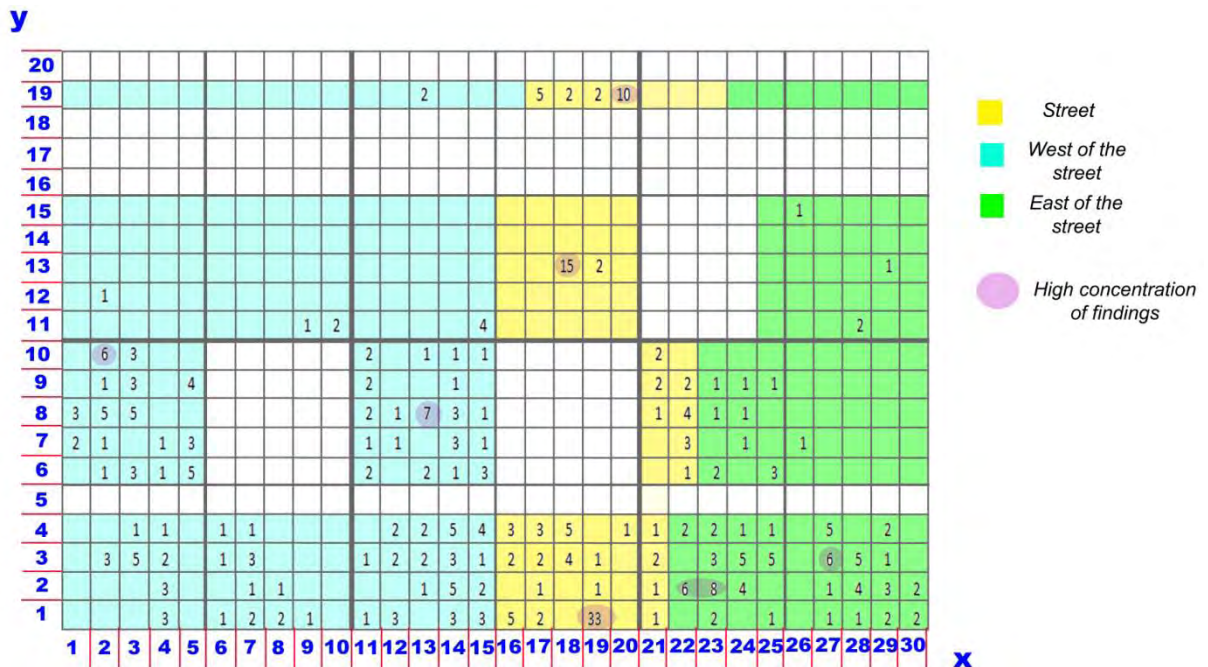
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 33: Distribution of Ware 2 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

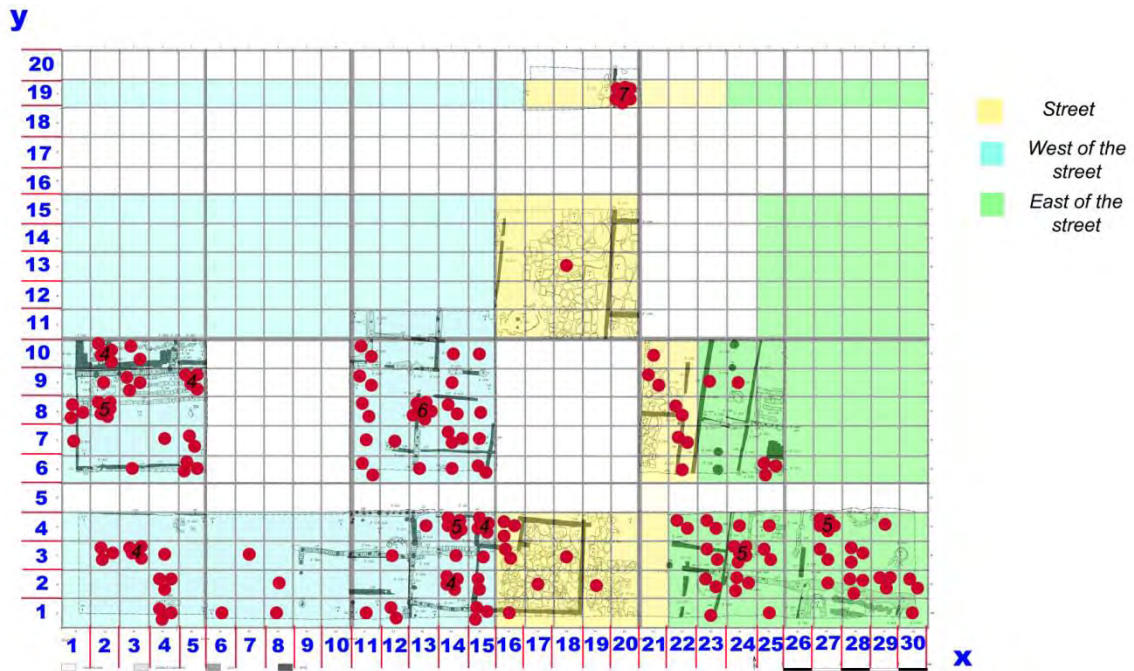
APP. D.7.3.: WARE 3

(subtypes = depicted together as no difference in origin is stated in classification)

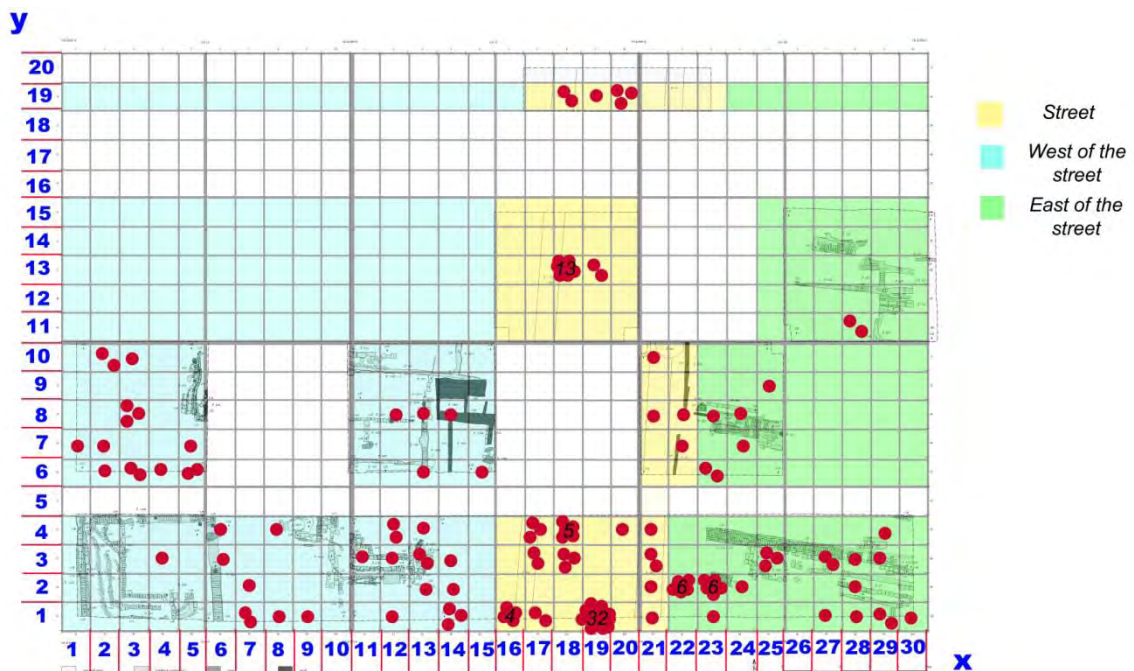


Distribution Map 34: Distribution of Ware 3 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

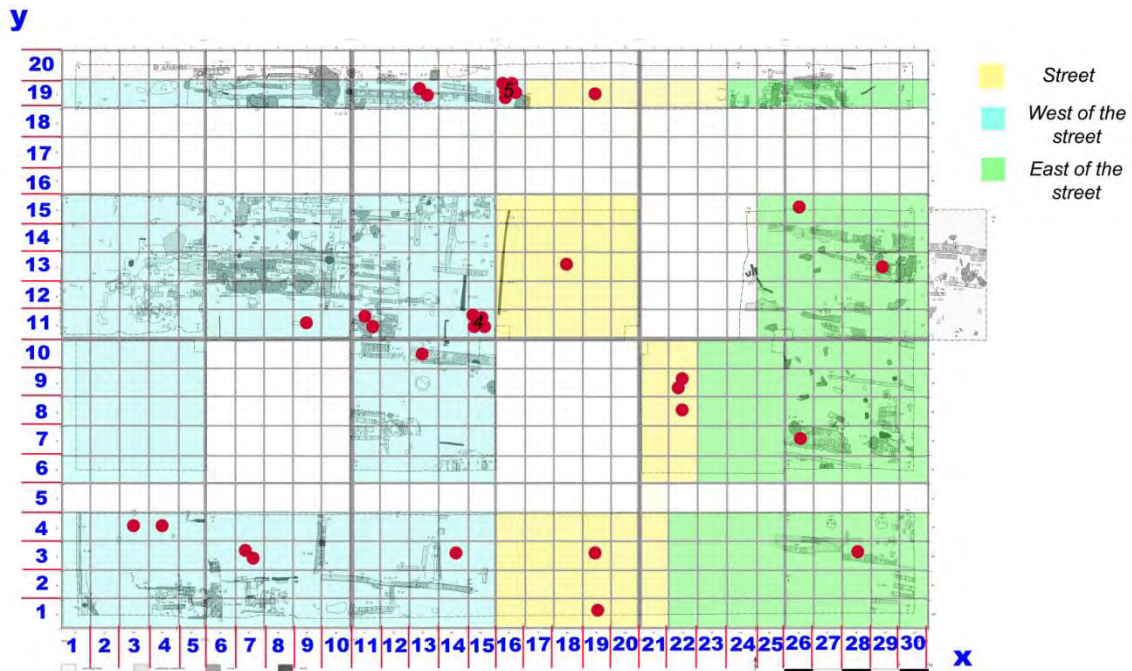


Distribution Map 35: Distribution of Ware 3 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 36: Distribution of Ware 3 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

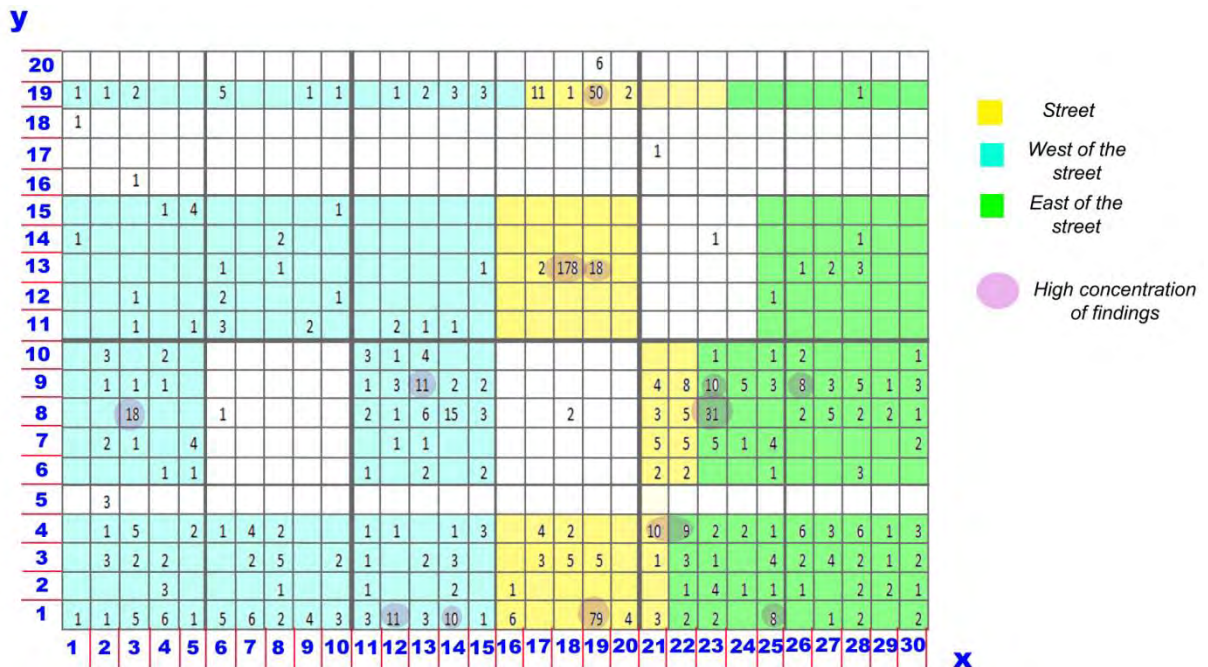
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 37: Distribution of Ware 3 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

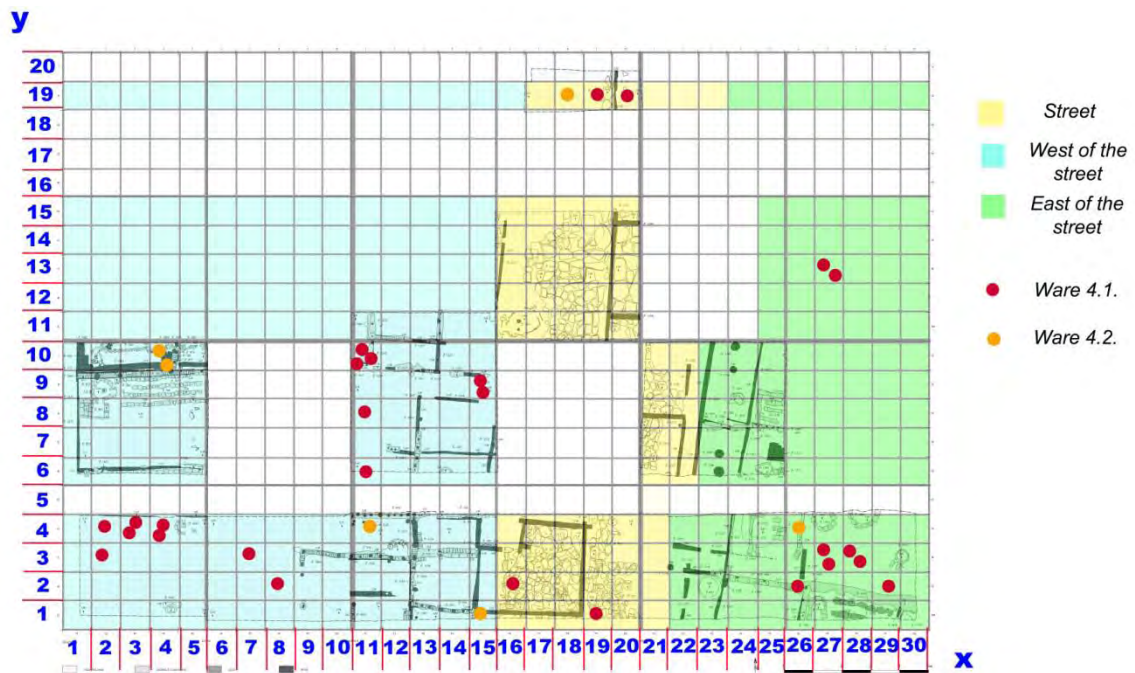
APP. D.7.4.: WARE 4

(subtypes = depicted in different colors as slight difference in time or origin are supposable)

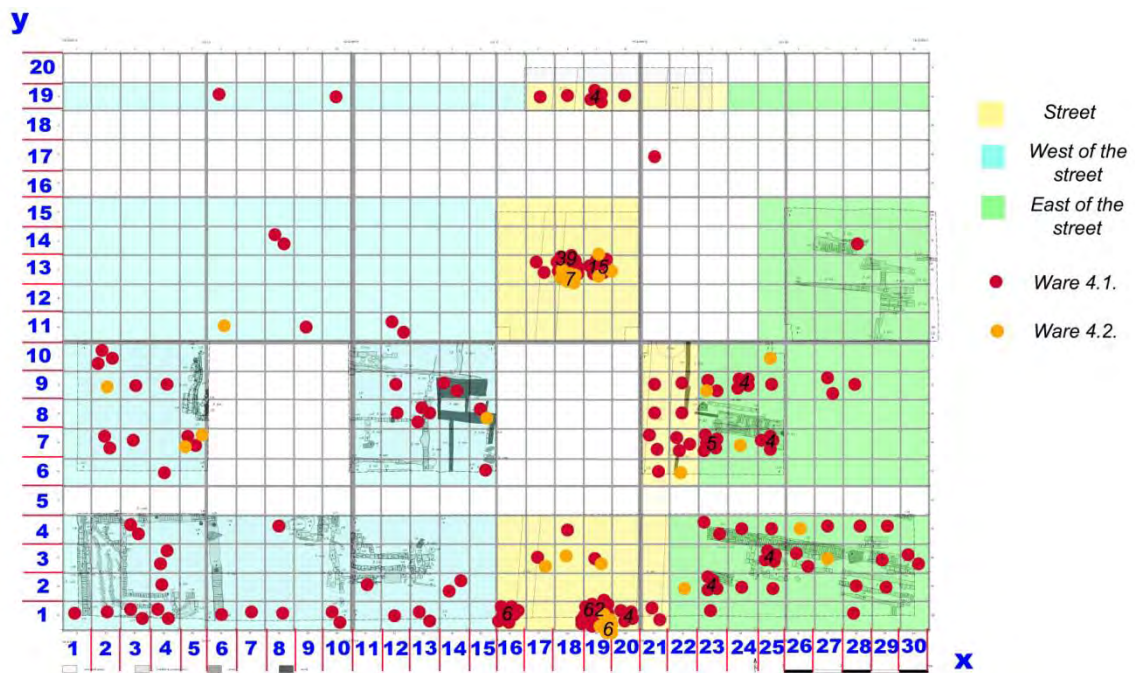


Distribution Map 38: Distribution of Ware 4 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

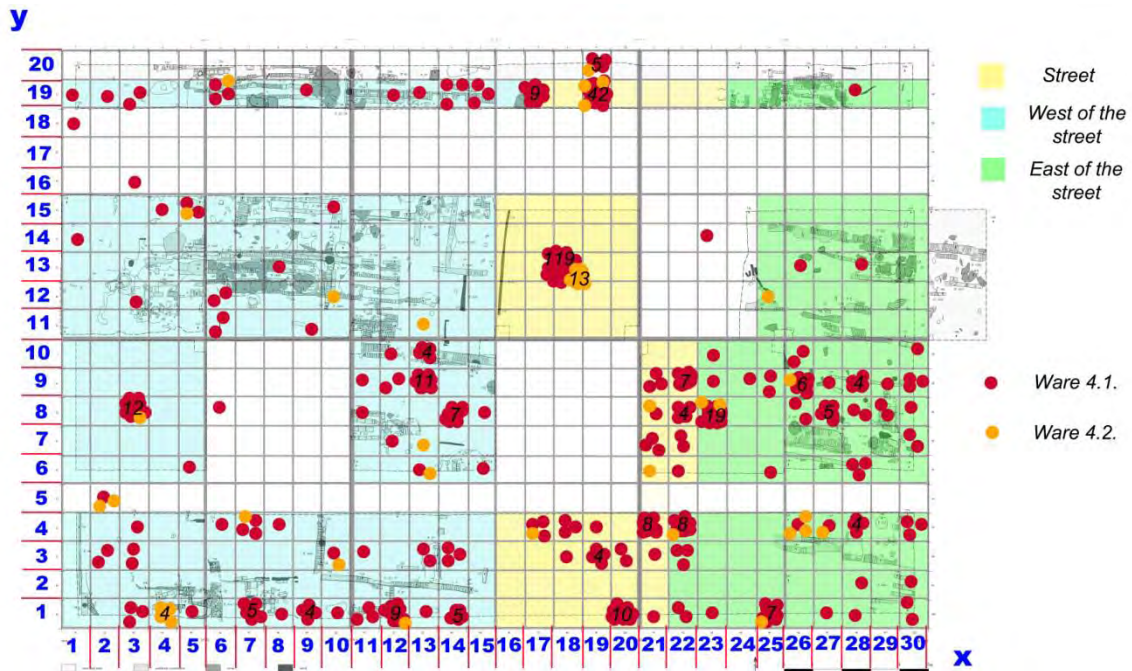


Distribution Map 39: Distribution of Ware 4 in settlement period I. Each dot marks one fragment.



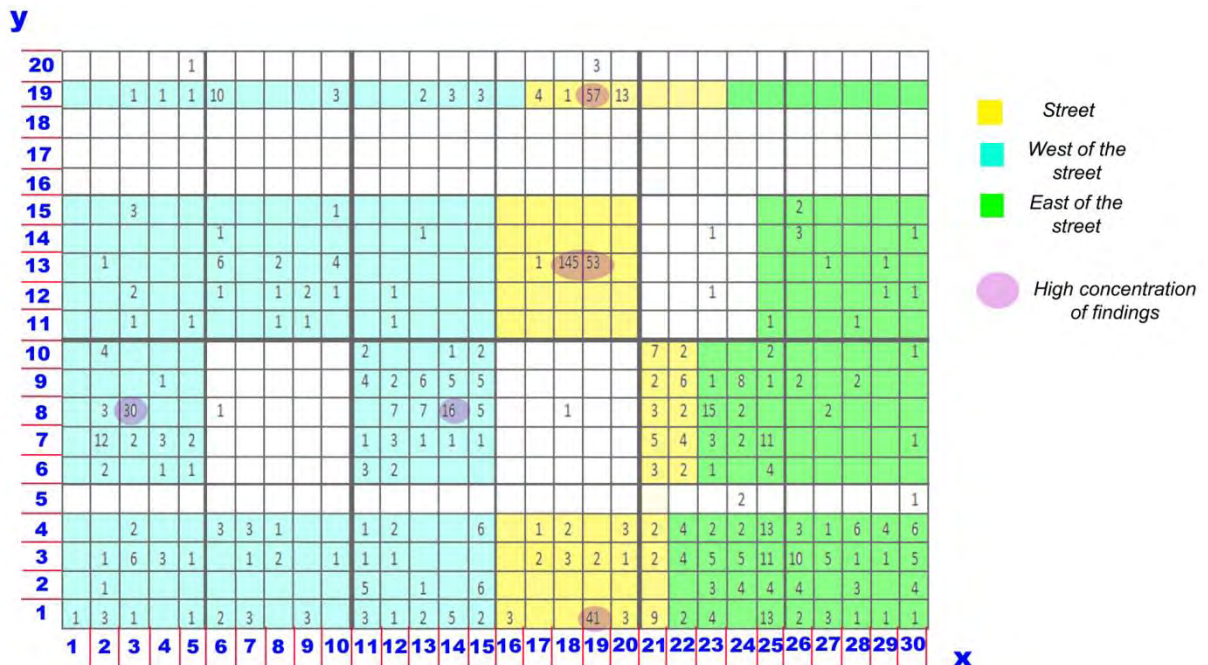
Distribution Map 40: Distribution of Ware 4 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

App. D.7.: Distribution of Wares with a Share of More than 1%



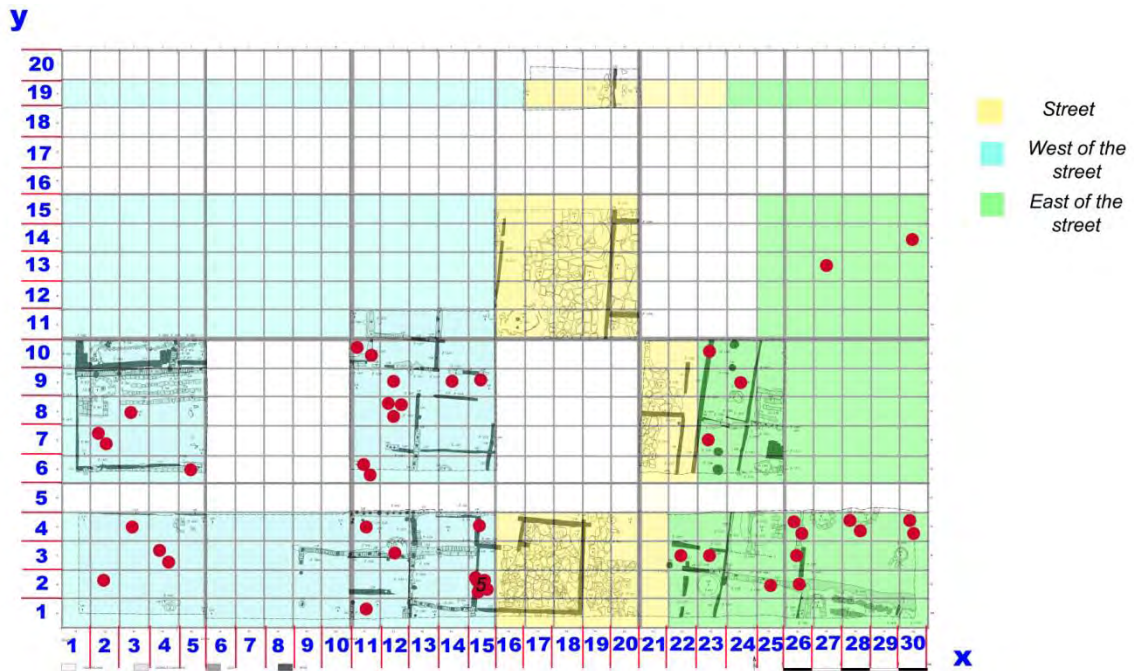
Distribution Map 41: Distribution of Ware 4 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

APP. D.7.5.: WARE 5

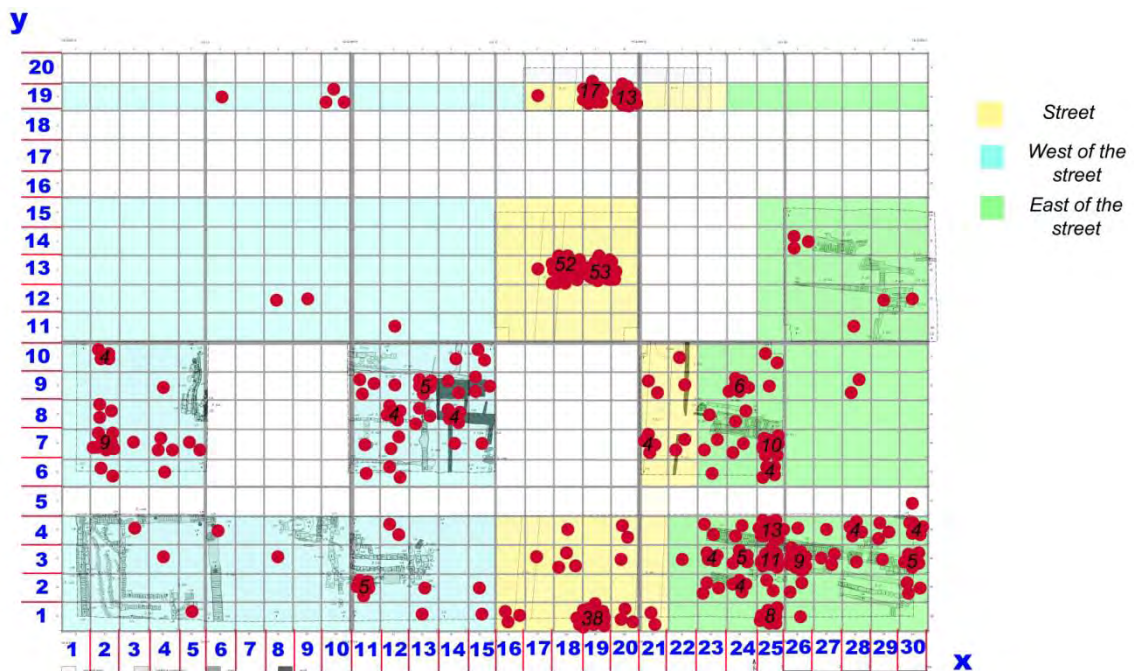


Distribution Map 42 : Distribution of Ware 5 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

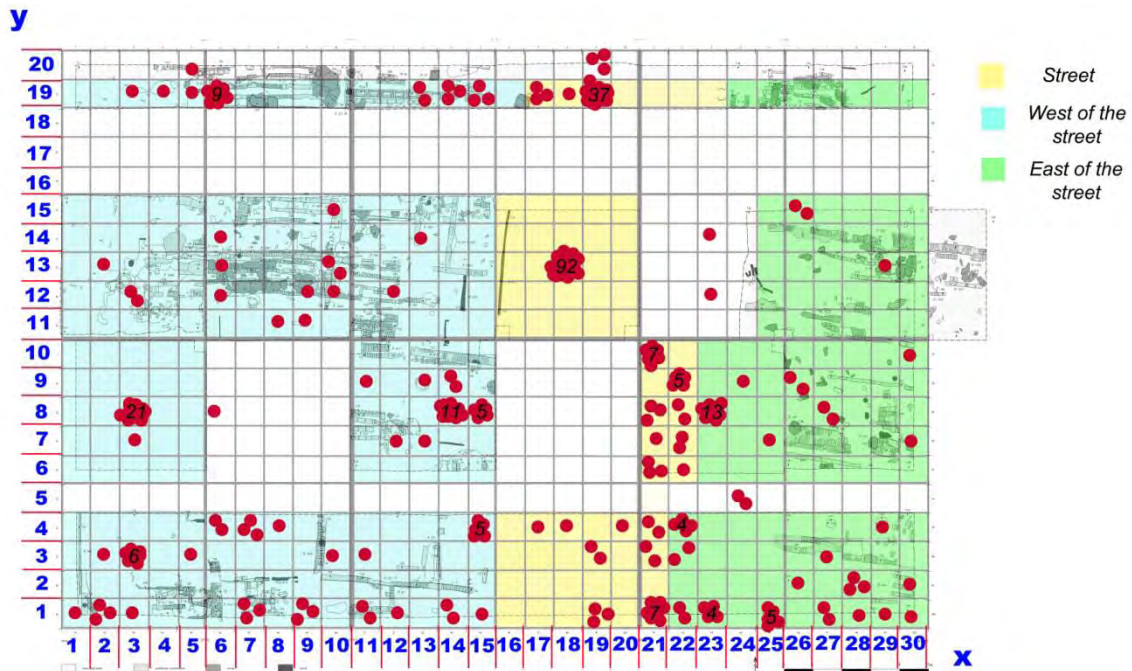


Distribution Map 43: Distribution of Ware 5 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 44: Distribution of Ware 5 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

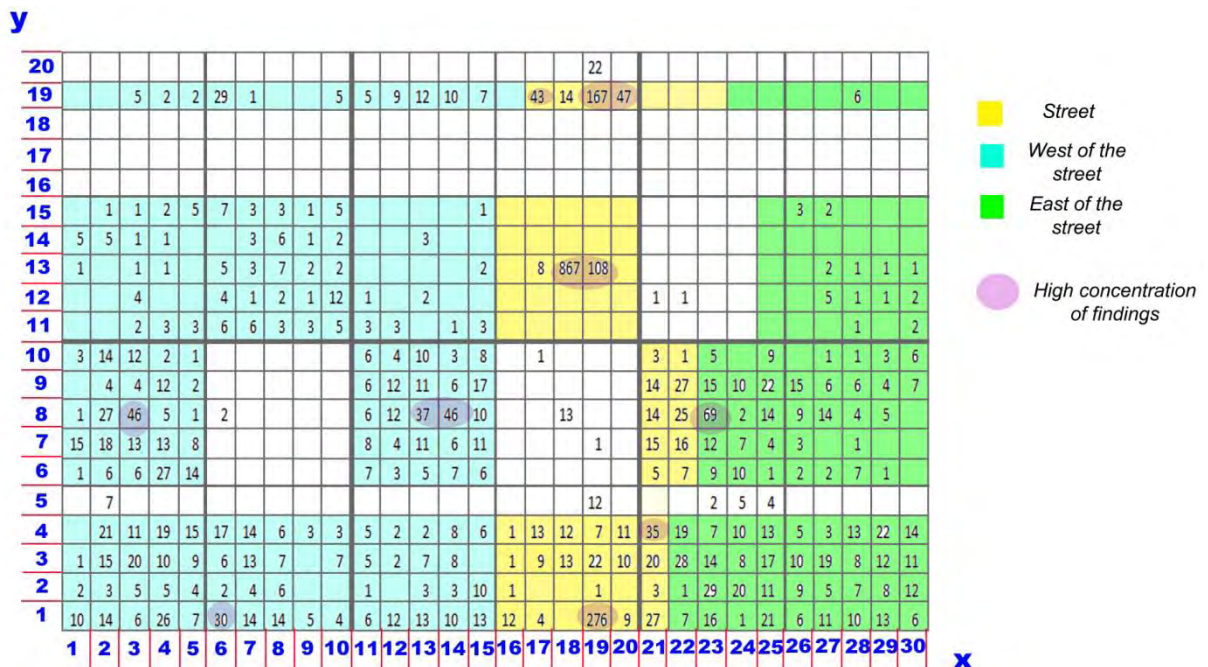
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 45: Distribution of Ware 5 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

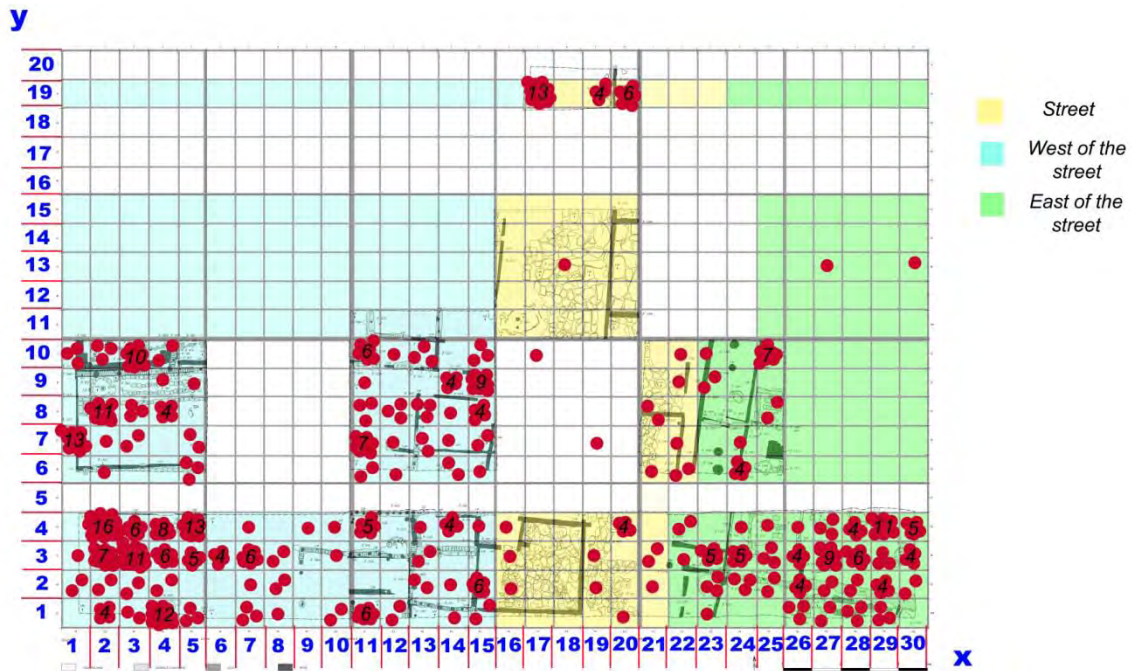
APP. D.7.6.: WARE 11

(subtypes = depicted together as no difference in origin is stated in classification)

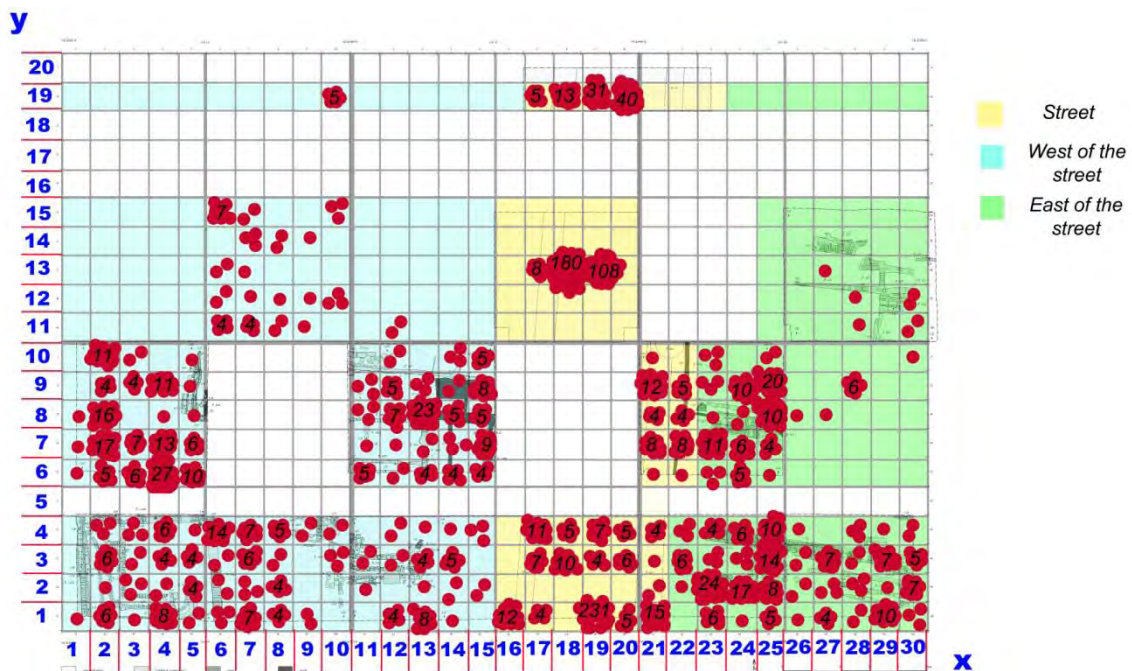


Distribution Map 46: Distribution of Ware 11 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

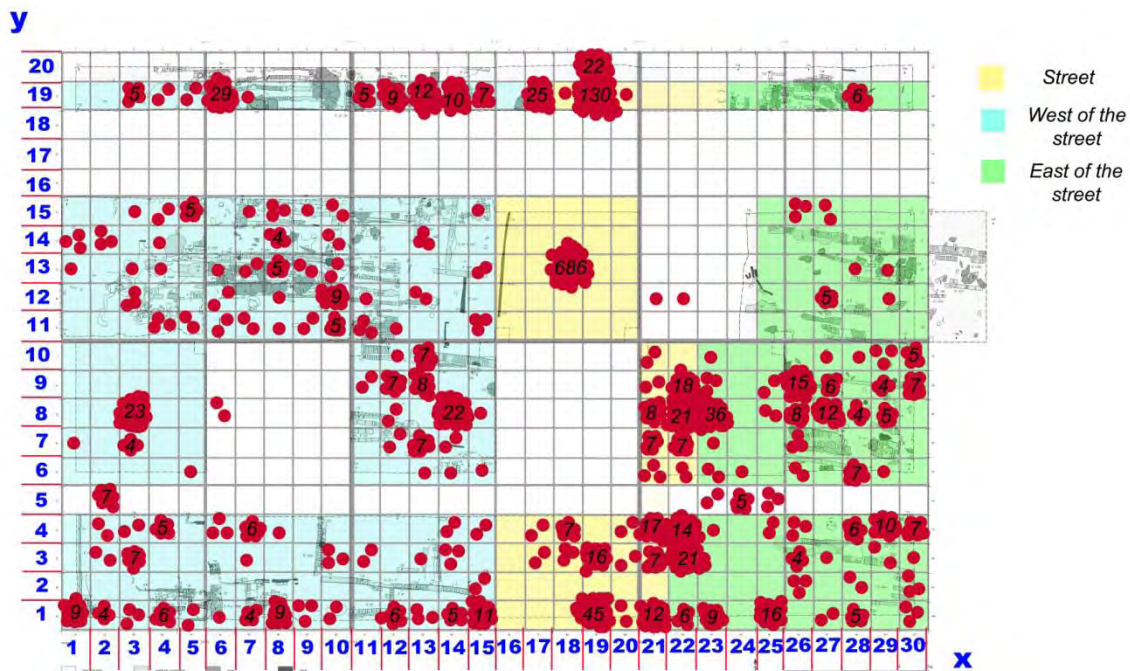


Distribution Map 47: Distribution of Ware 11 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 48: Distribution of Ware 11 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

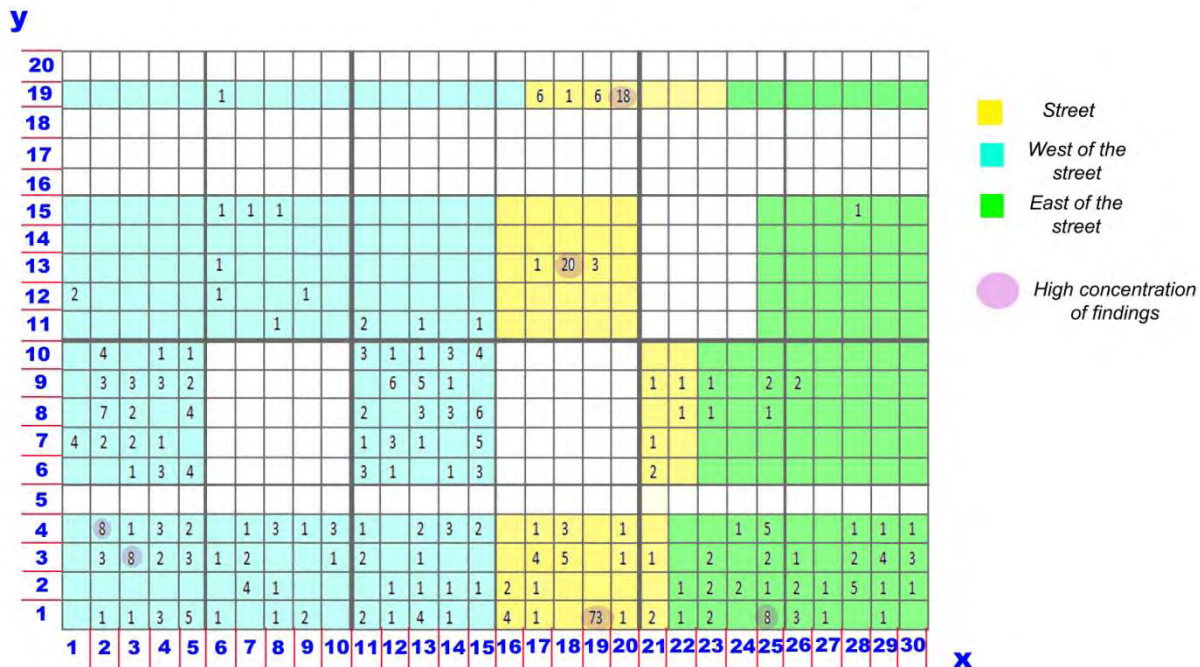
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 49: Distribution of Ware 11 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

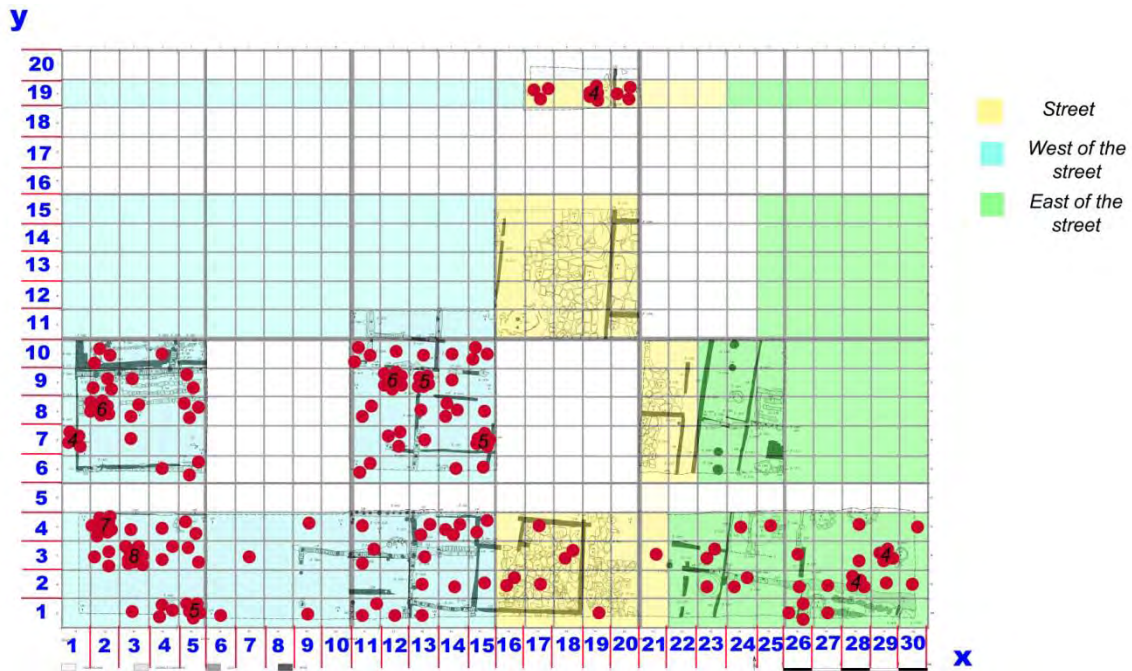
APP. D.7.7.: WARE 16

(subtypes = depicted together as no difference in origin is stated in classification)

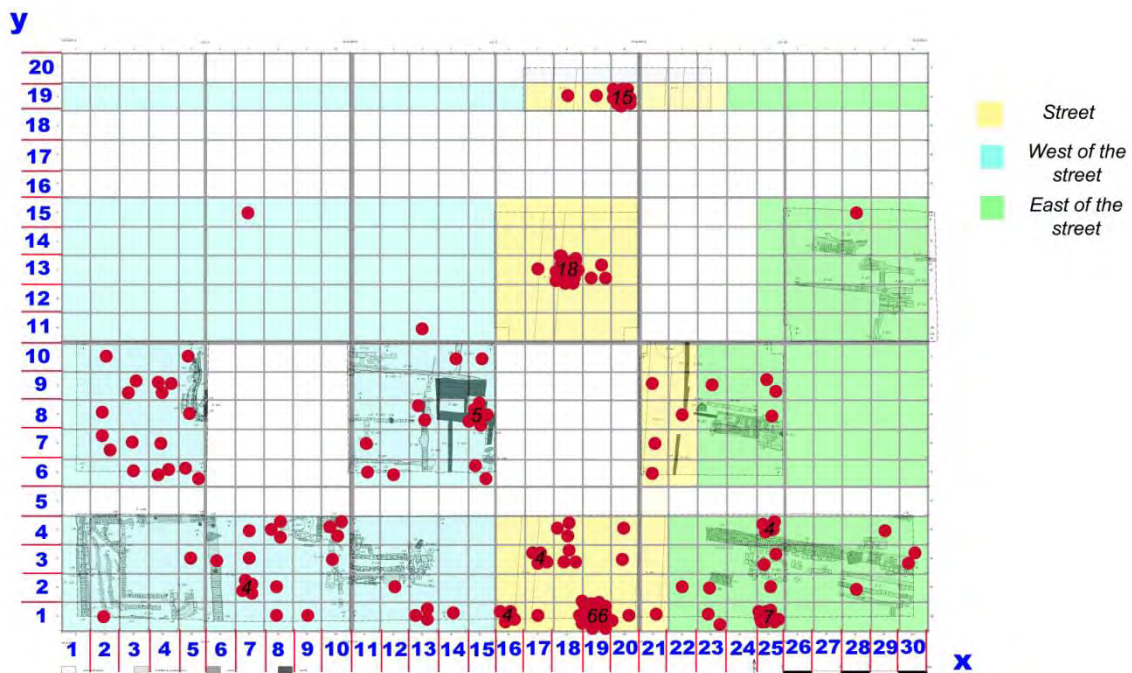


Distribution Map 50: Distribution of Ware 16 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

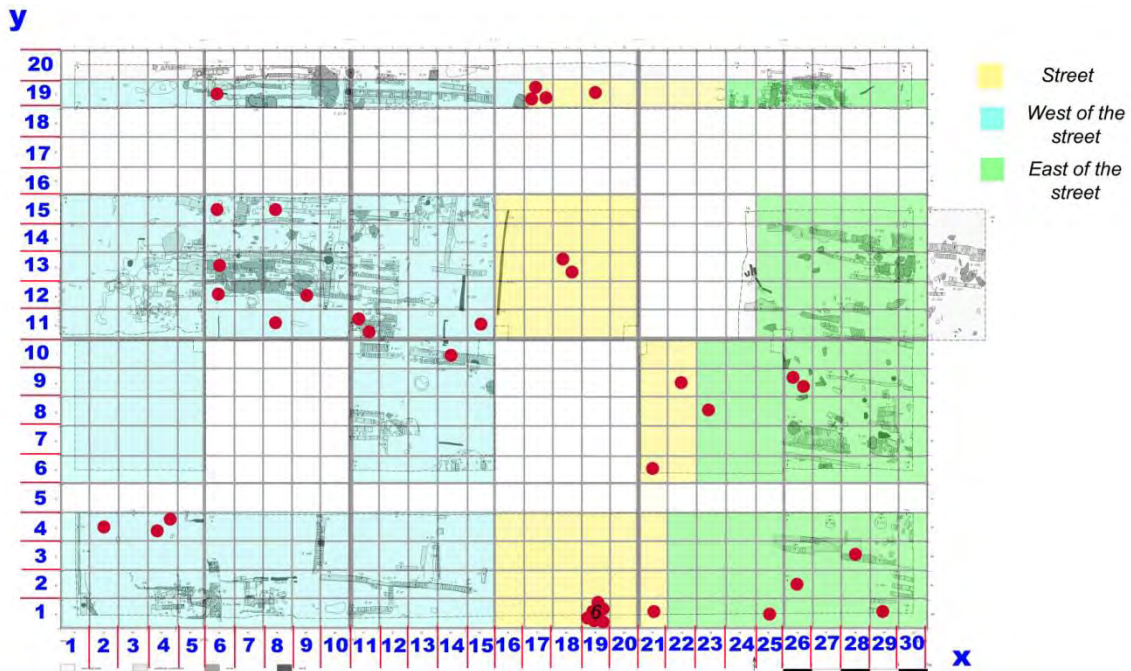


Distribution Map 51: Distribution of Ware 16 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 52: Distribution of Ware 16 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

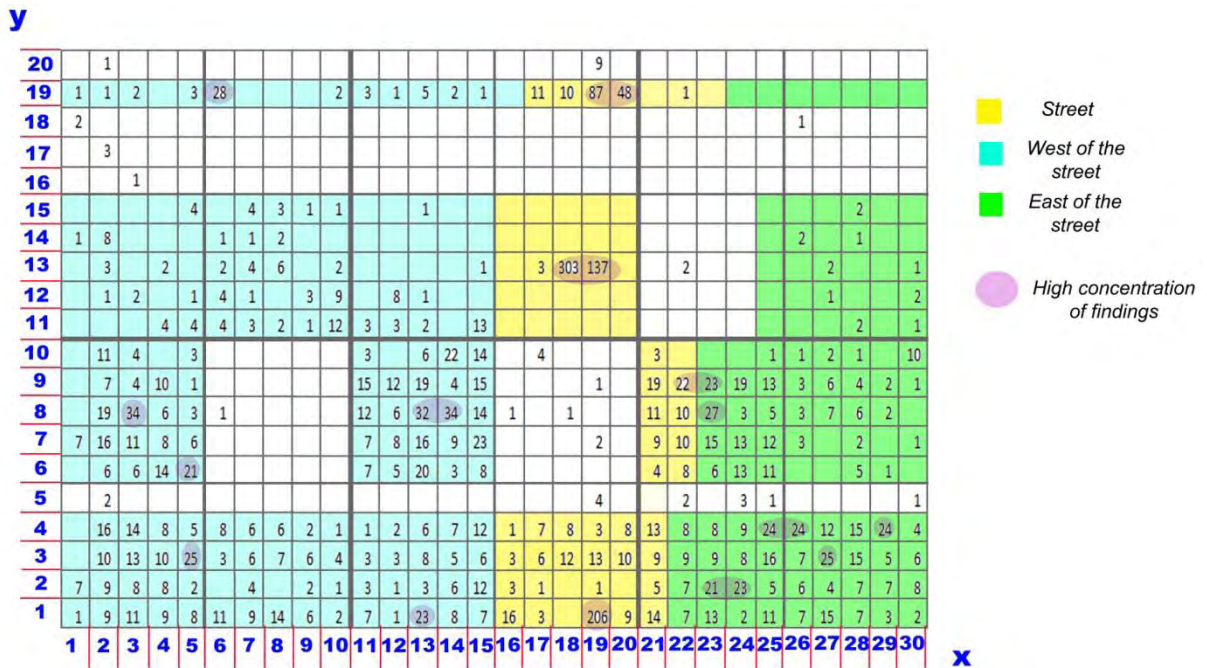
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 53: Distribution of Ware 16 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

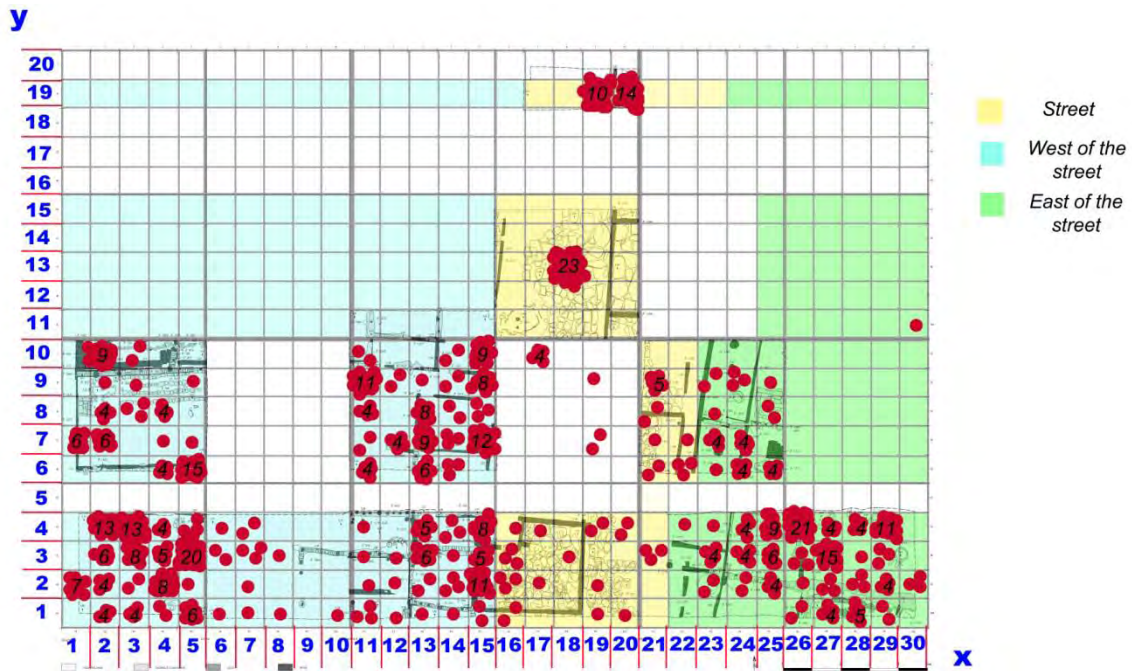
APP. D.7.8.: WARE 20

(subtypes = depicted together as no difference in origin is stated in classification)

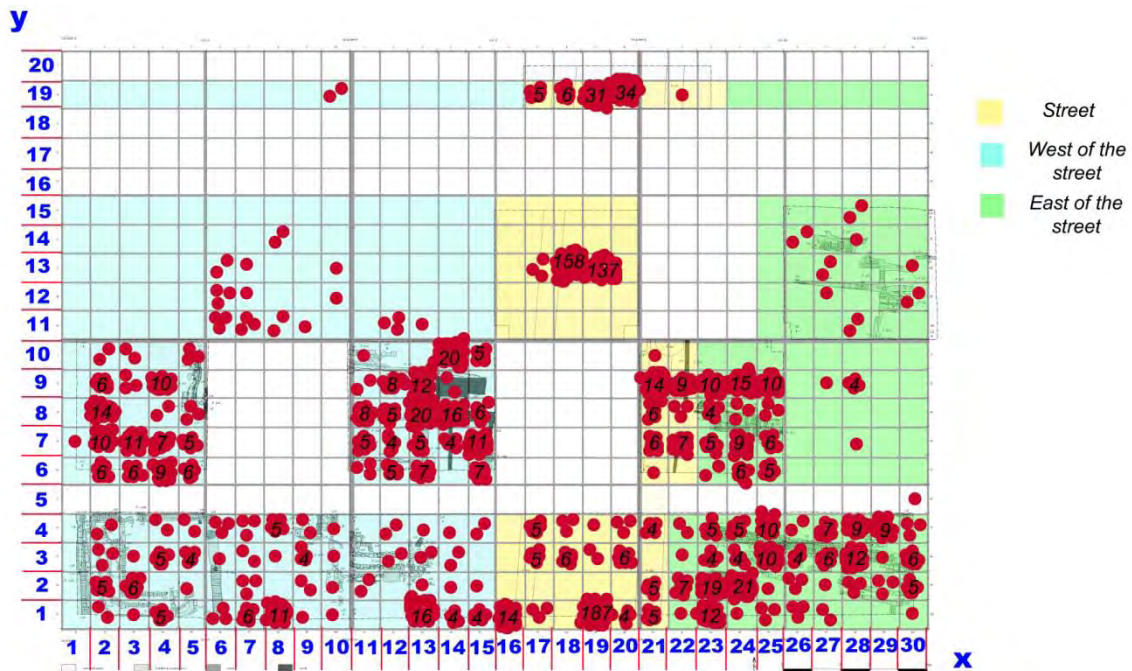


Distribution Map 54: Distribution of Ware 20 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

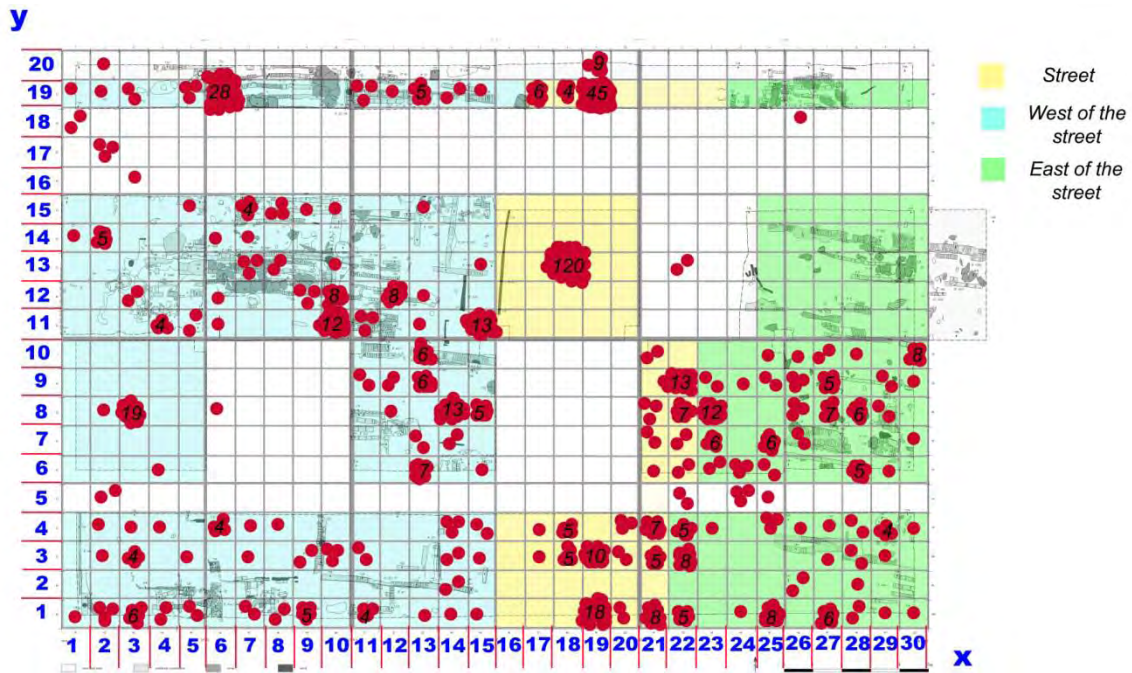


Distribution Map 55: Distribution of Ware 20 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 56: Distribution of Ware 20 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

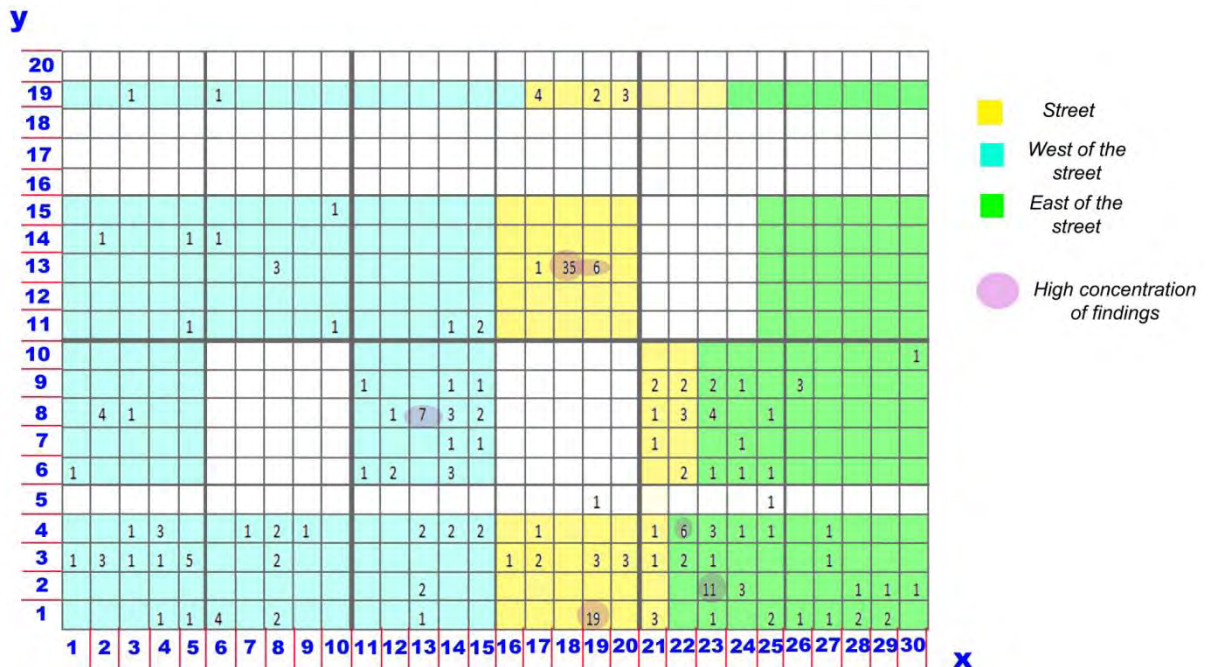
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 57: Distribution of Ware 20 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

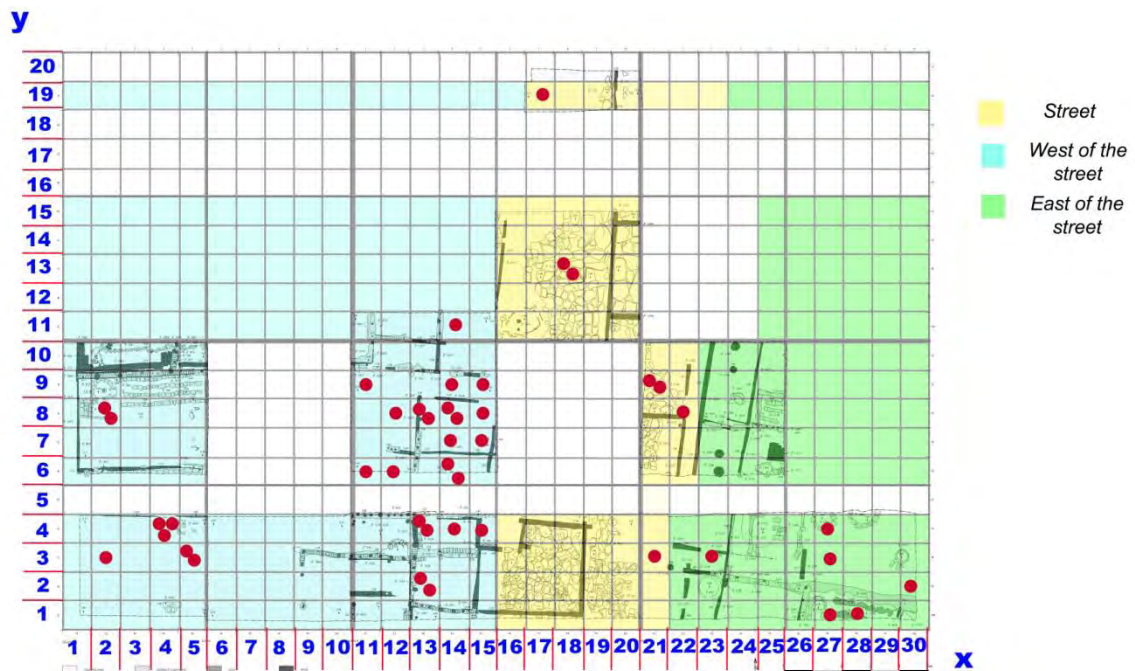
APP. D.7.9.: WARES 22 + 23

(types = depicted together as no difference in origin is stated in classification)

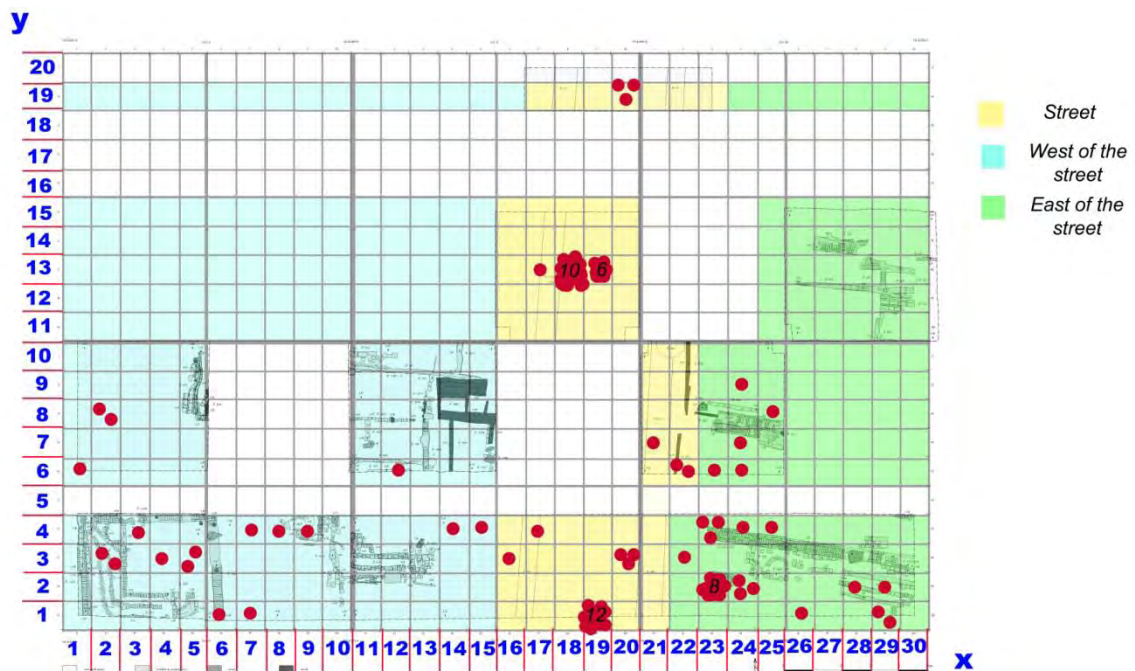


Distribution Map 58: Distribution of Ware 22 and 23 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

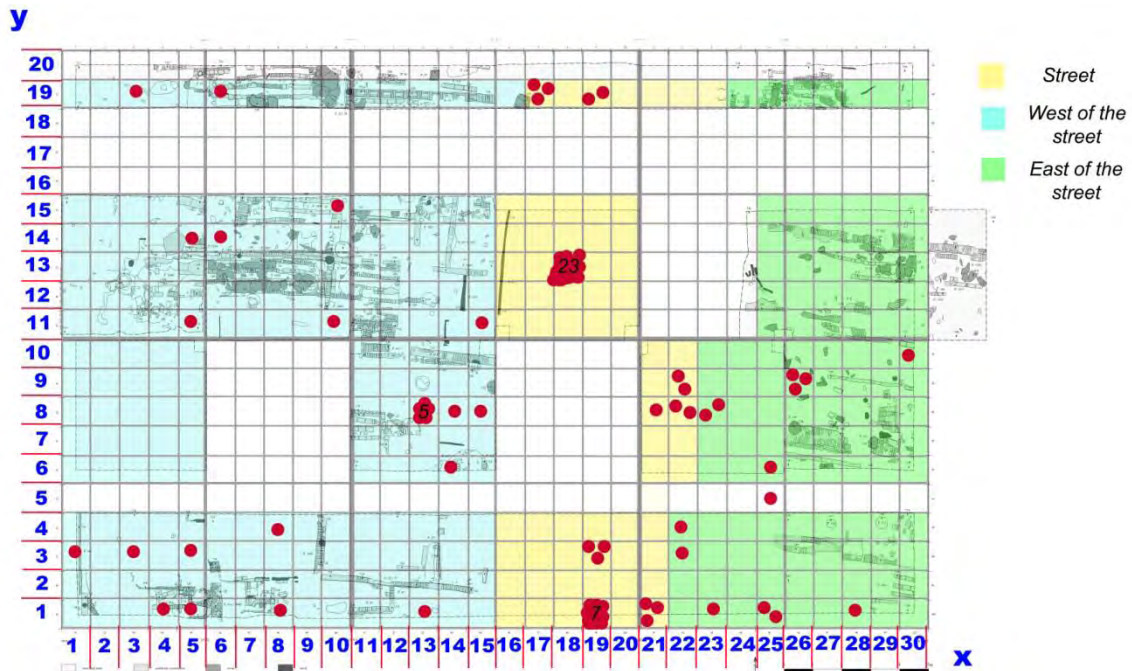


Distribution Map 59: Distribution of Wares 22 and 23 in settlement period I. Each dot marks one fragment.



Distribution Map 60: Distribution of Wares 22 and 23 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

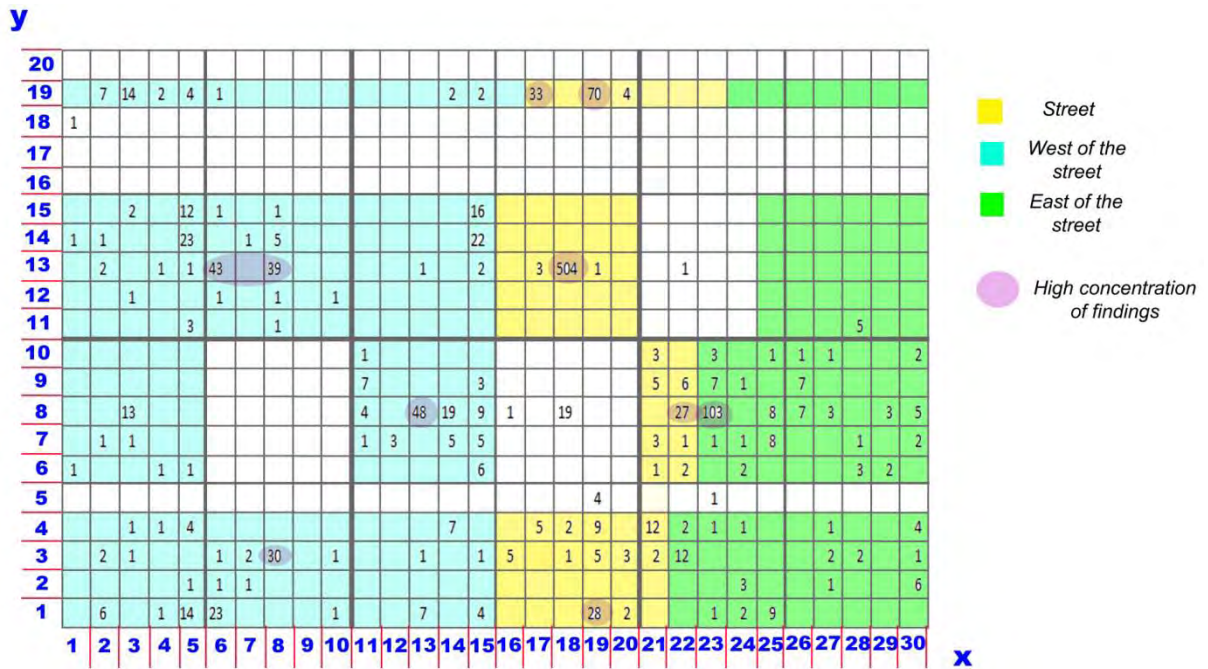
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 61: Distribution of Wares 22 and 23 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

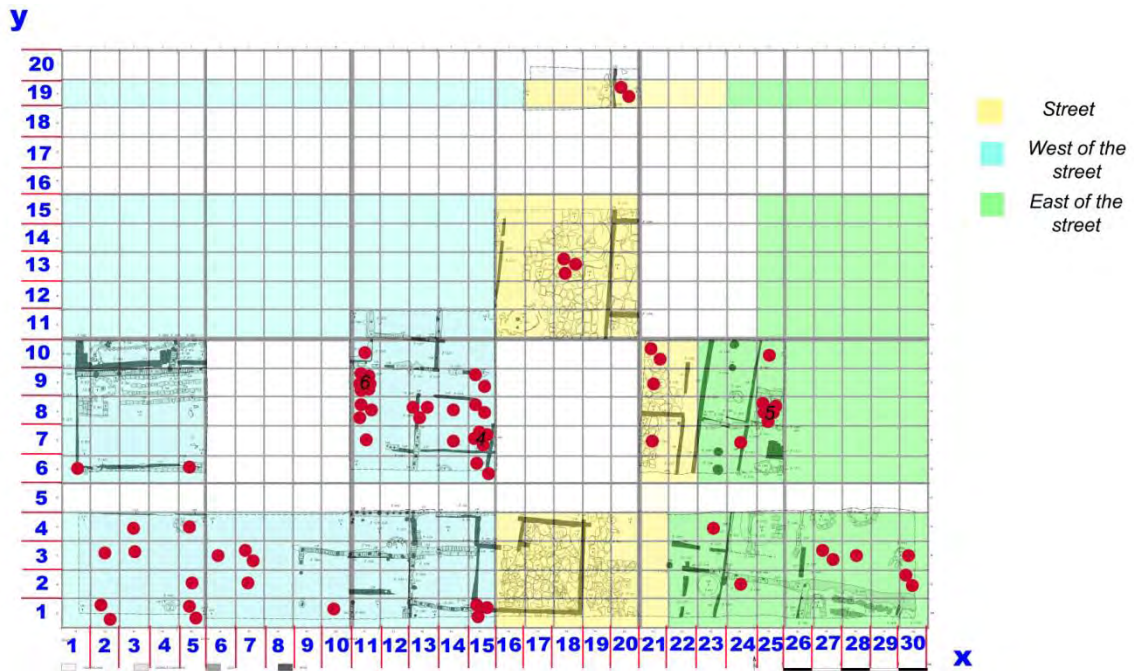
APP. D.7.10.: WARE 27

(depicted = subtype ware 27.1. only! = most dominant and representative)

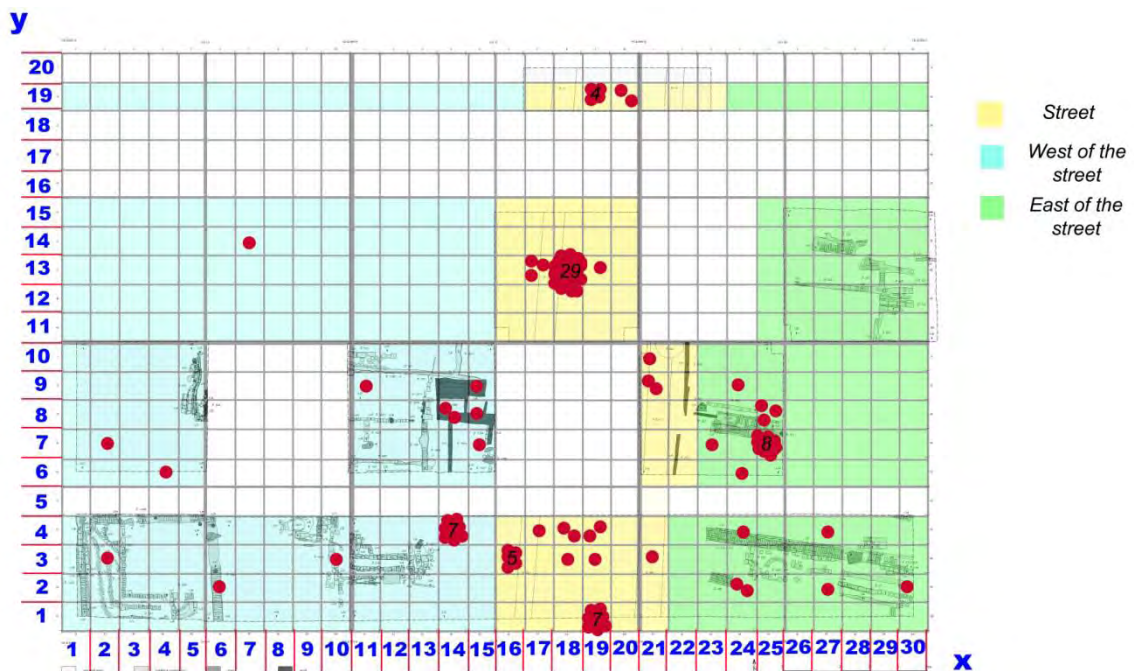


Distribution Map 62 : Distribution of Ware 27.1. in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

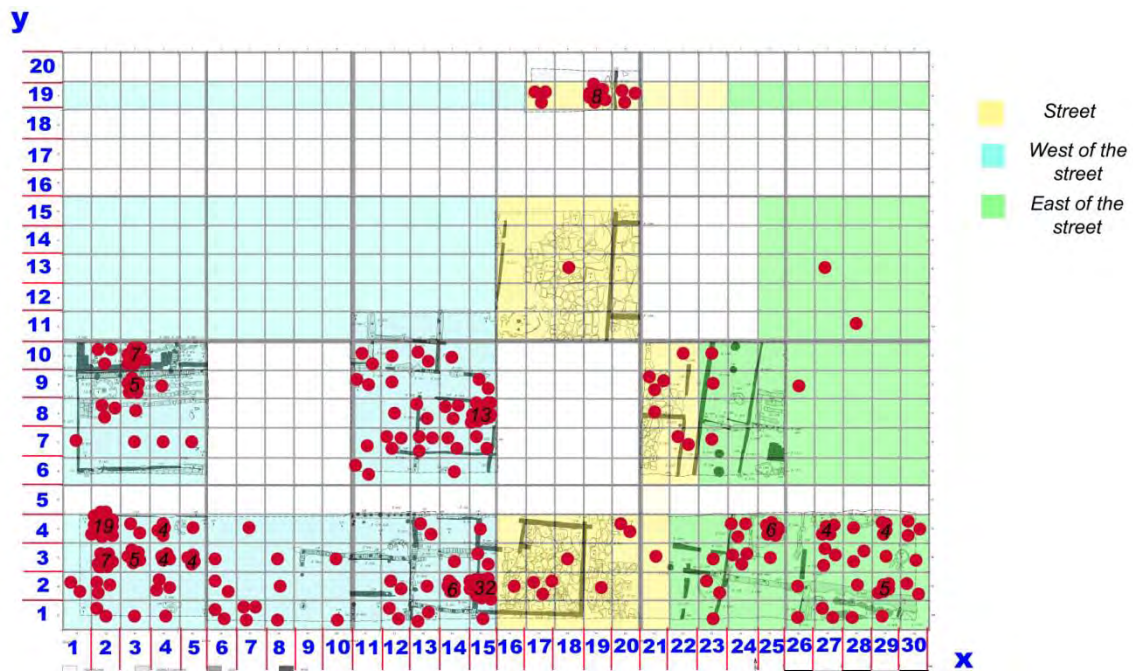


Distribution Map 63: Distribution of Ware 27.1. in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

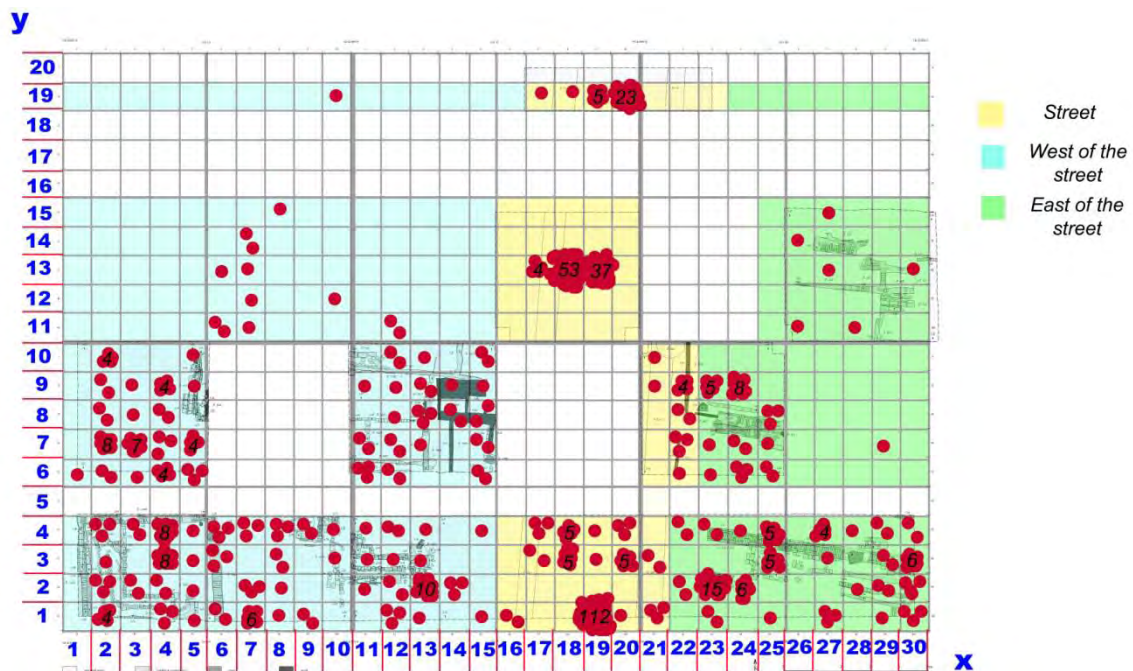


Distribution Map 64: Distribution of Ware 27.1. in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

App. D.7.: Distribution of Wares with a Share of More than 1%

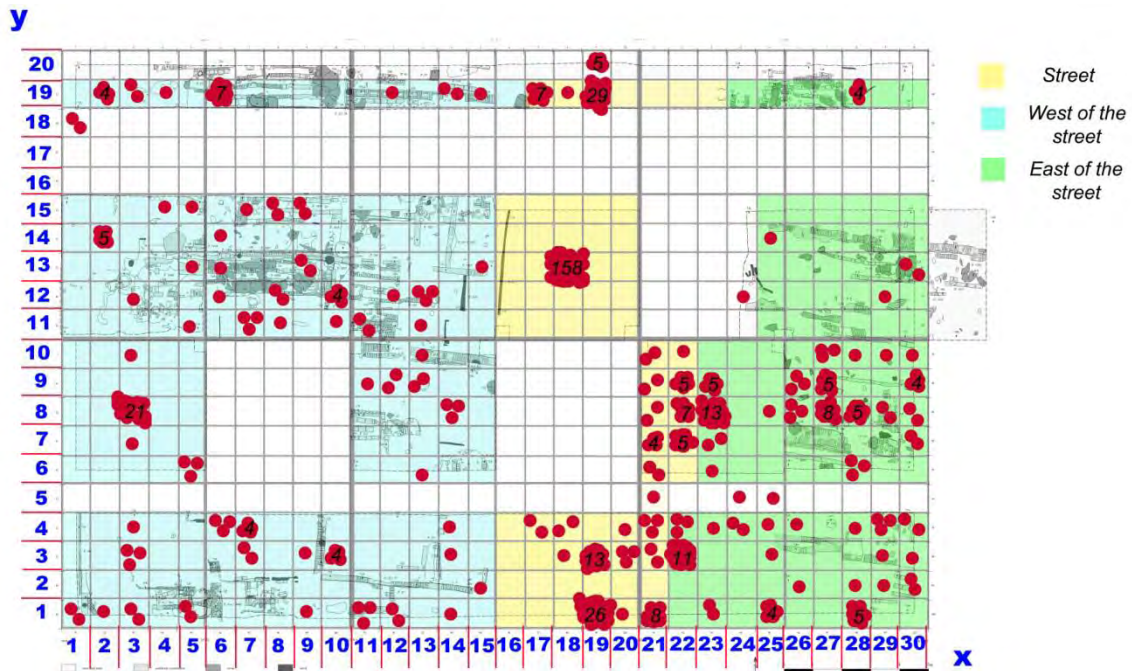


Distribution Map 67: Distribution of Ware 28 in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



Distribution Map 68: Distribution of Ware 28 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

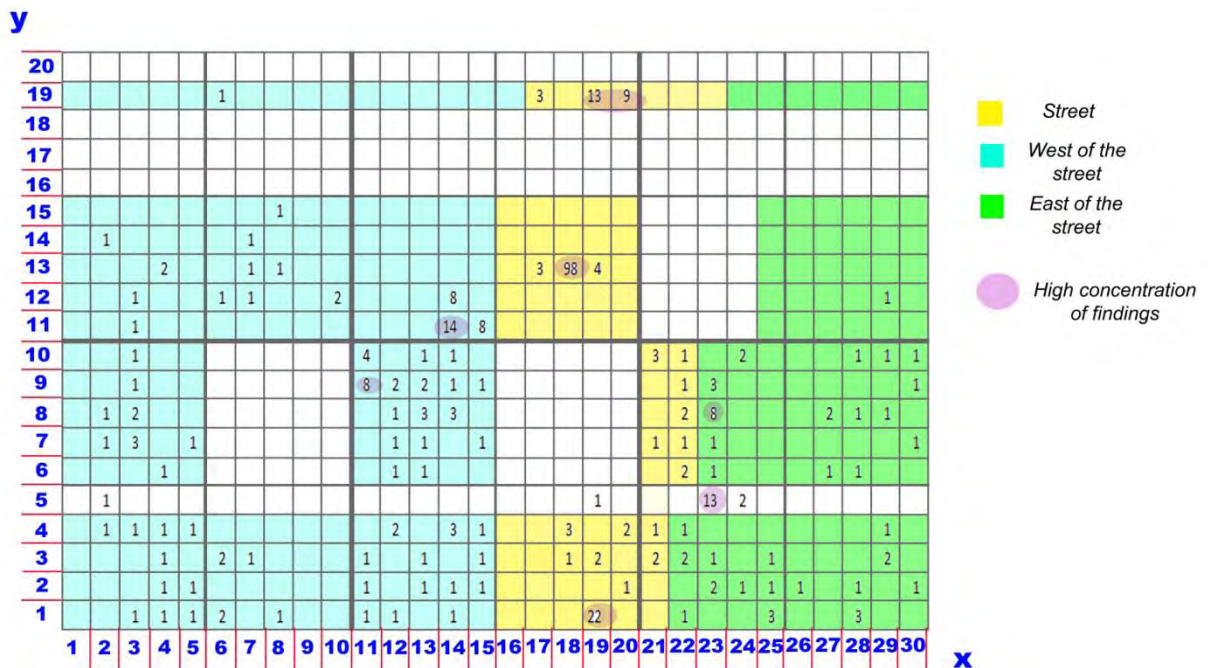
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 69: Distribution of Ware 28 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

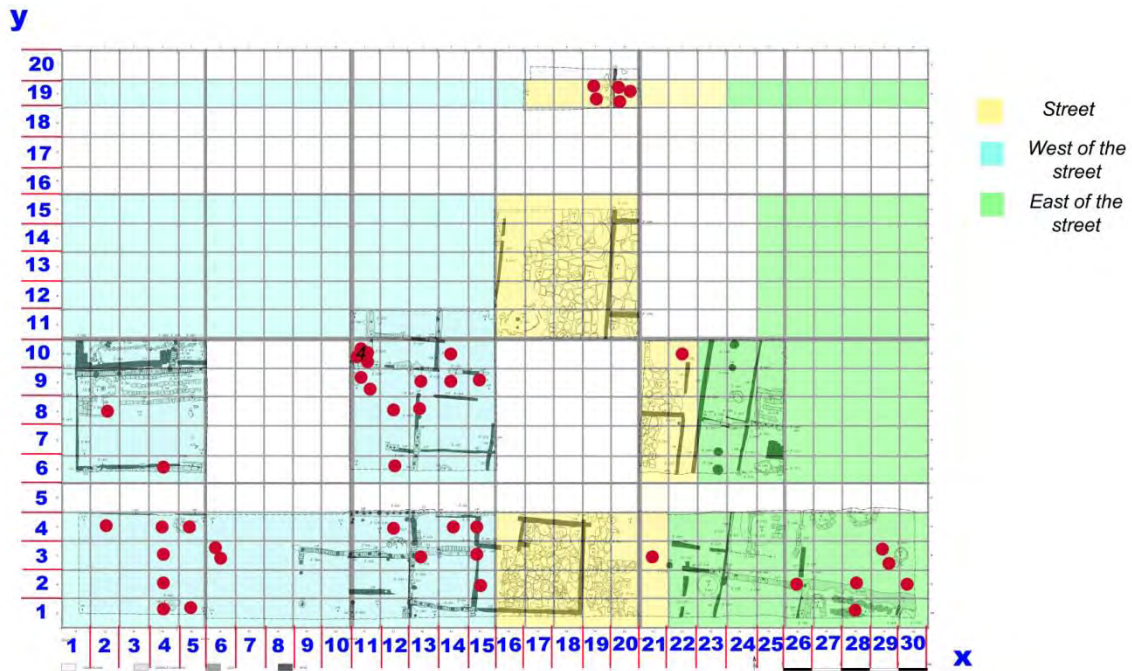
APP. D.7.12.: WARE 35

(subtypes ware 35.1. + 35.2. only as 35.3. is not comparable in classification)

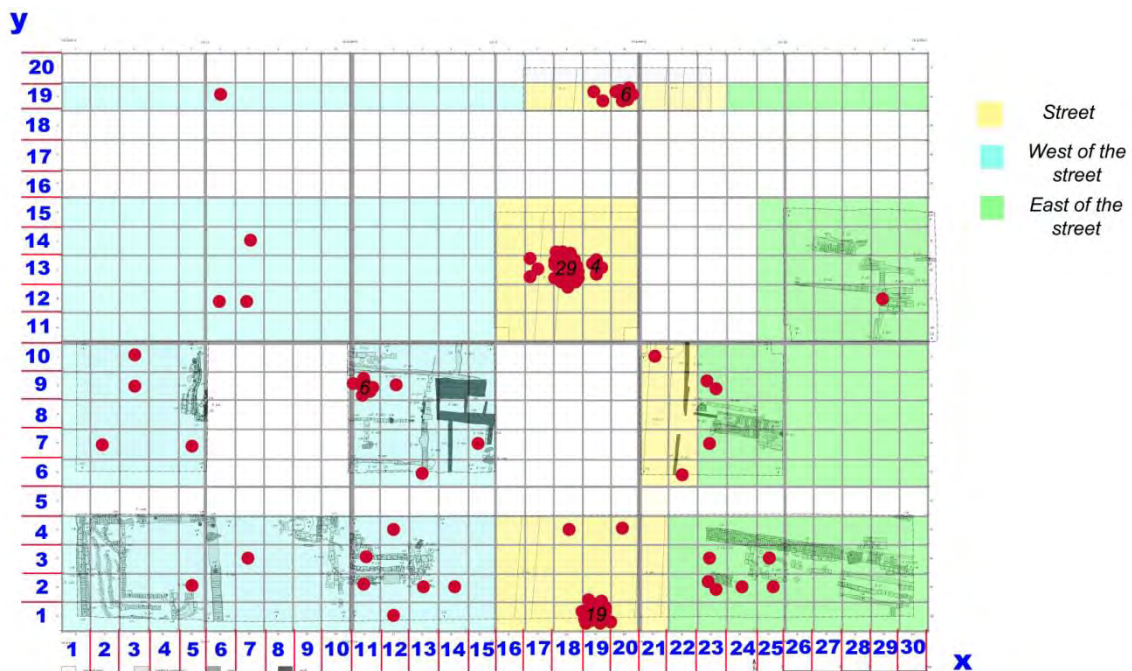


Distribution Map 70: Distribution of Ware 35.1. - 2. in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

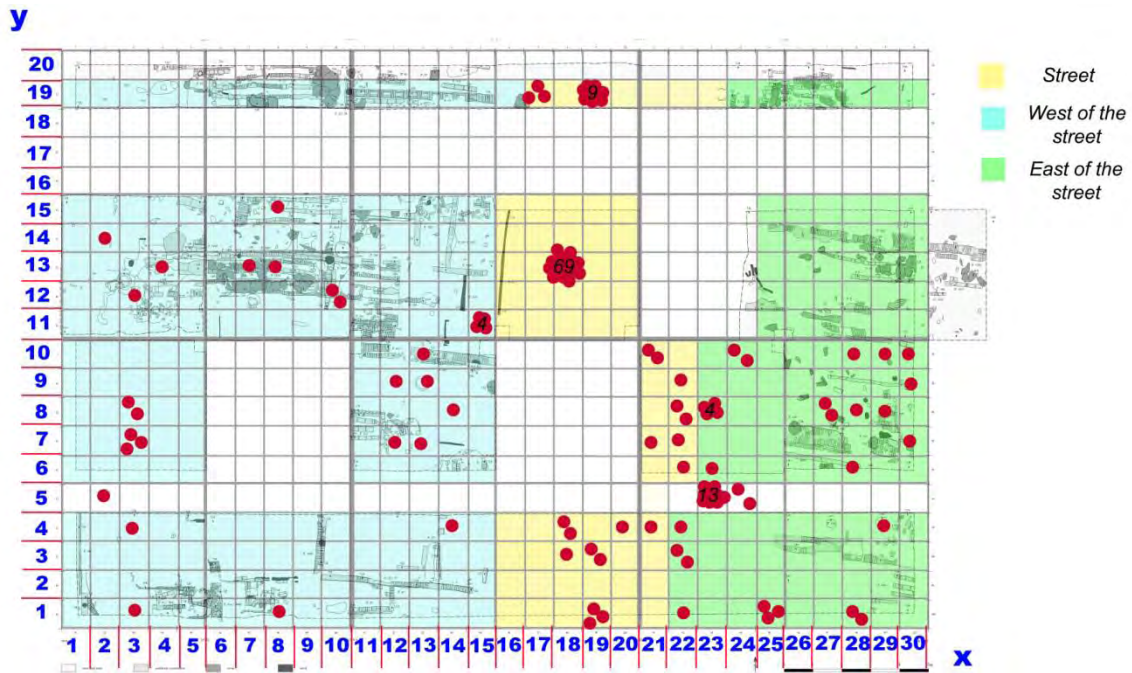


Distribution Map 71: Distribution of Ware 35.1. – 2. in settlement period I. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.



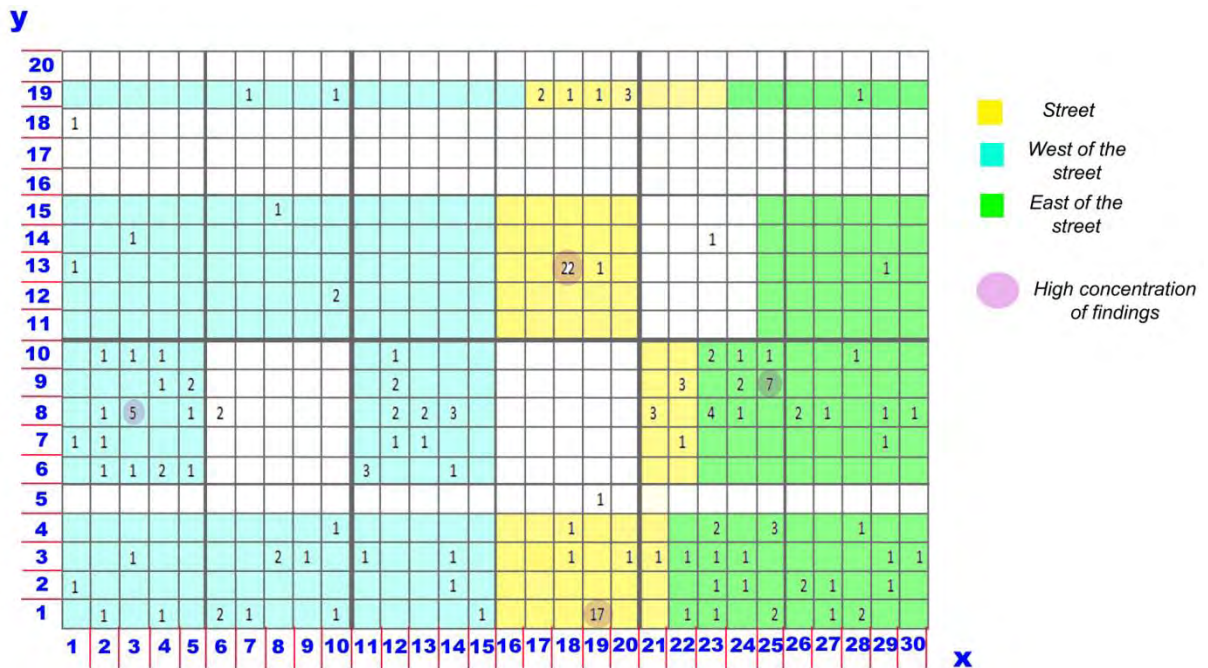
Distribution Map 72: Distribution of Ware 35.1. – 2. in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

App. D.7.: Distribution of Wares with a Share of More than 1%



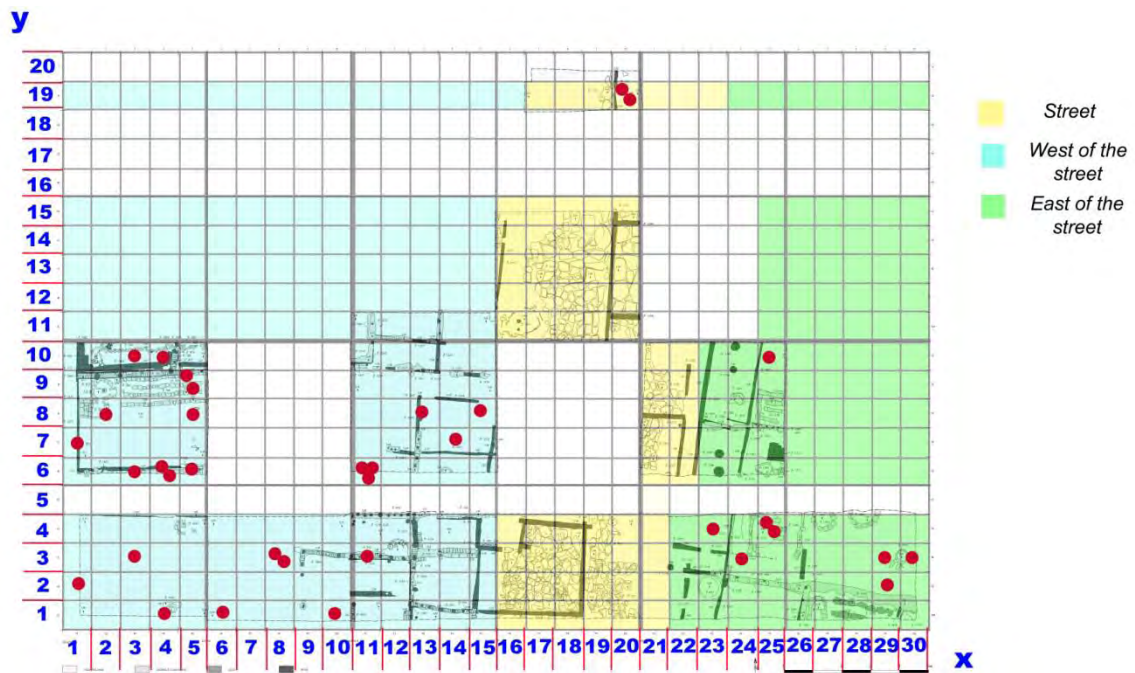
Distribution Map 73: Distribution of Ware 35.1. – 2. in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

APP. D.7.13.: WARE 40

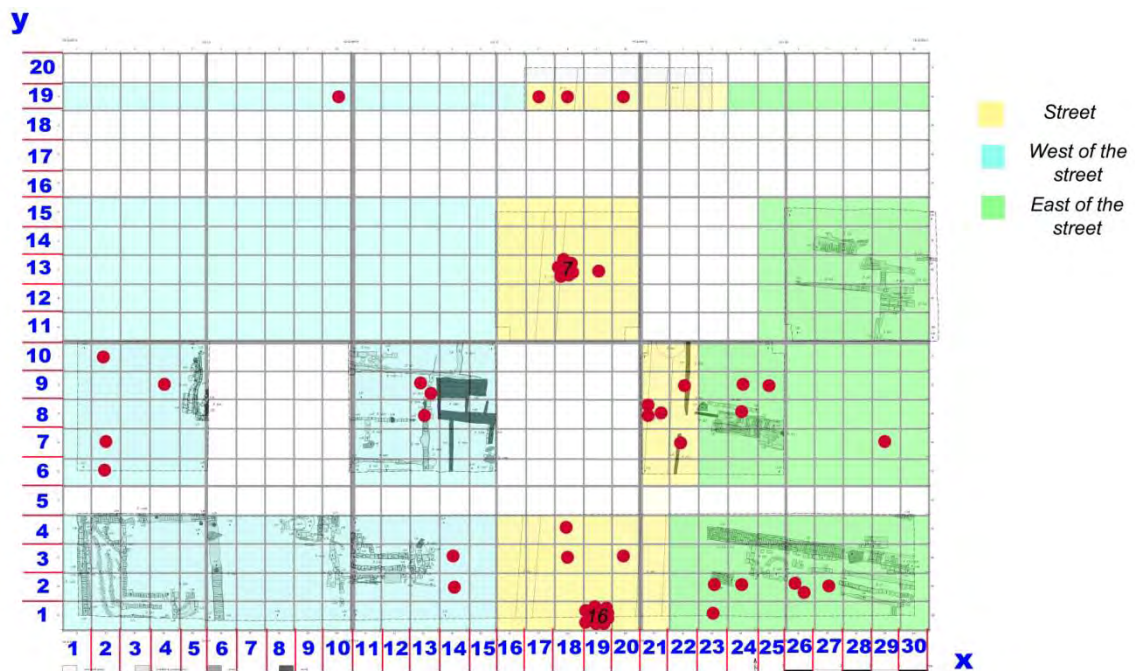


Distribution Map 74: Distribution of Ware 40 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%

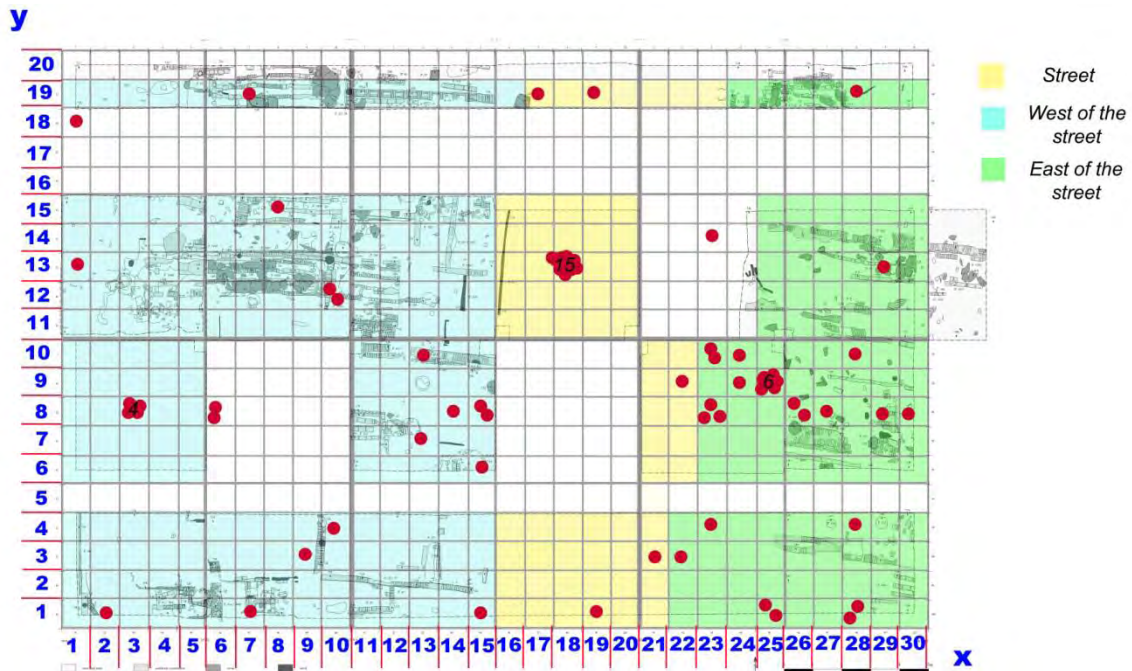


Distribution Map 75: Distribution of Ware 40 in settlement period I. Each dot marks one fragment.



Distribution Map 76: Distribution of Ware 40 in settlement period II. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

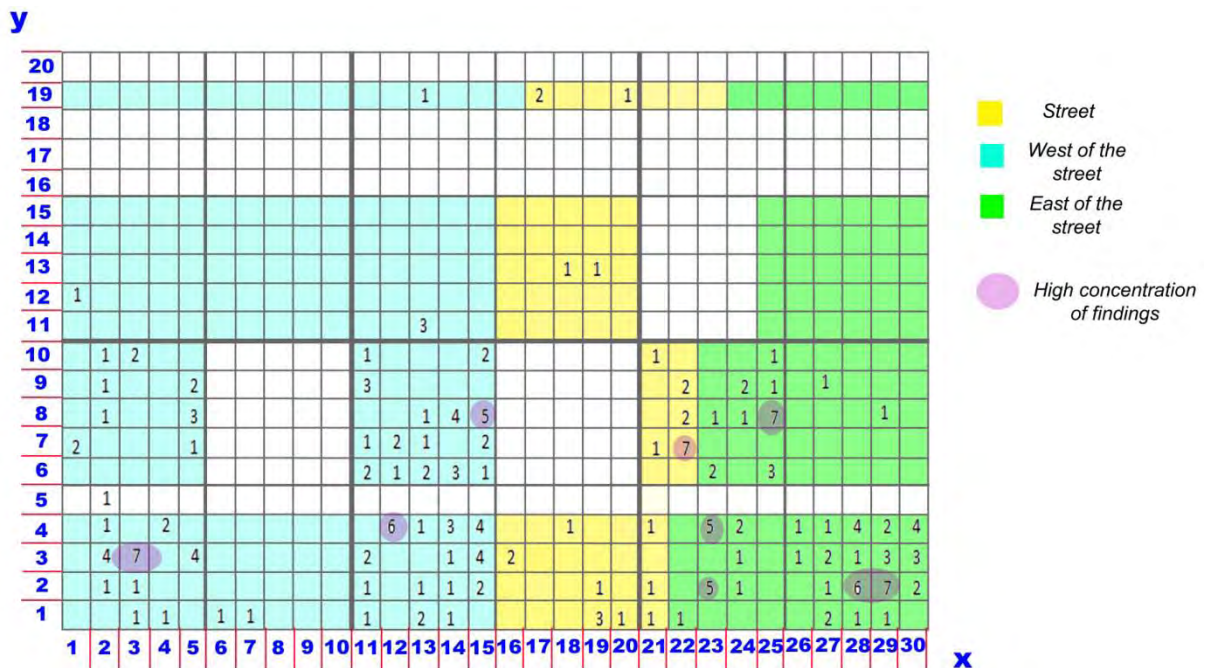
App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 77: Distribution of Ware 40 in settlement period III. Each dot marks one fragment. In square meters with more than three findings the number of fragments is written in black.

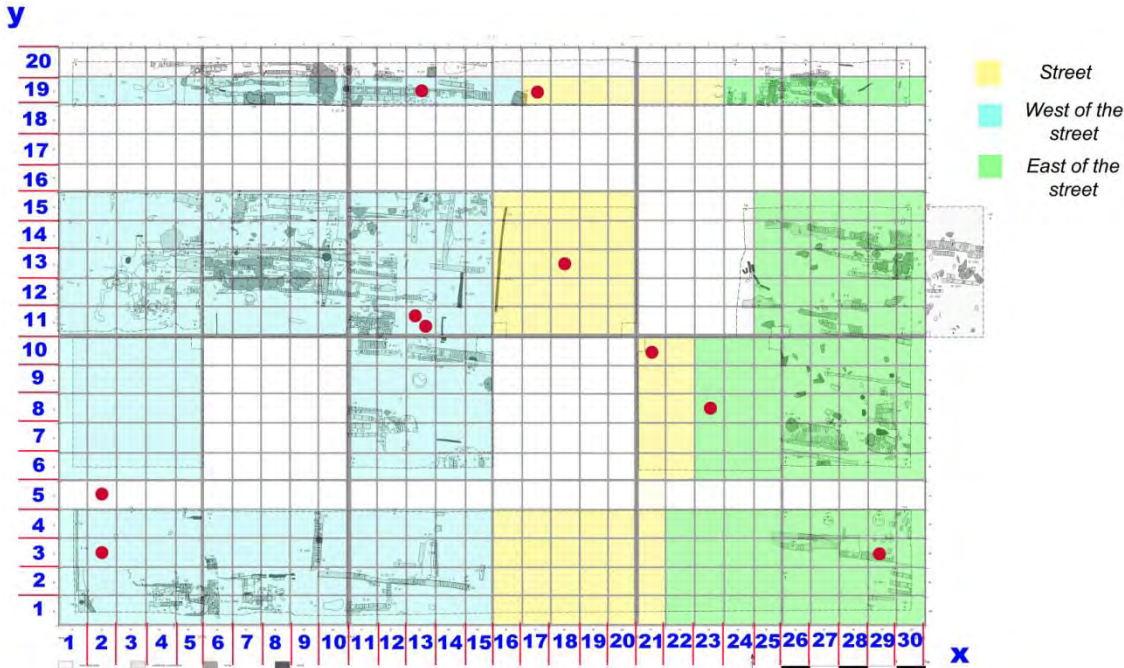
APP. D.7.14.: WARE 43

(subtypes = depicted together as no difference in origin is stated in classification)



Distribution Map 78: Distribution of Ware 43 in total.

App. D.7.: Distribution of Wares with a Share of More than 1%



Distribution Map 81: Distribution of Ware 43 in settlement period III. Each dot marks one fragment.

APPENDIX E: COMPILATION OF WARE GROUPS IN TIME AND SPACE

APP. E.1.: STREET

LH 16 – 28, all fragments from Street = 6806 / datable = 6767

Repair (total) = 154 (153 = datable) (= 2,3%)

Marks (total) = 29 (all datable) (= 0,4%)

Per. I = 277	→ repair = 0 (= 0%)	→ marks = 4 (1 DS) (1,4%)
Per. II = 2738	→ repair = 60 (= 2,2%)	→ marks = 6 (= 0,2%)
Per. III = 3617	→ repair = 86 (= 2,4%)	→ marks = 18 (= 0,5%)
Surface = 135	→ repair = 7 (= 5,2%)	→ marks = 1 (= 0,7%)

Northern Wares (all):

total = 4892 Per. I = 241 Per. II = 2208 Per. III = 2315 Surface = 101
(n. d. = 27)

Southern Wares:

total = 813 Per. I. = 6 Per. II = 371 Per. III = 427 Surface = 4
(n. d. = 5)

Central Asia + Iran:

total = 27 Per. I = 15 Per. II = 8 Per. III = 3 Surface = 0
(n. d. = 1)

Unknown provenance:

total = 1074 Per. I = 15 Per. II = 151 Per. III = 872 Surface = 30
(n. d. = 6)

App. E.2.: West of the Street

APP. E.2.: WEST OF THE STREET

LH 16 – 28, all fragments west (= W + W/S in database) = 6082 / datable = 6048

Repair (total) = 191 (datable = 190) (= 3,1%)

Marks (total) = 30 (datable = all) (= 0,5%)

Per. I = 1612 → repair = 24 (= 1,5%) → marks = 8 (= 0,5%)

Per. II = 1930 → repair = 26 (= 1,3%) → marks = 11 (= 0,6%)

Per. III = 1800 → repair = 77 (= 4,3%) → marks = 10 (= 0,6%)

Surface = 706 → repair = 63 (= 8,9%) → marks = 1 (= 0,1%)

Northern wares (all):

total = 4509 Per. I = 1311 Per. II = 1632 Per. III = 1183 Surface = 357

(n. d. = 26)

Southern wares:

total = 662 Per. I = 48 Per. II = 219 Per. III = 313 Surface = 75

(n. d. = 7)

Central Asia + Iran:

total = 108 Per. I = 93 Per. II = 8 Per. III = 5 Surface = 1

(n. d. = 1)

Unknown provenance:

total = 786 Per. I = 152 Per. II = 67 Per. III = 296 Surface = 271

(n. d. = 0)

App. E.3.: East of the Street

APP. E.3.: EAST OF THE STREET

LH 16 – 28, all fragments east (= E + E/S in database) = 3283 / datable = 3211

Repair (total) = 75 (datable = 74) (= 2,3%)

Marks (total) = 35 (datable = 33) (= 1,1%)

Per. I = 591 → repair = 8 (= 1,4%) → marks = 6 (= 1,0%)

Per. II = 1205 → repair = 21 (= 1,7%) → marks = 21 (= 1,7%)

Per. III = 1157 → repair = 35 (= 3,0%) → marks = 6 (= 0,5%)

Surface = 258 → repair = 10 (= 3,9%) → marks = 0 (= 0%)

Northern wares (all):

total = 1773 Per. I = 322 Per. II = 622 Per. III = 667 Surface = 113

(n. d. = 49)

Southern wares:

total = 444 Per. I = 24 Per. II = 188 Per. III = 202 Surface = 25

(n. d. = 5)

Central Asia + Iran:

total = 78 Per. I = 59 Per. II = 16 Per. III = 2 Surface = 0

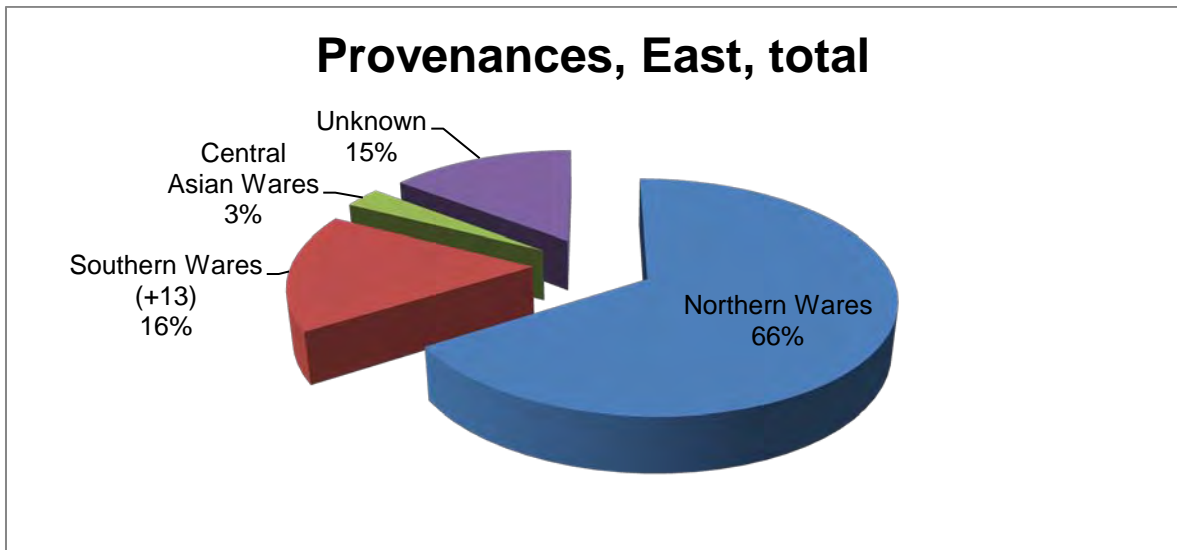
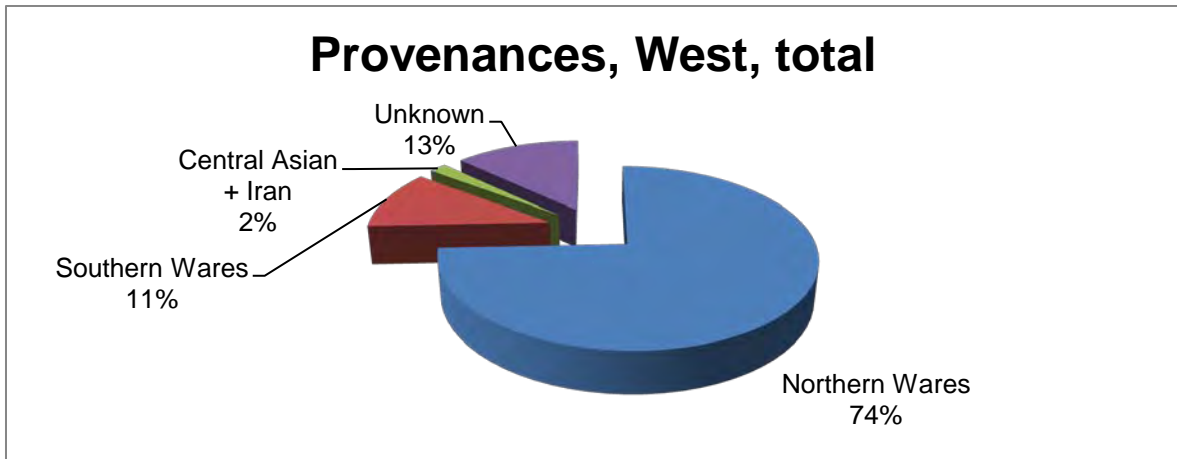
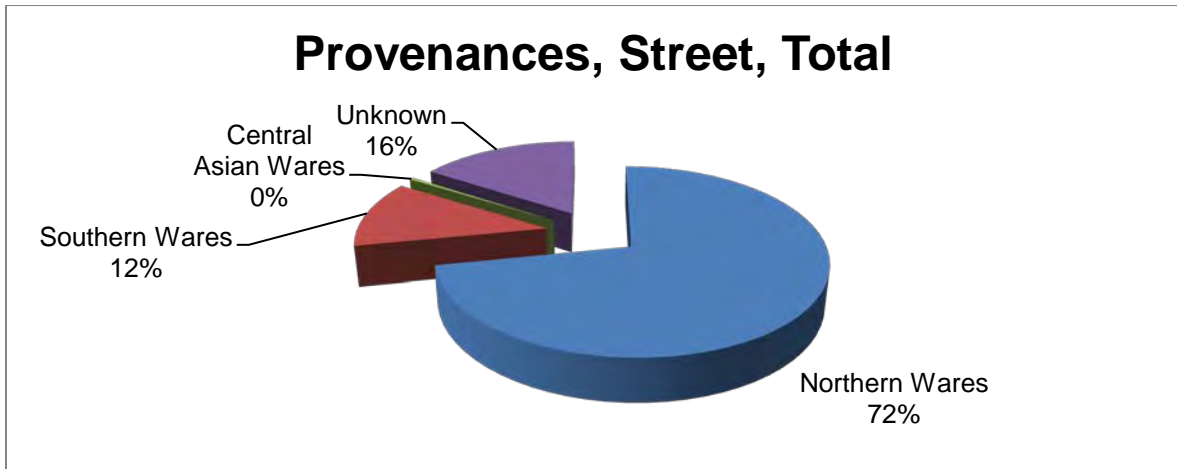
(n. d. = 1)

Unknown provenance: (spectrum = smaller than in other areas!)

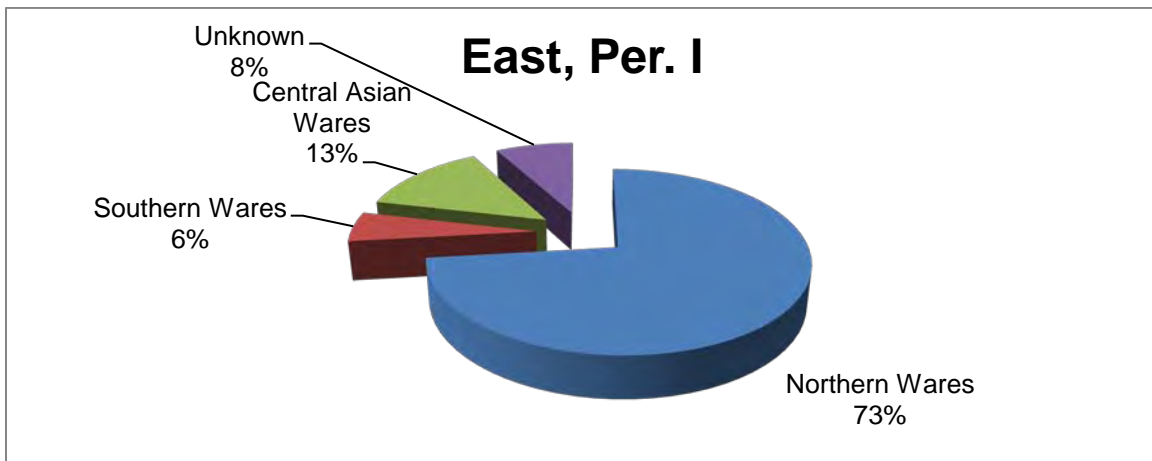
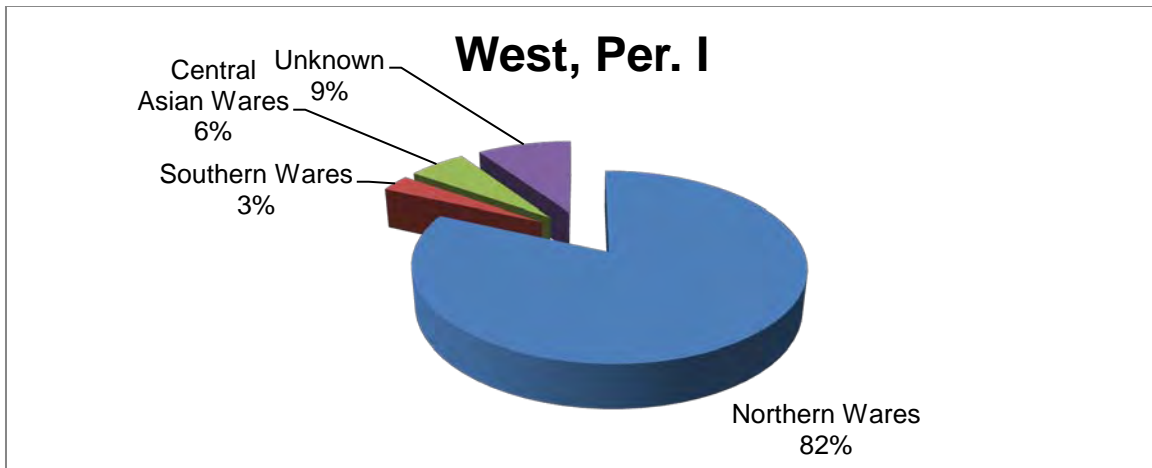
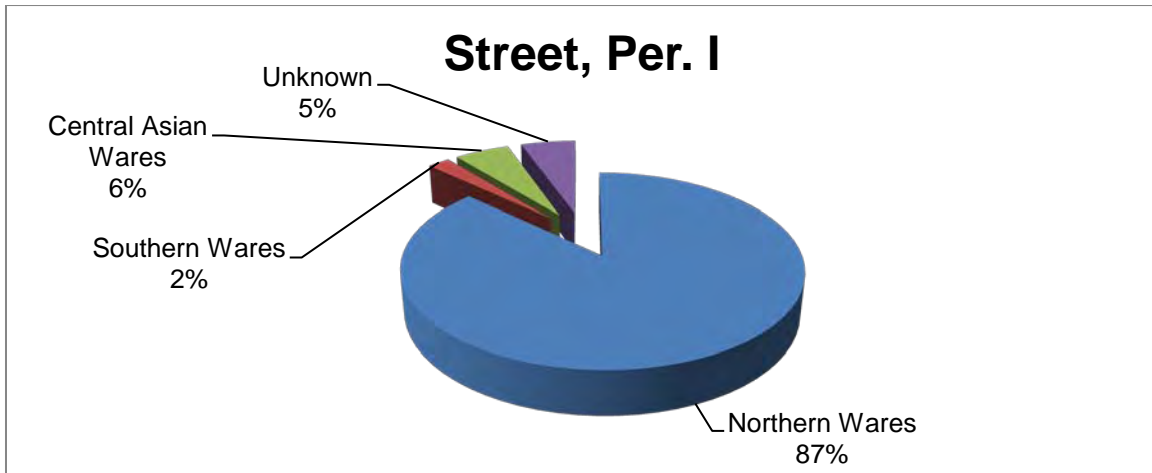
total = 391 Per. I = 35 Per. II = 107 Per. III = 148 Surface = 97

(n. d. = 5)

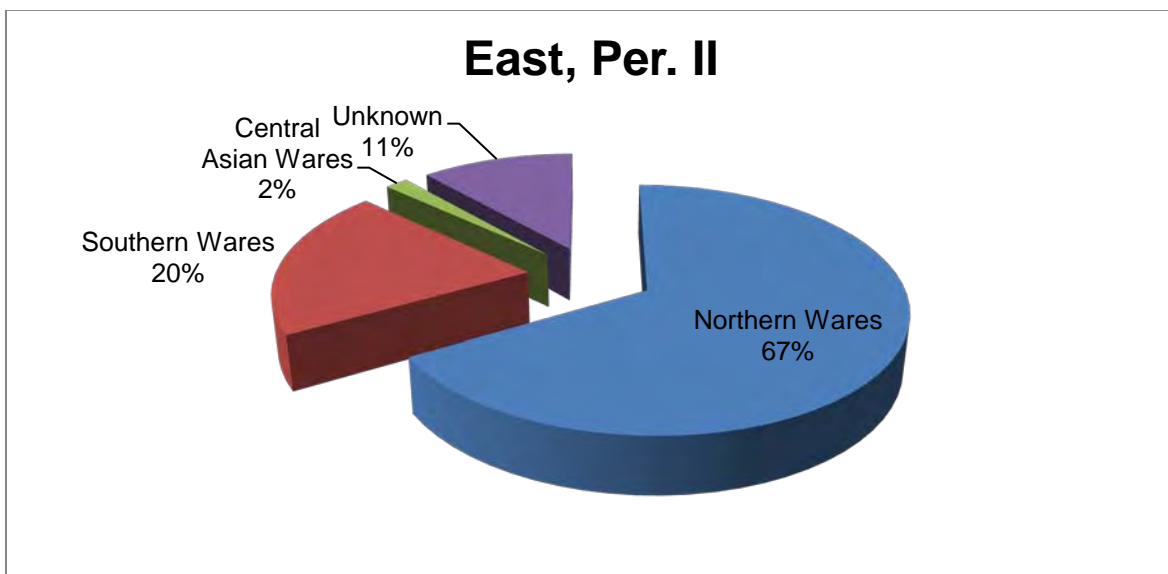
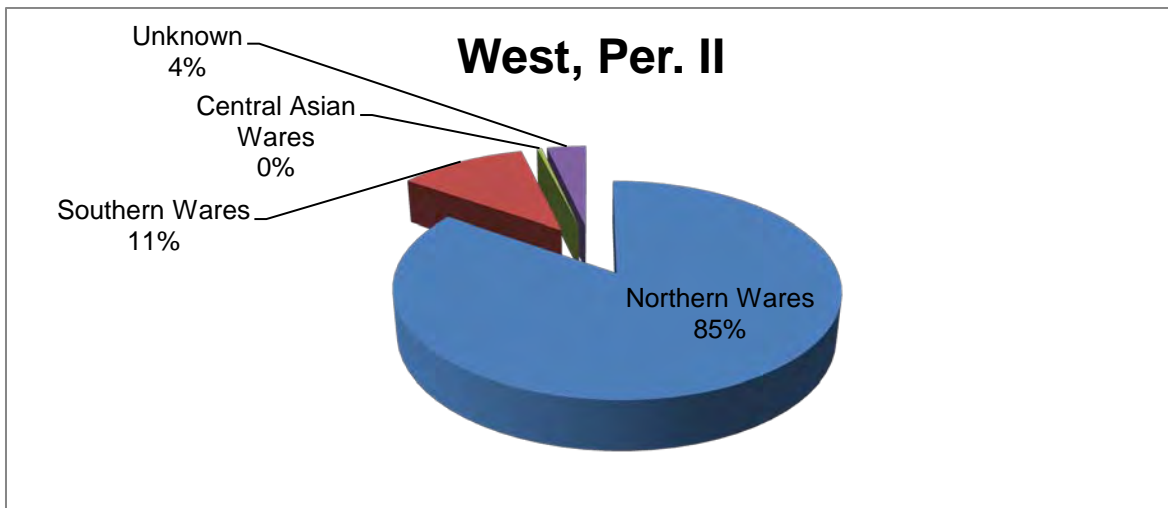
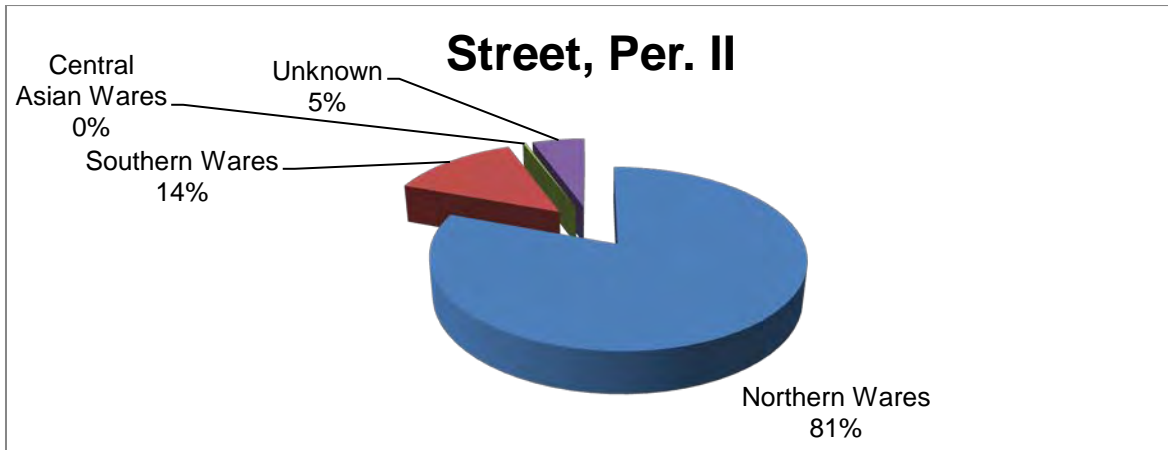
APP. E.4.: COMPARISON OF COMPILATIONS IN TOTAL



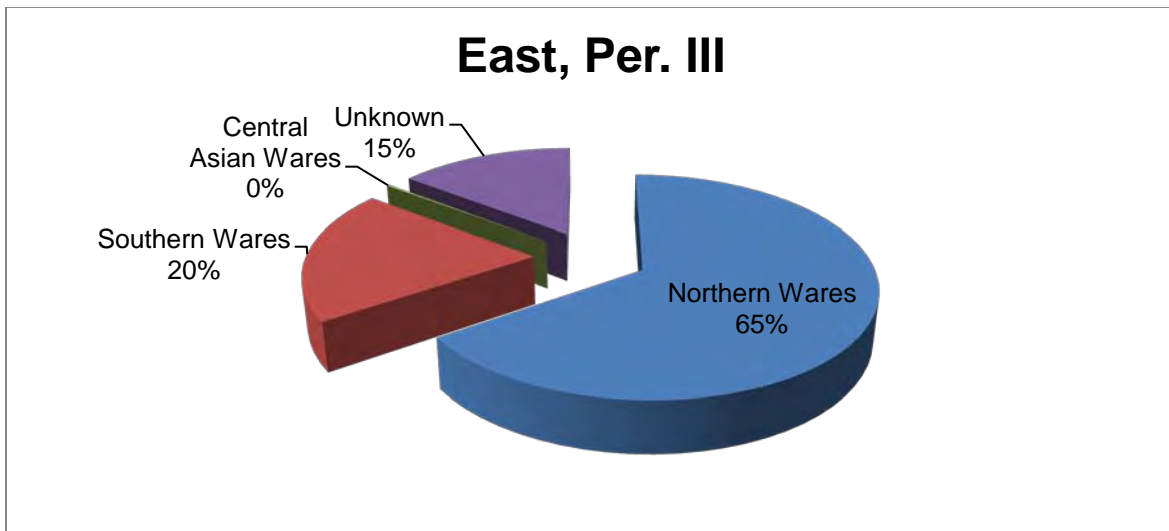
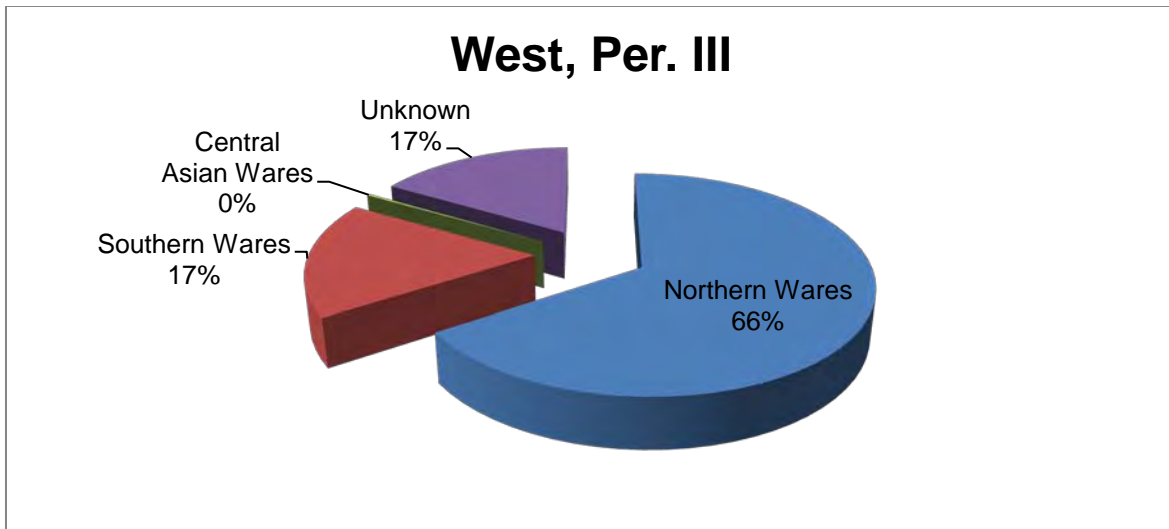
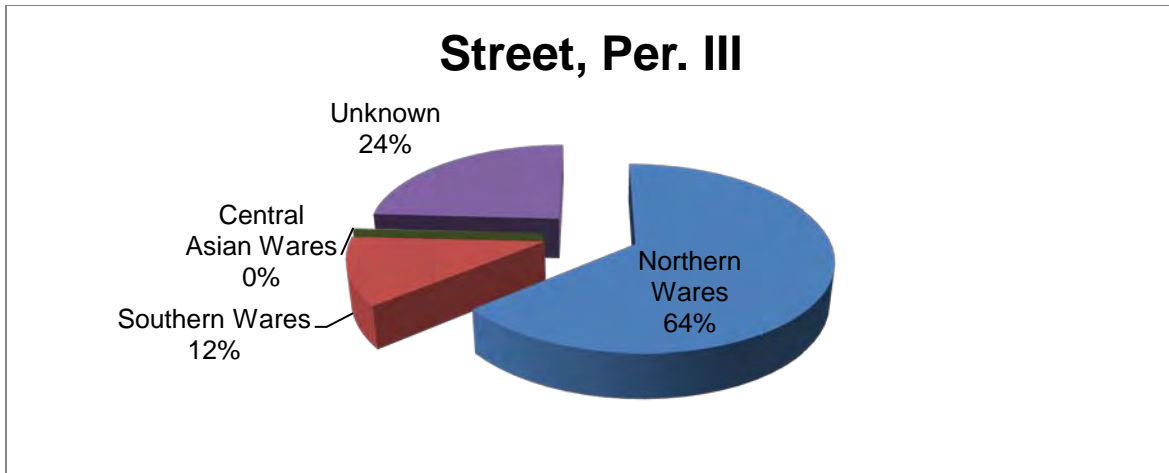
APP. E.5.: COMPARISON OF COMPILATIONS IN SETTLEMENT PERIOD I



APP. E.6.: COMPARISON OF COMPILATIONS IN SETTLEMENT PERIOD II

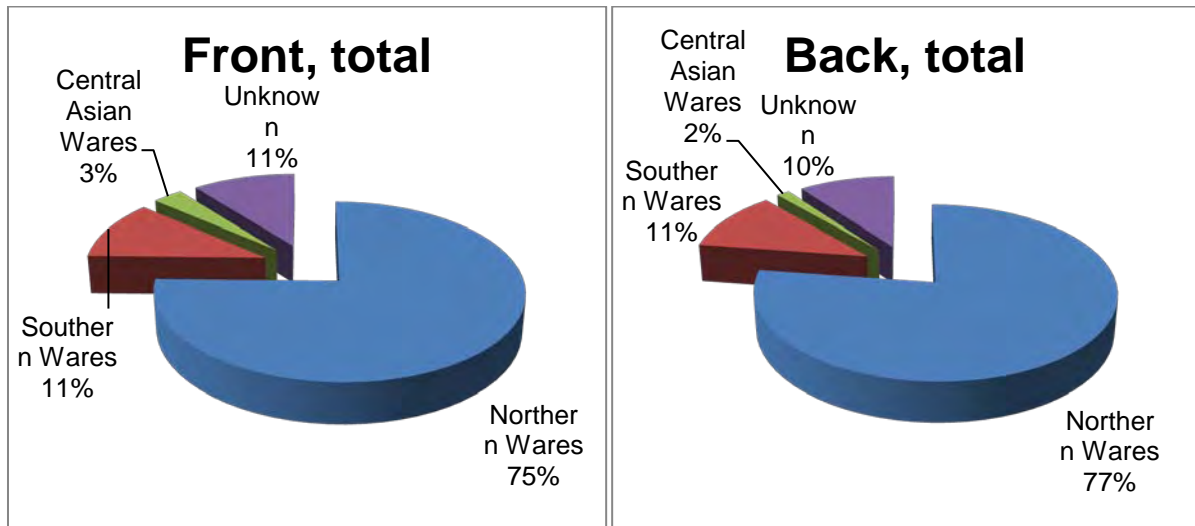


APP. E.7.: COMPARISON OF COMPILATIONS IN SETTLEMENT PERIOD III

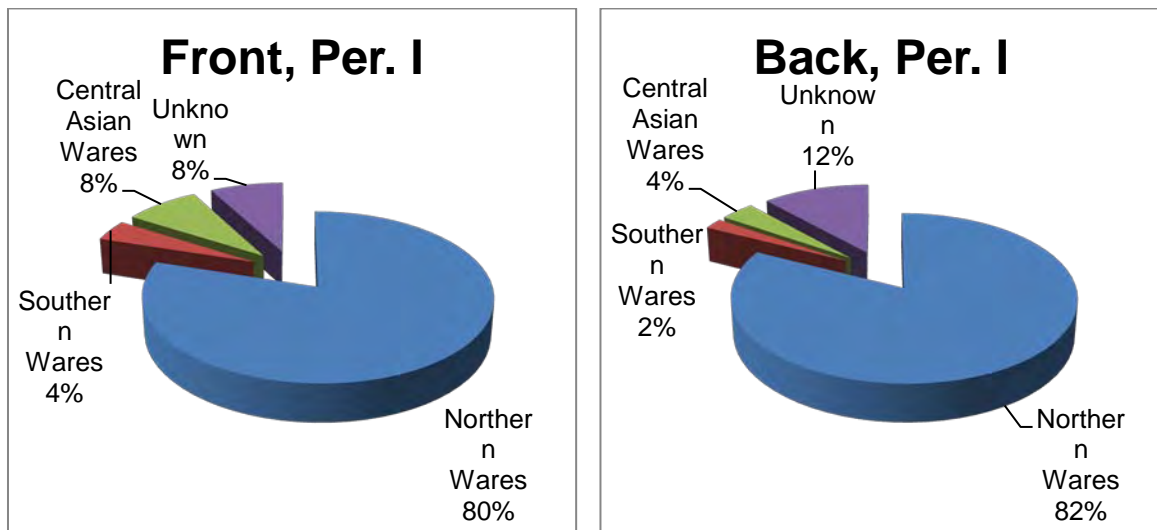


APP. E.8.: COMPILATION IN SECTIONS WEST OF THE STREET, INTERNALLY

	LH 27 (front)	LH 26 (back)
total (all periods)	2070	2769
Northern	1560	2141
Southern	228	313
Central Asia	64	38
Unknown	218	277

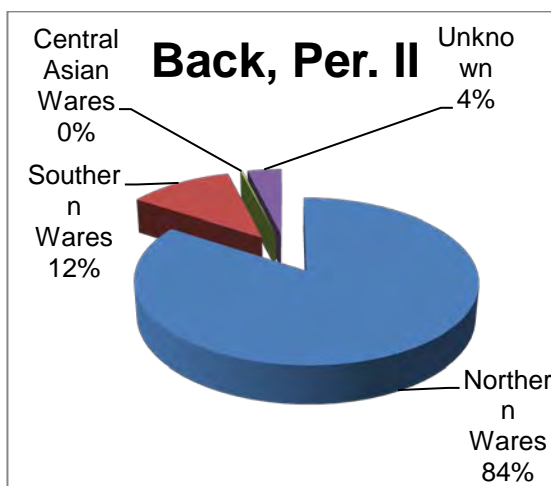
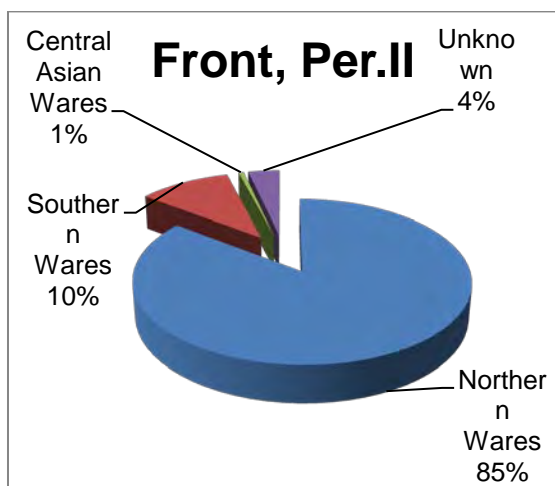


	LH 27 (front)	LH 26 (back)
Per. I	737	872
Northern	589	719
Southern	30	18
Central Asia	60	33
Unknown	58	102

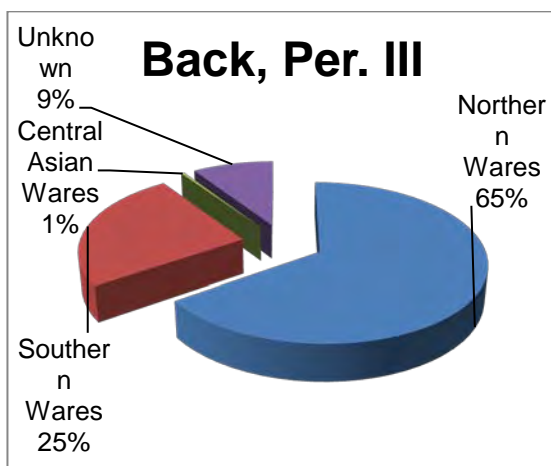
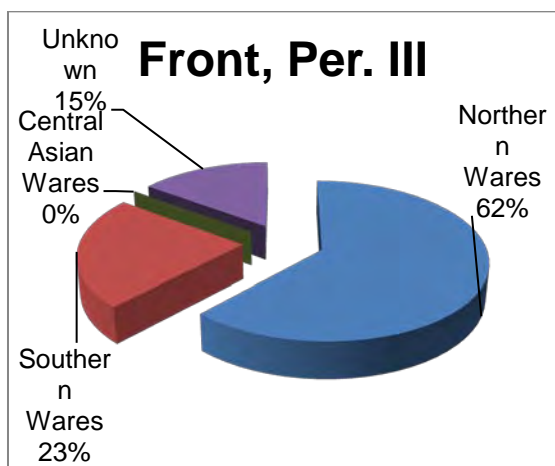


App. E.8.: Compilation in Sections West of the Street, internally

	LH 27 (front)	LH 26 (back)
Per. II	679	1127
Northern	580	949
Southern	71	132
Central Asia	4	3
Unknown	24	43



	LH 27 (front)	LH 26 (back)
Per. III	416	531
Northern	258	347
Southern	96	133
Central Asia	/	2
Unknown	62	49



FIGURES

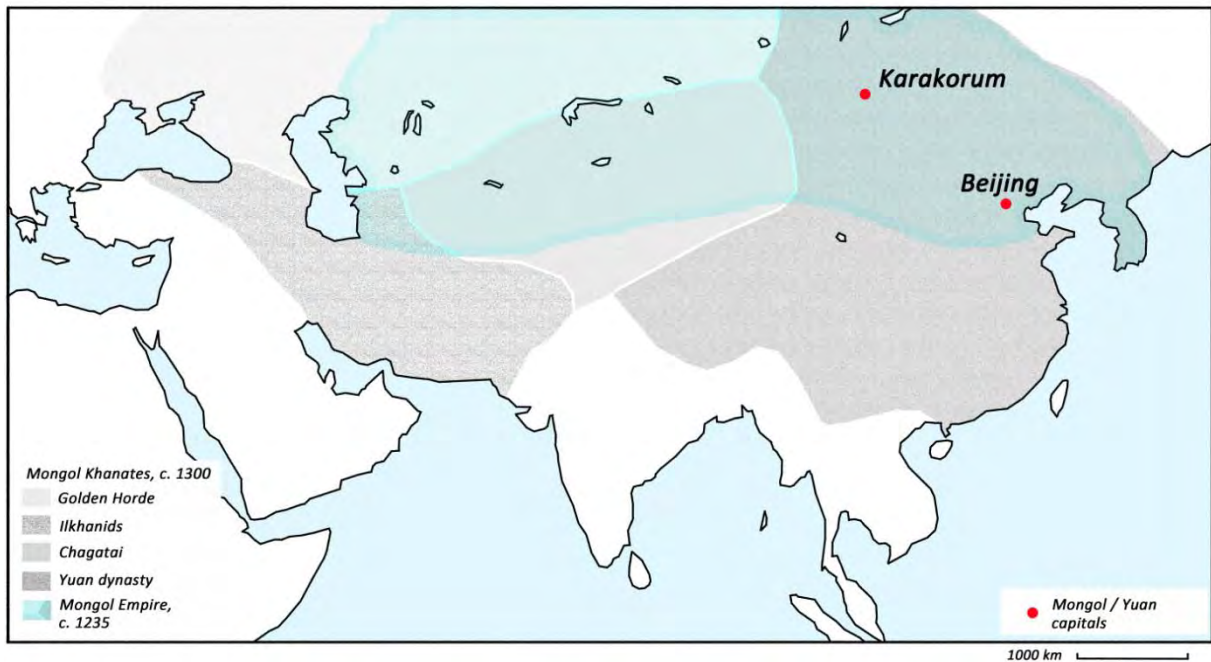


Figure 82: Location of Karakorum in the Mongol Khanates and the Yuan Dynasty.

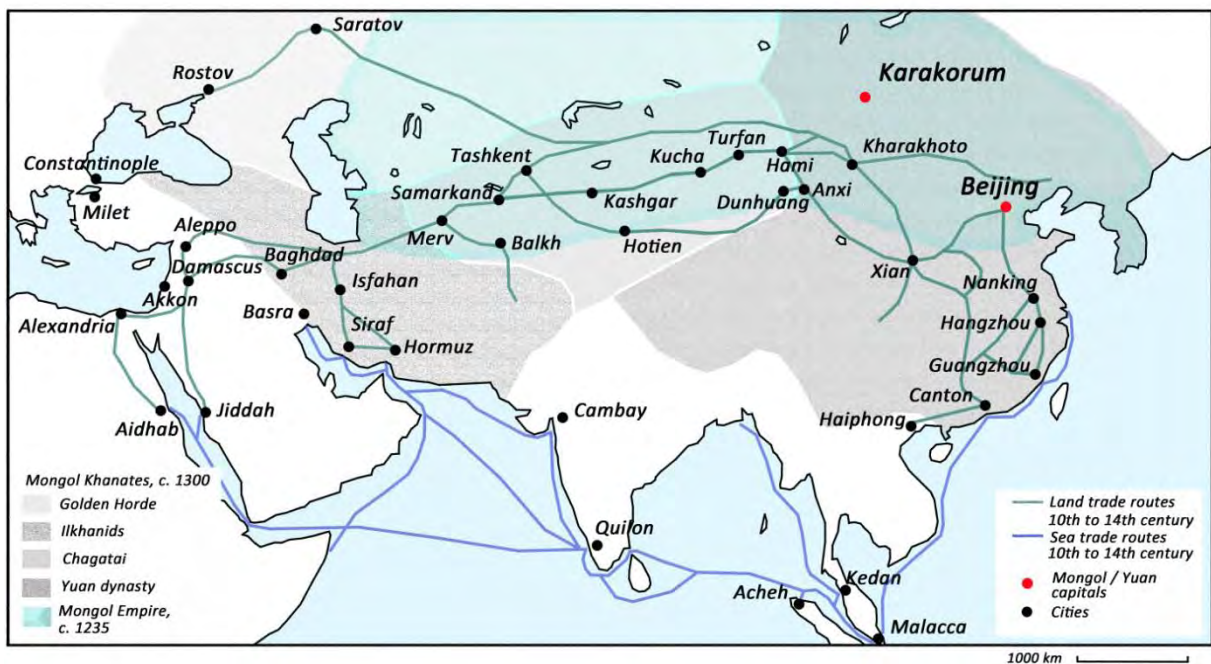


Figure 83: Common trade routes of the 10th to 14th century.

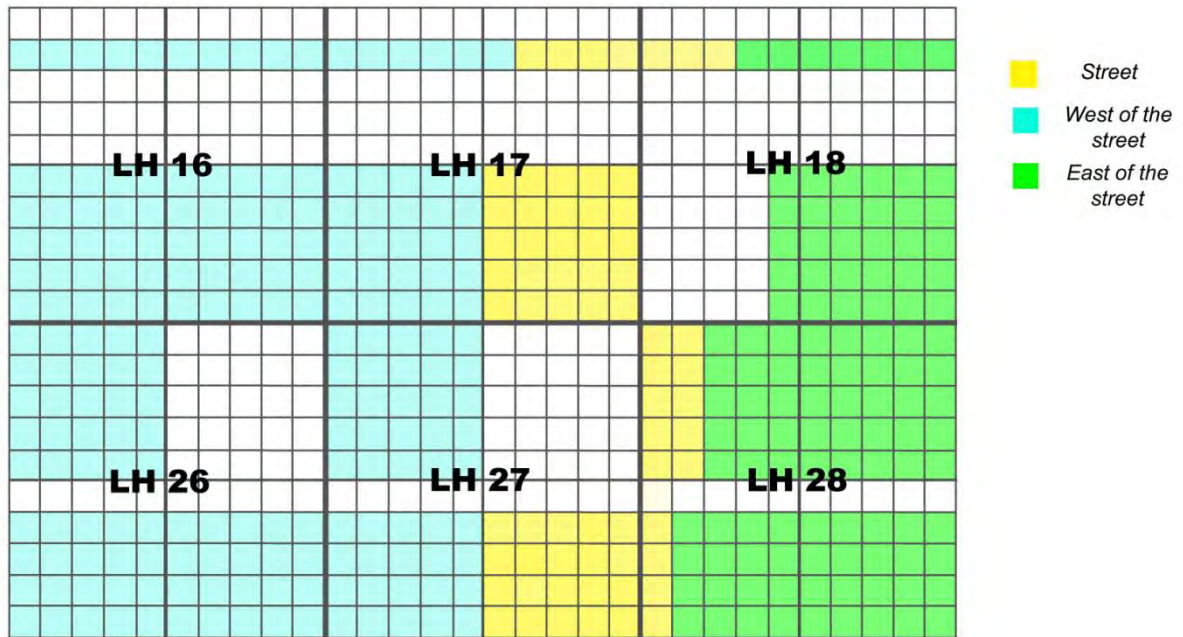


Figure 84: Excavation area LH 16–28 and its subdivision according to the city structure. Excavated squares are colored according to their assignment in the structure while non-excavated parts remain uncolored.



Figure 85: Signs of repair and metal remains on the ceramics. From left to right: metal clamps as means of repair on ID 1241 (ware 5); non-piercing drill holes and remains of a metal clamp on ID 8382 (ware 11) and a metal handle on ID 4173 (ware 28).



Figure 86: ID 2137, vessel with a piercing drilling hole.



Figure 87: Left: spur marks on ID 14464; right: unglazed circle on ID 9279.



Figure 88: Special shapes in ware 4. Left: Figurine ID 1223, ware 4.2. Right: Lid ID 1238, ware 4.1.



Figure 89: Signs of repair on ware 4. From left to right: ID 7313 with a non-piercing drill hole and a piercing drill hole, both 3 mm in diameter. ID 3843 with a piercing drill hole, 3 mm in diameter. ID 15011 with a square shaped non-piercing hole, 2,5 x 4 mm.

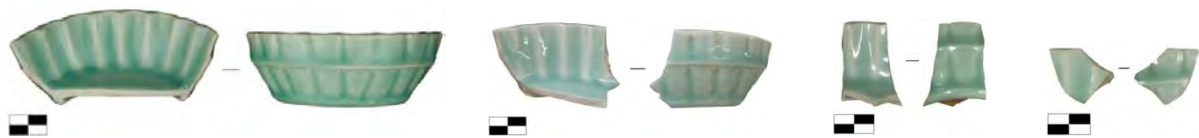


Figure 90: Sugarcane-sectioned washers from Karakorom (ware 4.2.). From Left to right: ID 1182, ID 2203, ID 2375 and ID 9023.



Figure 91: Samples for varying base colors on ware 4. From left to right: ID 5698, whitish. ID 7328, slightly orange. ID 131, strongly orange.



Figure 92: ID 2616 with massive production defects.



Figure 93: Incense burners with the décor of the Eight Trigrams. Left: ID 1241 with the symbol for fire and possibly the symbol for wind. Right: ID 2141 with the symbols for earth and heaven.



Figure 94: Problems in the depiction of colors on sample ID 2170. The first two pictures from the left are taken on the same day with the same camera and the same lamps. Only the angle of the light incidence is slightly changed in between both pictures. The picture on the right is taken with a different camera under different light conditions on another day.



Figure 95: Samples of bases from ware 5. Upper row from left to right: ID 751, ID 1191, ID 1830, ID 1918 and ID 2157. Lower row from left to right: ID 2483, ID 3934 and ID 1244.



Figure 96: Findings in ware 6. From left to right: ID 6314, diameter: not definable; ID 10263, diameter: 16 cm; ID 7782, diameter: 5,5 cm and ID 8398 with signs of repair: non-piercing drill hole, diameter: 3 mm.



Figure 97: Samples of ware 10 and its irregularly applied glaze. From left to right: ID 12550, ID 8271 and ID 13131 with signs of repair or remains of a handle.



Figure 98: ID 6245 with distinct throwing marks on the outside and characteristic body color.

Figure 99: ID 1990 with Base Type 1.1. Spurs on the outside and spur marks on the inside. Diameter: 3,6 cm.

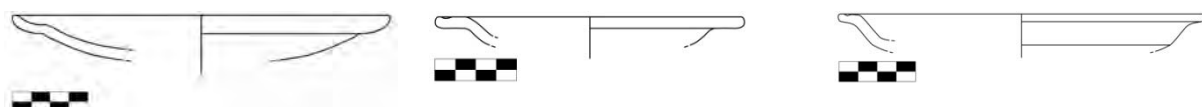


Figure 100: Variants of Rim Type 1 in Ware 11, 14 and 16. From left to right: ID 3378 (ware 11.1.), ID 7774 (ware 14.3.) and ID 1941 (ware 16.1.).



Figure 101: Samples of spur marks on Ware 14 and Ware 11. Left: ID 14112, ware 14.1. Right: ID 7780, ware 11.1.



Figure 102: ID 5553, Ware 14.1., Bottle? Yuan dynasty.



Figure 103: Fragments of ware 15 documented in Karakorom. From left to right: ID 2193, ID 10570, ID 12714 and ID 7155.



ID 1911, Ware 16.1.



ID 1171, Ware 11.1.



ID 1227, Ware 3.1.



ID 2152, Ware 16.1.



ID 10278, Ware 3.1.



ID 1815, Ware 3.2.

Figure 104: Comparison of décor in wares 16, 11 and 3.



Figure 105: Samples of ware 17. From left to right: ID 2431 with brown slip outside; ID 7039 with Rim Type 3 and ID 2432 with Base Type 1.1.

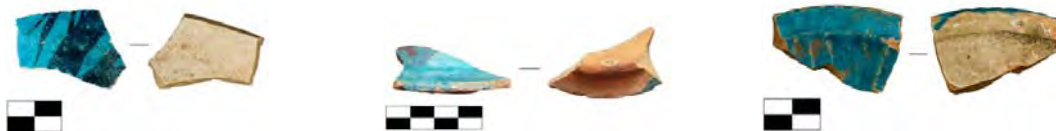


Figure 106: Types of turquoise glazed stoneware. From left to right: ID 2124, ware 18.1.; ID 1823, ware 18.2. and ID 5557, ware 19.



Figure 107: Ware 20.1., Shades of Blue.



Figure 108: Ware 20.2., Shades of Green.



Figure 109: Ware 20.3., Samples.



Figure 110: Ware 20.4., Sample.



Figure 111: Ware 20.5., Sample.



Figure 112: Large and fully glazed bases of ware 20 from Karakorum. Song to early Yuan. Left: ID 10415. Diameter: 18 cm. Song. Right: ID 7075. Diameter: 21 cm. Late Song to early Yuan. Down: ID 14941. Diameter: 22 cm. Song. Signs of repair on the outside and décor on the inside.



Figure 113: Signs of repair on ware 20. Left: ID 10738 with five non-piercing drill holes on the outside and metal remains. Right: ID 2074 with two non-piercing drill holes on the outside and massive defects in glaze.



Figure 114: Samples of ware 21. Left: ID 7779, Rim Type 3, diameter: 18,5 cm. Base Type 1.1., diameter: 6,8 cm. Right: ID 7552, Rim Type 3, diameter: 18 cm.

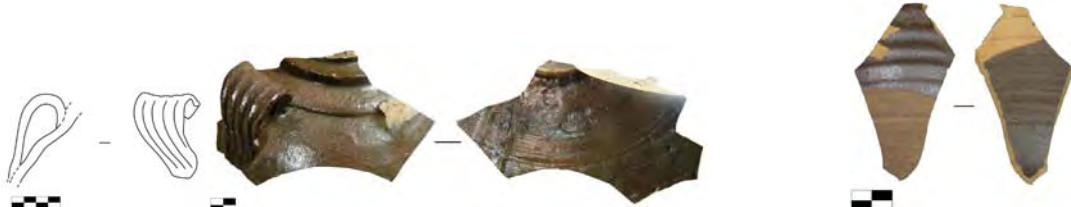


Figure 115: Samples in ware 22. Left: Handle ID 12381. Right: Fluted body on ID 4130.



Figure 116: Samples of ware 24. Left: ID 6468 of ware 24.1. with an exceptional variant of Rim Type 5 B. Middle: ID 8518 of subtype ware 24.2. with Base Type 3 and a fluted body. Right: ID 12541 of ware 24.2. and Base Type 3. Diameter: 18 cm. Signs of repair: 2 non-piercing drill holes outside with a diameter of 3 mm and a metal clamp.



Figure 117: Samples of ware 25 From left to right: ID 1386 with matching handle ID 1837; ID 3023 with Rim Type 6.1. and ID 2476 with Base Type 3.



Figure 118: Signs of repair on ware 27. Left: Metal clamp of unknown use on rim ID 13139, ware 27.3. Right: Bronze fitting on ID 8516, ware 27.1.

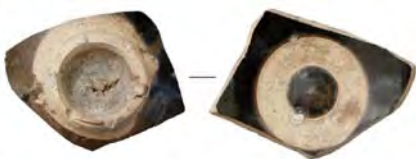


Figure 119: ID 1865 with six spur marks on the outside and two on the inside, Yuan dynasty.



Figure 120: Angle design on ID 1878, ware 28.1.



Figure 121: Samples of ware 29. From left to right: ID 6343, ID 11868 and ID 12187.



Figure 122: Left: ID 10508, severely damaged sample of ware 31 with reddish brown glaze inside. Right: ID 3973 of ware 26.4. with identical body features but green glaze.



Figure 123: Samples of Base Type 3 with and without stones in the glaze. Left: ID 5564. Right: ID 7157. Both subtype ware 32.1.



Figure 124: Sample of Ware 33, ID 1657 with Rim Type 6.2. Diameter: not definable.



Figure 125: Samples of ware 34. Left: ID 6235, subtype ware 34.1. Right: ID 3281, subtype ware 34.2.



Figure 126: Findings of ware 36. From left to right: ID 2086, ID 11777 and ID 12813.

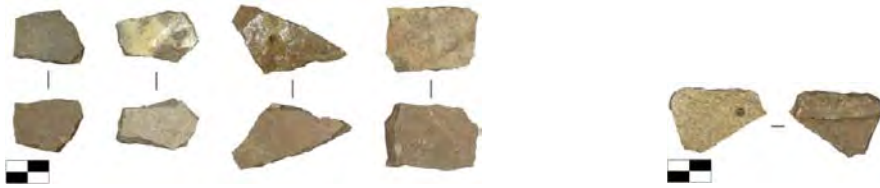


Figure 127: Samples of ware 38, incl. ID 16458 (3rd from the left) with signs of repair: non-piercing drill hole on the outside, diameter: 3 mm. Right: ID 5130 with signs of repair: non-piercing drill hole on the outside: diameter: 3,5 mm



Figure 128: Base Type 3 in ware 38. ID 15935. Diameter: 14 cm. Signs of repair: non-piercing drill hole on the outside with a diameter of 4 mm.



Figure 129: Ware 39. Findings from left to right: ID 2118, ID 2129 and ID 14778.

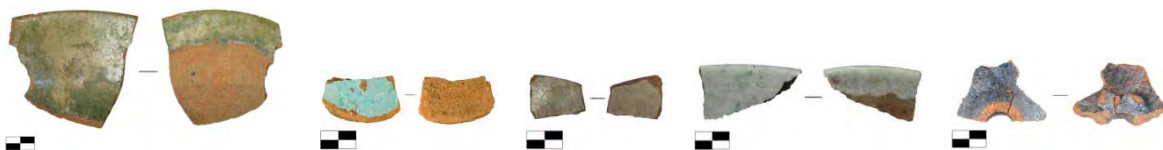


Figure 130: Samples of the subtypes in ware 43. From left to right: ID 1264 of subtype ware 43.1.; ID 11587 of subtype ware 43.2.; ID 3389 of subtype ware 43.3.; ID 1787 of subtype ware 43.4. and ID 13330 of subtype ware 43.5.



Figure 131: Stray finds from Karakorum. From left to right: ID 1988, ID 2453 and ID 7677.

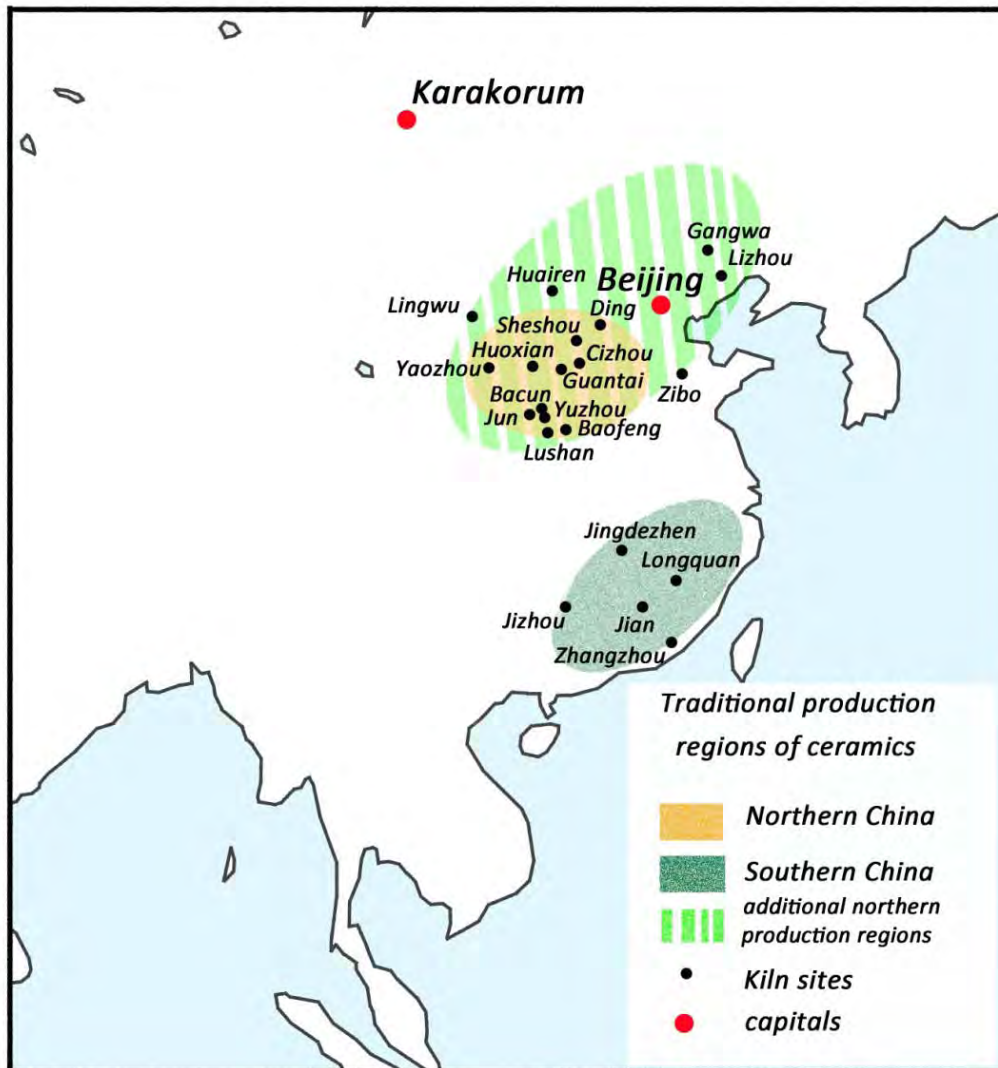


Figure 132: Possible production sites of Chinese ceramics found in Karakorum. Sites that are mentioned in the present study but could not be mapped due to a lack of precise information on their location are: Jiangguantung (Liaoning province), Duyaotai (Henan province), Pengcheng (Henan province) and Changzhi Bayi (Shanxi province). Jiangguantung is to be located in the area around Gangwa and Lizhou. The remaining three sites are located in the area of traditional northern Chinese kilns. This is Changzhi Bayi close to Huoxian and Guantai while Pengcheng and Duyaotai are located close to Yuzhou and Bacun.

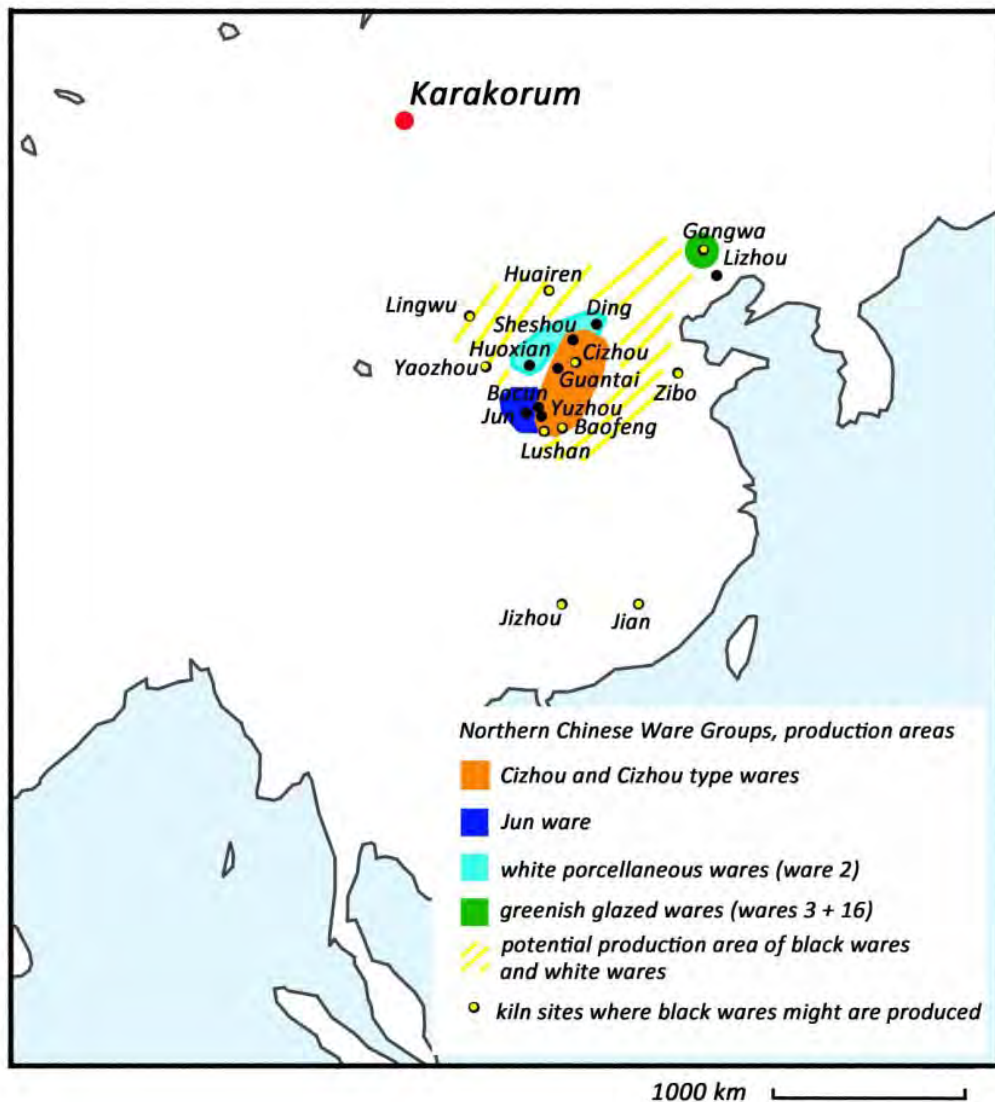


Figure 133: Simplified production areas of northern Chinese wares. Highlighted are the main production regions of each category.

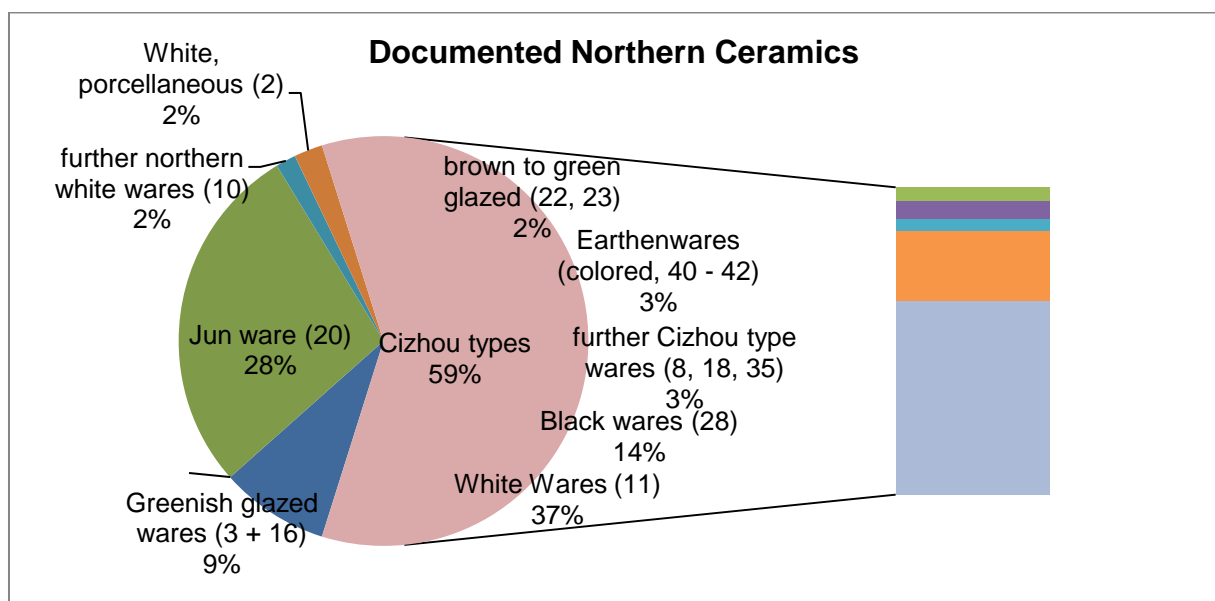


Figure 134: Subdivision of documented northern ceramics. Given in brackets are the numbers of the wares.

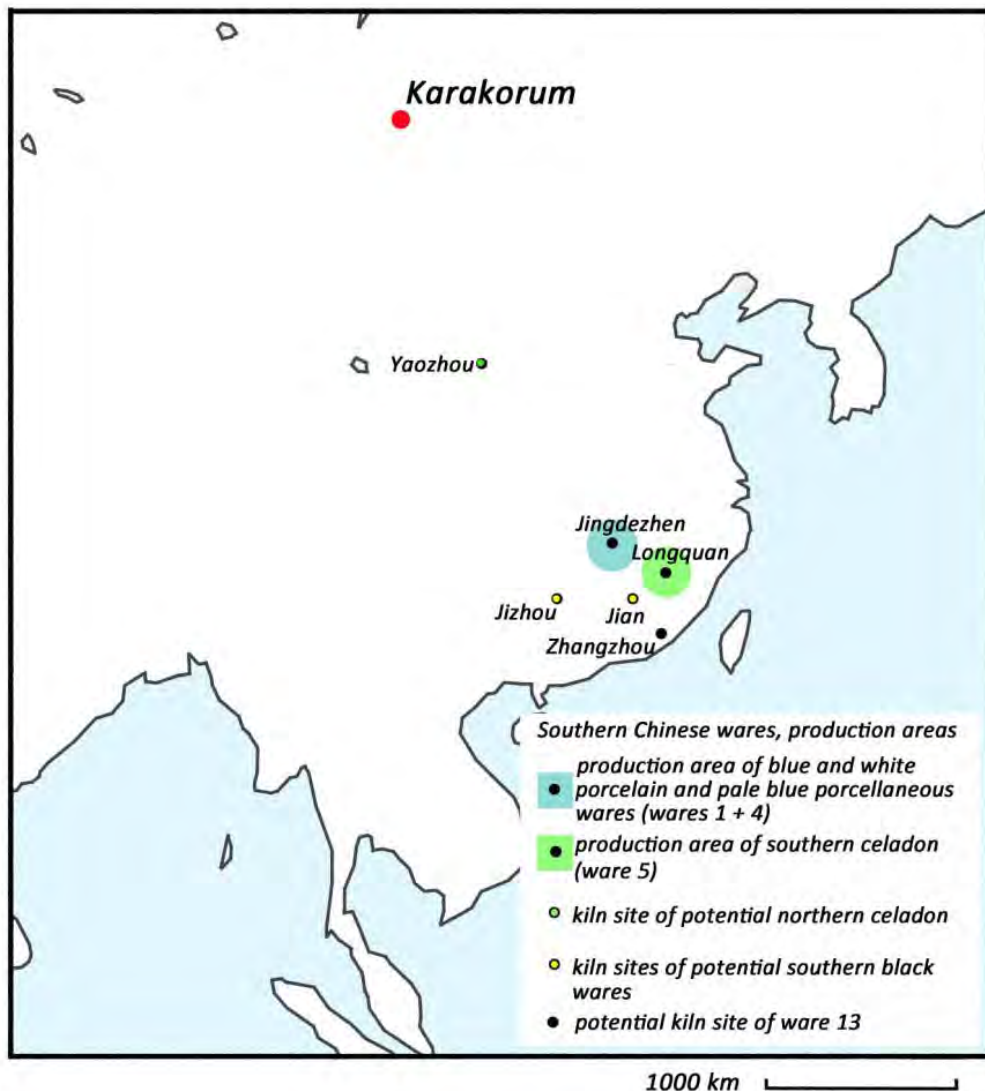


Figure 135: Simplified production areas of southern Chinese wares with markings of potential overlapping with northern wares.

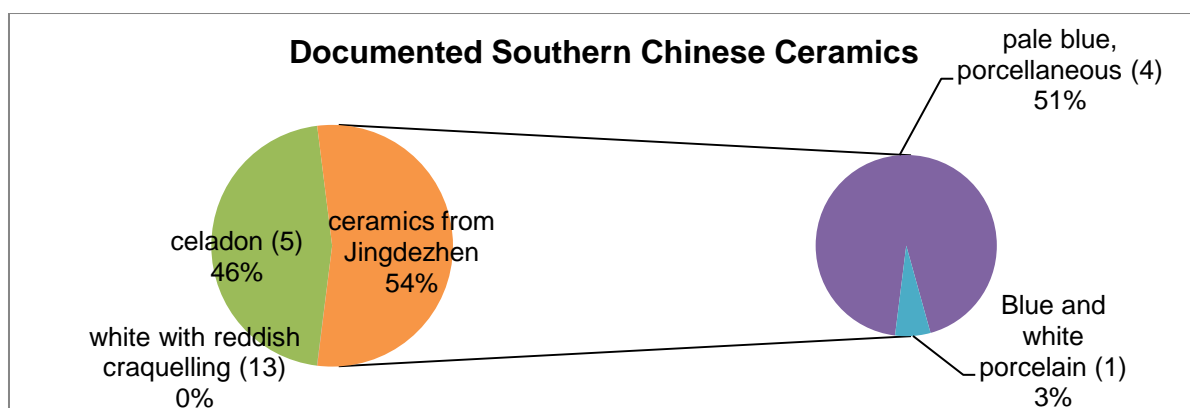


Figure 136: Subdivision of documented southern ceramics. Given in brackets are the numbers of the wares.

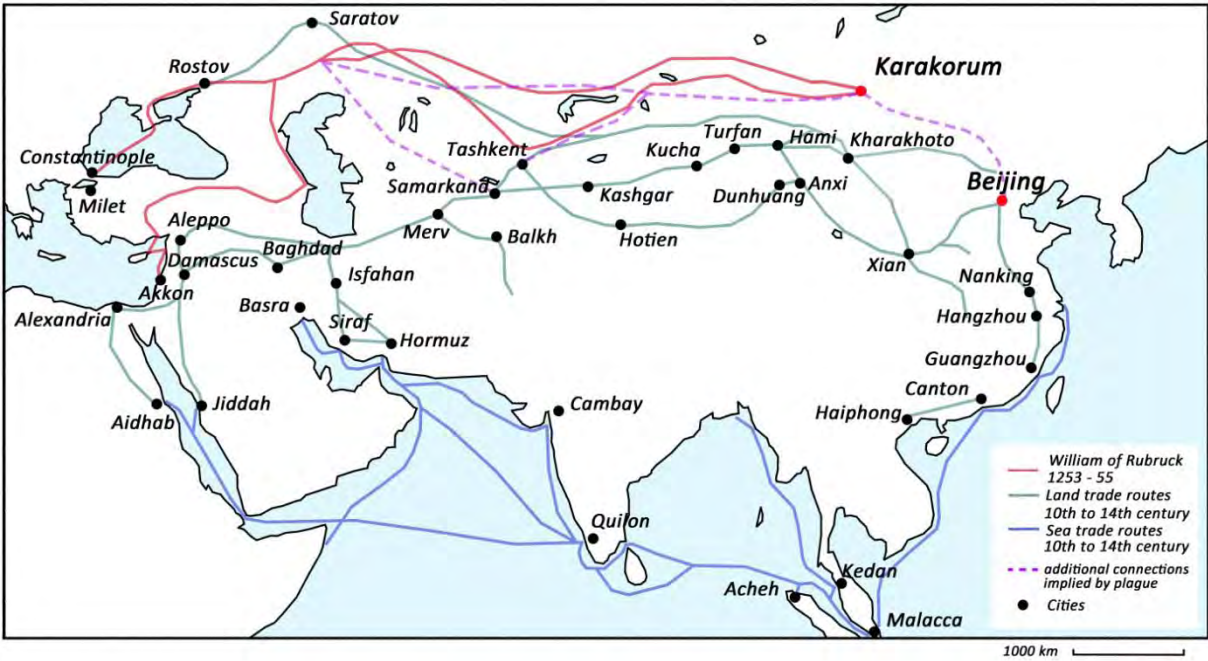


Figure 137: Subsumption of published routes concerning 13th and 14th century Eurasia.

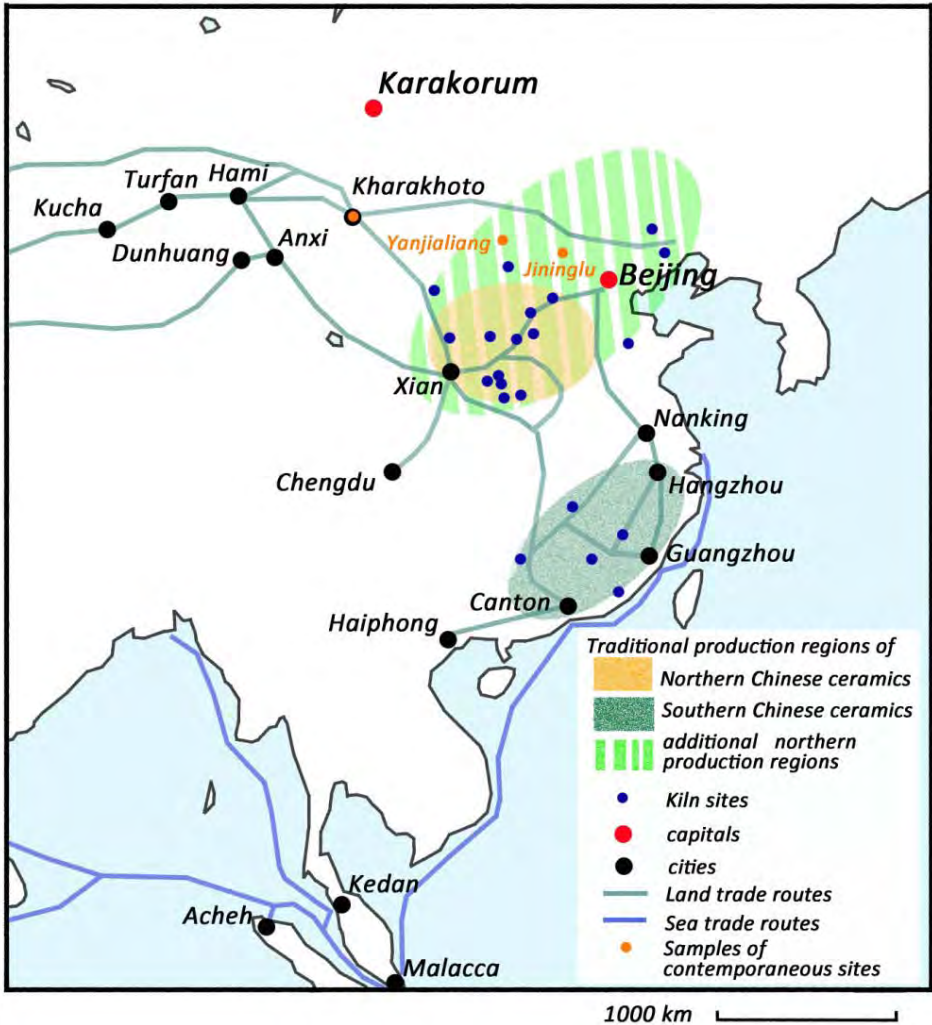


Figure 138: Mapping of Karakorum, contemporaneous sites with comparable ceramics, production sites of the ceramics and commonly known trade routes as depicted by Medley 1989 (104, 105 + 146).

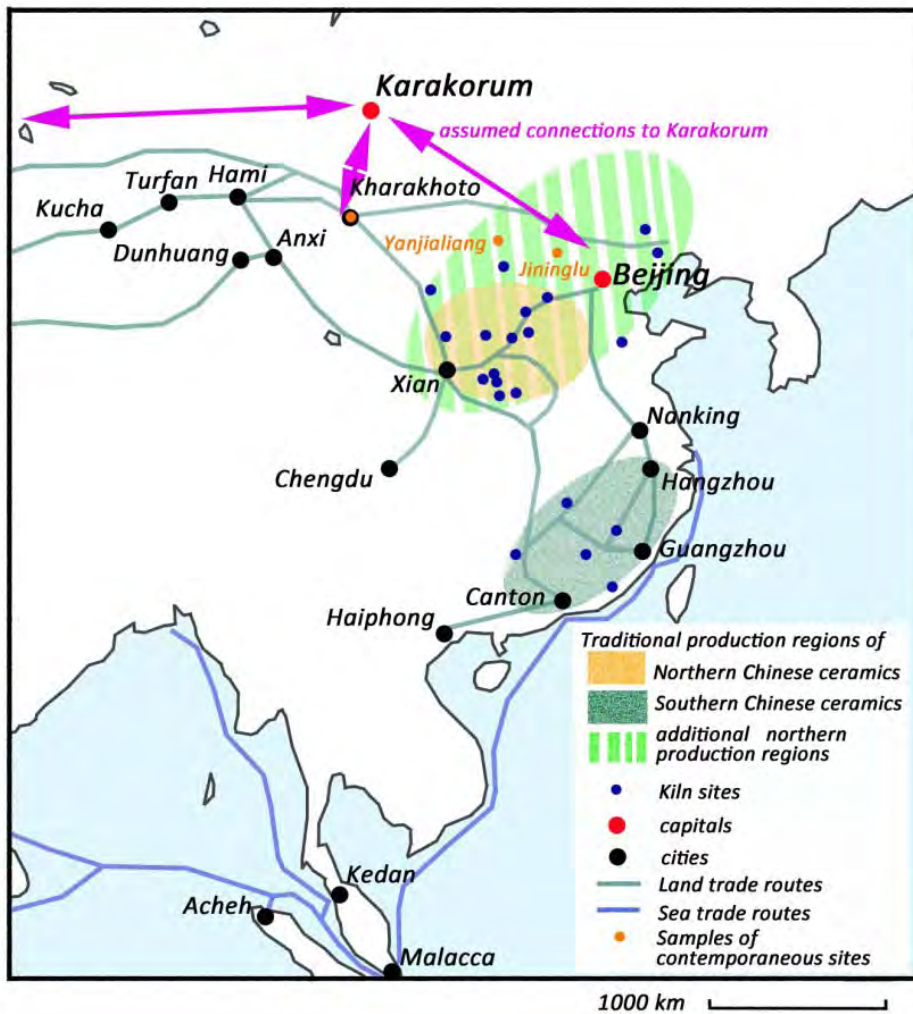


Figure 139: Assumed connections of Karakorum to the route system on the basis of the provenance of the glazed ceramics found in the city.

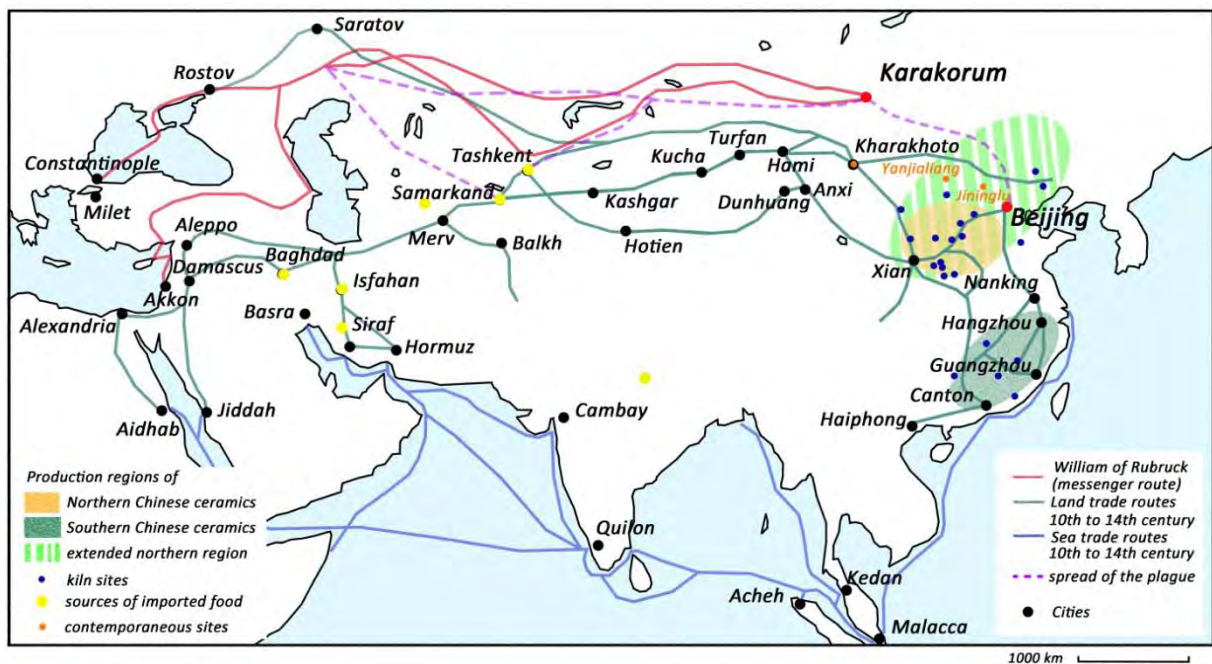


Figure 140: Subsumption of currently available information on routes and provenances of ceramics and food found in Karakorum.

Figure 141 : Hypothetical connections of Karakorum to the Eurasian route system.

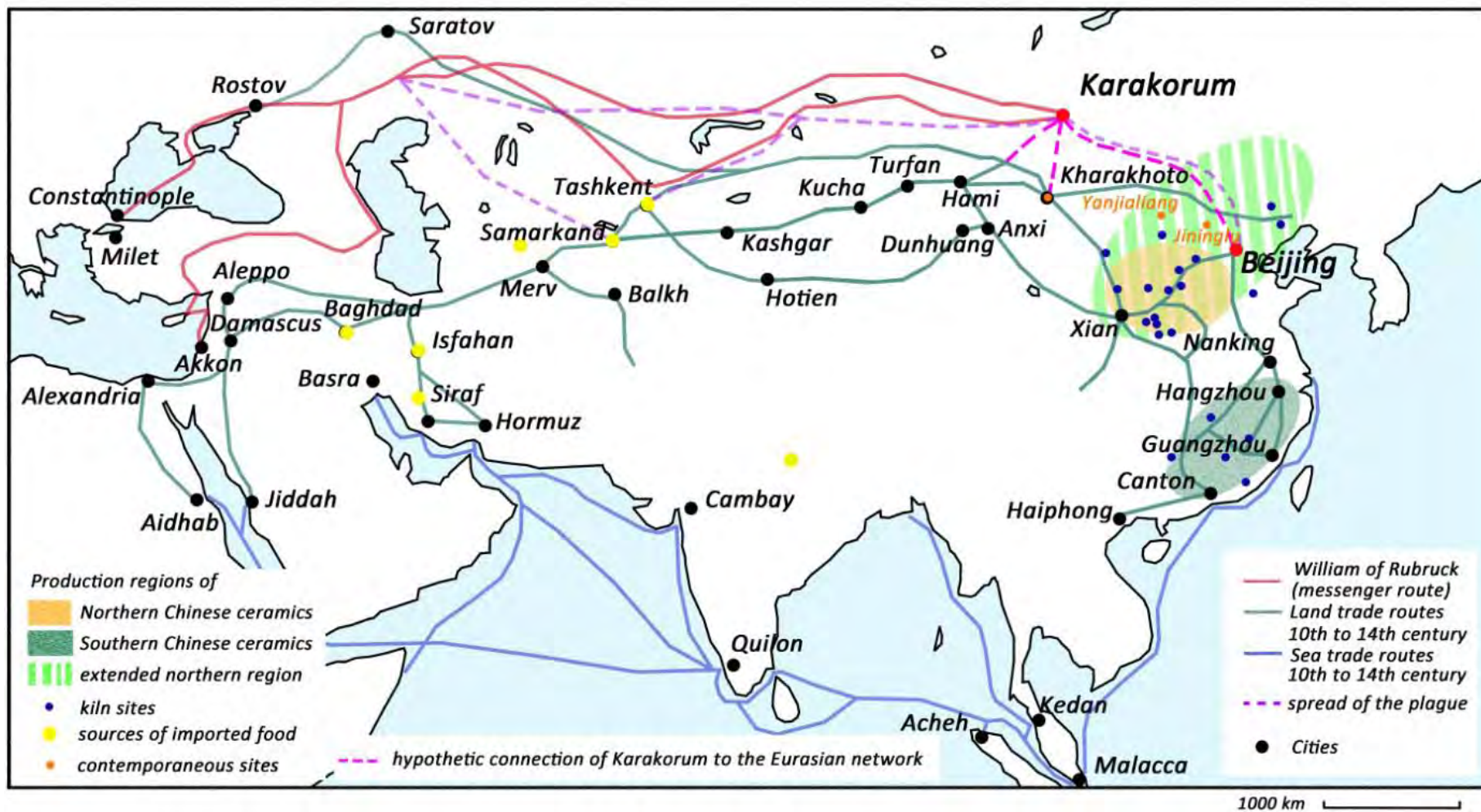


Figure 142: Hypothetical routes for the transport of glazed ceramics to Karakorum.

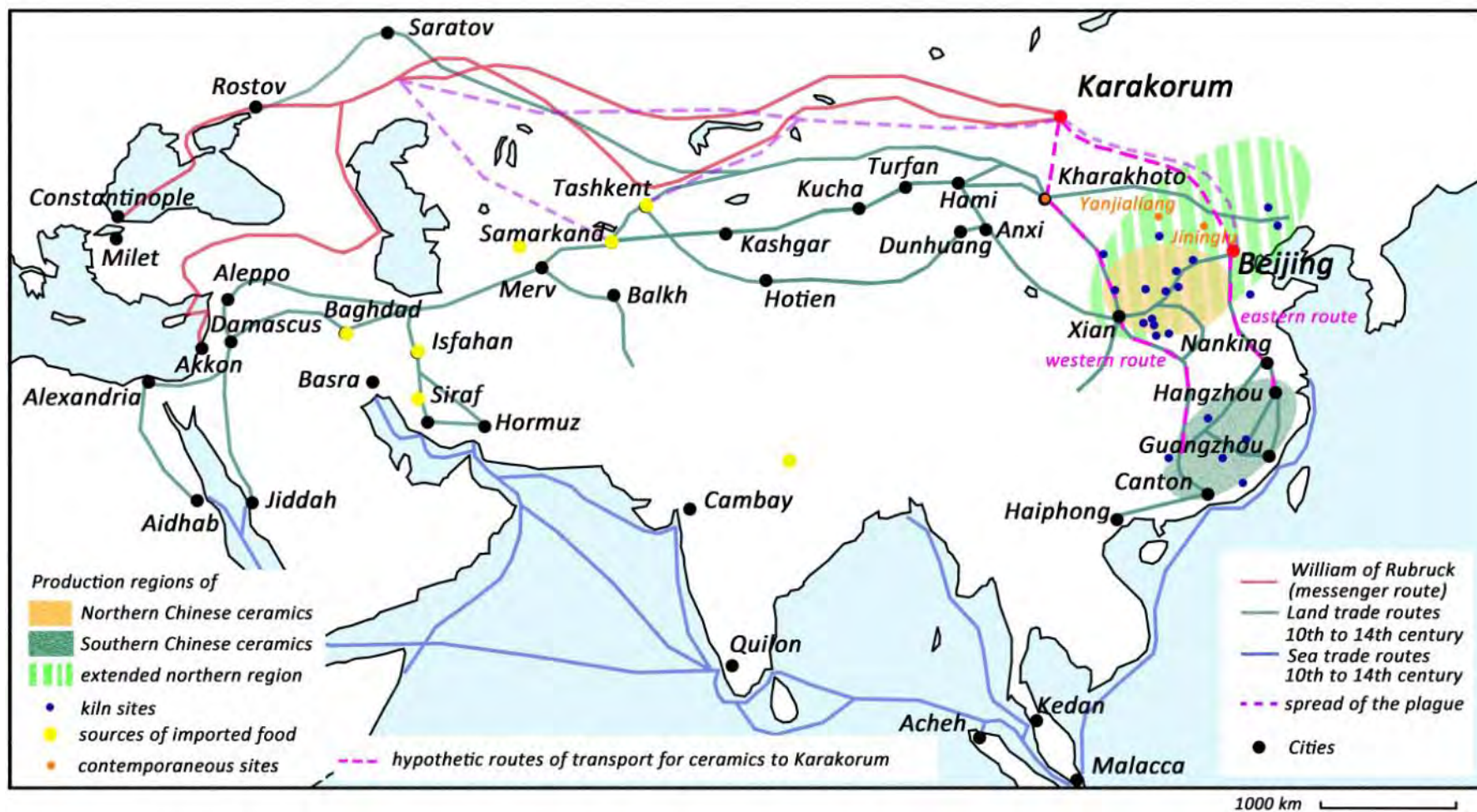
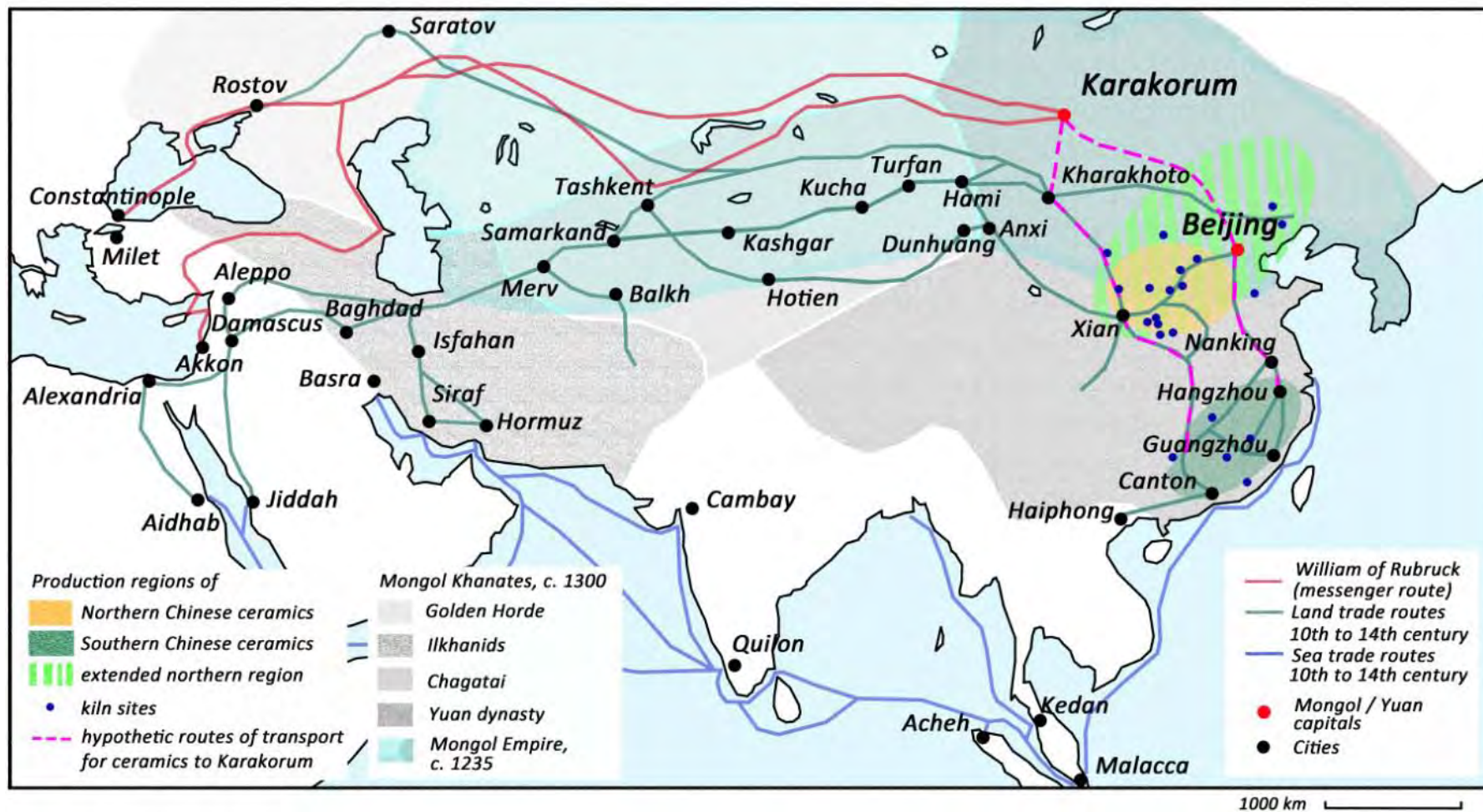


Figure 143: Rough sketch of Mongol Empires c. 1235 and c. 1300.



PLATES

PLATE 1–2: MICROSCOPIC PICTURES OF SELECTED SAMPLES

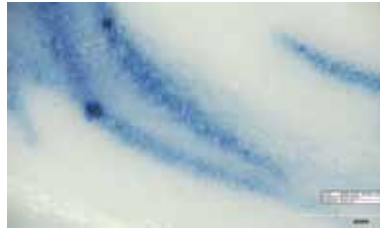
PLATE 3–52: SHAPES

PLATE 53–77: DÉCOR

PLATE 78–84: MARKS

Plate 1

Microscopic pictures of selected samples. The pictures are taken with a Hirox RH - 2000, lense MXB 2016 Z 20 - 160x .



Sample ID 248, Ware 1

Left: body, porcelain

Right: glaze, clear with blue underglaze paintings

Magnification: X120 (left) /
X 40 (right)



Sample ID 27, Ware 5

Left: body, porcellaneous

Right: glaze, celadon

Magnification: X40



Sample ID 546, Ware 8

Left: body, stoneware

Right: glaze, clear

Magnification: X40



Sample ID 35, Ware 11

Left: body, near-stoneware

Right: glaze, white slip
with clear glaze

Magnification: X40



Sample ID 277, Ware 43

Left: body, earthenware

Right: glaze, turquoise

Magnification: X40



Sample ID 2118, Ware 39

Left: body, earthenware

Right: glaze, luster

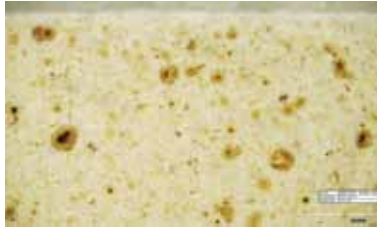
Magnification: X40

Plate 2

Microscopic pictures of selected samples. The pictures are taken with a Hirox RH - 2000, lense MXB 2016 Z 20 - 160x . Magnification X40.



Sample ID 1162, Ware 35
fine black particles and
rounded black particles



Sample ID 223, Ware 11
fine brown particles
(partly rounded)



Sample ID 3549, Ware 14
rounded black particles
(and transparent particles)



Sample ID 1483, Ware 26
irregularly shaped black and
transparent to white particles



Sample ID 3958, Ware 37
irregularly shaped brown and
transparent to white particles



Sample ID 277, Ware 43
mat white particles



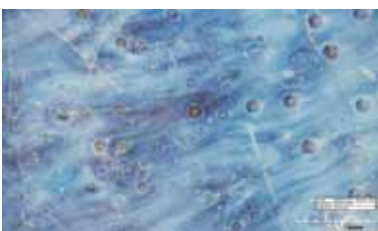
Sample ID 27, Ware 5
drill hole



Sample ID 1267, Ware 20
black ink writings



Sample ID 1990, Ware 13
craquelé glaze



Sample ID 1927, Ware 20
Jun glaze



Sample ID 1268, Ware 41
multicolored glaze



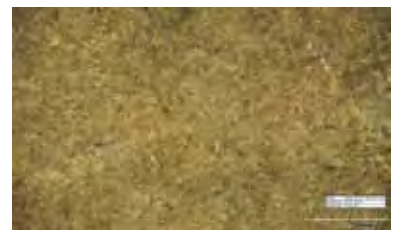
Sample ID 34, Ware 41
multicolored décor (painted)



Sample ID 223, Ware 11
white slip, clear brown glaze
and white slip with clear glaze

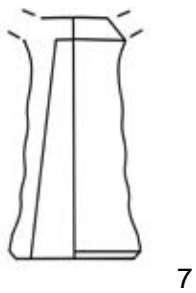
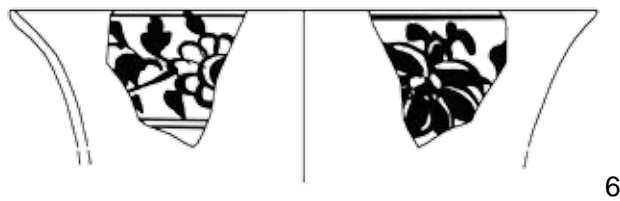
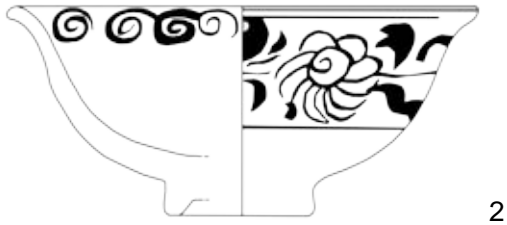


Sample ID 1483, Ware 26
mat green glaze (camouflage)



Sample ID 3958, Ware 37
mat brown glaze (camouflage)

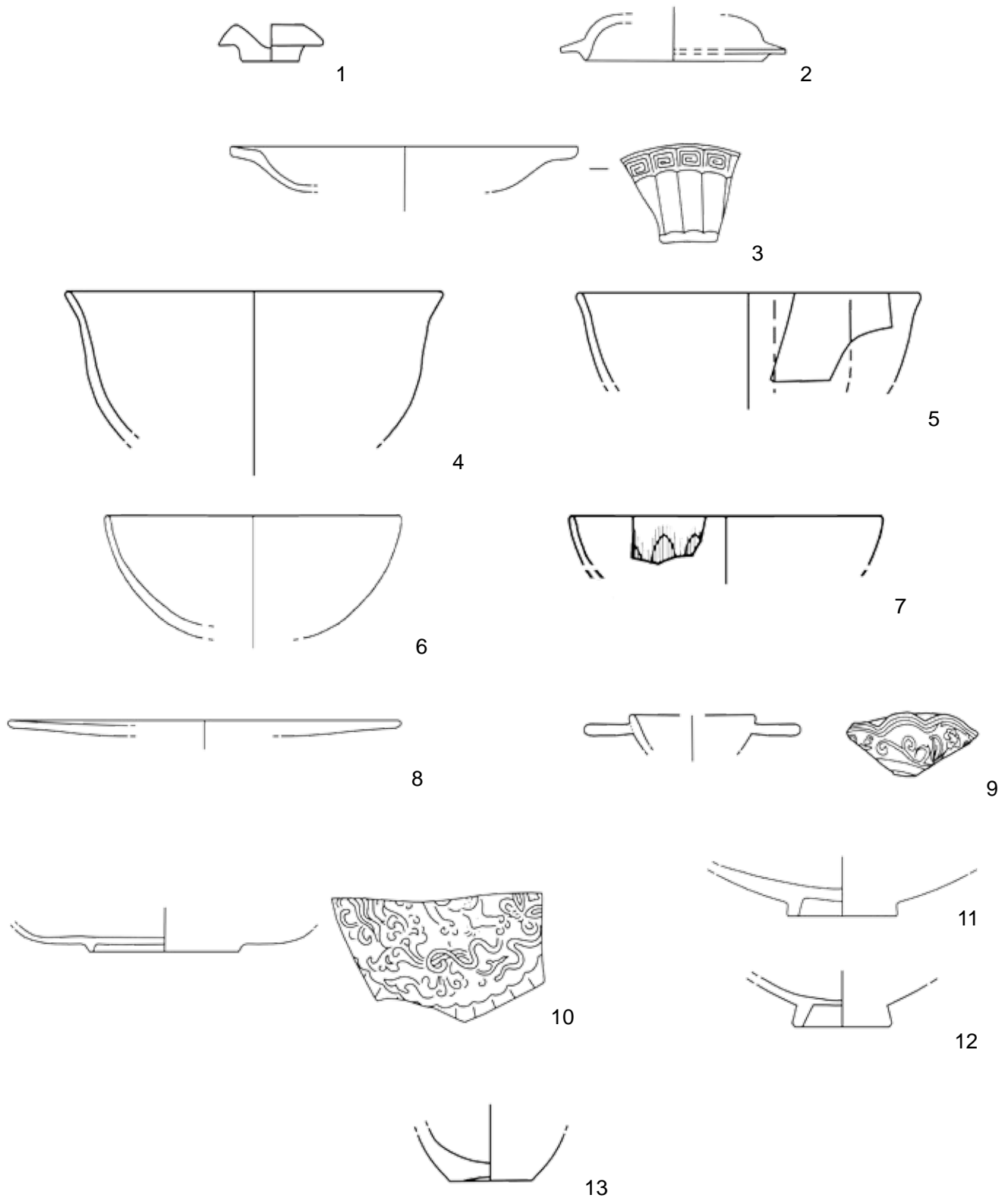
Shapes in Ware 1



1. Hollow lid with knob handle, ID 2186.
2. Bowl, Rim Type 2 and Base Type 1.1., ID 1801.
3. Further variant of Rim Type 2, ID 1828.
4. Rim Type 3, ID 2133.
5. Further variant of Rim Type 3, ID 11906.
6. Rim Type 7, ID 1802.
7. Base Type 4.2., ID 1199.
8. Further variant of Base Type 4.2., ID 2127.

Plate 4

Shapes in Ware 2 - Part 1



1. Solid lid (deepened), ID 15965.

3. Rim Type 1, ID 9045.

5. Rim Type 2, foliated body, ID 3573.

7. Rim Type 3, ID 6262.

9. Rim Type 3, HR, ID 11385.

11. Base Type 1.1., average footring, ID 8438.

13. Base Type 2.2., ID 11687.

2. Hollow Lid, ID 8933.

4. Rim Type 2, plain body, ID 6294.

6. Rim Type 3, ID 2110.

8. Rim Type 3 (exception), ID 8006.

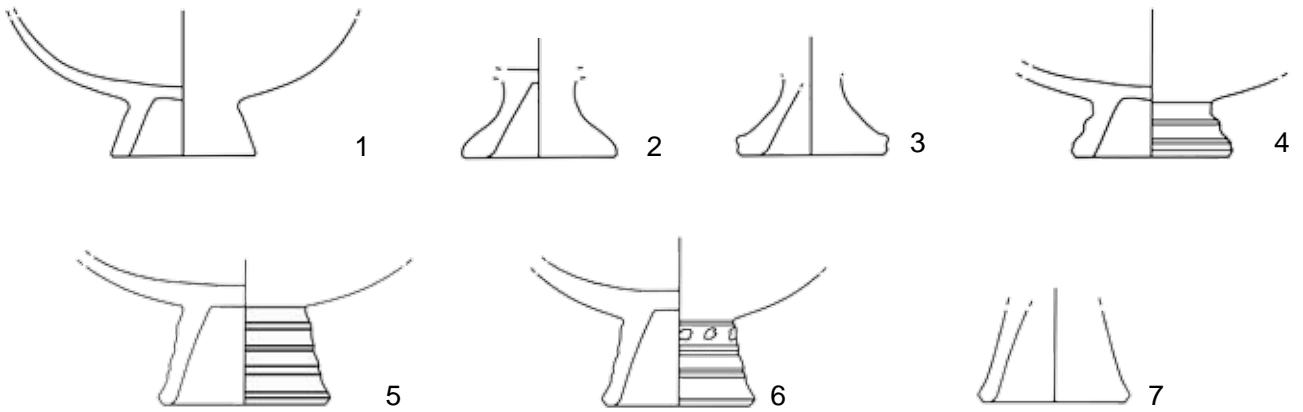
10. Base Type 1.1., (very) thin footring, ID 1216.

12. Base Type 1.1., high footring, ID 6393.

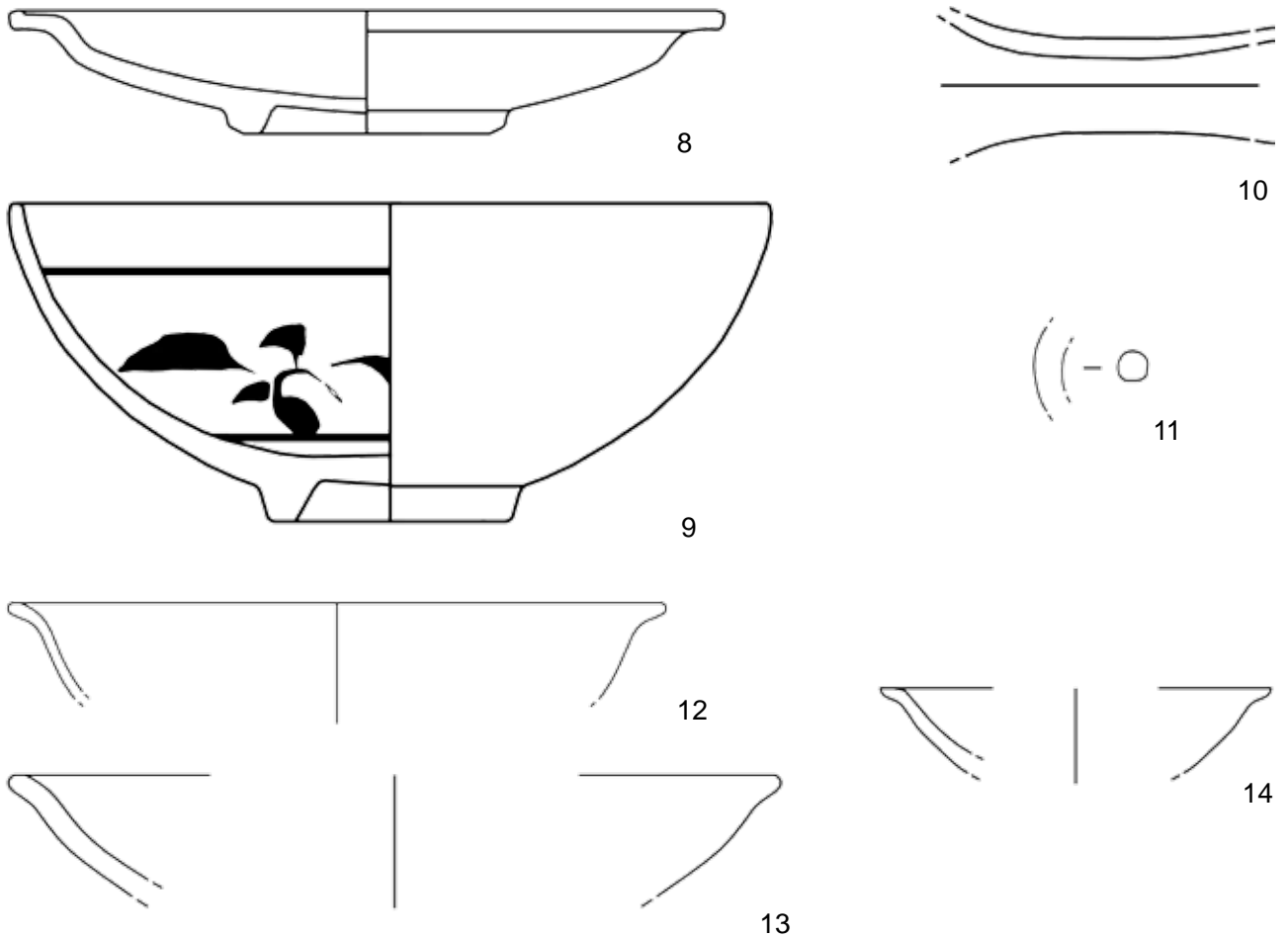
Scale 1:2

Plate 5

Shapes in Ware 2 - Part 2 (fig. 1 - 7)



Shapes in Ware 3 - Part 1 (fig. 8 - 14)



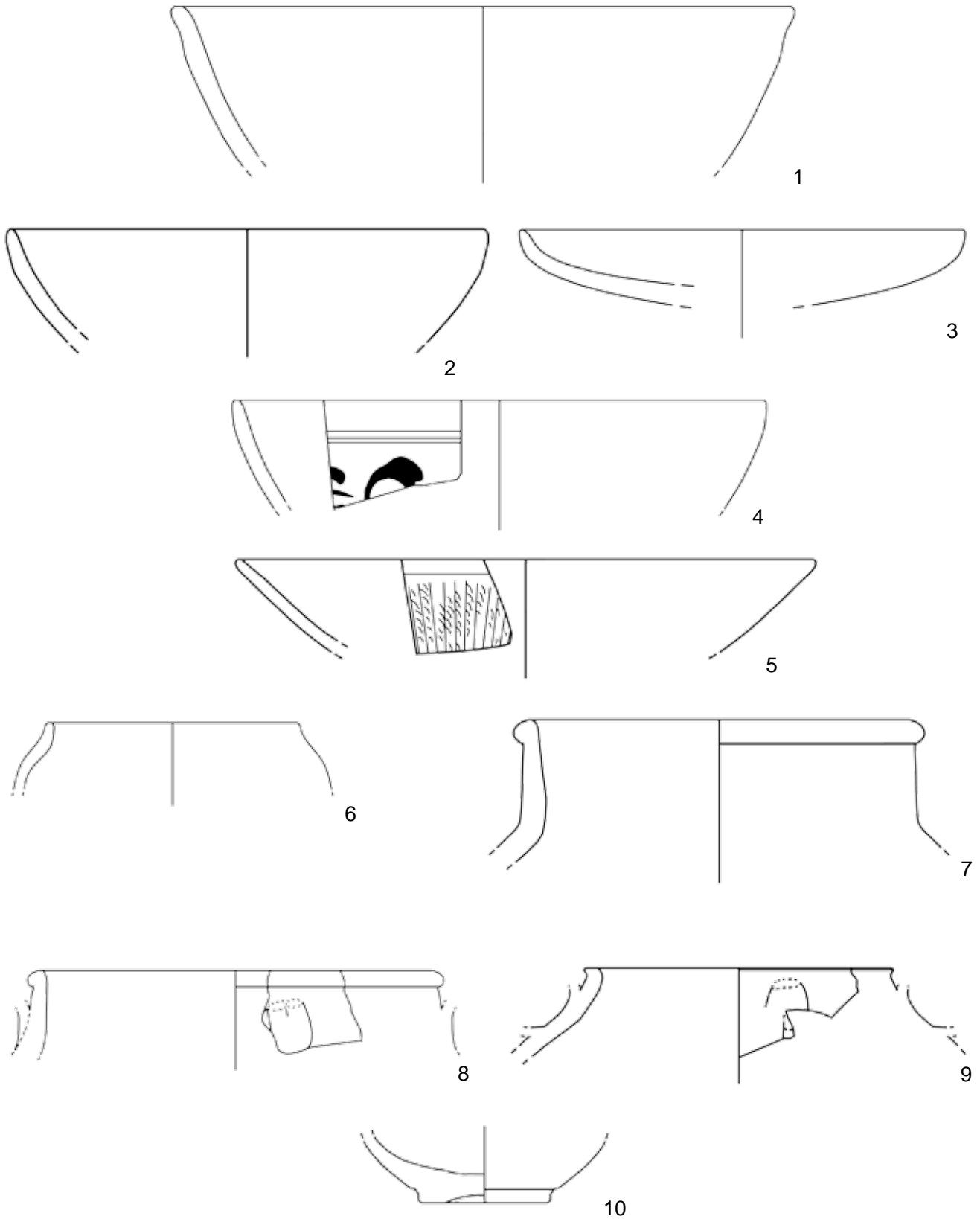
1. Base Type 4.1., plain, ID 2163.
3. Base Type 4.1., rounded with slight profile, ID 5275.
5. Base Type 4.1., high, with profile, ID 1847.
7. Base Type 4.2., plain, ID 6823.
9. Bowl, Rim Type 3, Base Type 1.1., ID 1227.
13. Further variant of Rim Type 2, ID 2826.

2. Base Type 4.1., rounded, ID 5013.
4. Base Type 4.1., with profile, ID 2017.
6. Base Type 4.1., high, with profile, ID 1845.
8. Plate, Rim Type 1, Base Type 1.1., ID 1207.
10. Spout, ID 14523.
11. Handle, ID 4904.
12. Rim Type 2, ID 7855.
14. Further variant of Rim Type 2, ID 846.

Scale 1:2

Plate 6

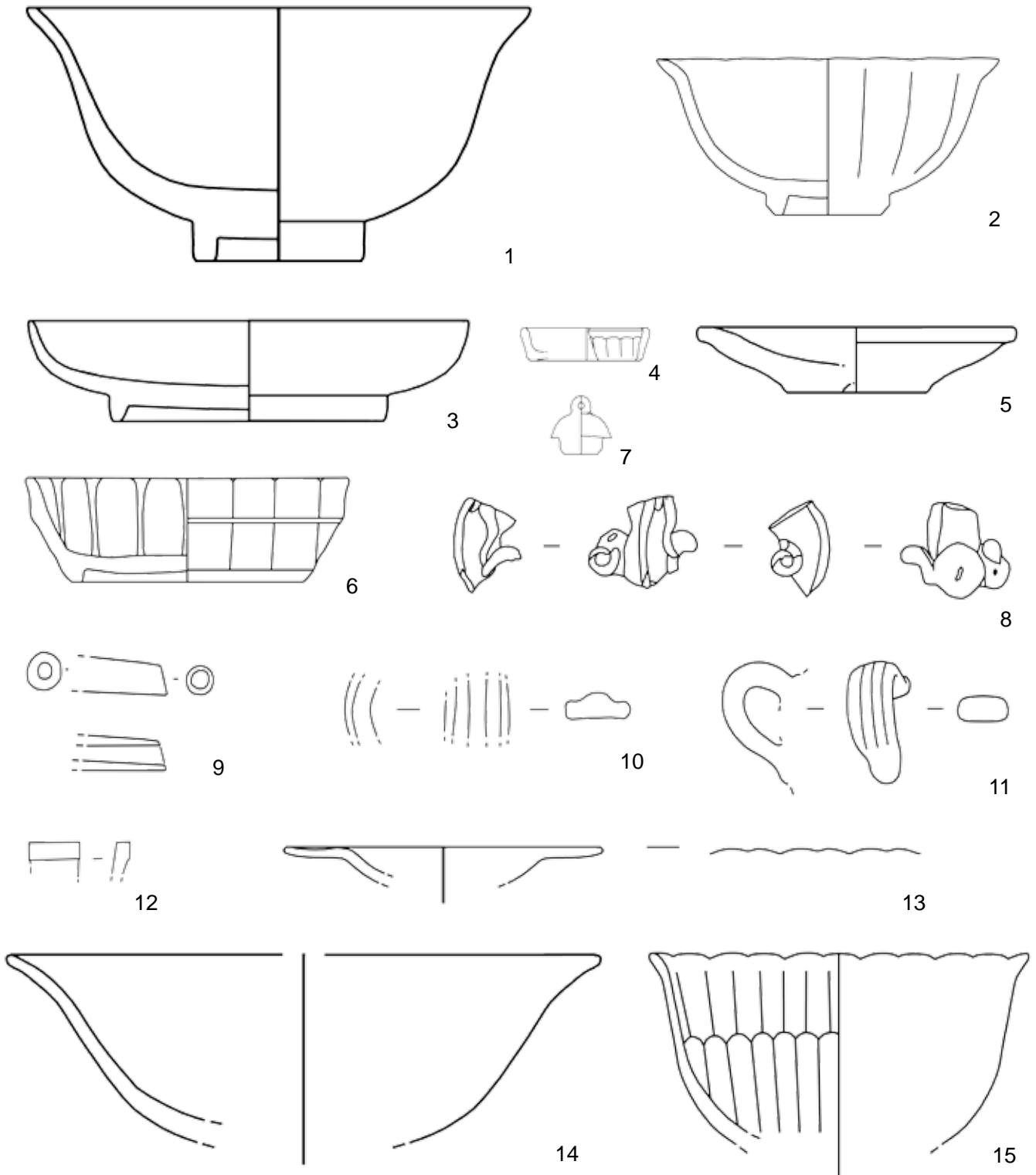
Shapes in Ware 3 - Part 2



- 1. Rim Type 2.1., ID 6970.
- 3. Further variant of Rim Type 3, plate, ID 1586.
- 5. Further variant of Rim Type 3, ID 13298.
- 6. Rim Type 5, N, ID 3228.
- 7. Rim Type 5, N + C, ID 1517.
- 8. Further variant of Rim Type 5, N + C, ID 6969.
- 9. Exception in Rim Type 5, N + C, ID 14733.

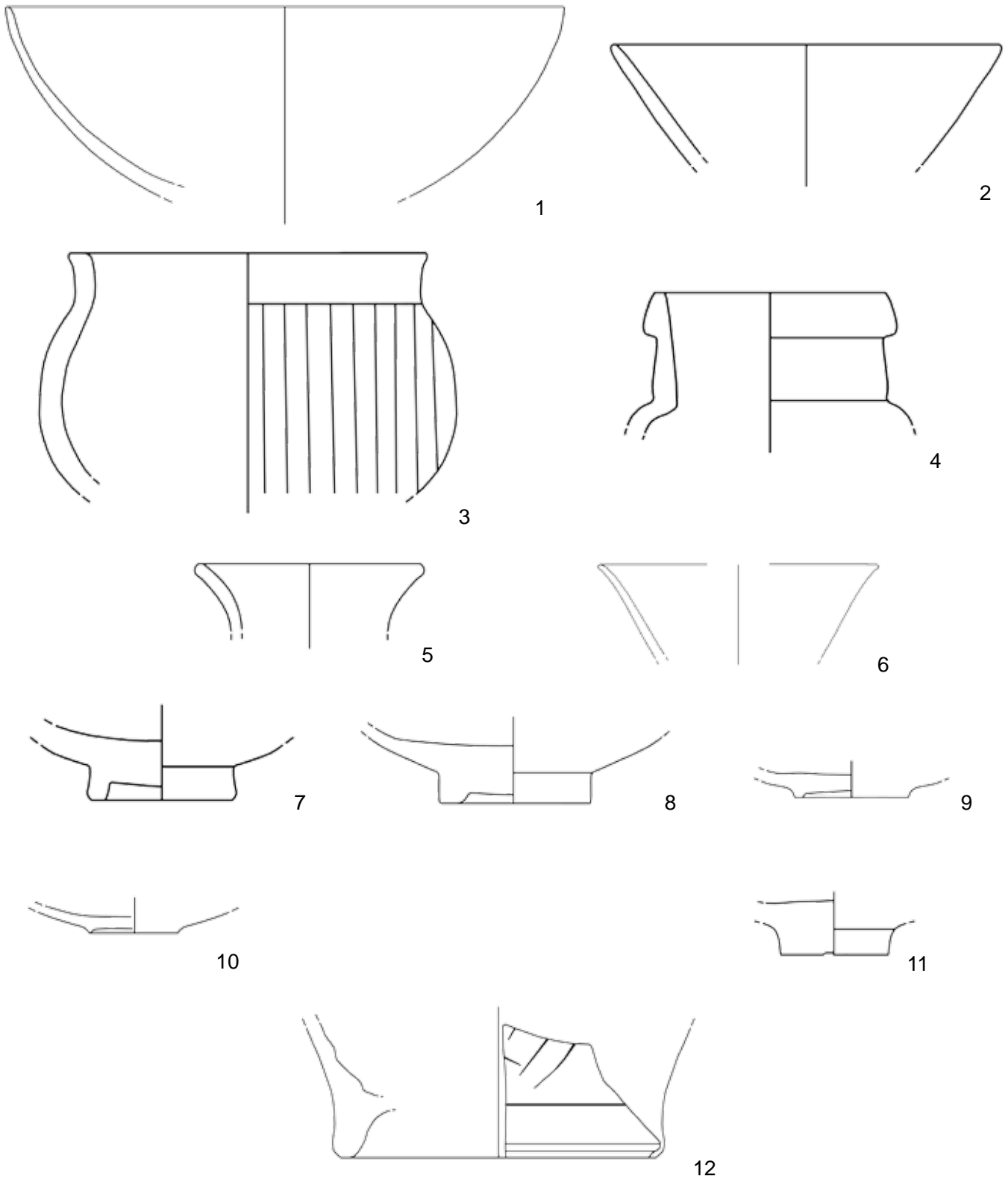
- 2. Rim Type 3, ID 14321.
- 4. Further variant of Rim Type 3, ID 7896.
- 10. Base Type 1.2., ID 9112.

Shapes in Ware 4 - Part 1



1. Deep Bowl, Rim Type 2, Base Type 1.1., ID 1796.
2. Bowl, Rim Type 2, F, Base Type 1.1., ID 2862.
3. Deep Plate, Rim Type 3, Base Type 1.1., ID 1914.
4. Deep Plate (miniature), Rim Type 3, Base Type 3, ID 2721.
5. Plate, Rim Type 1-2, Base Type 2.2., ID 11516
6. Flat Bowl, Rim Type 3, C, Base Type 2.1., ID 1182.
7. Solid lid (with loop handle), ID 1238.
8. Fragments of a Figurine, Dragon, ID 1223.
9. Spout, ID 1926.
10. Handle Type QB I, ID ID 5033.
11. Handle Type QB II, ID 1838.
12. Handle Type QB III, ID 954.
13. Rim Type 1, F, ID 3484.
14. Rim Type 2, ID 11133.
15. Rim Type 2, F, small foliation, ID 1200.

Shapes in Ware 4 - Part 2

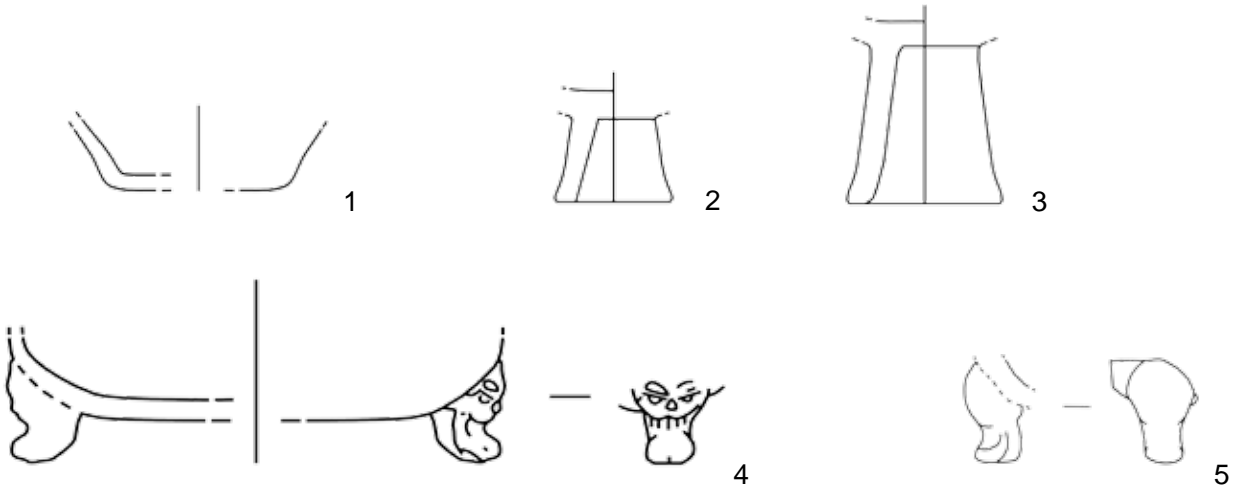


1. Rim Type 3, ID 11407.
3. Rim Type 5, N, ID 1246.
5. Rim Type 7, ID 7708.
7. Base Type 1.1., ID 13701.
9. Exception in Base Type 1.1., ID 5698.
11. Base Type 1.3., ID 5804.

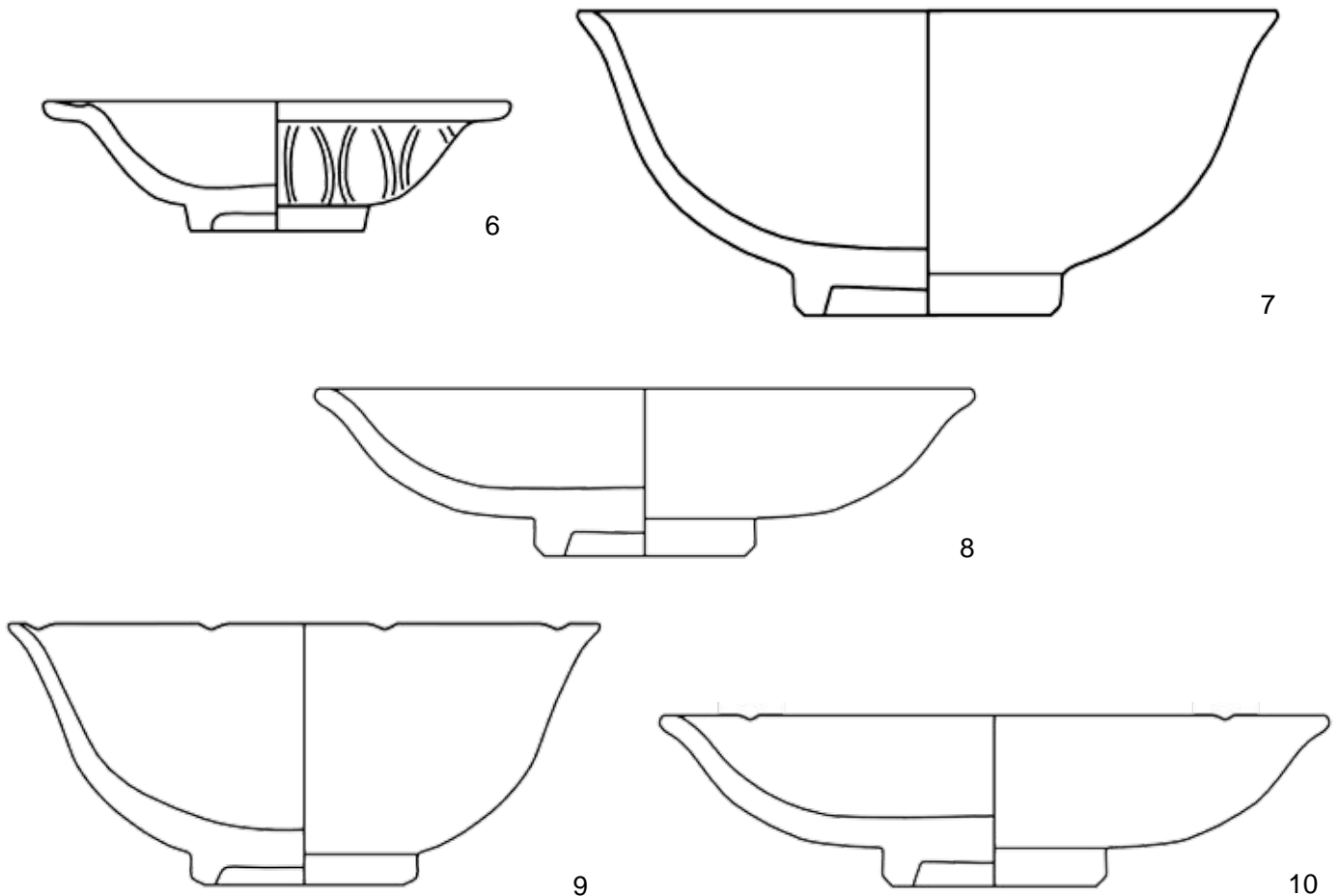
2. Exception in Rim Type 3, ID 11697.
4. Rim Type 5 B, C, ID 9847.
6. Exception in Rim Type 7, ID 5161.
8. Further variant of Base Type 1.1., ID 10035.
10. Exception in Base Type 1.1., ID 10459.
12. Base Type 2.3., ID 5164.

Plate 9

Shapes in Ware 4 - Part 3 (fig. 1 - 5)



Shapes in Ware 5 - Part 1 (fig. 6 - 10)



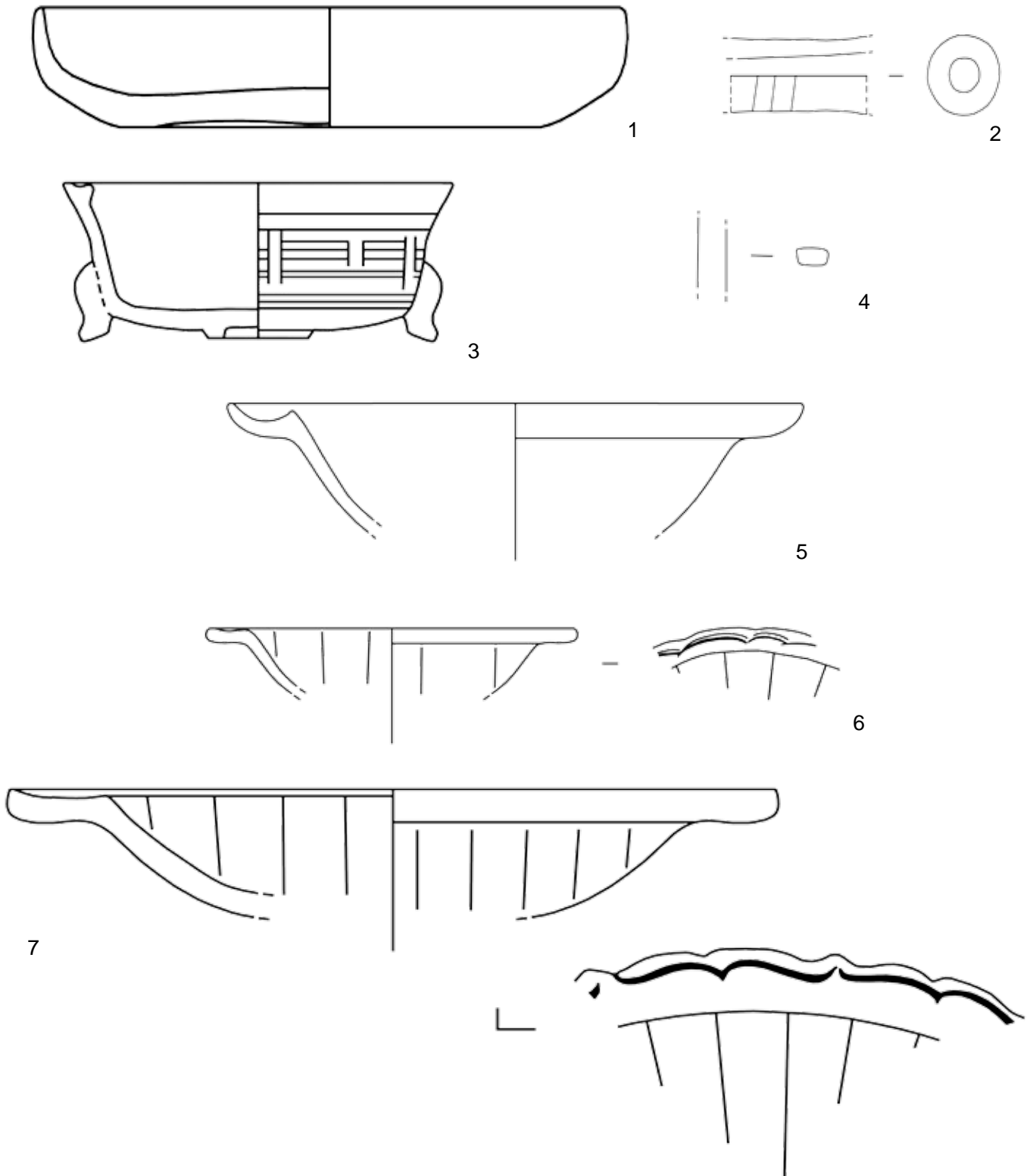
1. Base Type 3, ID 501.
3. Base Type 4.2., ID 1901.
5. Base Type 5.2., ID 2043.
7. Bowl, Rim Type 2, Base Type 1.1., ID 2009.
9. Bowl, Rim Type 2, F, Base Type 1.1., ID 1854.

2. Base Type 4.1., ID 162.
4. Base Type 5.1., ID 1195.
6. Bowl, Rim Type 1, Base Type 1.1., ID 1897.
8. Flat Bowl, Rim Type 2, Base Type 1.1., ID 10824.
10. Flat Bowl, Rim Type 2, F, Base Type 1.1., 2008.

Scale 1:2

Plate 10

Shapes in Ware 5 - Part 2

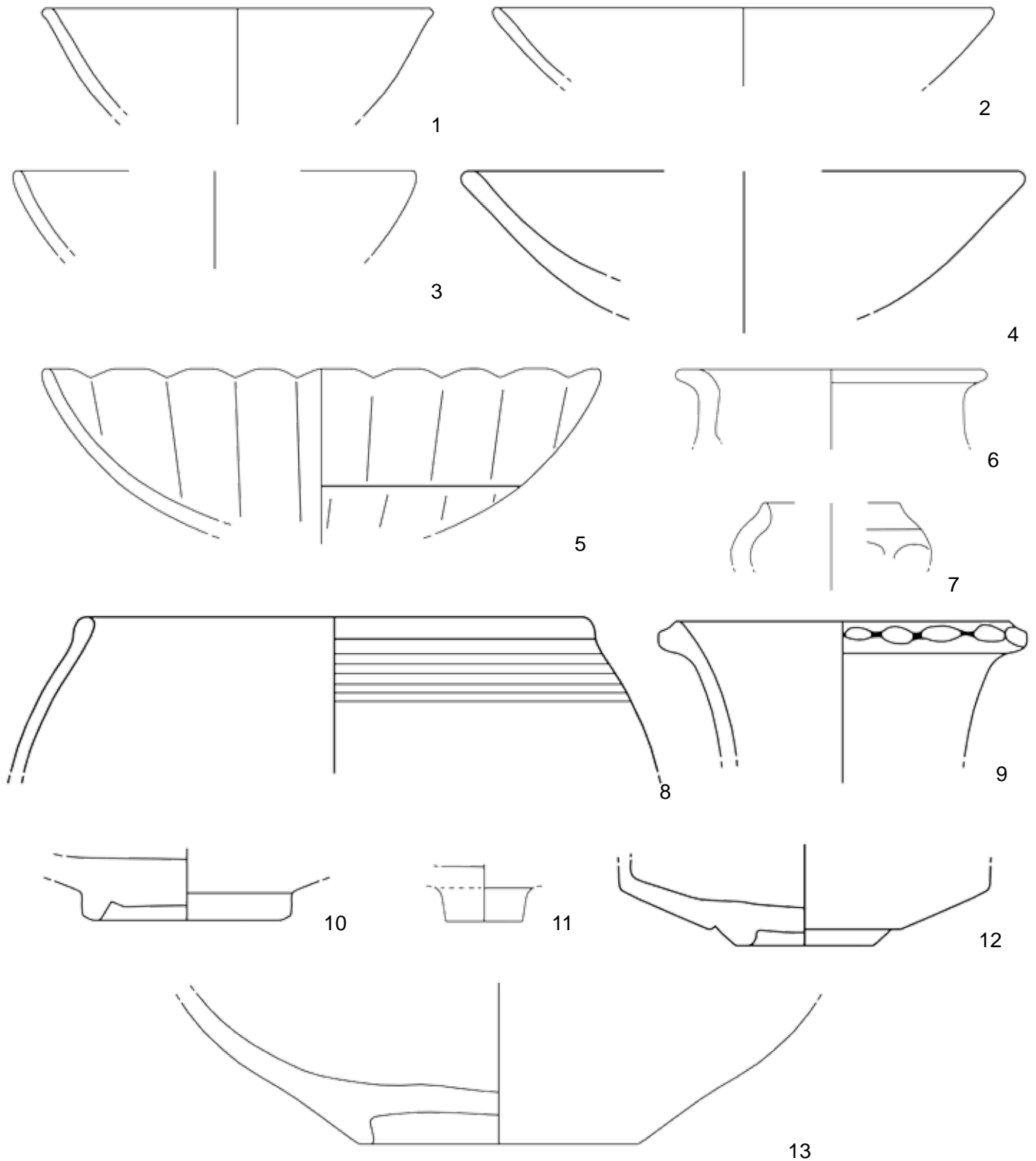


- 1. Plate, Rim Type 3, Base Type 3, ID 2170.
- 3. Incense Burner, exceptional Rim, Base Type 5.2., ID 1241.
- 5. Rim Type 1, gorged, ID 7008.
- 7. Rim Type 1, F, complex foliation, ID 1857.

- 2. Spout, ID 12331.
- 4. Handle, ID 4822.
- 6. Rim Type 1, F, simple foliation, ID 2080.

Plate 11

Shapes in Ware 5 - Part 3

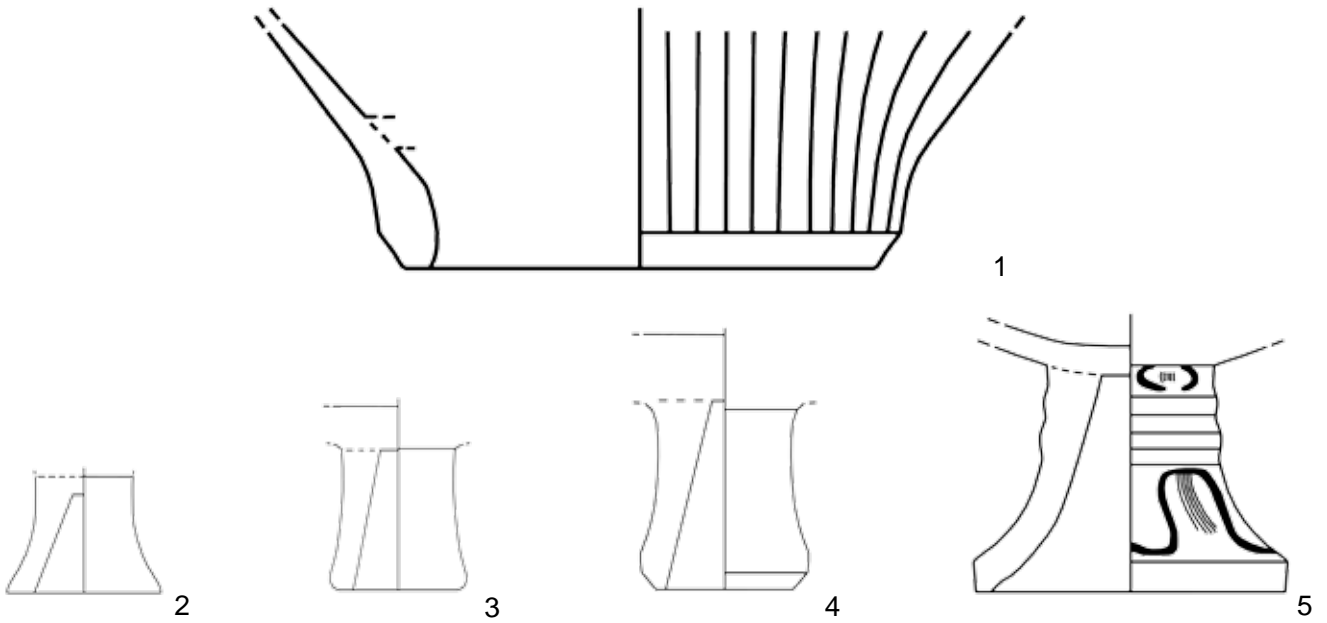


- 1. Rim Type 3, ID 4499.
- 3. Further variant of Rim Type 3, ID 9376.
- 5. Rim Type 3, F, ID 1231.
- 7. Rim Type 5, N, ID 1406.
- 10. Base Type 1.1., thick, ID 5451.
- 11. Base Type 1.3., ID 10710.
- 13. Base Type 2.1., ID 3934.

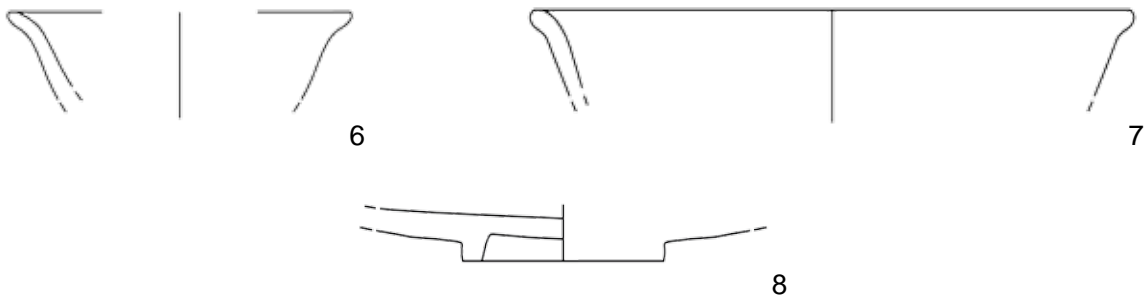
- 2. Further variant of Rim Type 3, ID 8710.
- 4. Further variant of Rim Type 3, ID 5783.
- 6. Rim Type 4, ID 7342.
- 8. Rim Type 6.2., ID 11377.
- 9. Exceptional rim, ID 2145.
- 12. Base Type 1.1.-2.1., ID 2916.

Plate 12

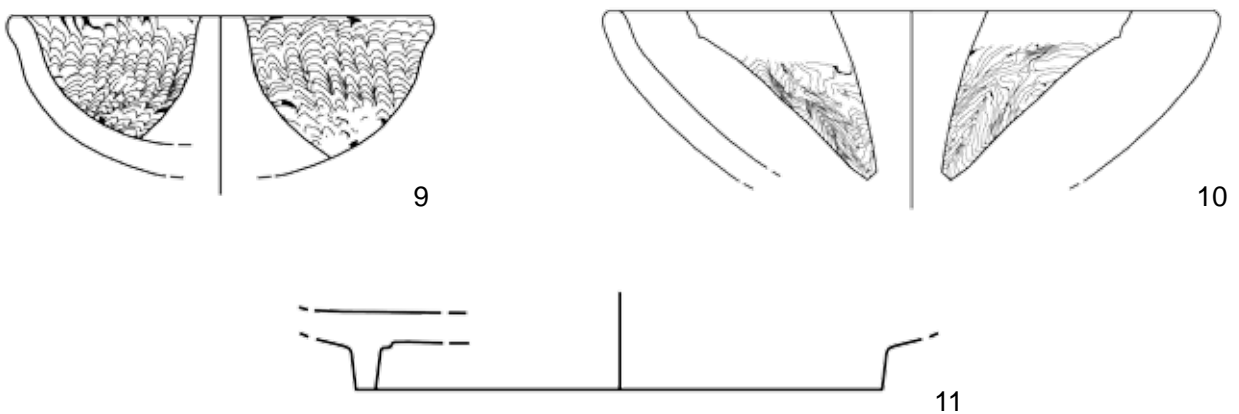
Shapes in Ware 5 - Part 4 (fig. 1 - 5)



Shapes in Ware 6 (fig. 6 - 8)



Shapes in Ware 8 (fig. 9 - 11)



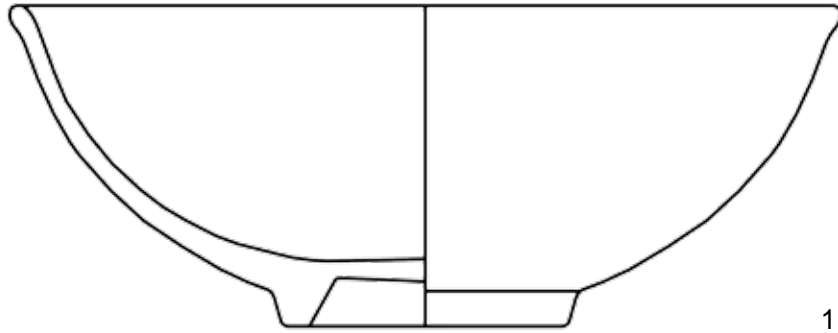
1. Base Type 2.3., ID 4754.
3. Further variant of Base Type 4.2., ID 2381.
5. Further variant of Base Type 4.2., ID 2072.
9. Rim Type 2.1., Marbling Pattern III, ID 1995.
11. Base Type 1.1., ID 15904.

2. Base Type 4.2., ID 1191.
4. Further variant of Base Type 4.2., ID 8530.
6. Rim Type 2, ID 6314.
8. Base Type 1.1., ID 7782.
10. Rim Type 3, Marbling Pattern I, ID 1908.

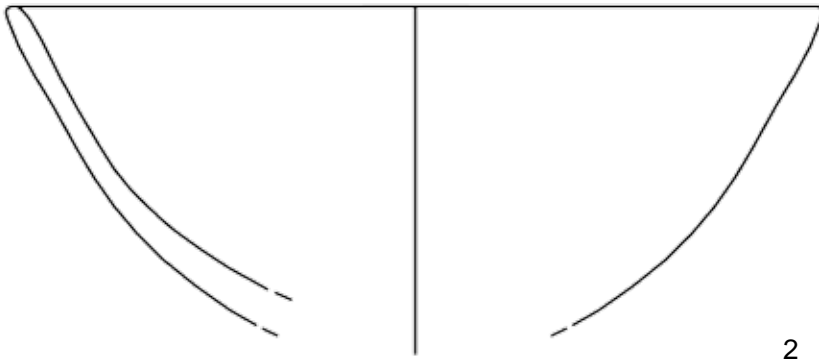
Scale 1:2

Plate 13

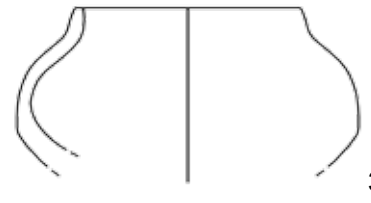
Shapes in Ware 9 (fig. 1 - 3)



1

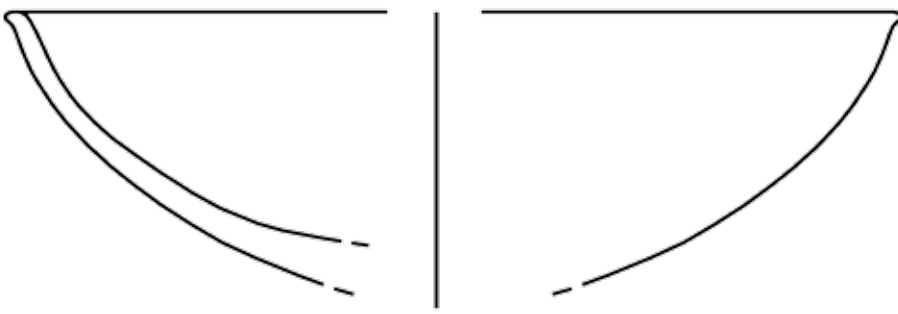


2



3

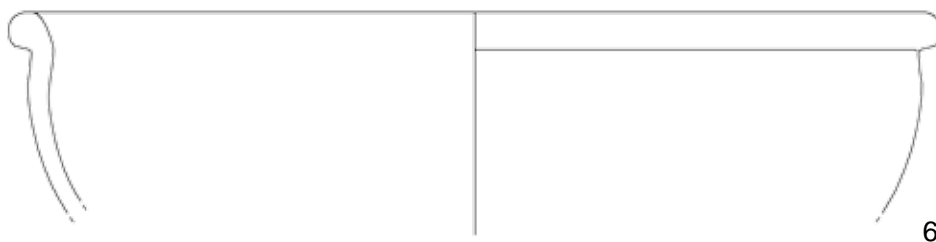
Shapes in Ware 10 - Part 1 (fig. 4 - 7)



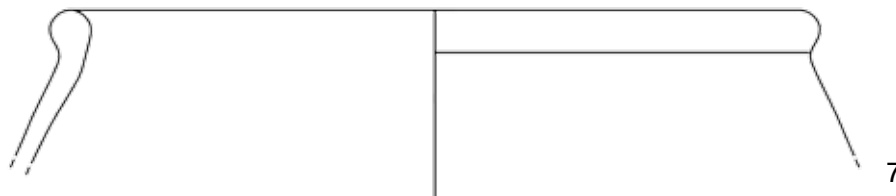
4



5



6

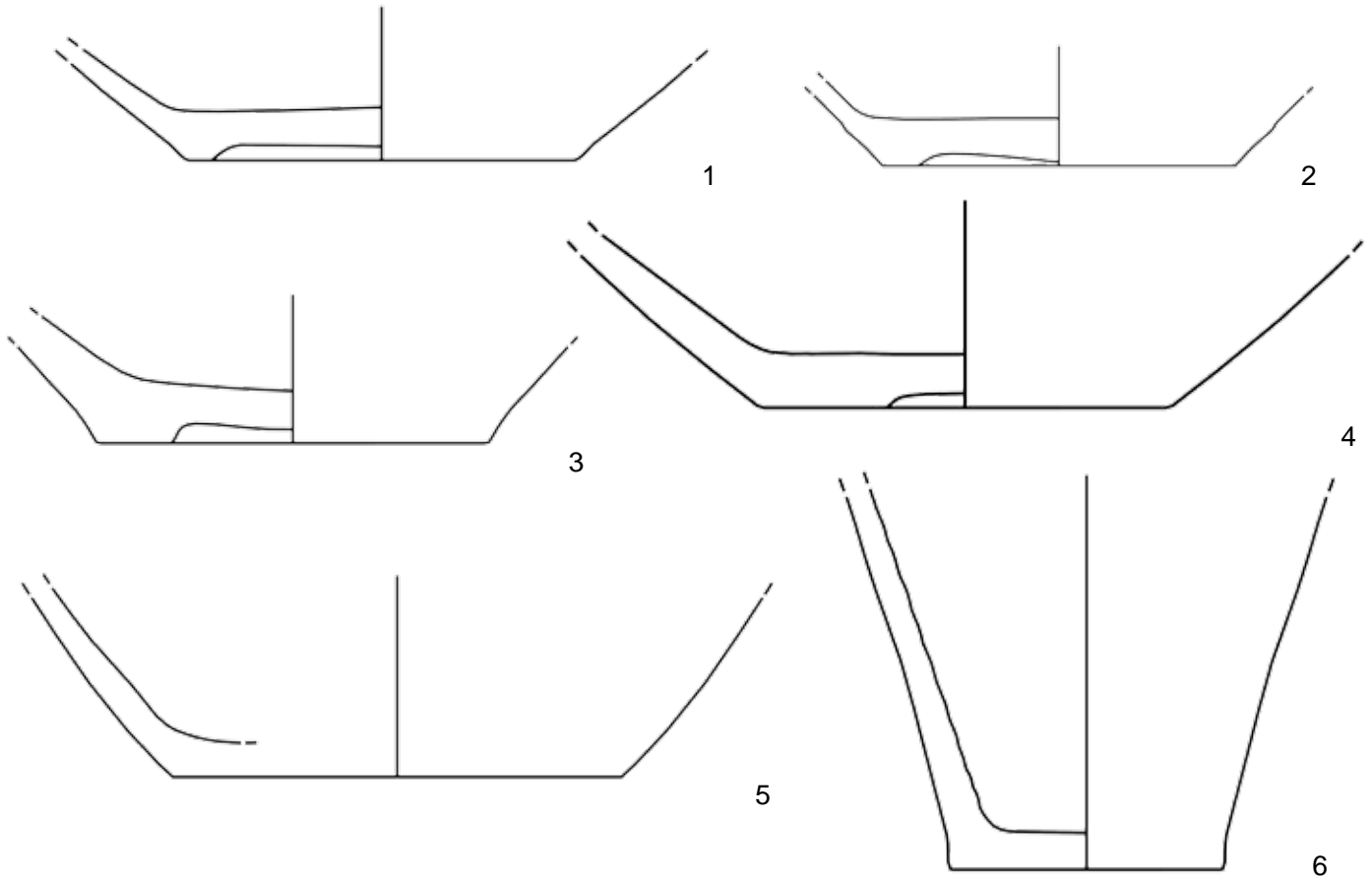


7

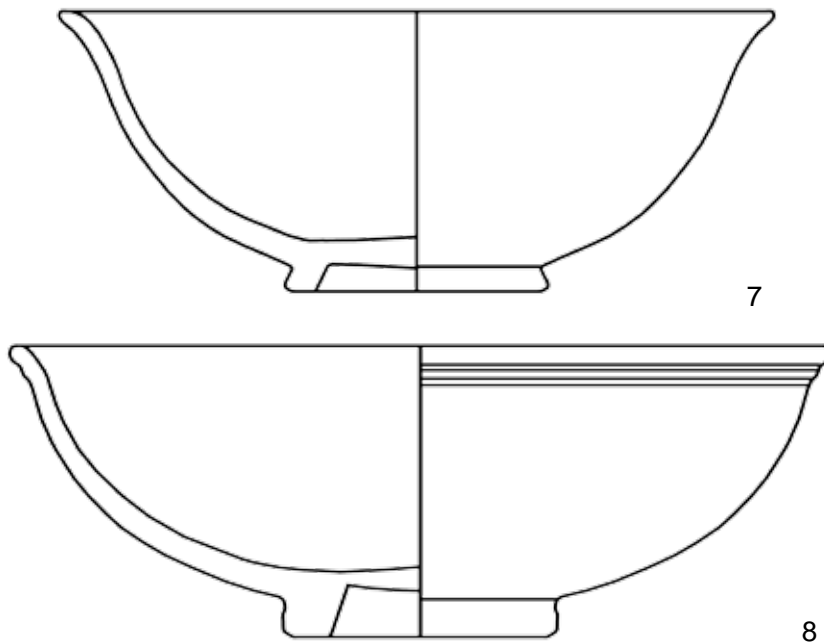
- 1. Bowl, Rim Type 2.1., Base Type 1.1., ID 6368.
- 3. Rim Type 5, N, ID 2091.
- 5. Rim Type 3, ID 13079.
- 7. Further variant of Rim Type 6.2., ID 1636.

- 2. Rim Type 3, ID 6440.
- 4. Rim Type 2.1., ID 11374.
- 6. Rim Type 6.2., ID 12550.

Shapes in Ware 10 - Part 2 (fig. 1 - 6)



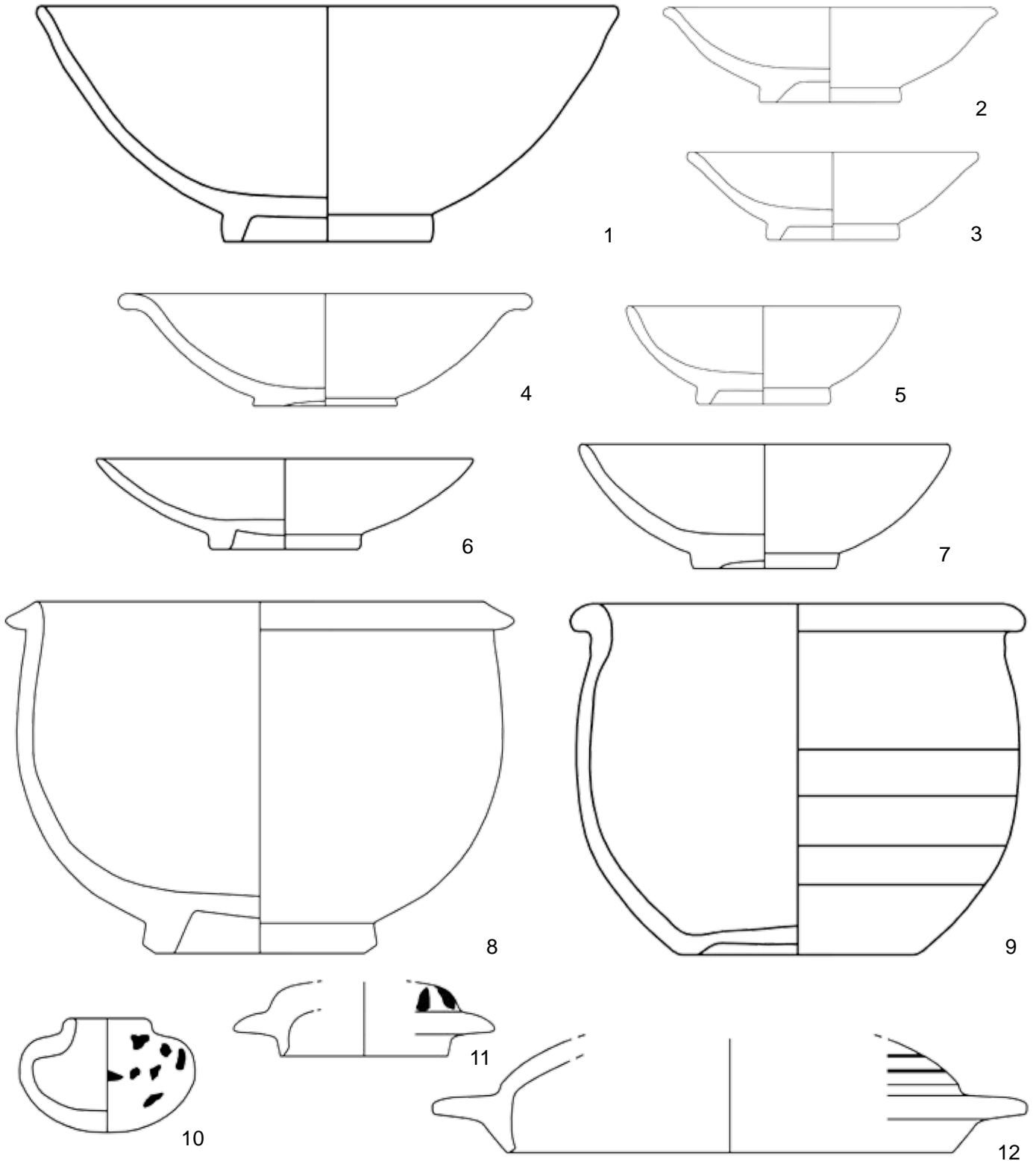
Shapes in Ware 11 - Part 1 (fig. 7 - 8)



- 1. Base Type 2.1., small footing, ID 1759.
- 3. Base Type 2.1., large footing, ID 6704.
- 5. Base Type 3, ID 1824.
- 7. Bowl, Rim Type 2, Base Type 1.1., ID 6616.

- 2. Base Type 2.1., medium footing, ID 8271.
- 4. Base Type 2.1., very large footing, ID 12808.
- 6. Further variant of Base Type 3, ID 2185.
- 8. Bowl, Rim Type 2, R, Base Type 1.1., ID 7780.

Shapes in Ware 11 - Part 2



1. Bowl, Rim Type 2.1., Base Type 1.1., ID 1905.

3. Flat Bowl, Rim Type 2.1., Base Type 1.1., ID 2541.

5. Flat Bowl, Rim Type 3, Base Type 1.1., ID 1852.

6. Flat Bowl, Rim Type 3, Base Type 1.1., ID 11723.

8. Pot, Rim Type 6.1., Base Type 1.1., ID 2179.

9. Pot, Rim Type 6.2., Base Type 2.1., ID 10664.

11. Hollow Lid Type I, ID 13126.

2. Deep Plate, Rim Type 2, Base Type 1.1., ID 2174.

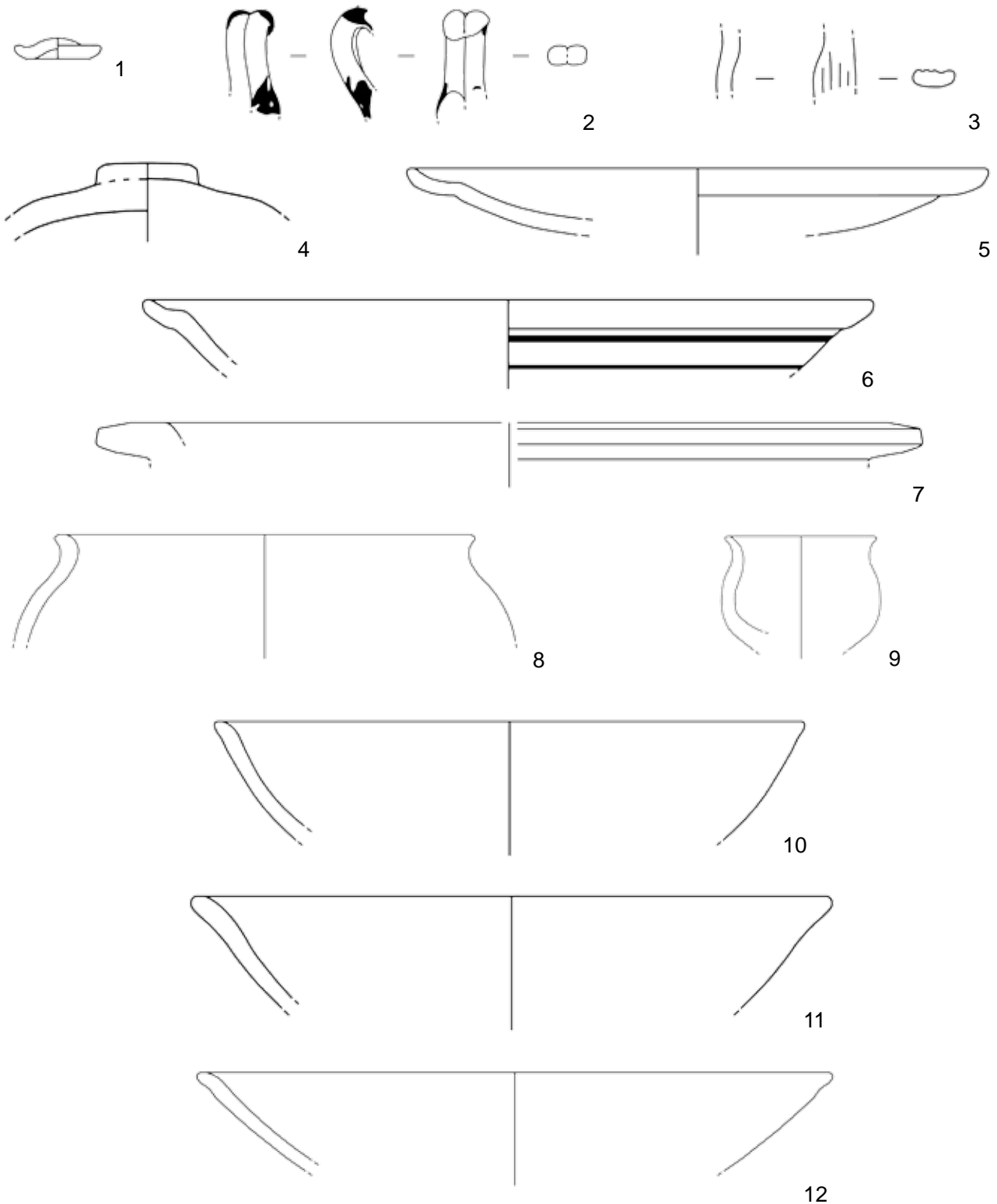
4. Flat Bowl, Rim Type 2.2., Base Type 1.2., ID 1188.

7. Flat Bowl, Rim Type 3, Base Type 1.2., ID 2038.

10. Flask, miniature, Rim Type 5, N, Base Type exceptional (rounded), ID 4689.

12. Hollow Lid Type I, ID 12798.

Shapes in Ware 11 - Part 3



1. Hollow Lid Type II, ID 1946.

3. Handle Type II, ID 7043.

5. Rim Type 1, ID 3378.

7. Rim Type 1 – 4 (exception), ID 3033.

9. Further variant of Rim Type 2 (on pot), ID 1964.

11. Further variant of Rim Type 2.1., ID 11223.

2. Handle Type I, ID 10989.

4. Handle Type III (Knob Handle), ID 14165.

6. Further variant of Rim Type 1, ID 7743.

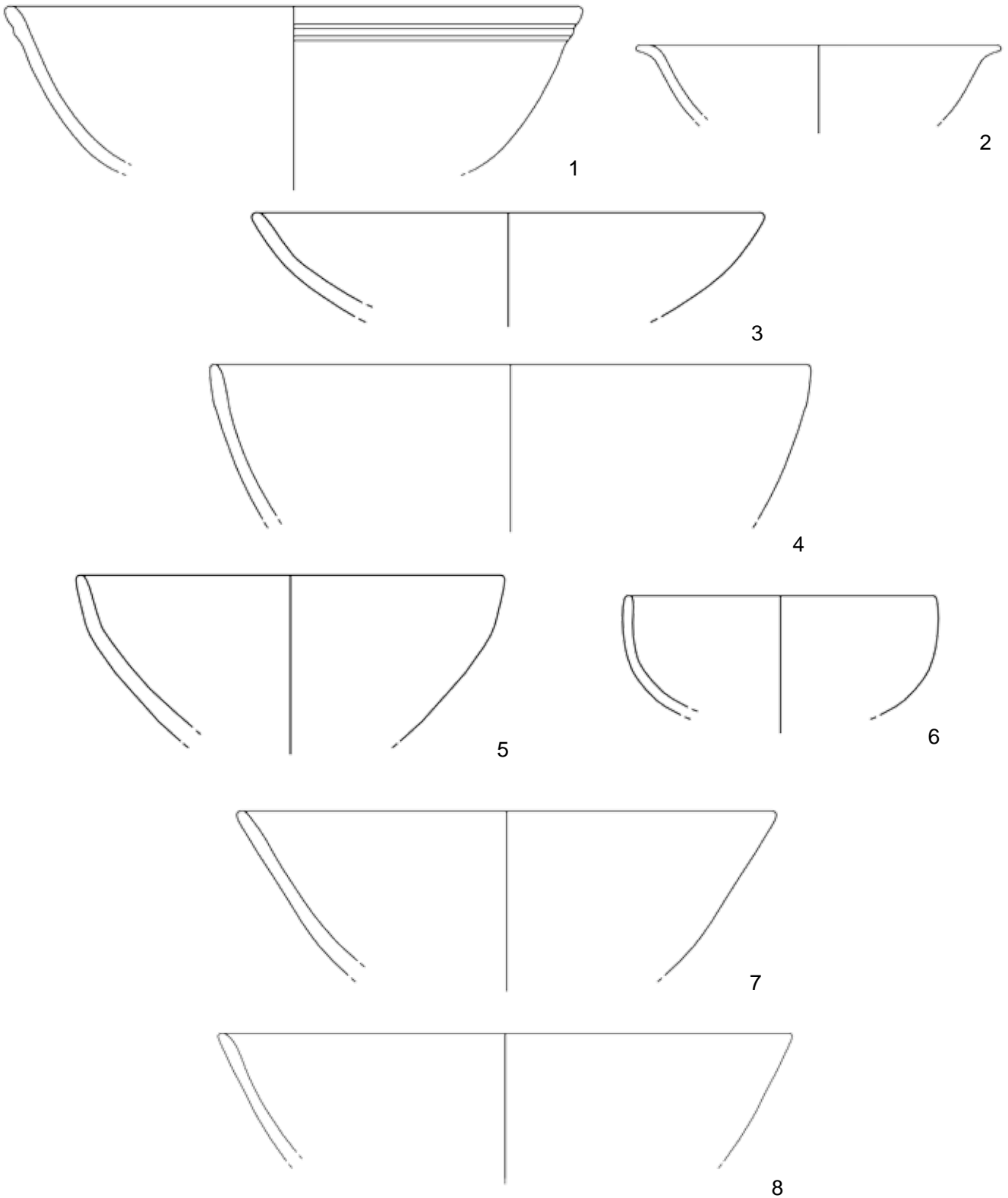
8. Rim Type 2 (on pot), ID 6879.

10. Rim Type 2.1., ID 10702.

12. Further variant of Rim Type 2.1., ID 5260.

Plate 17

Shapes in Ware 11 - Part 4

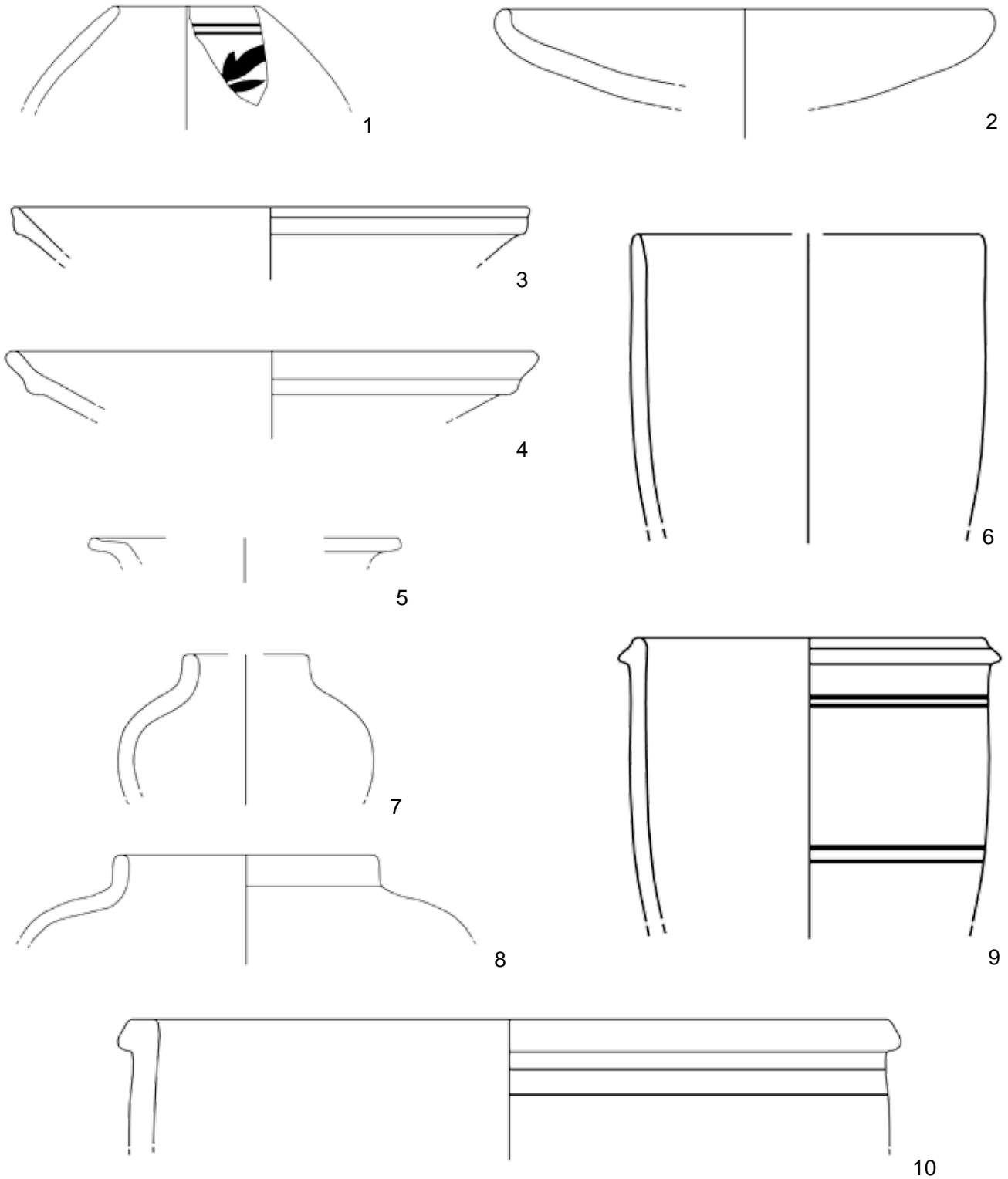


- 1. Rim Type 2.1., R, ID 7139.
- 3. Rim Type 3, ID 14977.
- 5. Further variant of Rim Type 3, ID 6736.
- 7. Further variant of Rim Type 3, ID 6309.

- 2. Rim Type 2.2., ID 6965.
- 4. Further variant of Rim Type 3, ID 7960.
- 6. Further variant of Rim Type 3, ID 11544.
- 8. Further variant of Rim Type 3, ID 9948.

Scale 1:2

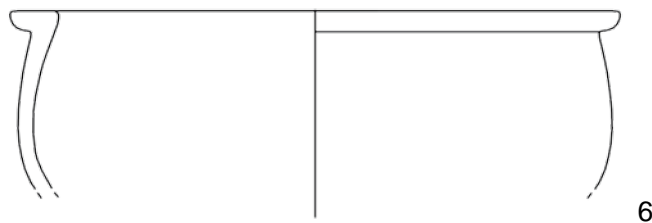
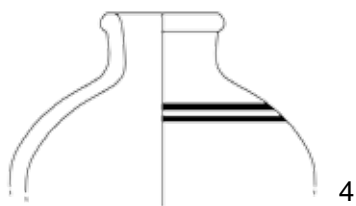
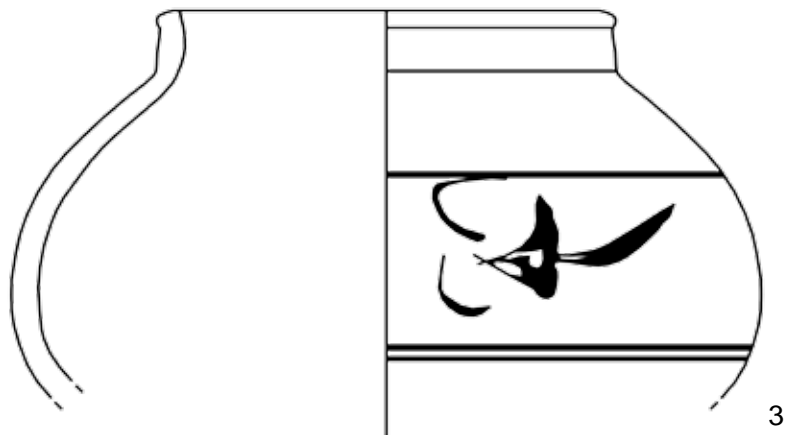
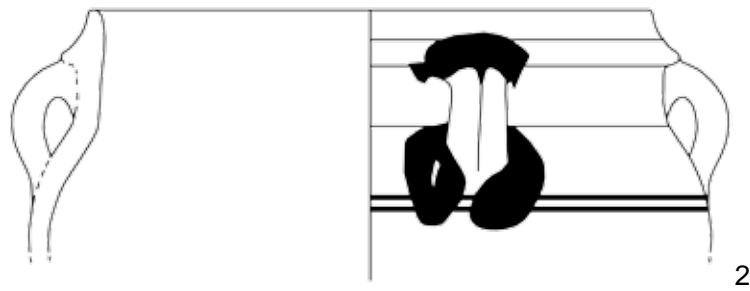
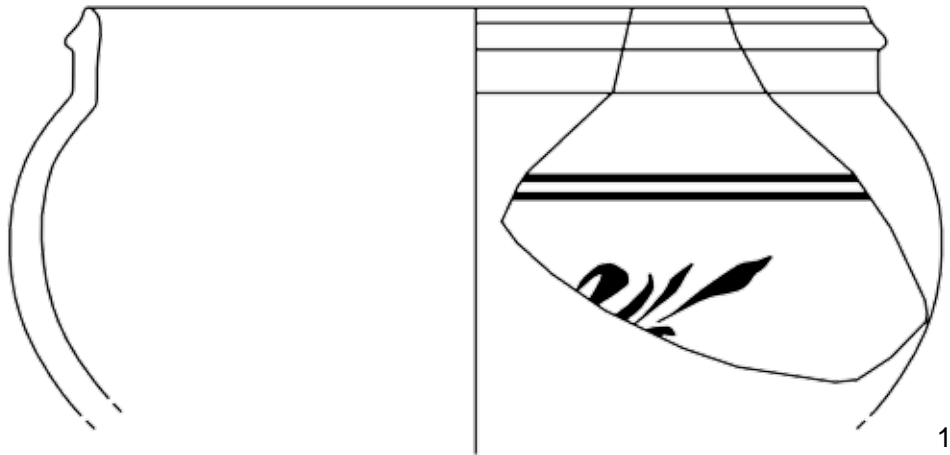
Shapes in Ware 11 - Part 5



- 1. Exception in Rim Type 3, ID 15632.
- 3. Rim Type 3, C, ID 6432.
- 5. Rim Type 4, ID 8903.
- 7. Rim Type 5, N, ID 10192.
- 9. Rim Type 5, C, ID 1827.

- 2. Exception in Rim Type 3, ID 7288.
- 4. Exception in Rim Type 3, C, ID 6451.
- 6. Rim Type 5, ID 1202.
- 8. Further variant of Rim Type 5, N, ID 6774.
- 10. Further variant of Rim Type 5, C, ID 6553.

Shapes in Ware 11 - Part 6



1. Rim Type 5, N + C, ID 2024.

3. Further variant of Rim Type 5, N + C, ID 2075.

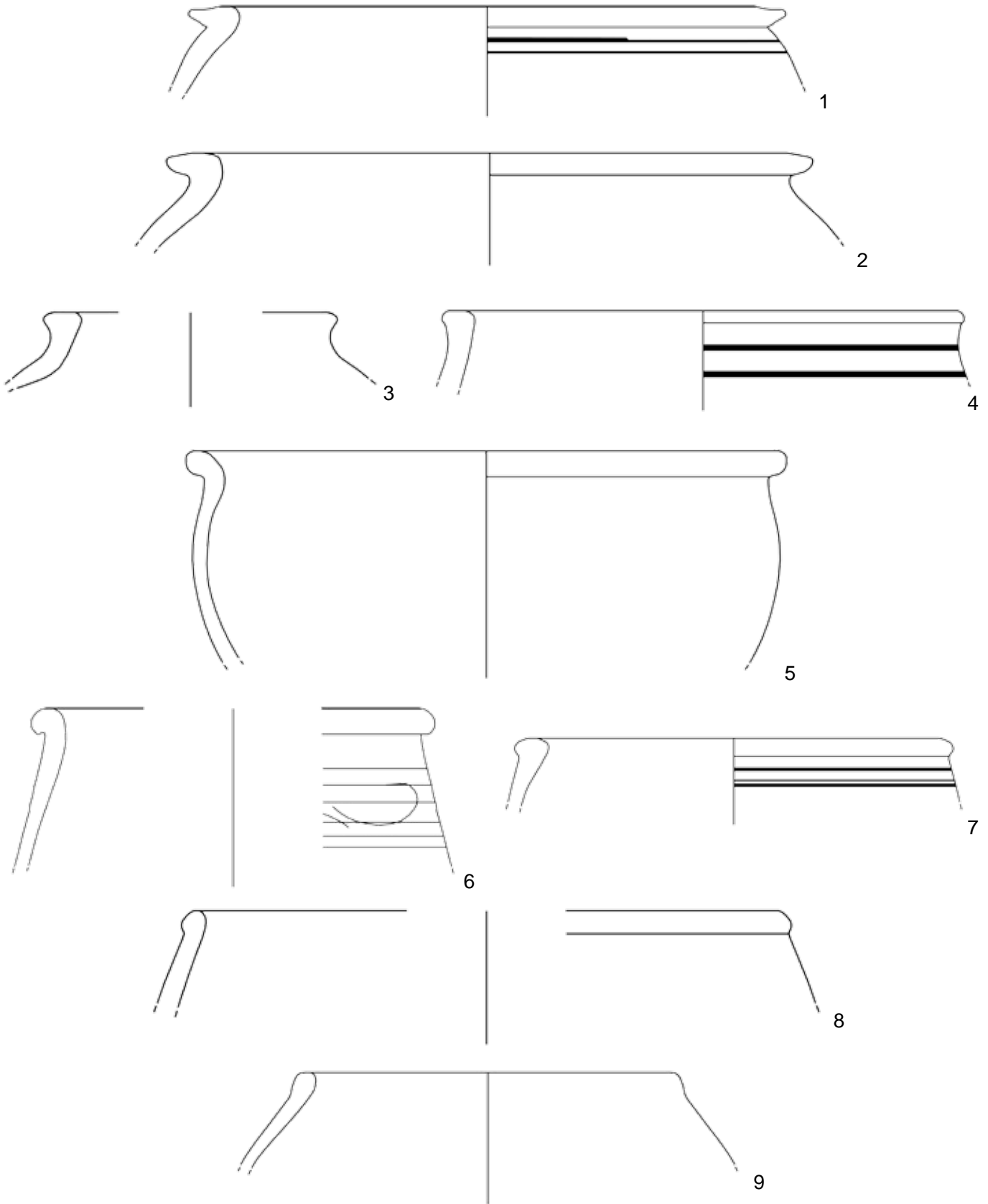
5. Further variant of Rim Type 5, B + C, ID 1961.

2. Further variant of Rim Type 5, N + C, ID 2076.

4. Rim Type 5, B + C, ID 1954.

6. Rim Type 6.1., ID 1829.

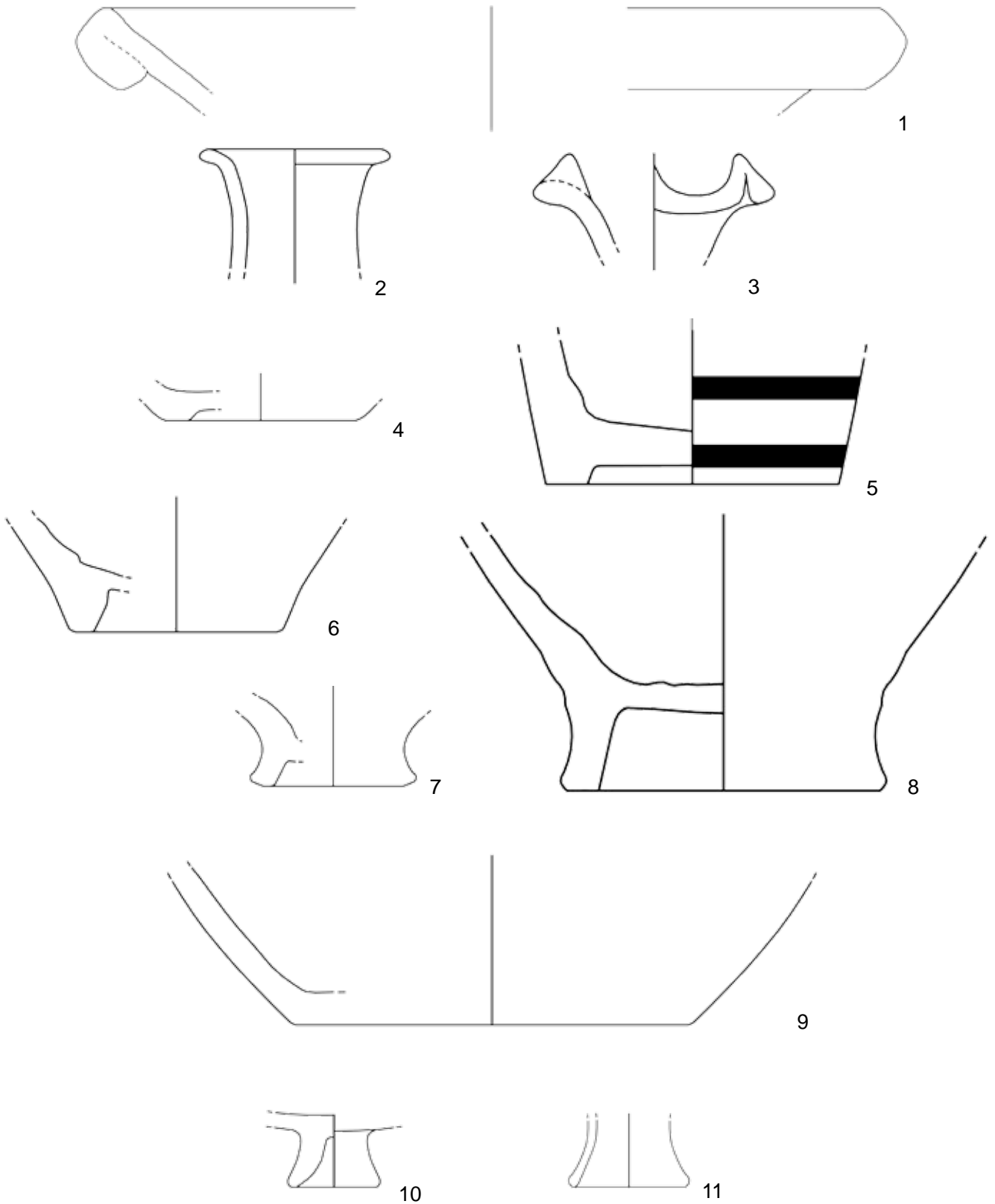
Shapes in Ware 11 - Part 7



- 1. Further variant of Rim Type 6.1., ID 8089.
- 3. Exception in Rim Type 6.1., ID 15661.
- 5. Rim Type 6.2., ID 1804.
- 7. Exception in Rim Type 6.2., ID 8424.
- 9. Exception in Rim Type 6.2., ID 1470.

- 2. Further variant of Rim Type 6.1., ID 2279.
- 4. Exception in Rim Type 6.1., ID 6712.
- 6. Exception in Rim Type 6.2., ID 3276.
- 8. Exception in Rim Type 6.2., ID 928.

Shapes in Ware 11 - Part 8



- 1. Rim Type 6.3., ID 8123.
- 3. Rim Type 7, L, ID 3714.
- 5. Further variant of Base Type 2.1., ID 1393.
- 7. Further variant of Base Type 2.3., ID 5170.
- 9. Base Type 3, ID 7801.
- 11. Base Type 4.2., ID 1921.

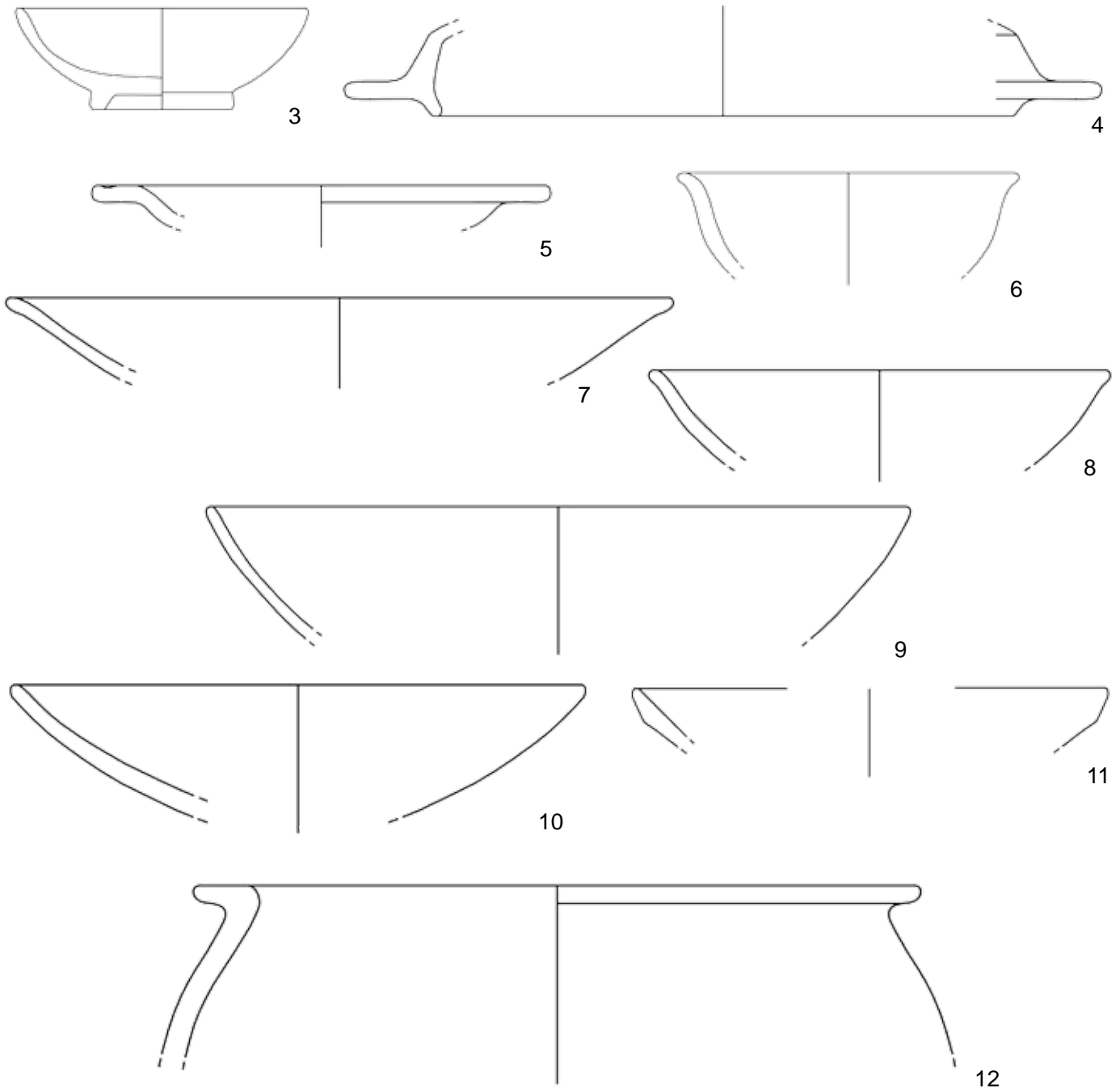
- 2. Rim Type 7, ID 2105.
- 4. Base Type 2.1., ID 9823.
- 6. Base Type 2.3., ID 3805.
- 8. Further variant of Base Type 2.3., ID 3808.
- 10. Base Type 4.1., ID 1797.

Plate 22

Shapes in Ware 12 (fig. 1) and Ware 13 (fig. 2)



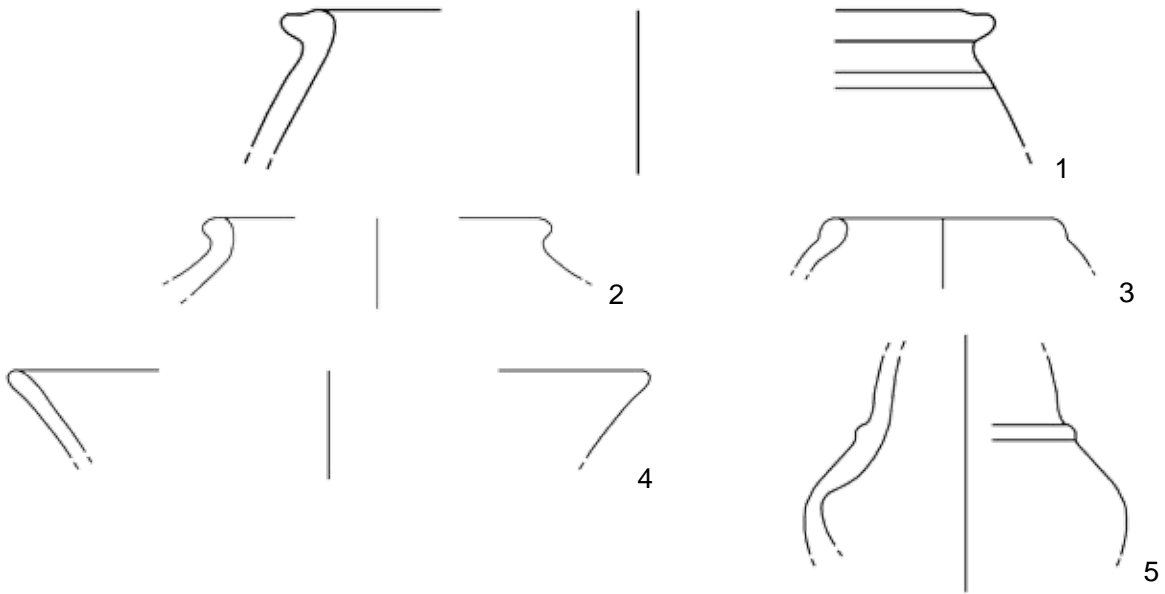
Shapes in Ware 14 - Part 1 (fig. 3 - 12)



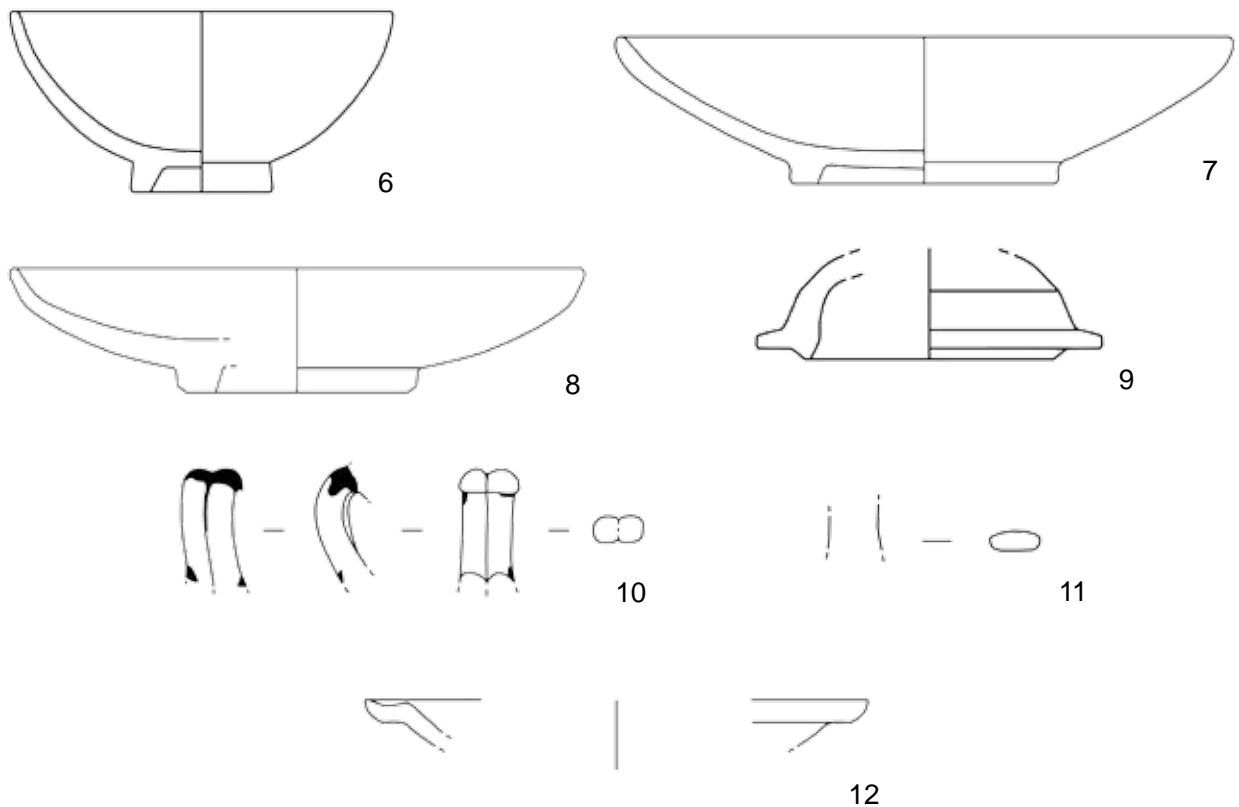
1. Rim Type 3, ID 6254.
3. Flat Bowl, Rim Type 3, Base Type 1.1., ID 2161.
5. Rim Type 1, ID 7774.
7. Rim Type 2.1., ID 14115.
9. Rim Type 3, ID 5324.
11. Rim Type 3, C, ID 1198.

2. Base Type 1.1., ID 1990.
4. Hollow lid, ID 5552.
6. Rim Type 2, ID 7236.
8. Further variant of Rim Type 2.1., ID 10867.
10. Further variant of Rim Type 3, ID 3008.
12. Rim Type 6.1., ID 12554.

Shapes in Ware 14 - Part 2 (fig. 1 - 5)



Shapes in Ware 16 - Part 1 (fig. 6 - 12)

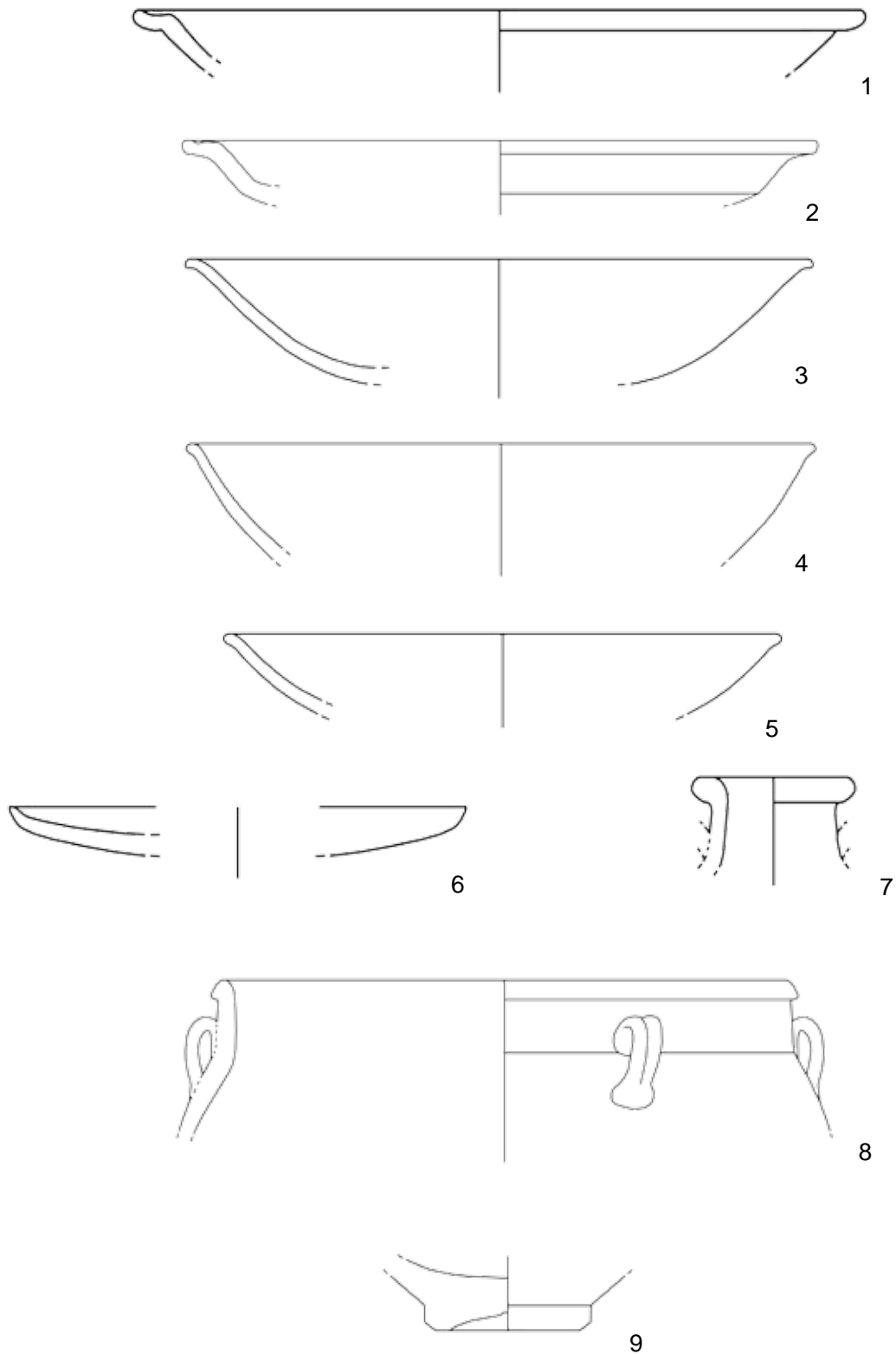


- 1. Exception in Rim Type 6.1., ID 13686.
- 2. Rim Type 6.2., ID 2625.
- 3. Further variant of Rim Type 6.2., ID 15493.
- 5. Special body shape, ID 5553.
- 6. Deep Bowl, Rim Type 3, Base Type 1.1., ID 2151.
- 7. Deep Plate, Rim Type 3, Base Type 1.1., ID 2020.
- 9. Hollow lid, ID 13169.
- 11. Handle Type II, ID 6870.

- 2. Rim Type 6.2., ID 2625.
- 4. Rim Type 7, ID 14078.
- 6. Deep Bowl, Rim Type 3, Base Type 1.1., ID 2151.
- 8. (Deep) Plate, Rim Type 3, Base Type 1.1., ID 8142.
- 10. Handle Type I, ID 6211.
- 12. Rim Type 1, ID 2788.

Plate 24

Shapes in Ware 16 - Part 2



1. Further variant of Rim Type 1, ID 15044.

3. Rim Type 2, ID 11226.

5. Further variant of Rim Type 2.1., ID 10845.

7. Rim Type 5 B, C, ID 15821.

9. Base Type 1.2., ID 2152.

2. Further variant of Rim Type 1, ID 1941.

4. Rim Type 2.1., ID 11545.

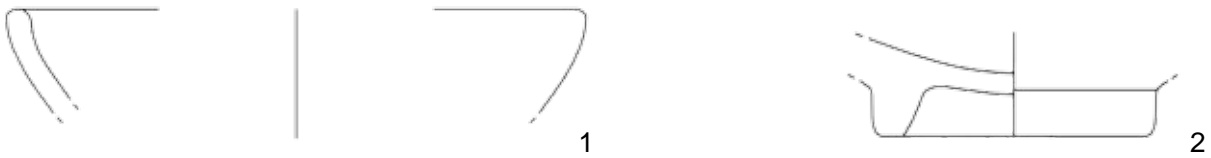
6. Exception in Rim Type 3, ID 1895.

8. Rim Type 5, N + C, ID 2195.

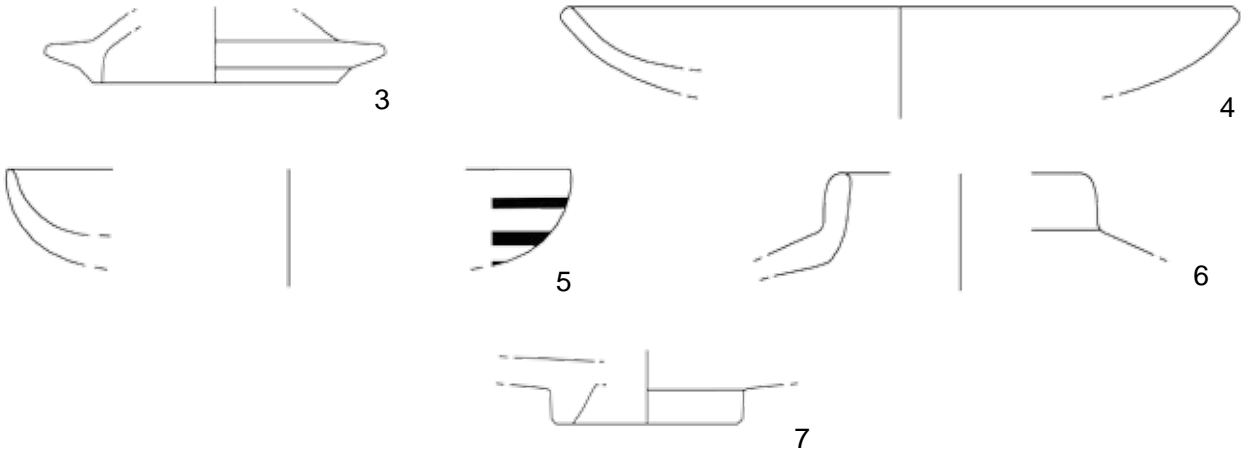
Scale 1:2

Plate 25

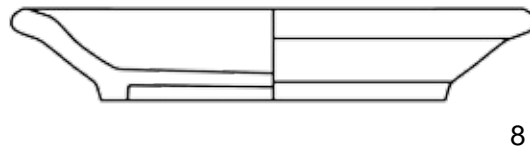
Shapes in Ware 17 (fig. 1 - 2)



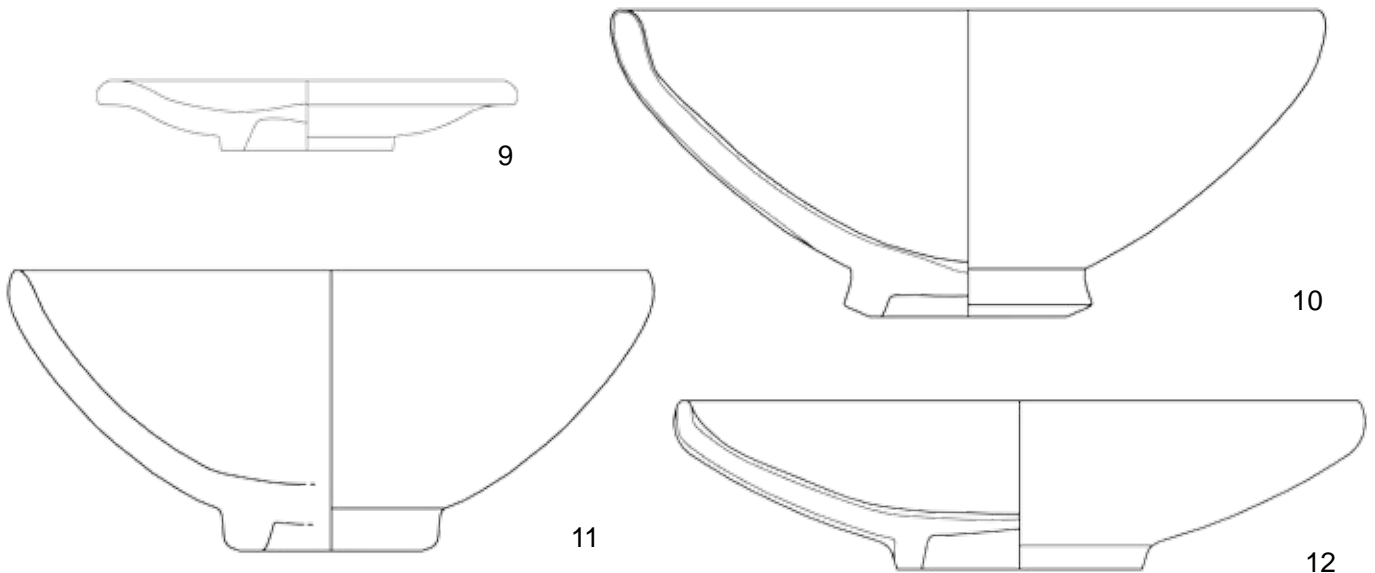
Shapes in Ware 18 (fig. 3 - 7)



Shapes in Ware 19 (fig. 8)



Shapes in Ware 20 - Part 1 (fig. 9 - 10)

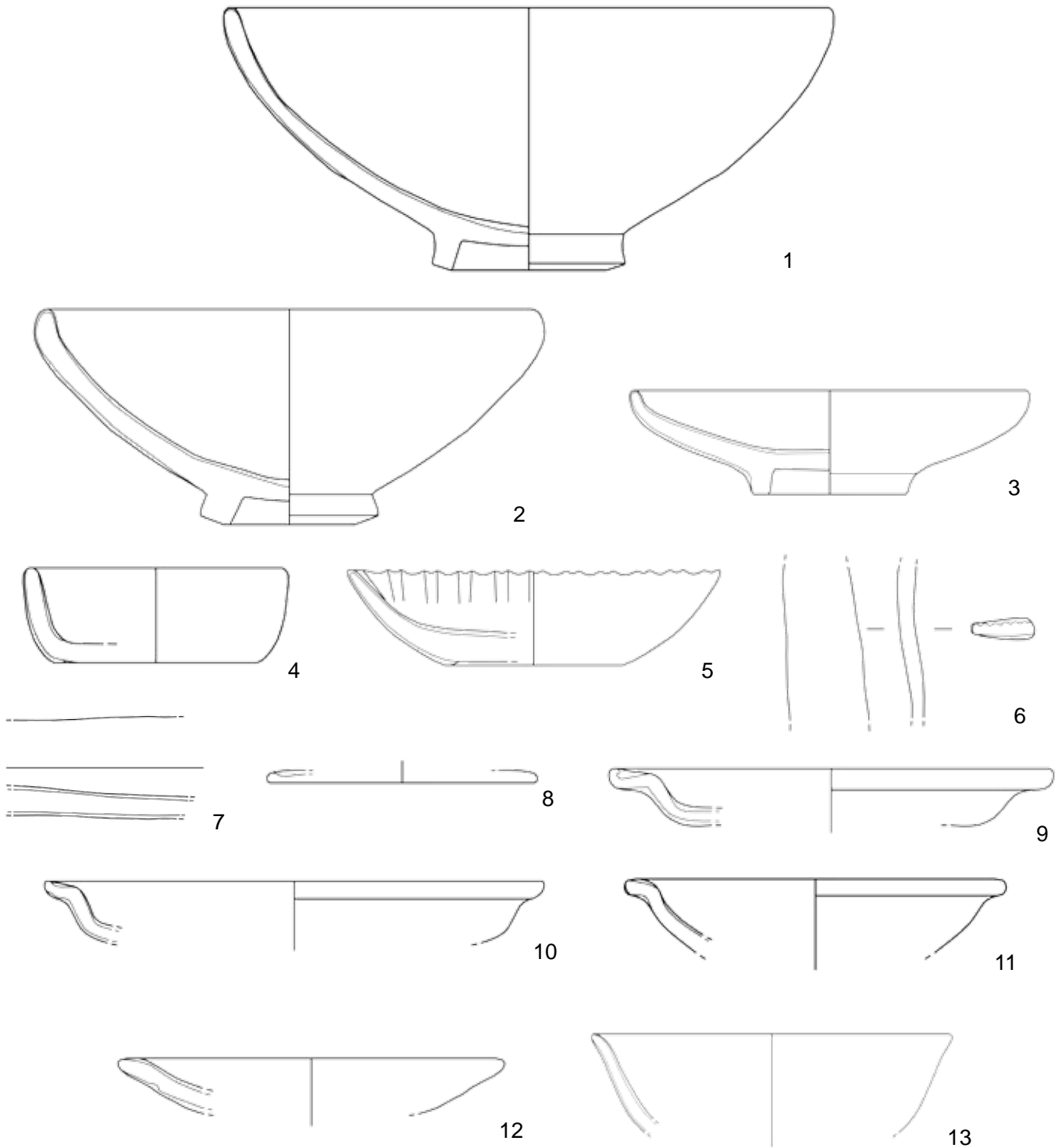


1. Rim Type 3, ID 7039.
3. Hollow lid, ID 1823.
5. Further variant of Rim Type 3, ID 1839.
7. Base Type 1.1., ID 8735.
9. Flat Plate, Rim Type 2, Base Type 1.1., ID 2060.
11. Bowl, Rim Type 3, Base Type 1.1., ID 1002.

2. Base Type 1.1., ID 2432.
4. Rim Type 3, ID 2176.
6. Rim Type 5, N, ID 7040.
8. Plate, Rim Type 1-2, Base Type 1.1., ID 1232.
10. Bowl, Rim Type 3, Base Type 1.1., ID 991.
12. Deep Plate, Rim Type 3, Base Type 1.1., ID 4566.

Plate 26

Shapes in Ware 20 - Part 2



1. Bowl, Rim Type 3, Base Type 1.1., ID 8416.
3. Deep Plate, Rim Type 3, Base Type 1.1., ID 11627.
4. Bowl, Rim Type 3, Base Type 3, ID 7929.
5. Deep Plate, Rim Type 3, F, Base Type 3, ID 1422.
7. Spout, ID 8659.
9. Rim Type 1, ID 1933.
11. Further variant of Rim Type 1, ID 15253.
13. Further variant of Rim Type 2.1., ID 6547.

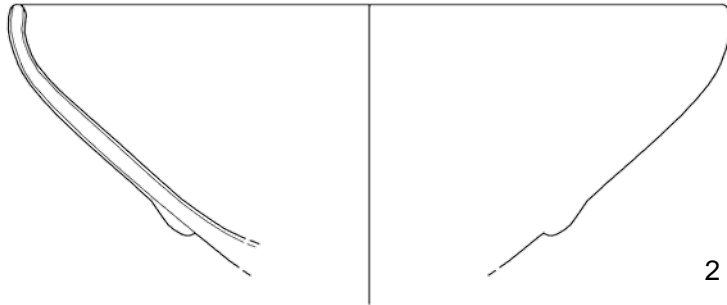
2. Bowl, Rim Type 3, Base Type 1.1., ID 10740.
6. Handle, ID 3649.
8. Lid, ID 15911.
10. Further variant of Rim Type 1, ID 11548.
12. Rim Type 2.1., ID 10906.

Scale 1:2

Shapes in Ware 20 - Part 3



1



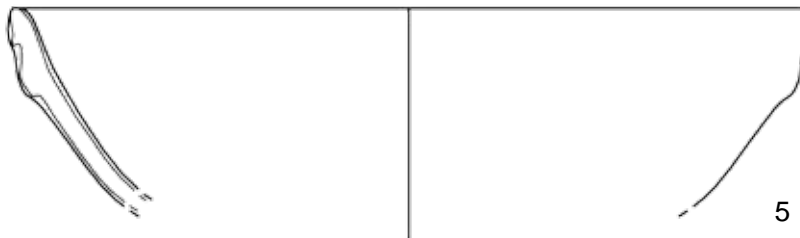
2



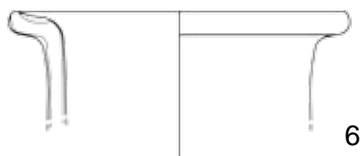
3



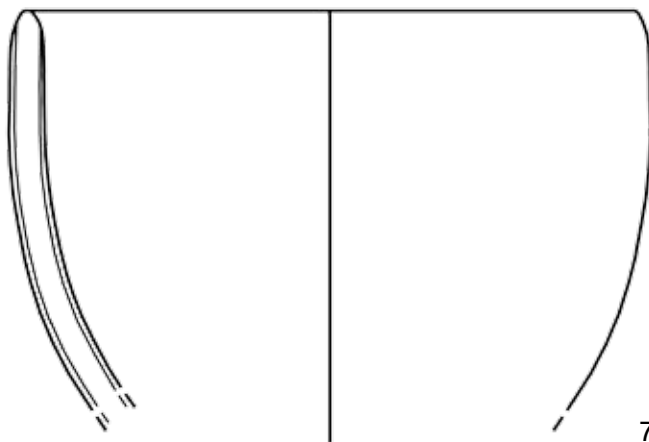
4



5



6



7

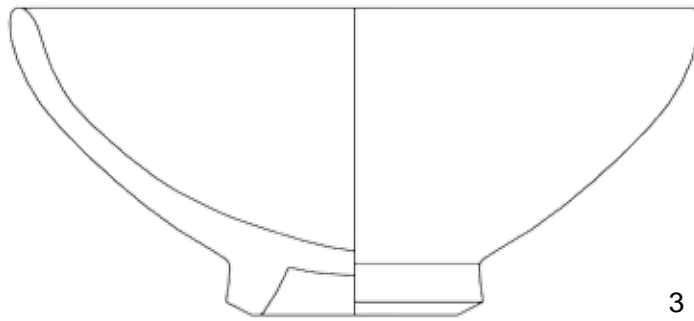
- 1. Exception in Rim Type 2.1., ID 7061.
- 3. Rim Type 3, C, ID 7291.
- 5. Further variant of Rim Type 3, C, ID 14970.

- 2. Rim Type 3, ID 10738.
- 4. Further variant of Rim Type 3, C, ID 14353.
- 6. Rim Type 4, ID 8081.

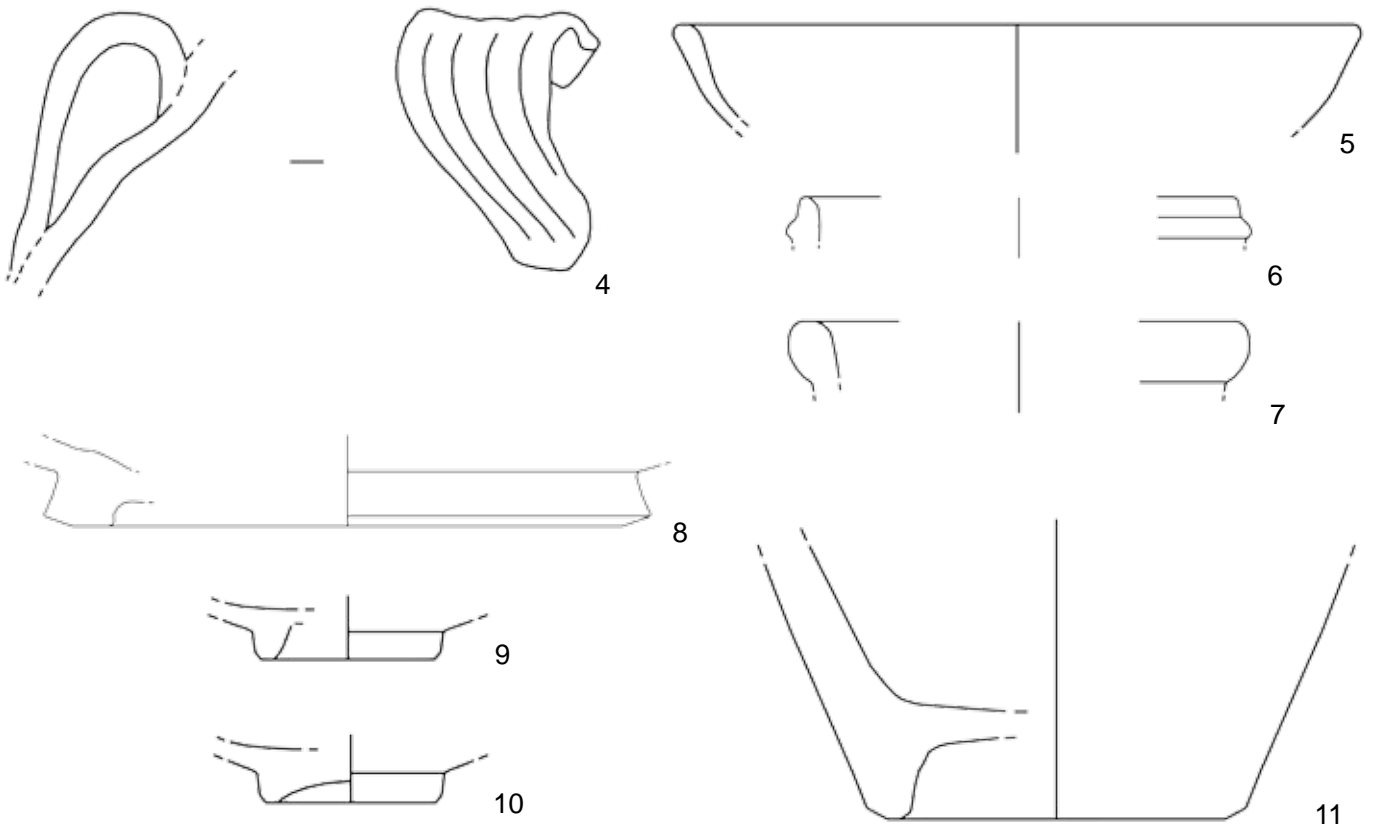
Shapes in Ware 20 - Part 4 (fig. 1 - 2)



Shapes in Ware 21 (fig. 3)



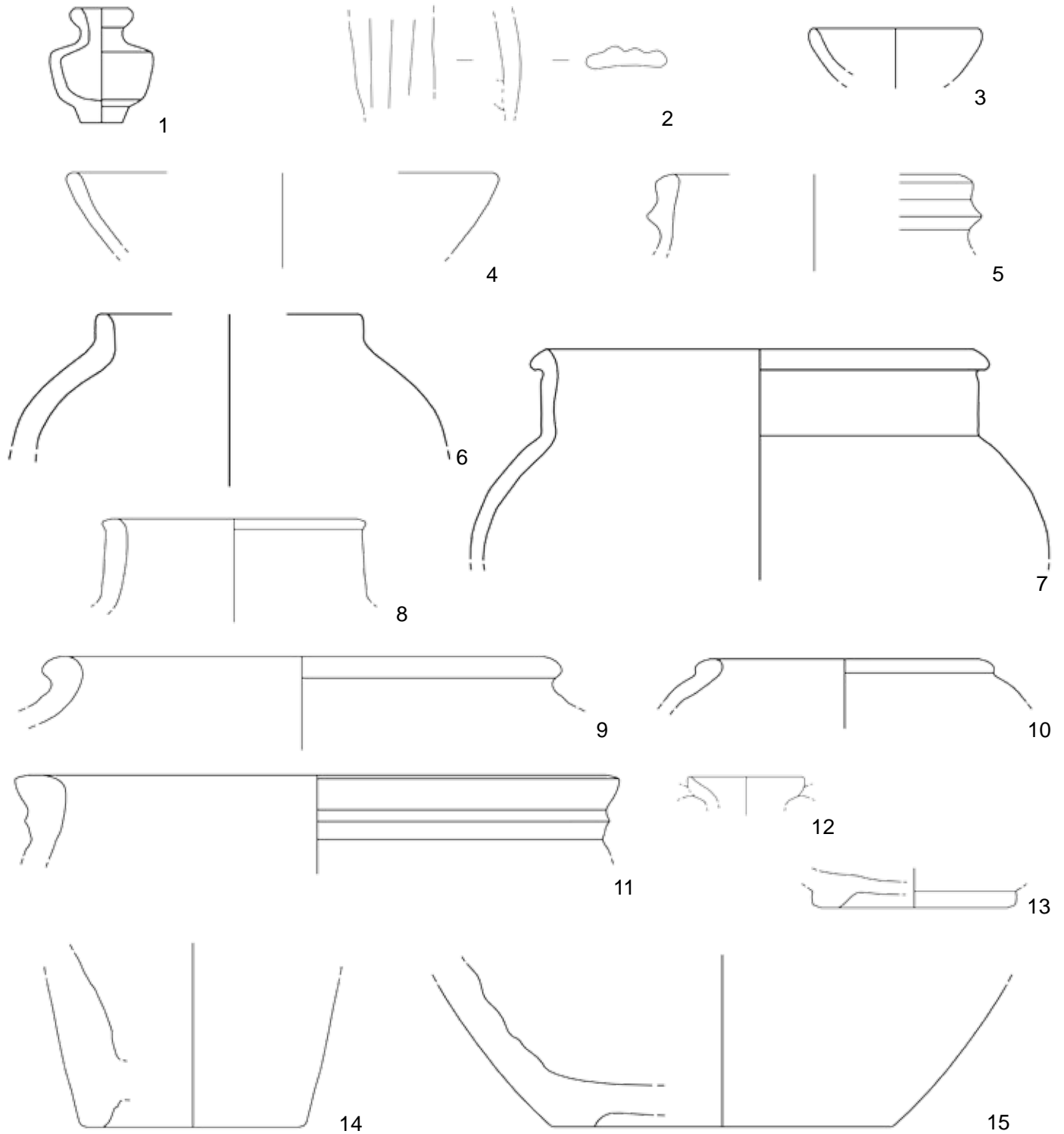
Shapes in Ware 22 (fig. 4 - 11)



- 1. Base Type 1.2., ID 6073.
- 3. Deep Bowl, Rim Type 3, Base Type 1.1., ID 7779.
- 5. Rim Type 3.1., ID 266.
- 7. Rim Type 6.2., ID 8653.
- 9. Further variant of Base Type 1.1., ID 12814.
- 11. Base Type 2.3., ID 11432.

- 2. Base Type 2.1., ID 1249.
- 4. Handle, ID 12381.
- 6. Rim Type 5, C, ID 13821.
- 8. Base Type 1.1., ID 5470.
- 10. Base Type 1.2., ID 1280.

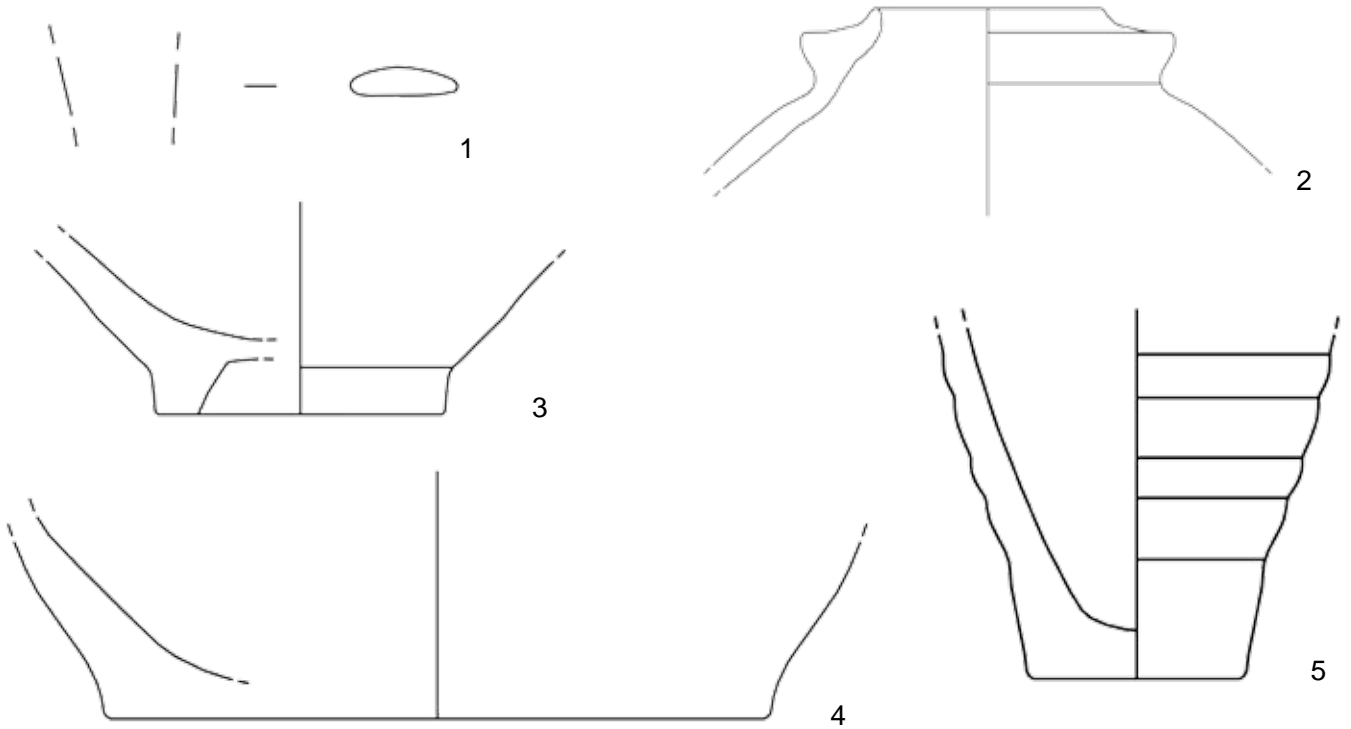
Shapes in Ware 23



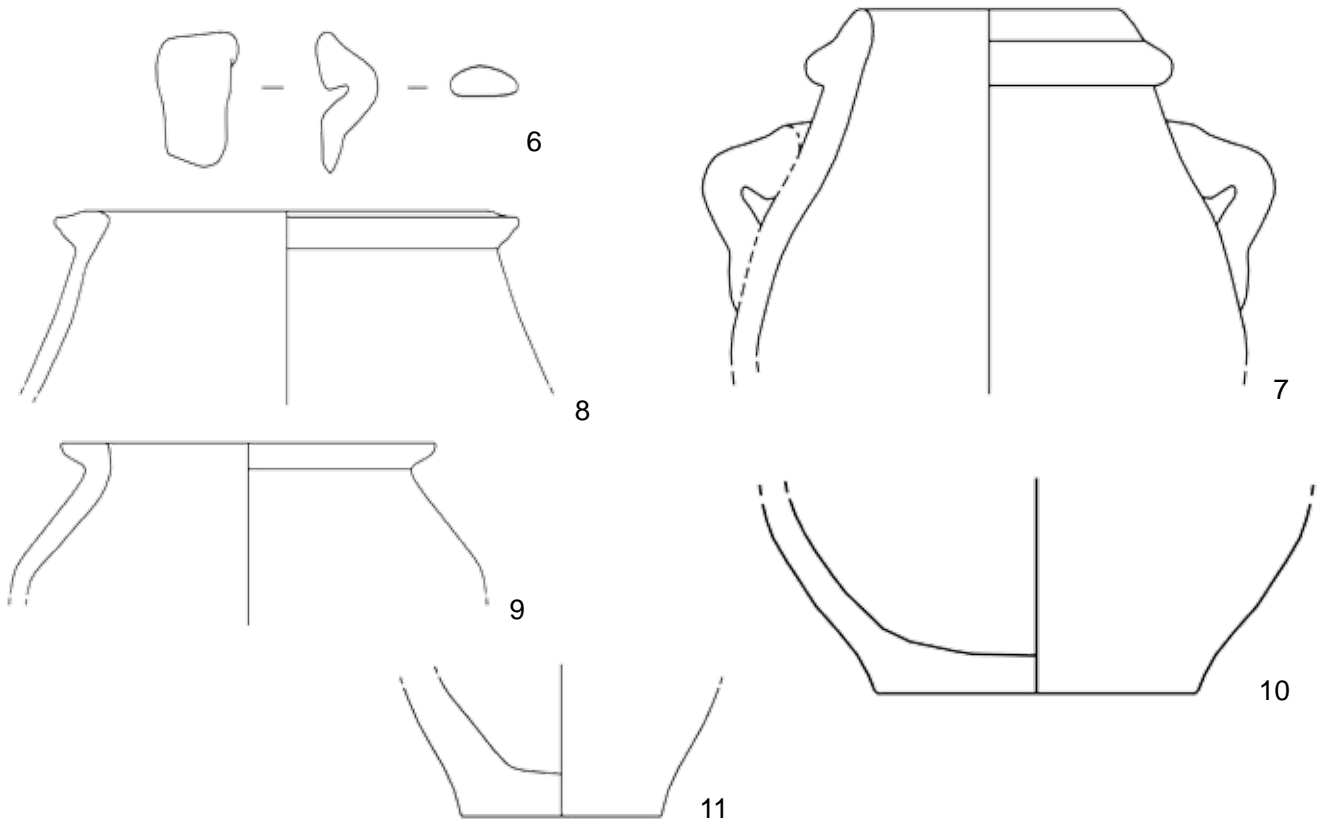
1. Bottle (miniature), Rim Type 5 B, C, Base Type 1.3., ID 2025.
3. Rim Type 3, ID 15322.
5. Exception in Rim Type 5, C, ID 10152.
7. Rim Type 5, N + C, ID 3522.
8. Exception in Rim Type 5, N + C, ID 8179.
11. Exception in Rim Type 6.3., ID 8113.
13. Base Type 1.1., ID 6910.
15. Further variant of Base Type 2.1., ID 8395.

2. Handle, ID 6791.
4. Further variant of Rim Type 3, ID 11748.
6. Rim Type 5, N, ID 1564.
9. Rim Type 6.2., ID 12581.
10. Further variant of Rim Type 6.2., ID 8992.
12. Exceptional rim shape, ID 2752.
14. Base Type 2.1., ID 6808.

Shapes in Ware 24 (fig. 1 - 5)



Shapes in Ware 25 (fig. 6 - 11)



1. Handle, ID 9212.

3. Base Type 1.1., ID 12858.

5. Further variant of Base Type 3, ID 8518.

7. Exception in Rim Type 5, B, ID 1386.

9. Further variation of Rim Type 6.1., ID 9147.

11. Further variant of Base Type 3, ID 1722.

2. Exception in Rim Type 5 B, ID 6468.

4. Base Type 3, ID 12541.

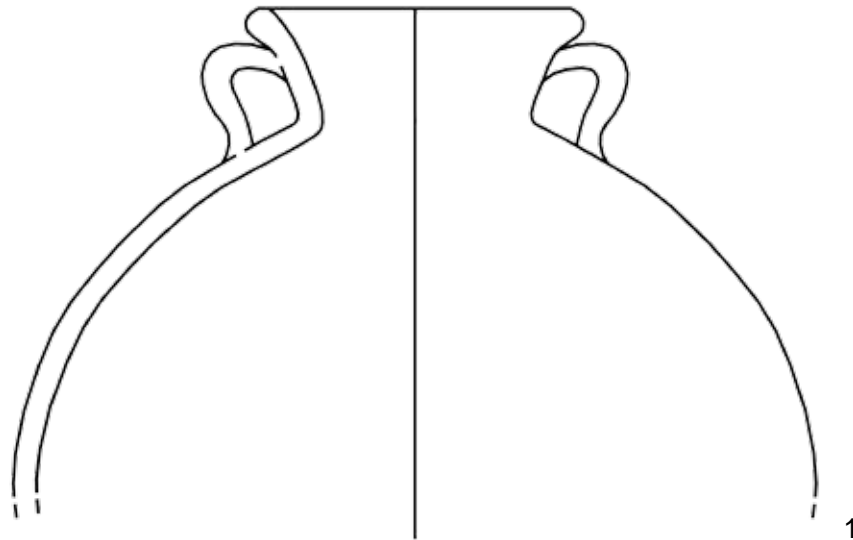
6. Handle, ID 1727.

8. Rim Type 6.1., ID 3023.

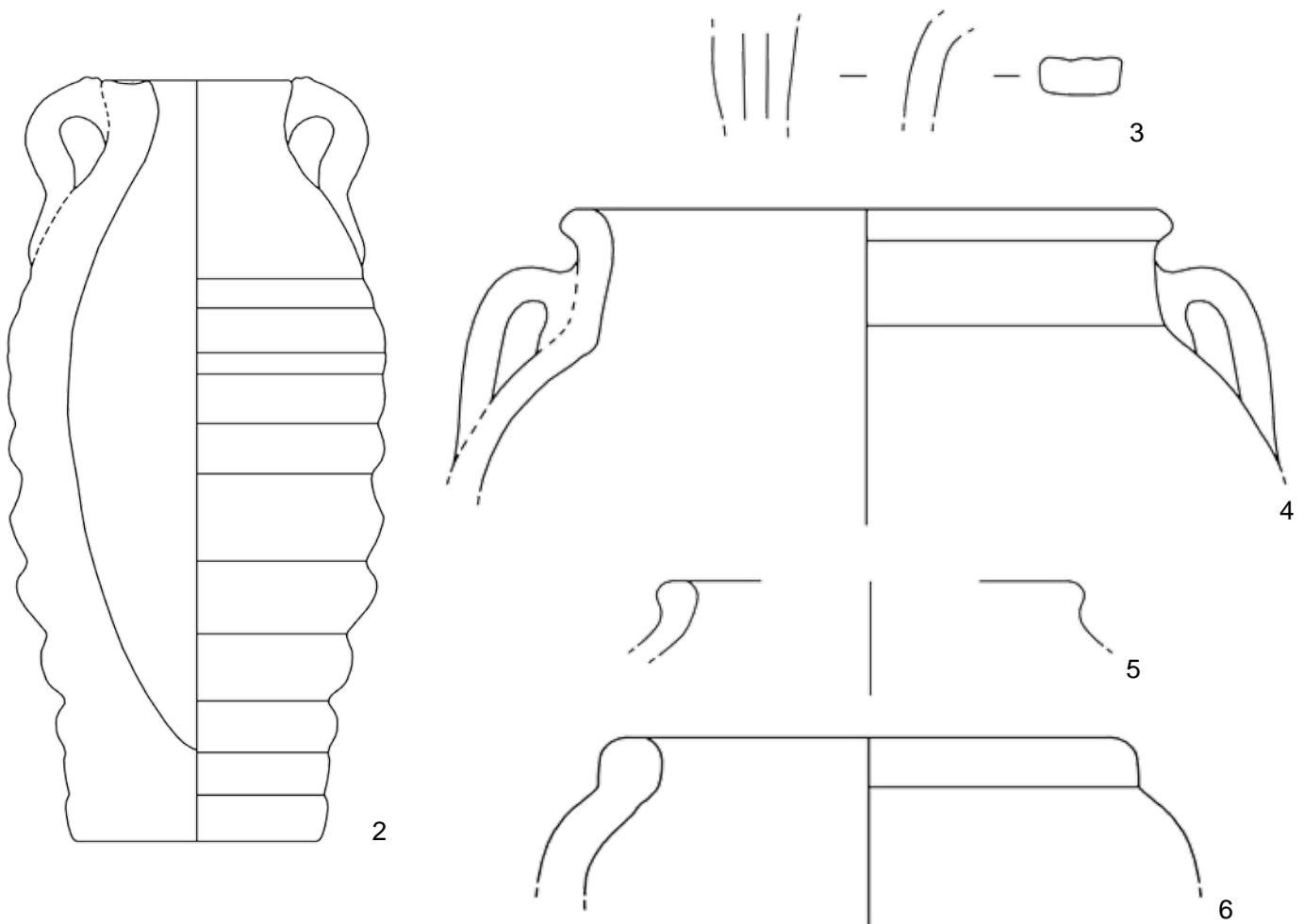
10. Base Type 3, ID 2476.

Plate 31

Shapes in Ware 26 (fig. 1)



Shapes in Ware 27 - Part 1 (fig. 2 - 6)



1. Rim Type 5 B, ID 1994.

3. Handle, ID 3258.

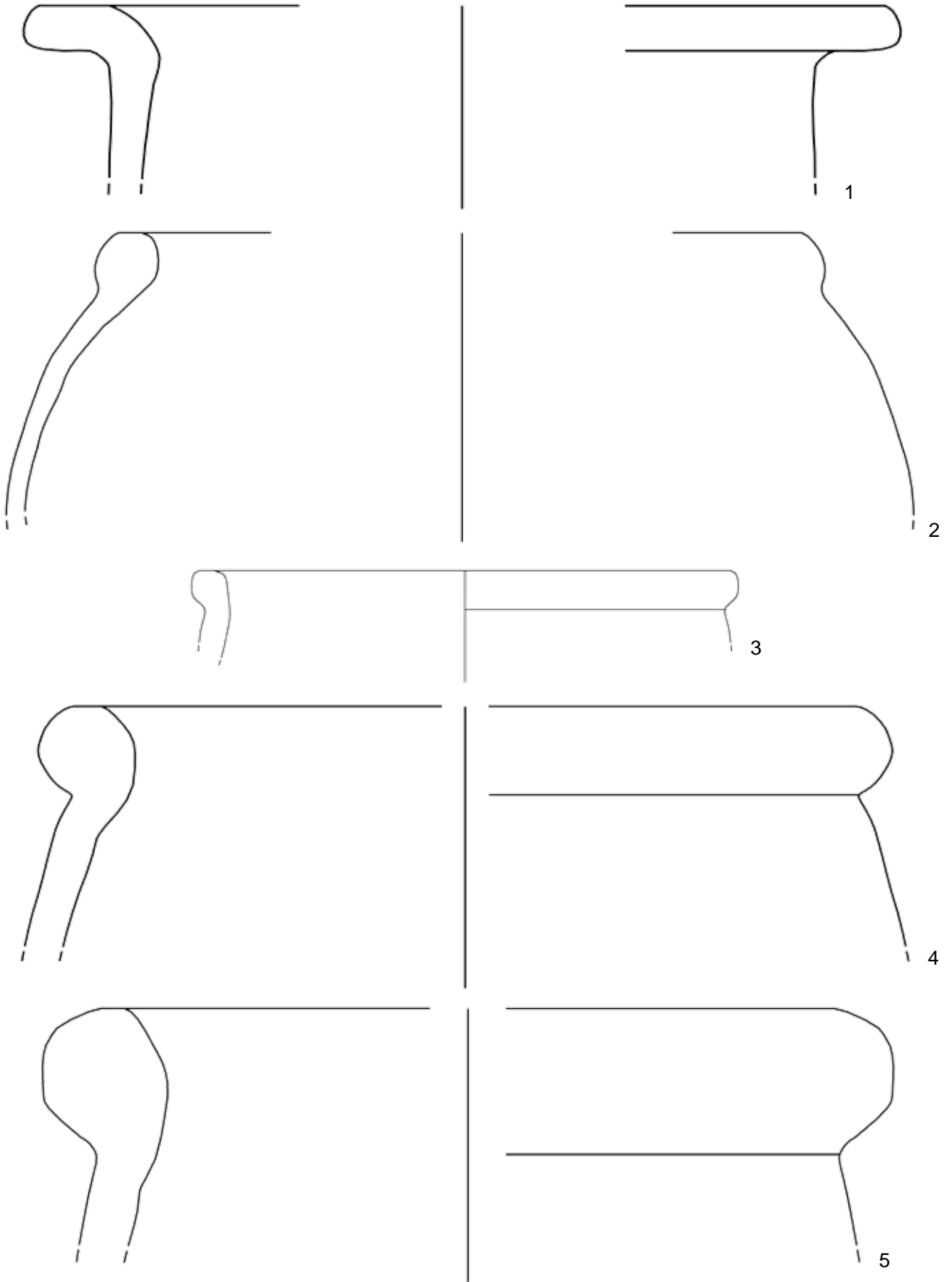
5. Rim Type 5, (N), Th, ID 12712.

2. Bottle, Rim Type 5 B (exception),
Base Type 3, ID 2180.

4. Rim Type 5, N +C, ID 3257.

6. Further variant of Rim Type 5, (N), Th, ID 5299.

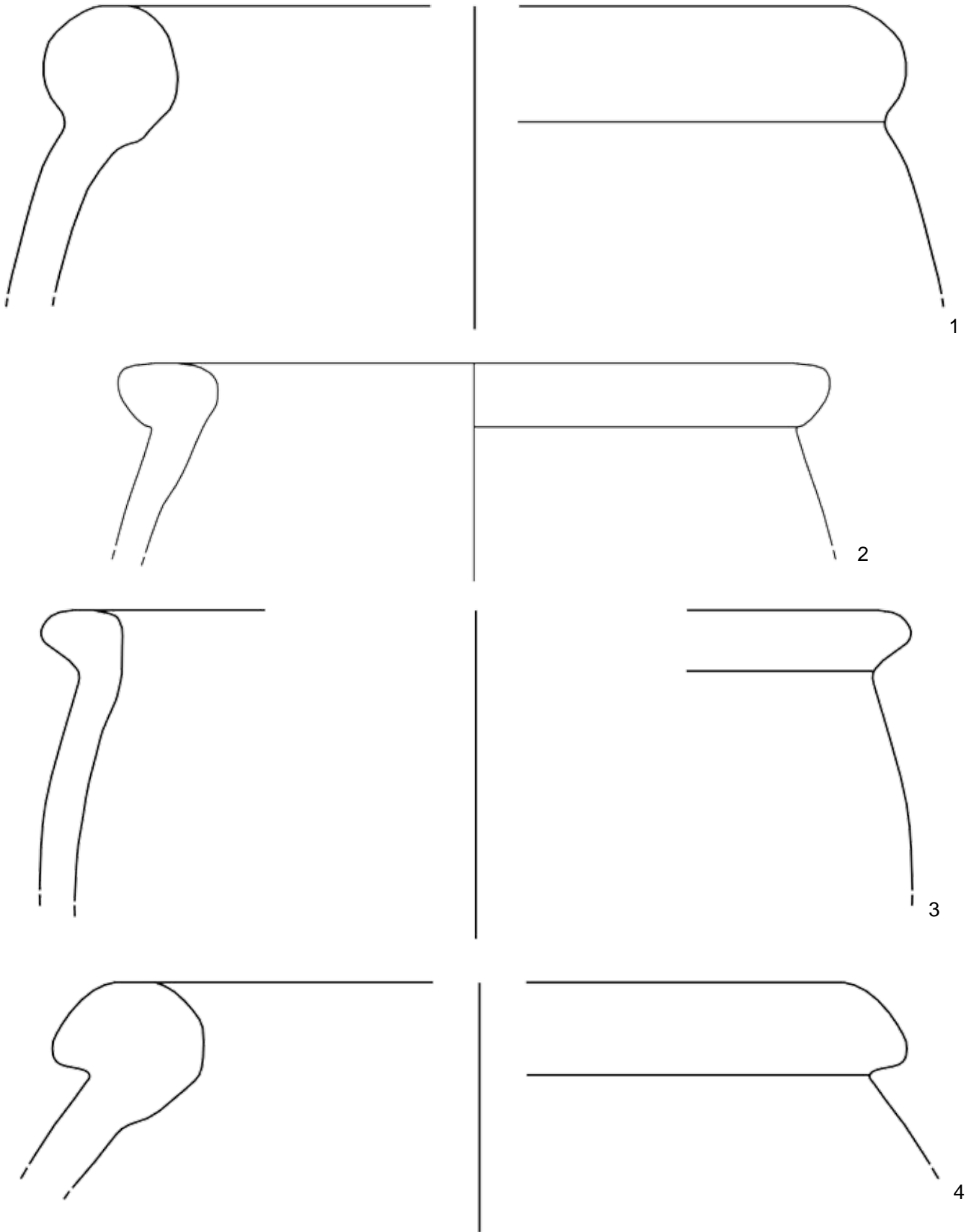
Shapes in Ware 27 - Part 2



- 1. Exception in Rim Type 6.1., ID 2613.
- 3. Further variant of Rim Type 6.2., ID 8570.
- 5. Further variant of Rim Type 6.3., ID 14686.

- 2. Rim Type 6.2., ID 11645.
- 4. Rim Type 6.3., ID 14683.

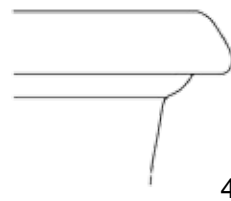
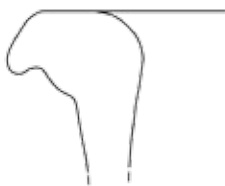
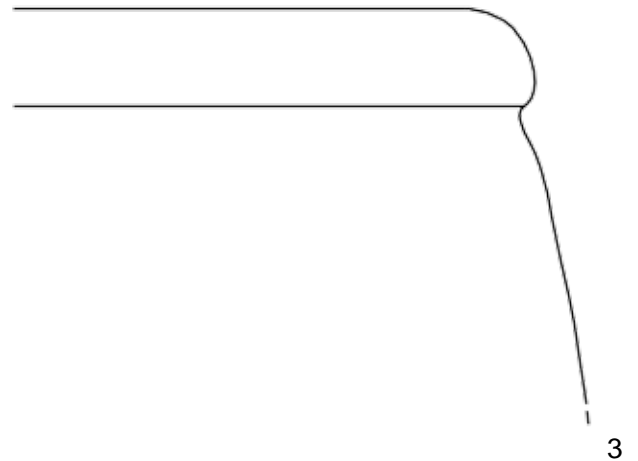
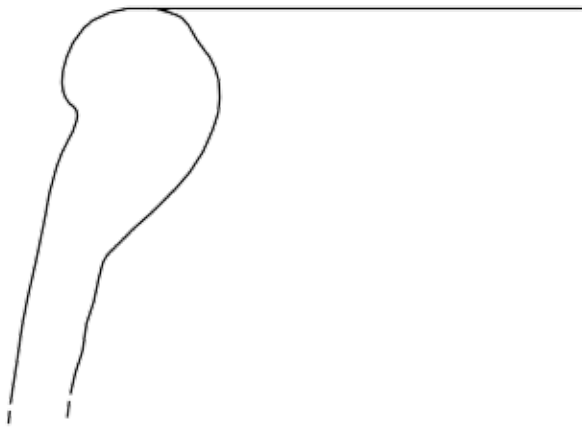
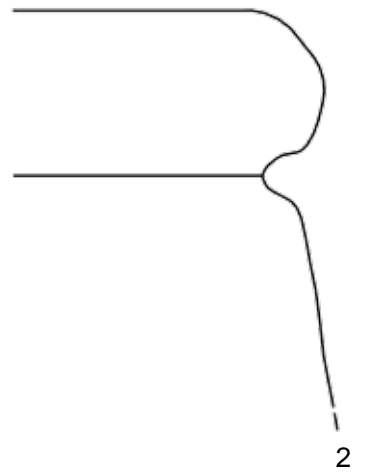
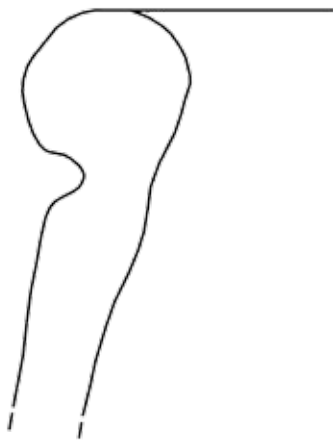
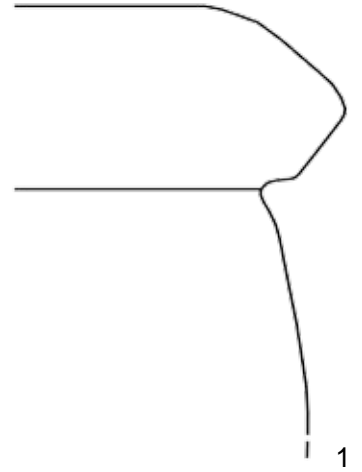
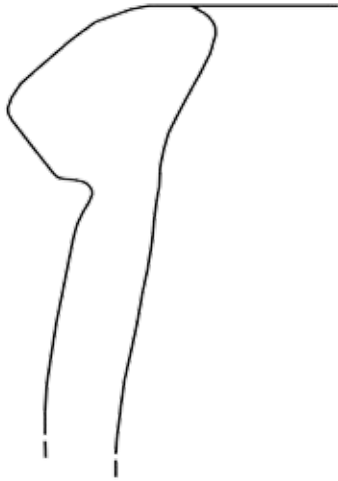
Shapes in Ware 27 - Part 3



1. Further variant of Rim Type 6.3., ID 12846.
3. Further variant of Rim Type 6.3., ID 6097.

2. Further variant of Rim Type 6.3., ID 8218.
4. Further variant of Rim Type 6.3., ID 7970.

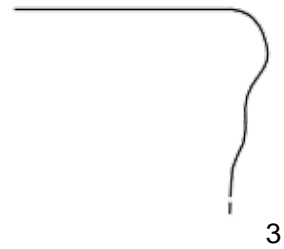
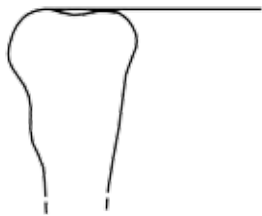
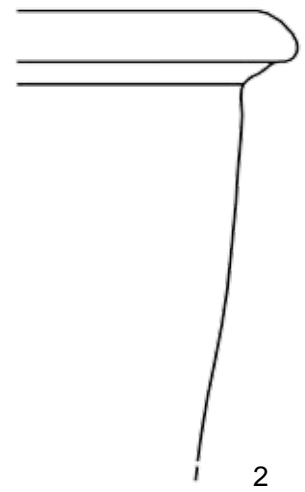
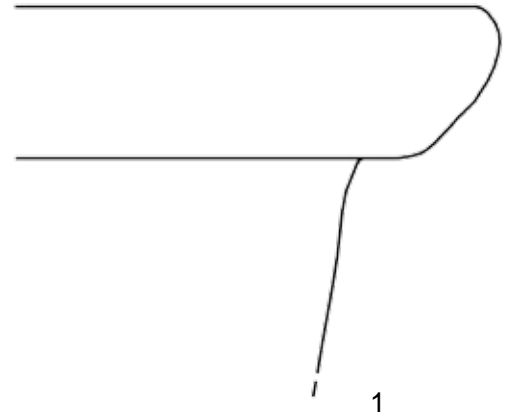
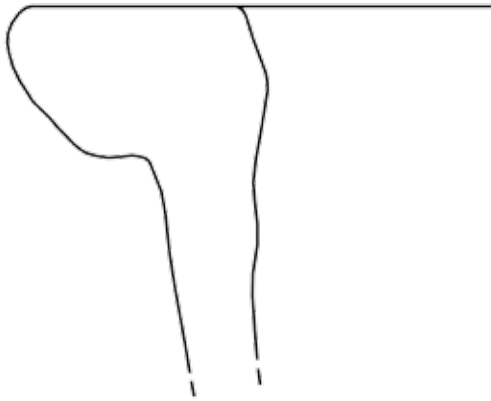
Shapes in Ware 27 - Part 4



1. Further variant of Rim Type 6.3., ID 6166.
3. Further variant of Rim Type 6.3., ID 7656.

2. Further variant of Rim Type 6.3., ID 15744.
4. Further variant of Rim Type 6.3., ID 5181.

Shapes in Ware 27 - Part 5

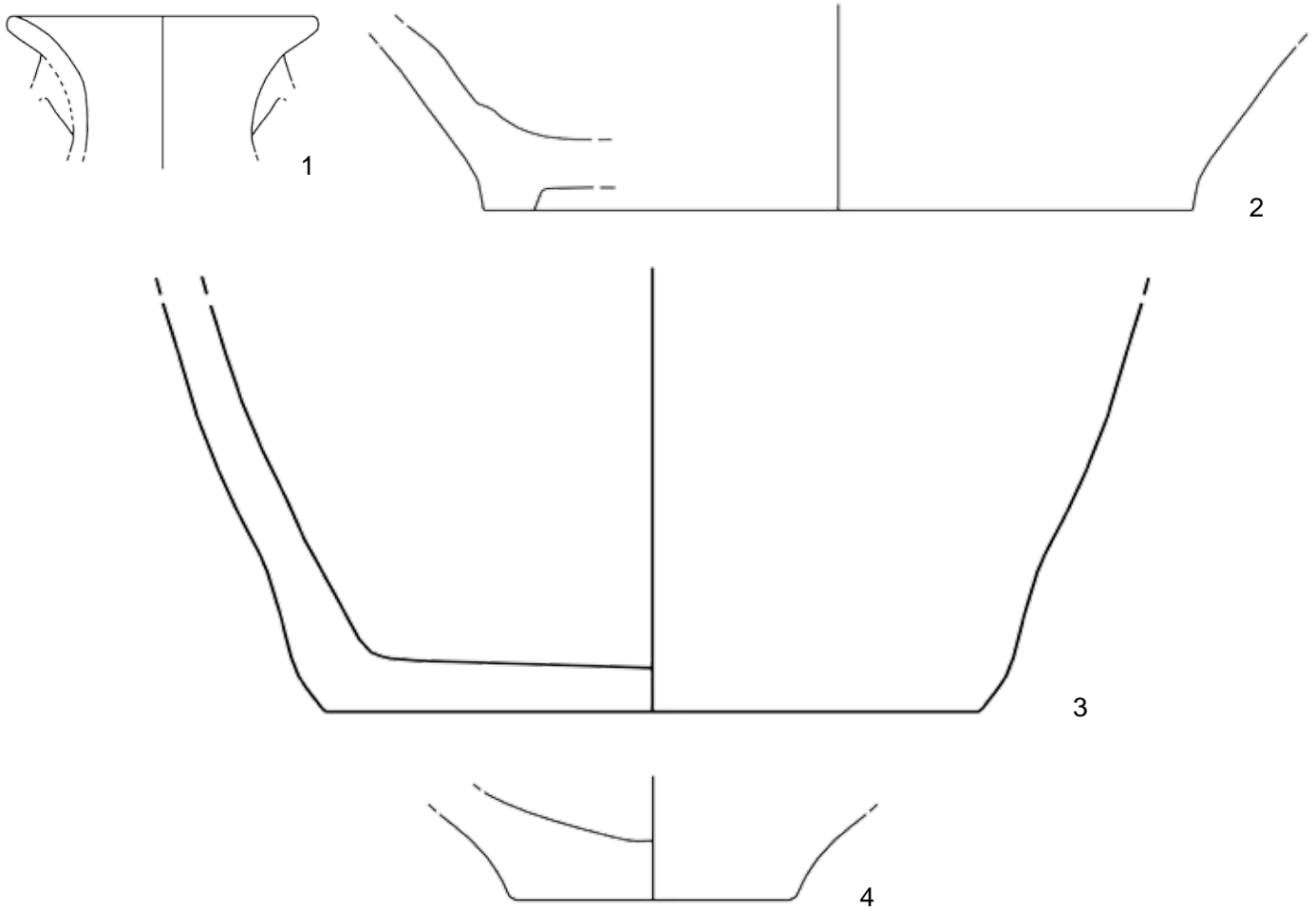


1. Further variant of Rim Type 6.3., ID 15733.
3. Exception in Rim Type 6.3., ID 8586.

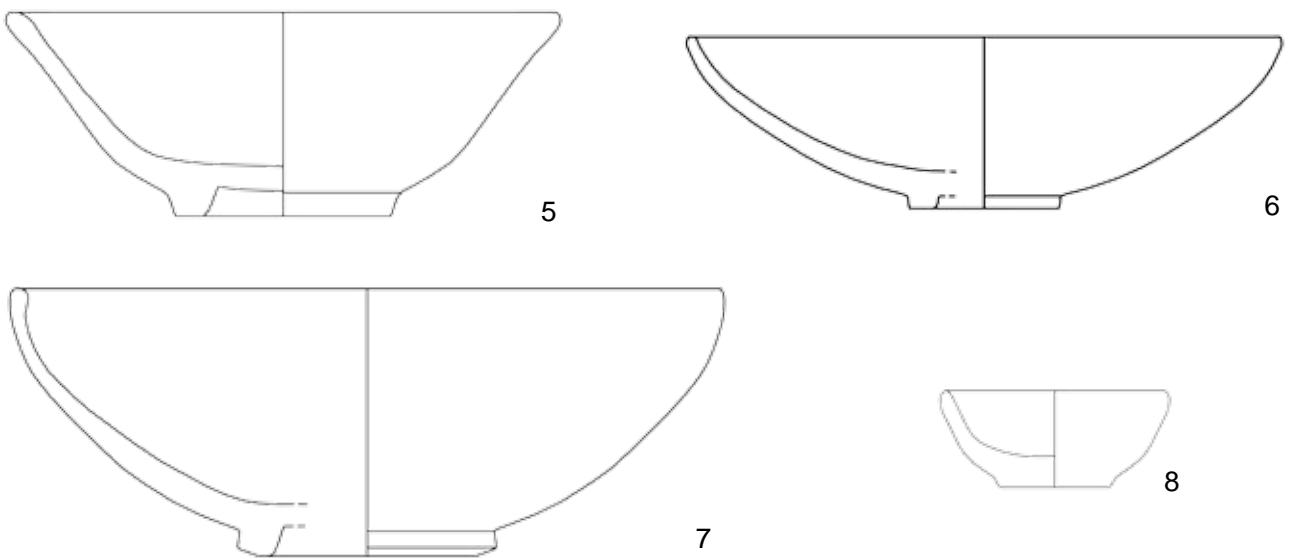
2. Further variant of Rim Type 6.3., ID 4713.
4. Exceptional rim shape, ID 6891.

Plate 36

Shapes in Ware 27 - Part 6 (fig. 1 - 4)



Shapes in Ware 28 - Part 1 (fig. 5 - 8)

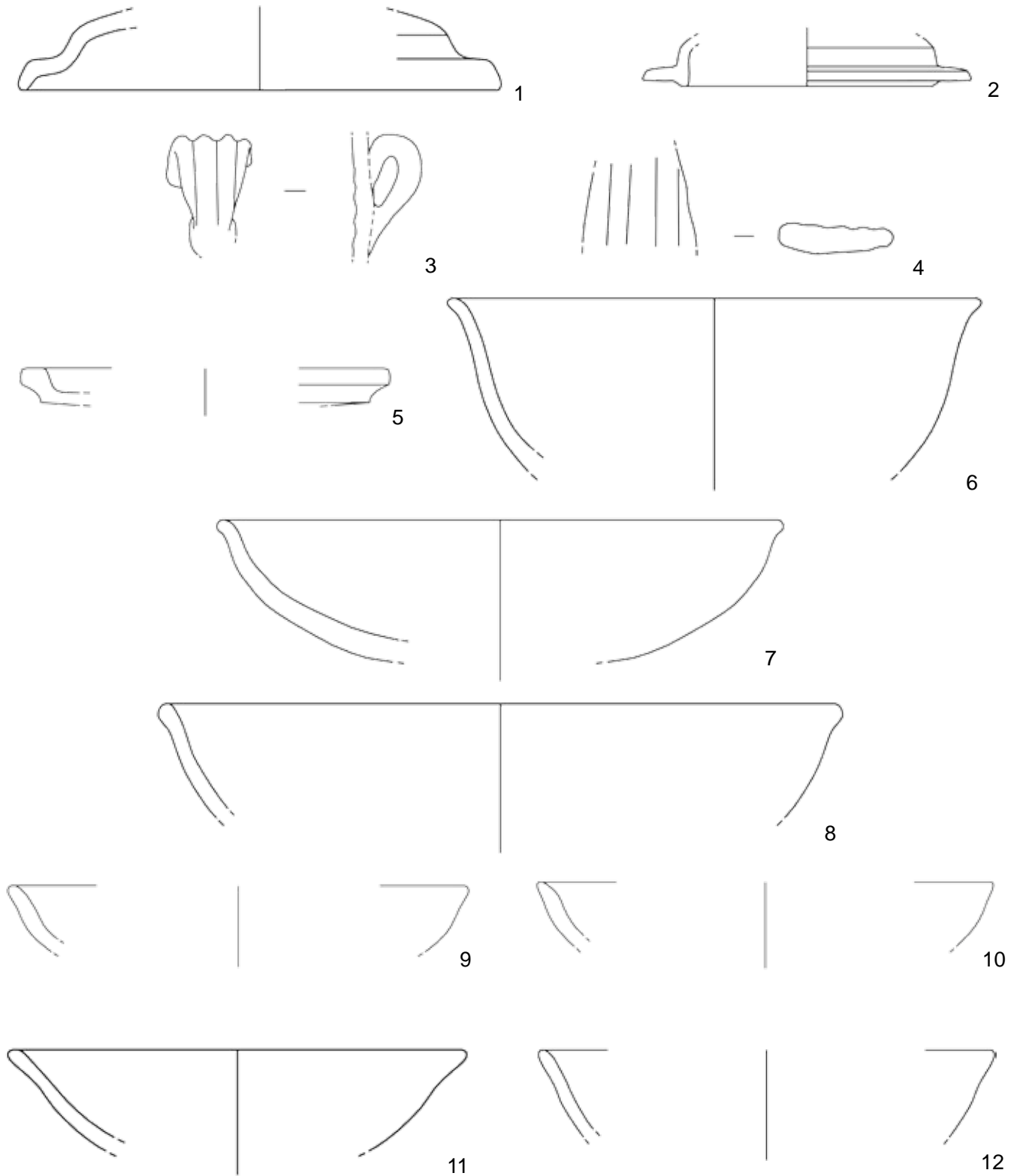


1. Rim Type 7, ID 1276.
3. Base Type 3, ID 8512.
5. Bowl, Rim Type 3 (everted), Base Type 1.1., ID 1951.
7. Bowl, Rim Type 3 (inverted), Base Type 1.1., ID 12468.

2. Base Type 2.1., ID 15336.
4. Further variation of Base Type 3, ID 7976.
6. Flat Bowl, Rim Type 3 (slightly inverted), Base Type 1.1., ID 10280.
8. Miniature Bowl, Rim Type 3, Base Type 3, ID 2077.

Scale 1:2

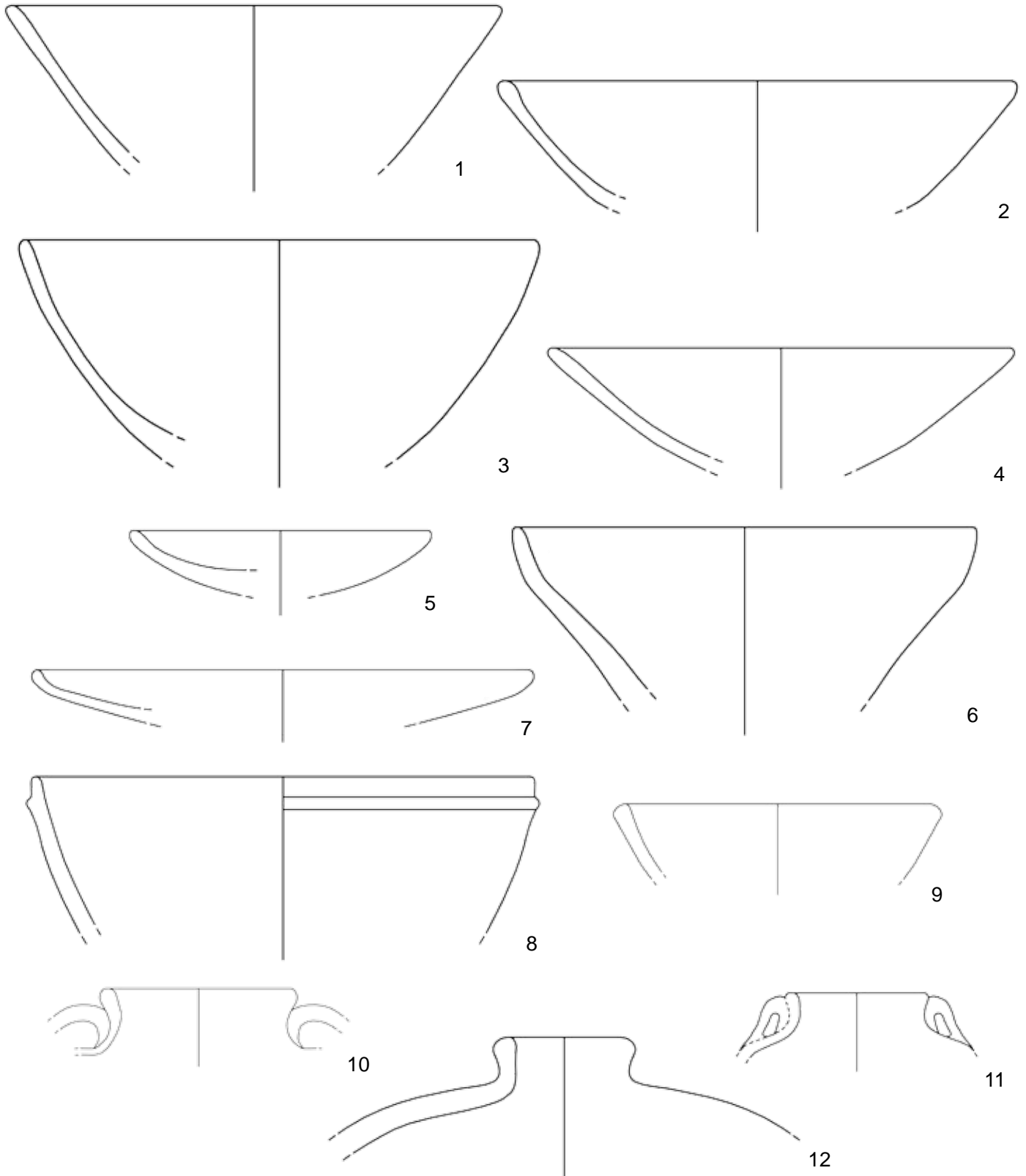
Shapes in Ware 28 - Part 2



- 1. Lid Type 1, ID 3204.
- 3. Handle, ID 1950.
- 5. Exception in Rim Type 1, ID 119.
- 7. Rim Type 2.1., ID 3240.
- 9. Further variation of Rim Type 2.1., ID 5206.
- 11. Further variation of Rim Type 2.1., ID 12057.

- 2. Lid Type 2, ID 3290.
- 4. Handle, ID 3628.
- 6. Rim Type 2, ID 1807.
- 8. Further variation of Rim Type 2.1., ID 6881.
- 10. Further variation of Rim Type 2.1., ID 6126.
- 12. Further variation of Rim Type 2.1., ID 8961.

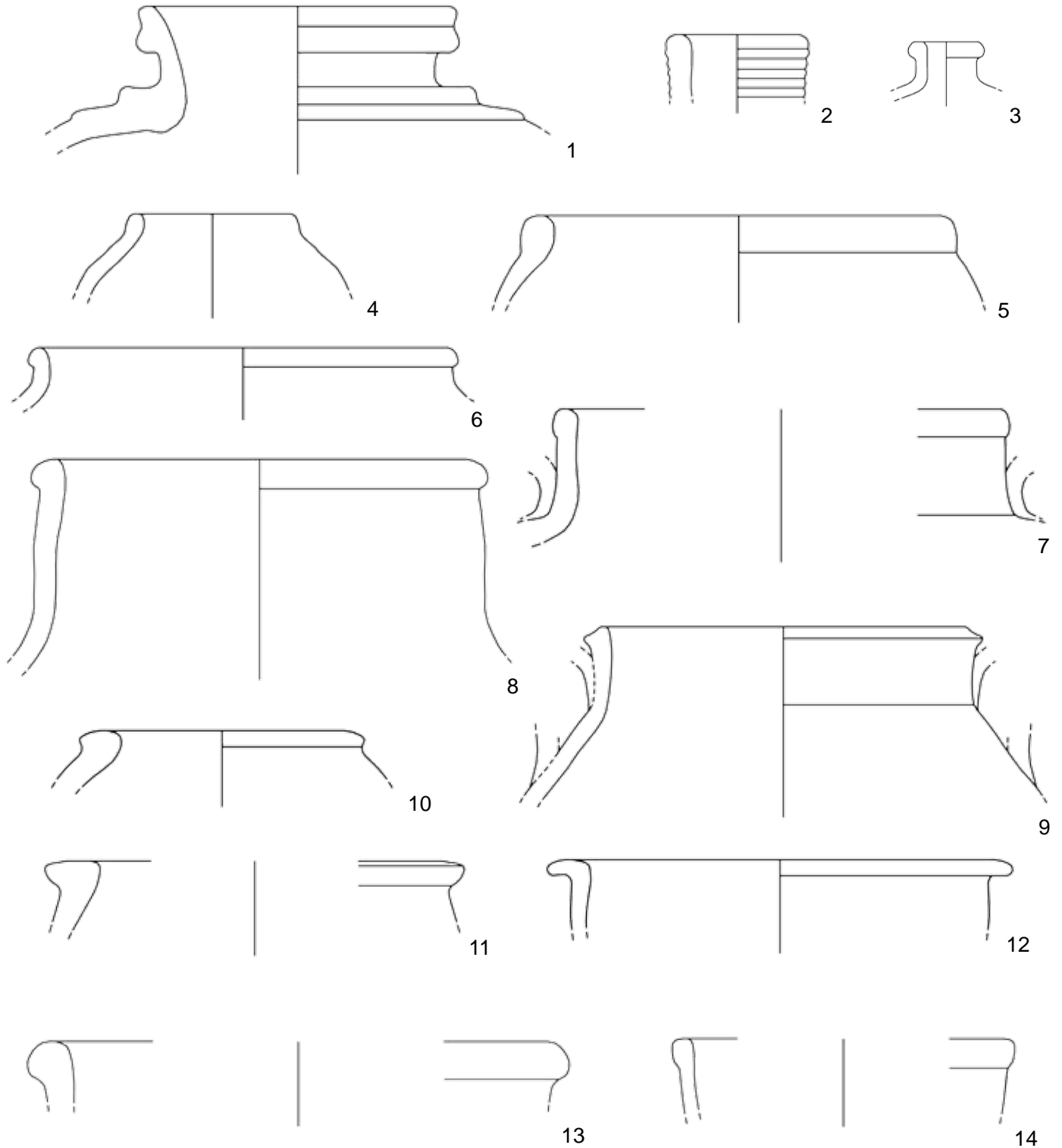
Shapes in Ware 28 - Part 3



1. Rim Type 3 , ID 8334.
3. Further variation of Rim Type 3, ID 3003.
5. Further variation of Rim Type 3, ID 1878.
7. Further variation of Rim Type 3, ID 1898.
9. Rim Type 3.1., ID 7351.
11. Further variant of Rim Type 5, B, ID 2358.

2. Further variation of Rim Type 3, ID 3644.
4. Further variation of Rim Type 3, ID 3556.
6. Further variation of Rim Type 3, ID 10520.
8. Rim Type 3, C, ID 1343.
10. Rim Type 5, B, ID 1978.
12. Further variant of Rim Type 5, B, ID 1834.

Shapes in Ware 28 - Part 4



1. Rim Type 5 B with cordon (exception), ID 1805.

2. Rim Type 5, B with rillings (exception), ID 12692.

3. Rim Type 5 B, C, ID 14306.

4. Rim Type 5, N, ID 8117.

5. Rim Type (N), Th, ID 14607.

6. Rim Type 5, N + C, ID 9136.

7. Further variant of Rim Type 5, N + C, ID 715.

8. Further variant of Rim Type 5, N + C, ID 6673.

9. Further variant of Rim Type 5, N + C, ID 12341.

10. Rim Type 6.1., ID 9888.

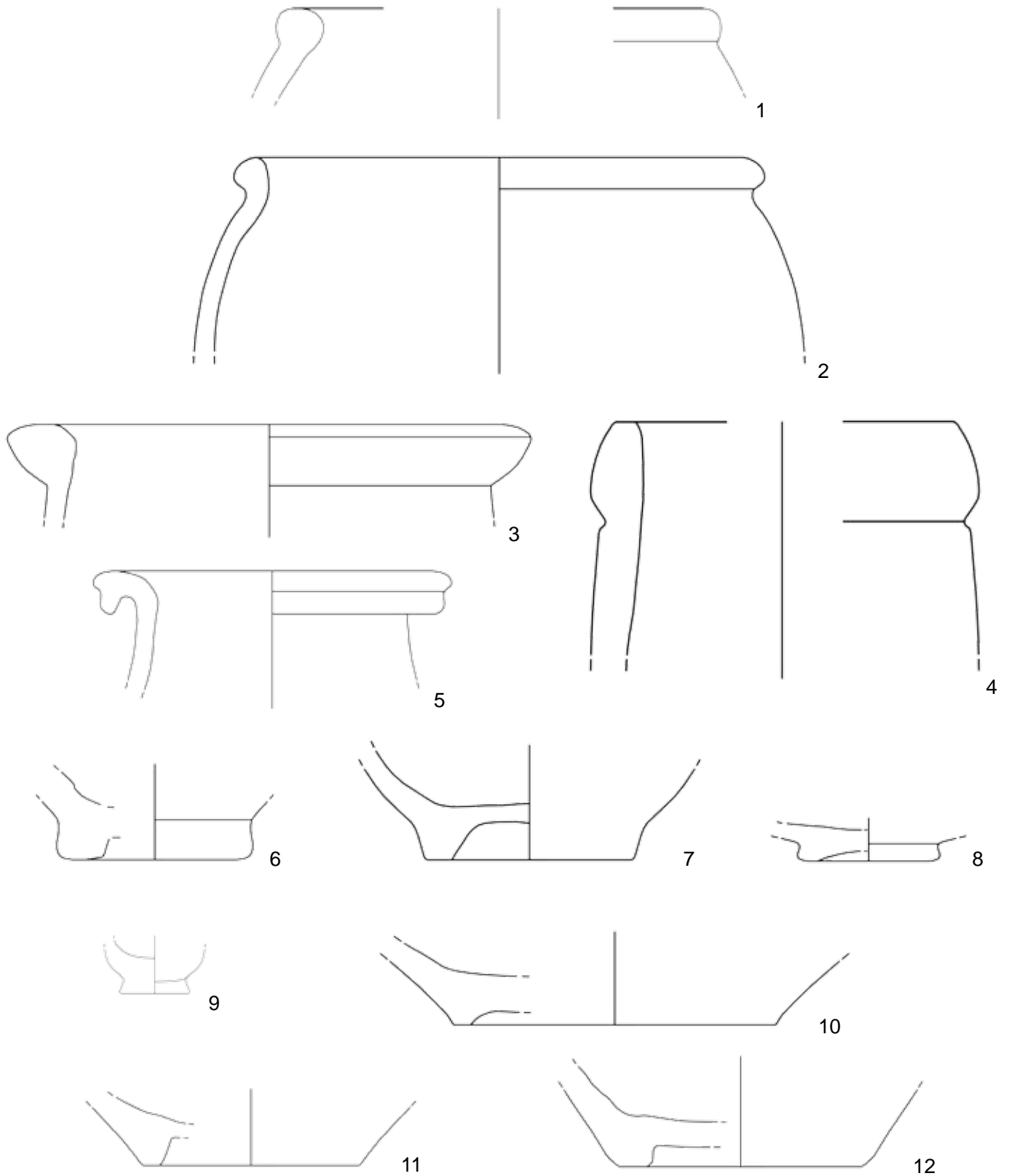
12. Exception in Rim Type 6.1., ID 15741.

11. Further variant of Rim Type 6.1., ID 13706.

14. Further variant of Rim Type 6.2., ID 10386.

13. Rim Type 6.2., ID 5377.

Shapes in Ware 28 - Part 5

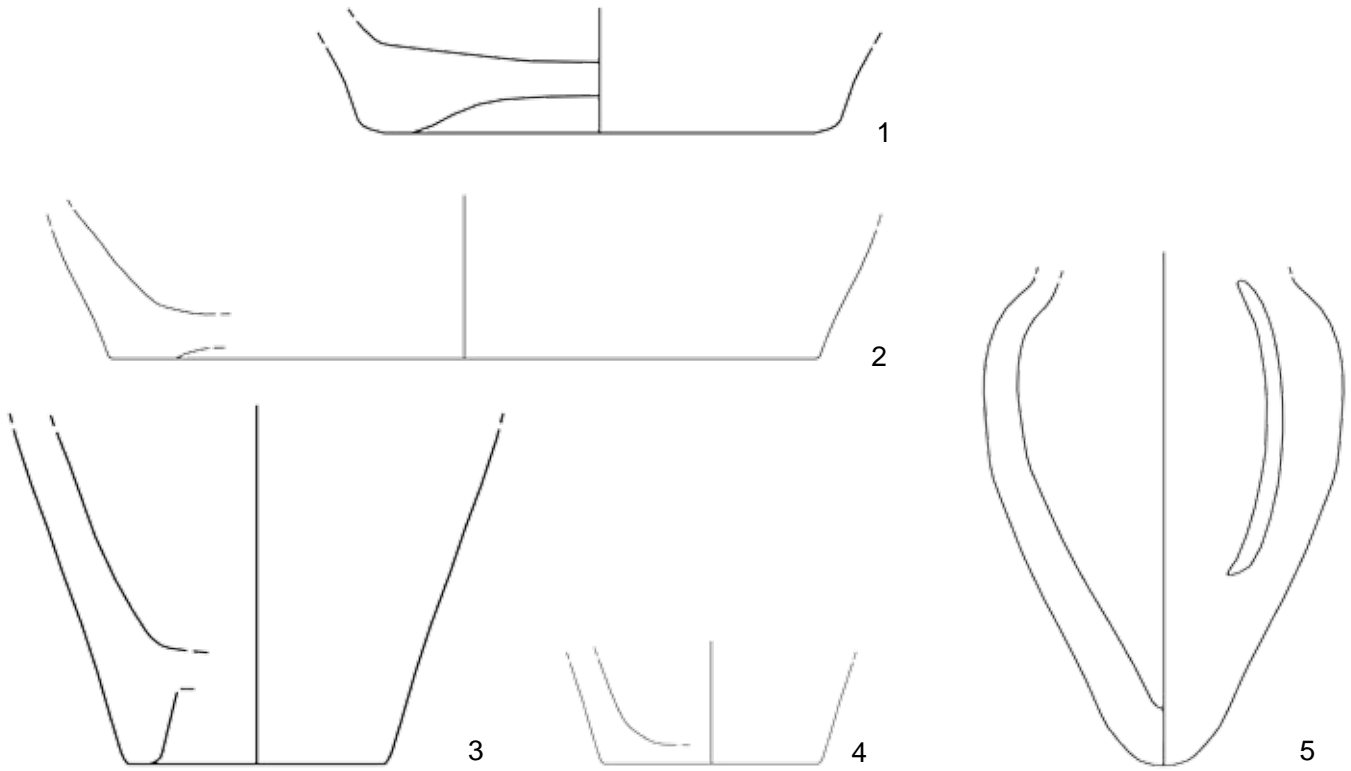


- 1. Further variant of Rim Type 6.2., ID 5537.
- 3. Rim Type 6.3., ID 8689.
- 5. Exceptional rim shape, ID 1219.
- 7. Further variant of Base Type 1.1., ID 10518.
- 9. Base Type 1.3., ID 1912.
- 11. Further variant of Base Type 2.1., ID 11337.

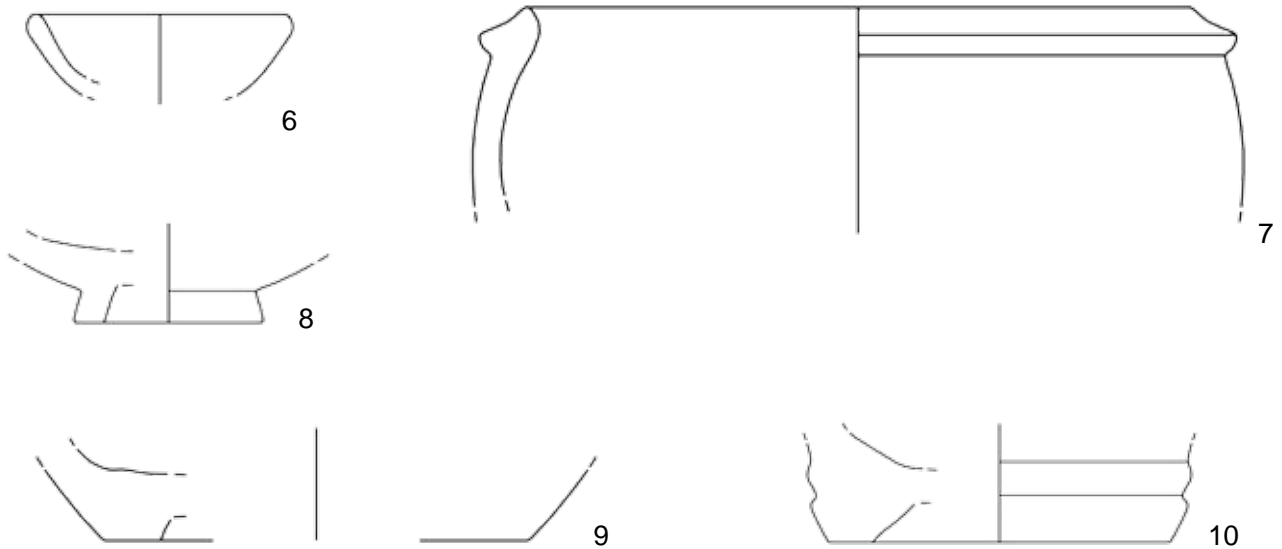
- 2. Further variant of Rim Type 6.2., ID 1819.
- 4. Exception in Rim Type 6.3., ID 2235.
- 6. Base Type 1.1., ID 6643.
- 8. Base Type 1.2., ID 13360.
- 10. Base Type 2.1., ID 15262.
- 12. Further variant of Base Type 2.1., ID 4910.

Plate 41

Shapes in Ware 28 - Part 6 (fig. 1 - 5)



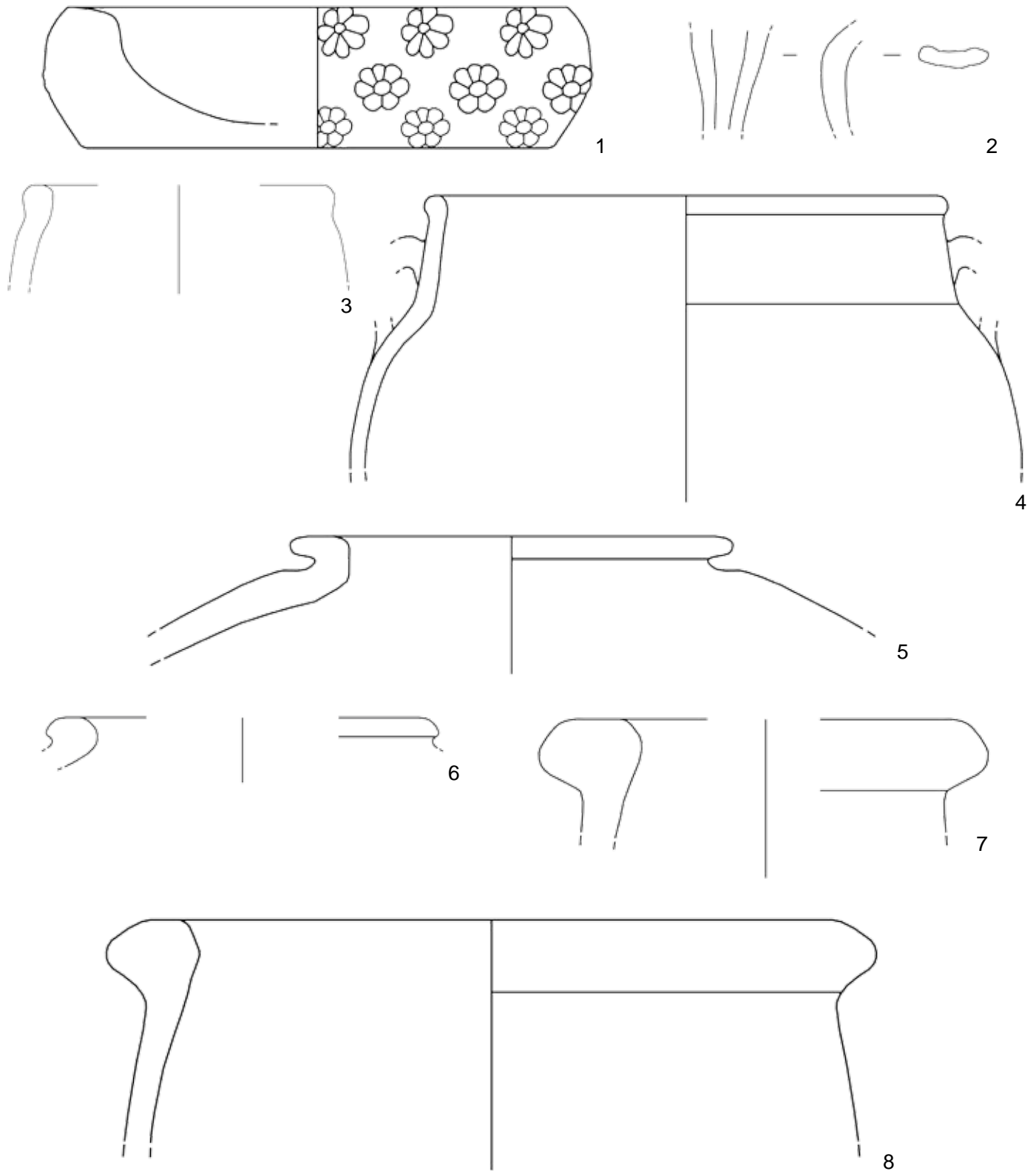
Shapes in Ware 30 (fig. 6 - 10)



1. Base Type 2.2., ID 12571.
3. Base Type 2.3., ID 13895.
5. Exceptional base shape, ID 2069.
9. Base Type 2.1., ID 15172.

2. Further variant of Base Type 2.2., ID 14205.
4. Base Type 3, ID 10750.
6. Rim Type 3.1., ID 15321.
8. Base Type 1.1., ID 15501.
10. Base Type 2.3., ID 14797.

Shapes in Ware 32 - Part 1



1. Flat Bowl, Rim Type 3 (exception), Base Type 3, ID 14678.

3. Rim Type 5 (N), Th, ID 2316.

5. Rim Type 6.1., ID 3827.

7. Rim Type 6.3., ID 4766.

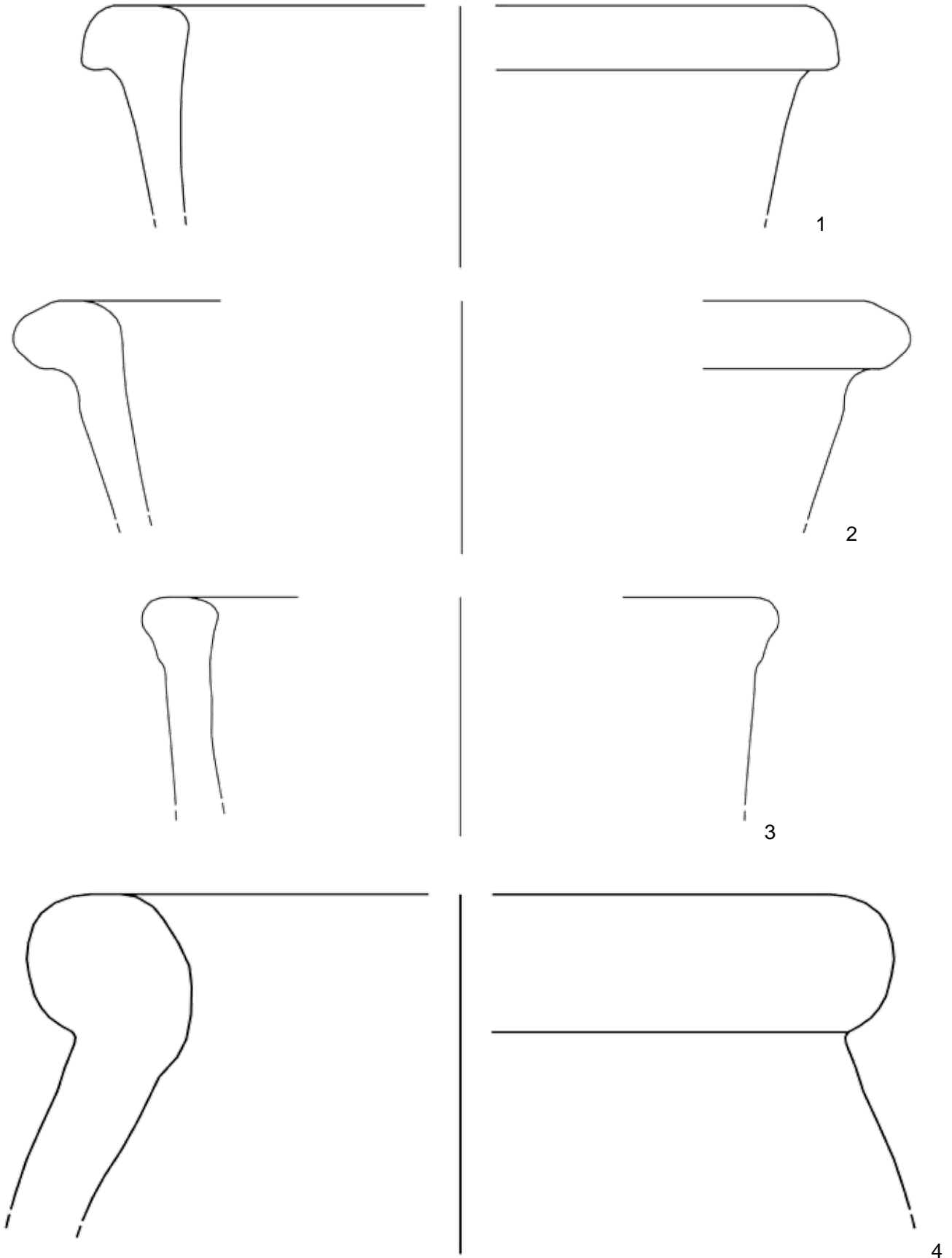
2. Handle, ID 6519.

4. Rim Type 5, N + C, ID 1917.

6. Rim Type 6.2., ID 9621.

8. Further variation of Rim Type 6.3., ID 11218.

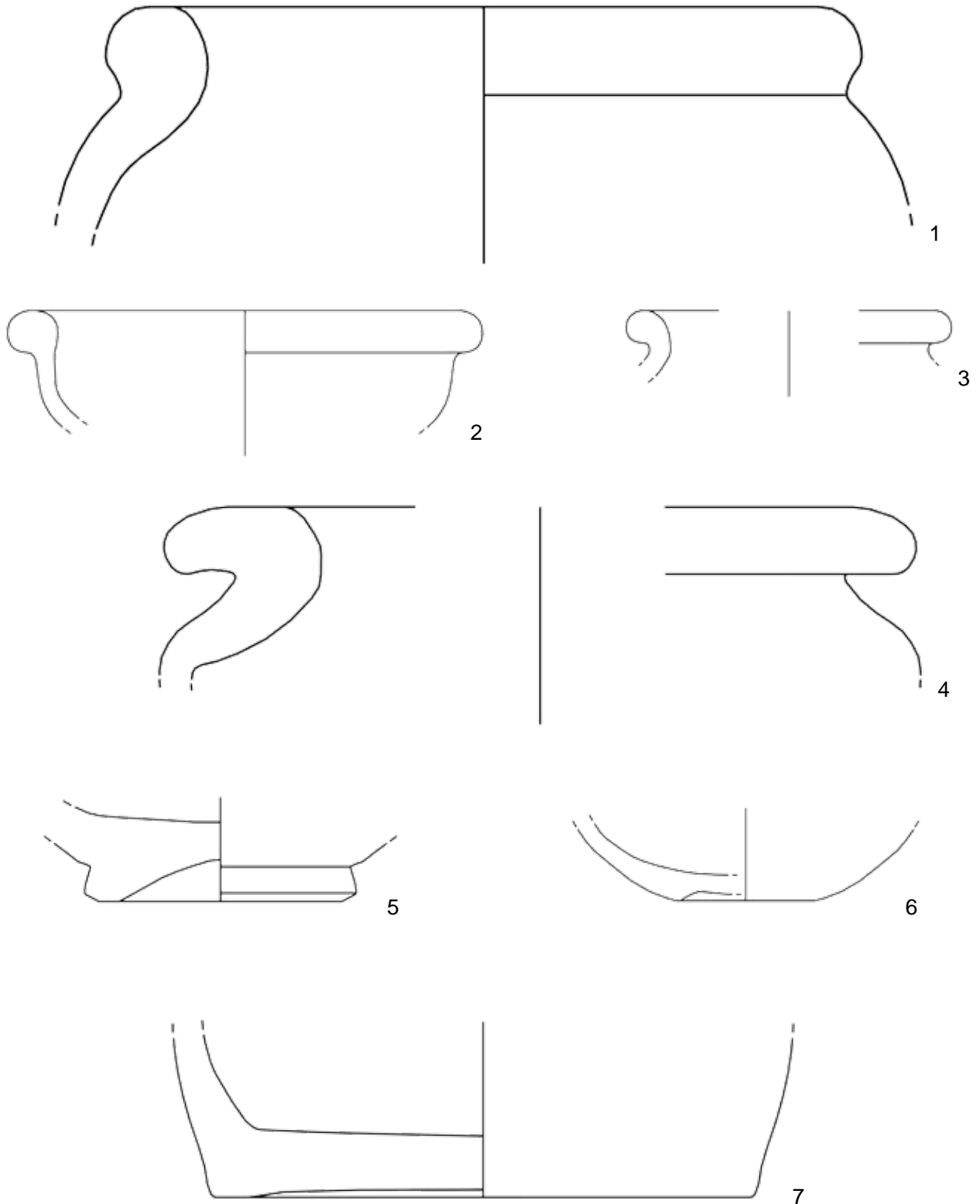
Shapes in Ware 32 - Part 2



1. Further variation of Rim Type 6.3., ID 2478.
3. Further variation of Rim Type 6.3., ID 2715.

2. Further variation of Rim Type 6.3., ID 673.
4. Further variation of Rim Type 6.3., ID 11669.

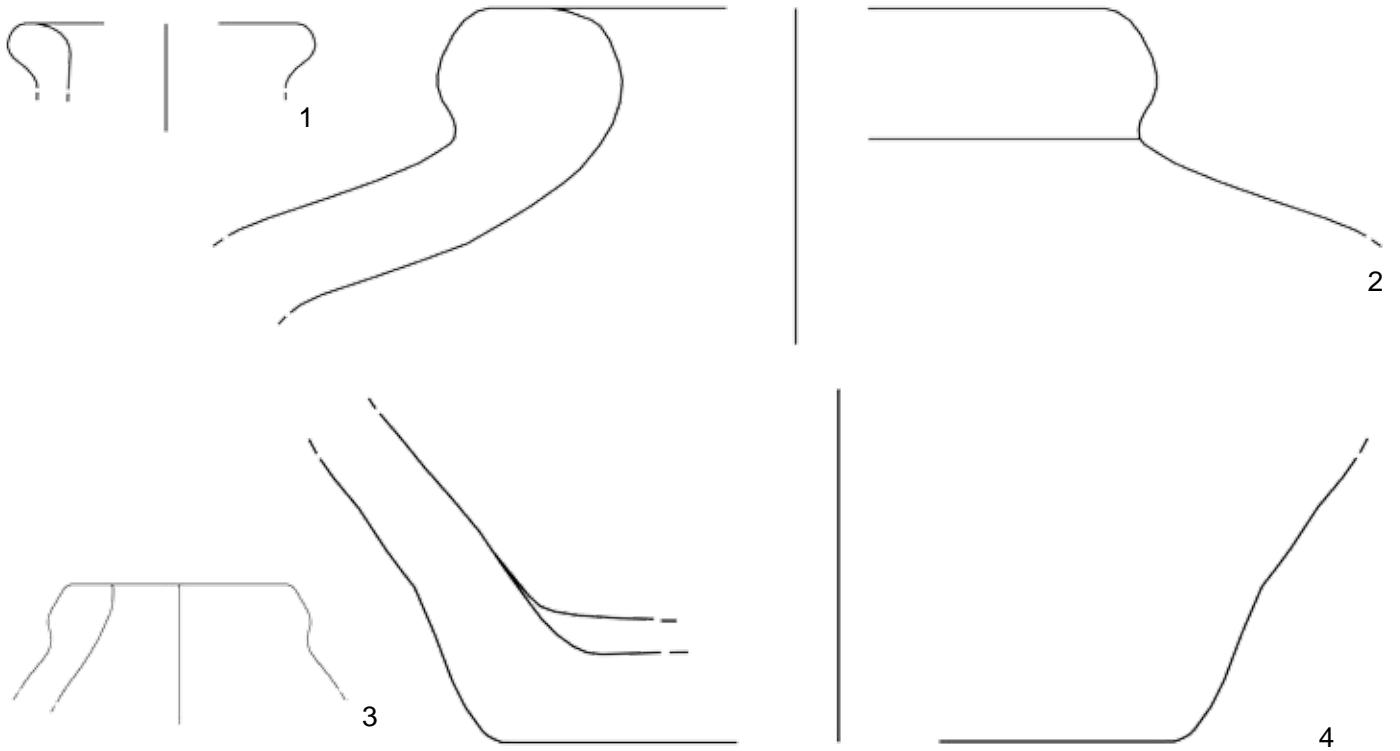
Shapes in Ware 32 - Part 3



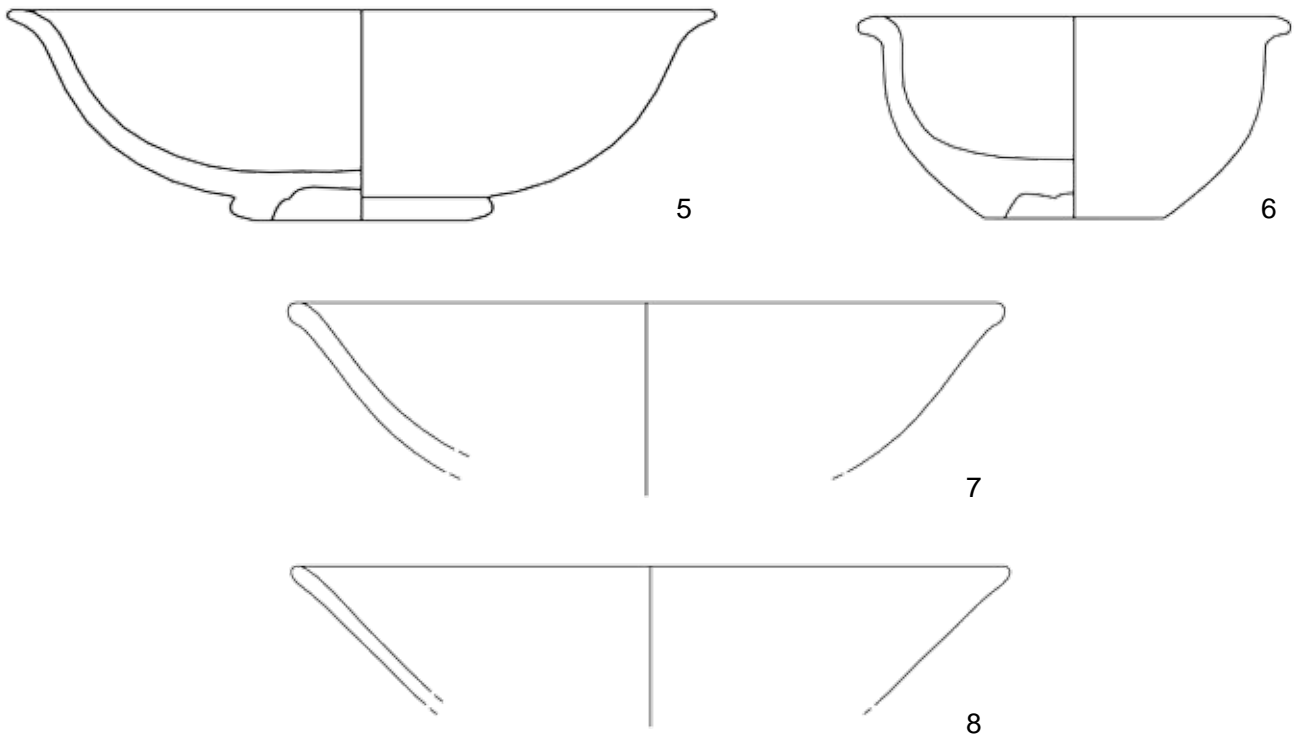
- 1. Further variation of Rim Type 6.3., ID 11588.
- 3. Further variation of Rim Type 6.3., ID 14580.
- 5. Base Type 1.2., ID 3864.
- 7. Base Type 3, ID 5564.

- 2. Further variation of Rim Type 6.3., ID 656.
- 4. Exception in Rim Type 6.3., ID 3435.
- 6. Base Type 2.1., ID 4558.

Shapes in Ware 34 (fig. 1 - 4)



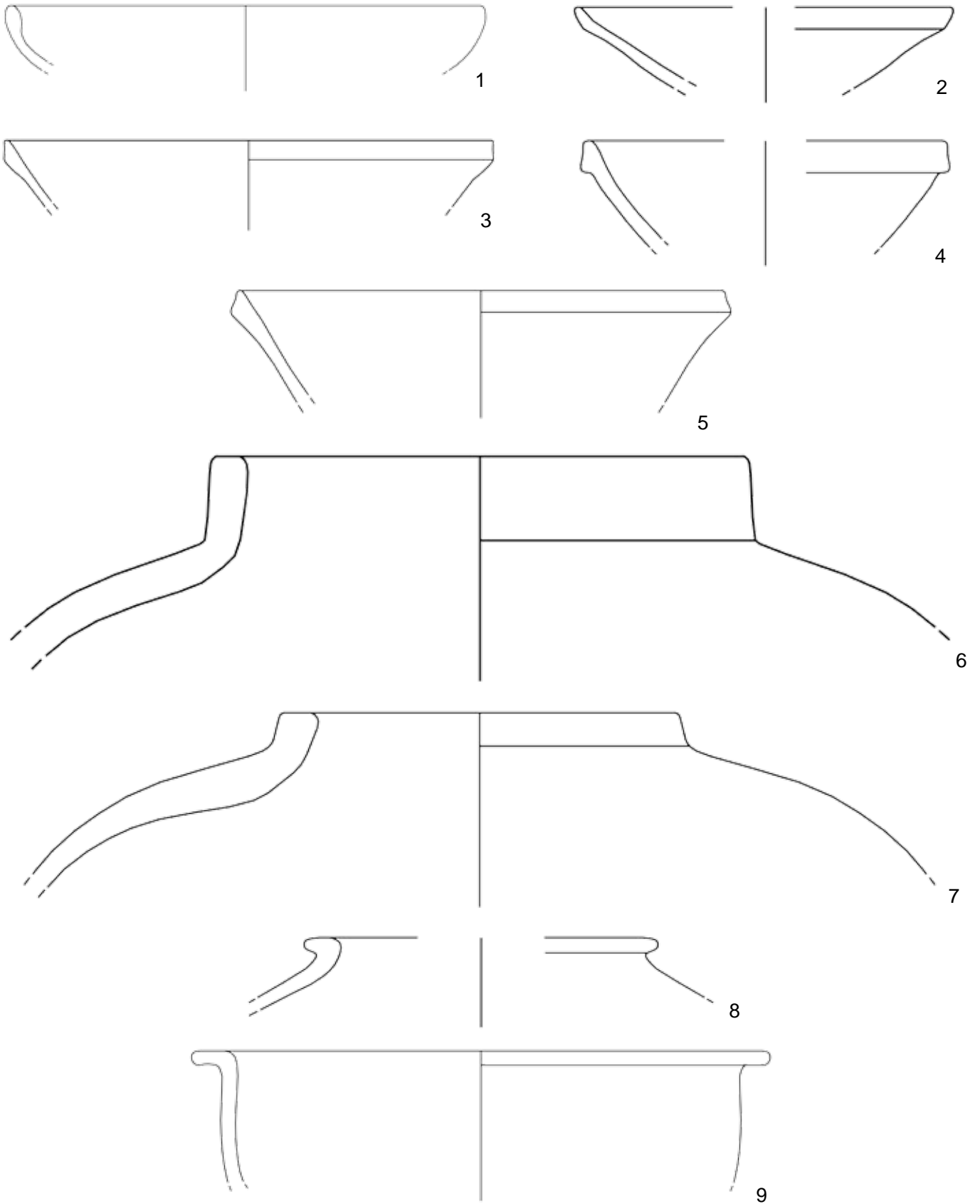
Shapes in Ware 35 - Part 1 (fig. 5 - 8)



- 1. Rim Type 6.2., ID 14907.
- 3. Exceptional rim shape, ID 5298.
- 5. Bowl, Rim Type 2, Base Type 1.1., ID 1991.
- 7. Rim Type 2.1., ID 3473.

- 2. Rim Type 6.3., ID 6213.
- 4. Base Type 3, ID 15704.
- 6. Bowl, Rim Type 2.2., Base Type 2.1., ID 2116.
- 8. Rim Type 3, ID 3181.

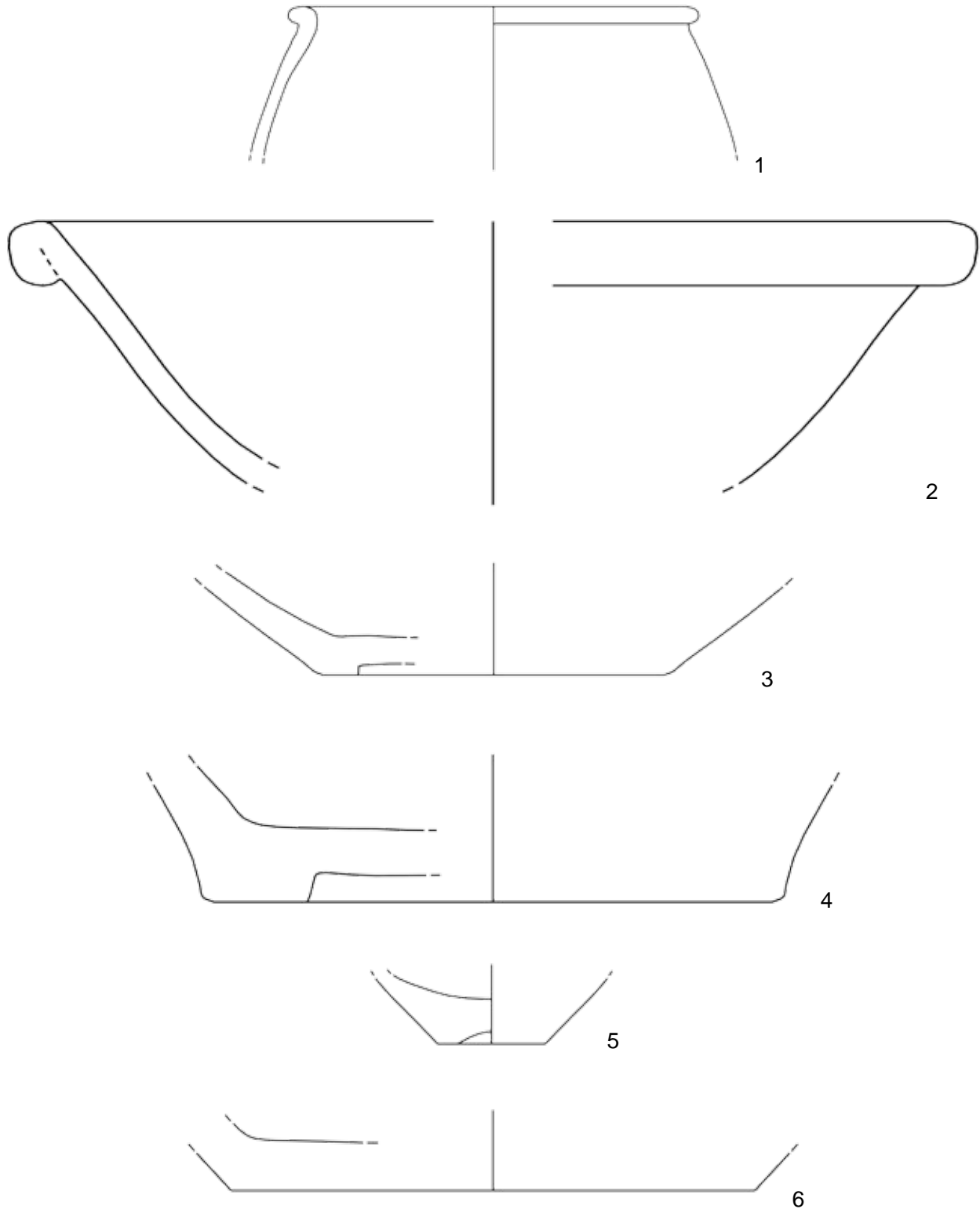
Shapes in Ware 35 - Part 2



- 1. Exception in Rim Type 3, ID 4138.
- 3. Further variation of Rim Type 3, C, ID 420.
- 5. Further variation of Rim Type 3, C, ID 5881.
- 7. Further variation of Rim Type 5, N, ID 14533.
- 9. Exception in Rim Type 6.1., ID ID 6351.

- 2. Rim Type 3, C, ID 3601.
- 4. Further variation of Rim Type 3, C, ID 14103.
- 6. Rim Type 5, N, ID 2182.
- 8. Rim Type 6.1., ID 11195.

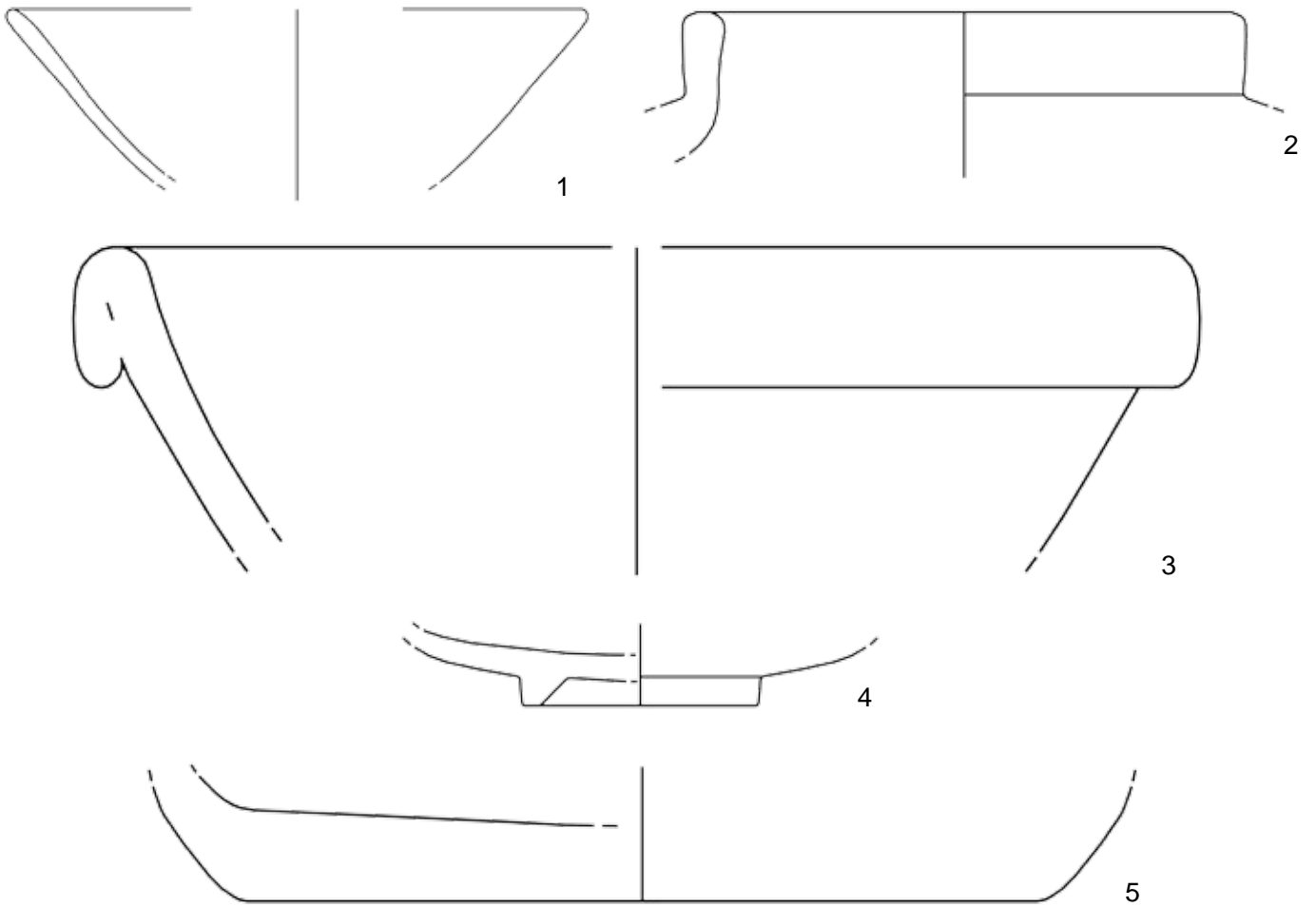
Shapes in Ware 35 - Part 3



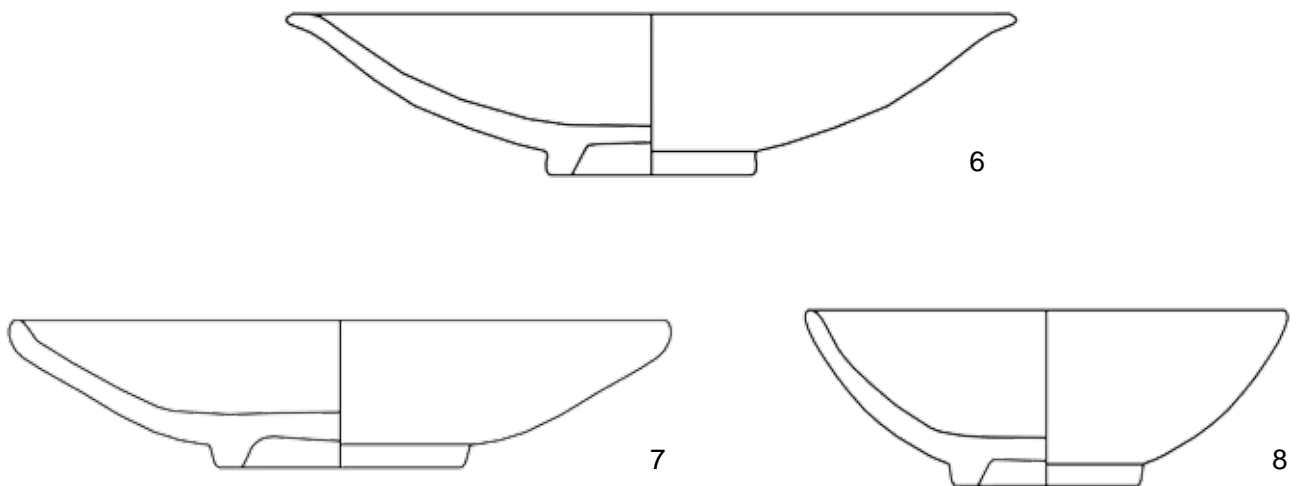
- 1. Rim Type 6.2., ID 6552.
- 3. Base Type 2.1., ID 2194.
- 5. Base Type 2.2., ID 6135.

- 2. Rim Type 6.3., ID 2067.
- 4. Further variant of Base Type 2.1., ID 8604.
- 6. Base Type 3, ID 10102.

Shapes in Ware 37 (fig. 1 - 5)



Shapes in Ware 40 - Part 1 (fig. 6 - 8)



1. Rim Type 3, ID 8258.

3. Rim Type 6.3., ID 10823.

5. Base Type 3, ID 5187.

7. Deep Plate, Rim Type 3, Base Type 1.1.,
ID 2037.

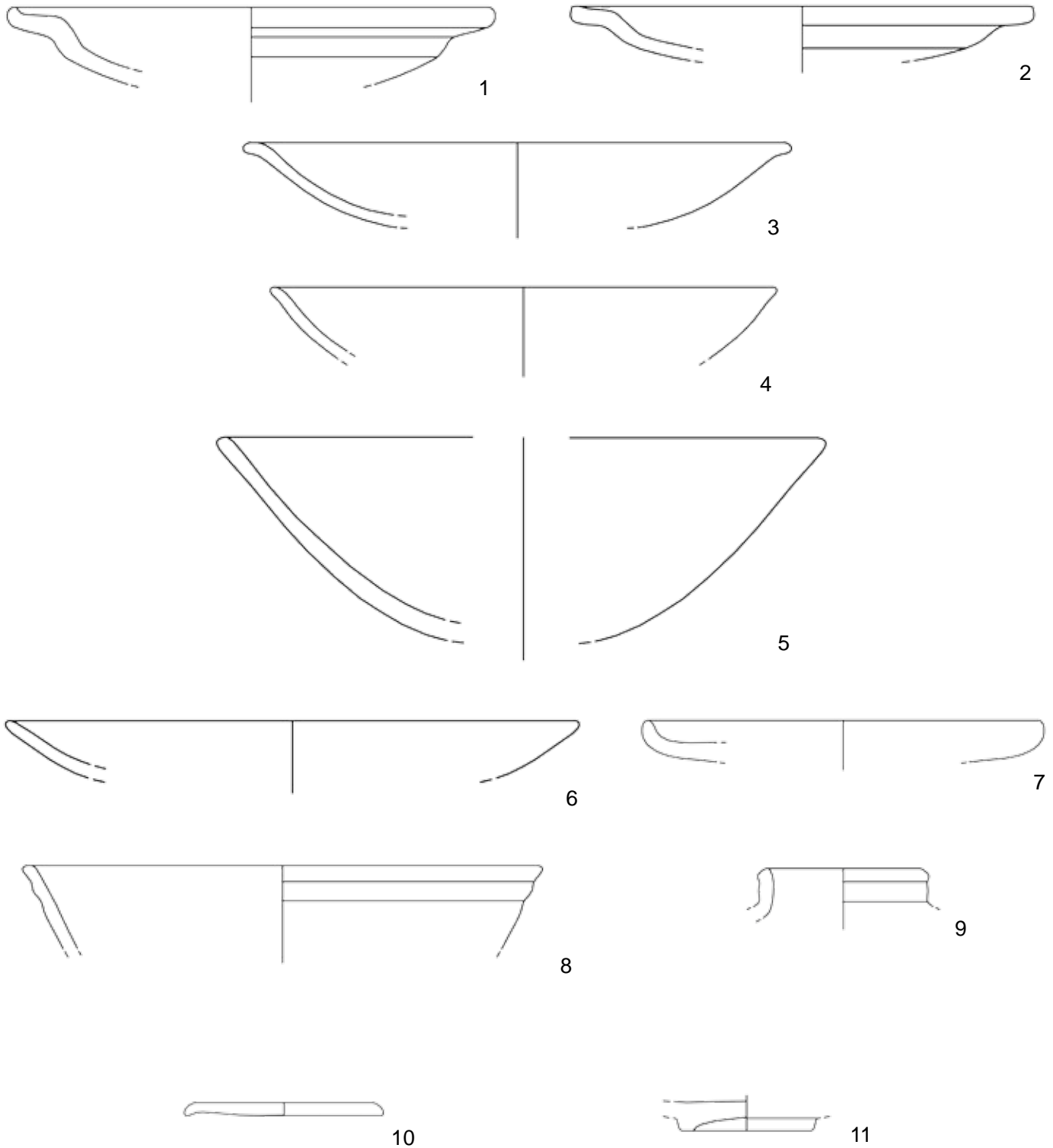
2. Rim Type 5, N, ID 5189.

4. Base Type 1.1., ID 8143.

6. Deep Plate, Rim Type 2, Base Type 1.1.,
ID 1923.

8. Bowl, Rim Type 3, Base Type 1.1., ID 2150.

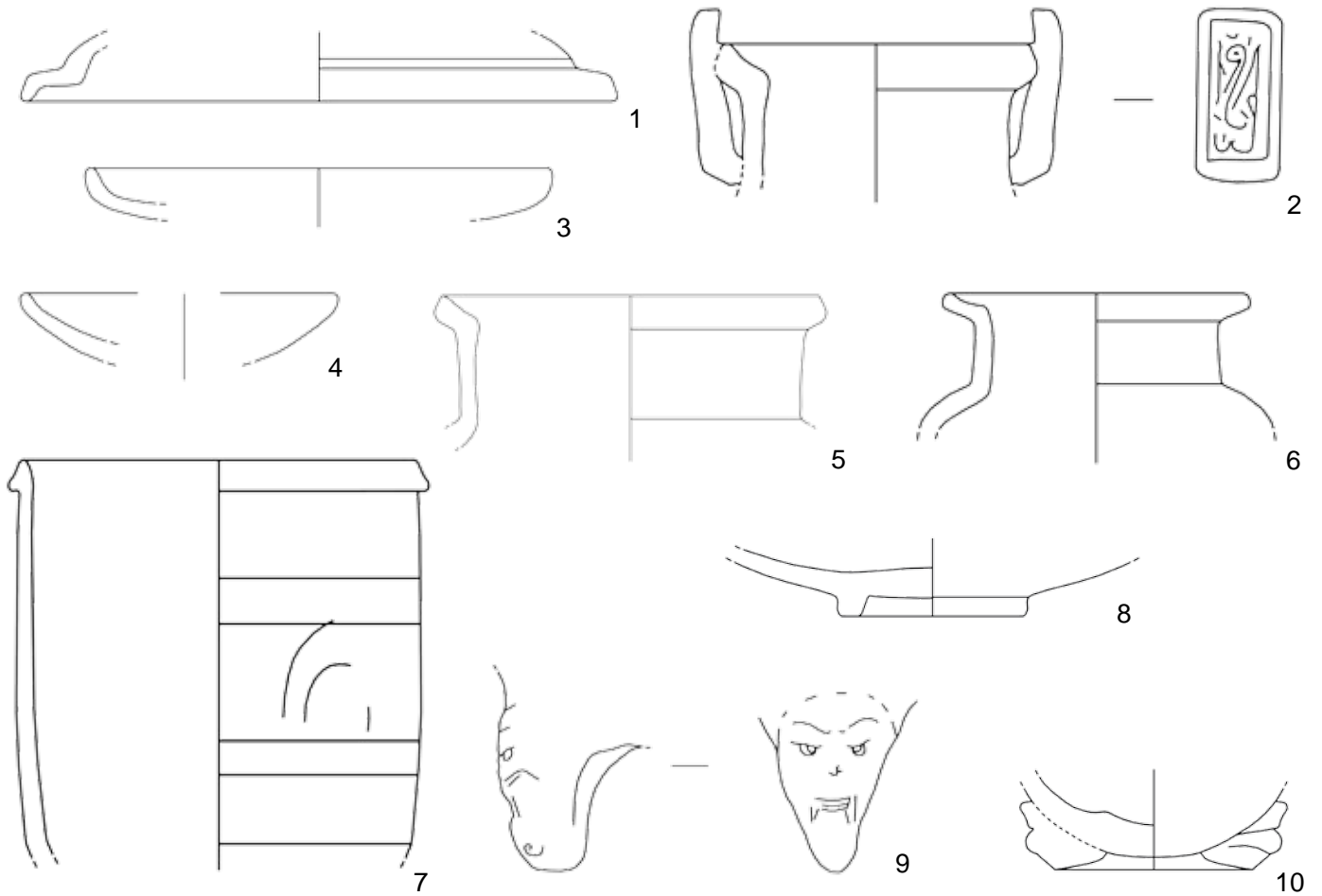
Shapes in Ware 40 - Part 2



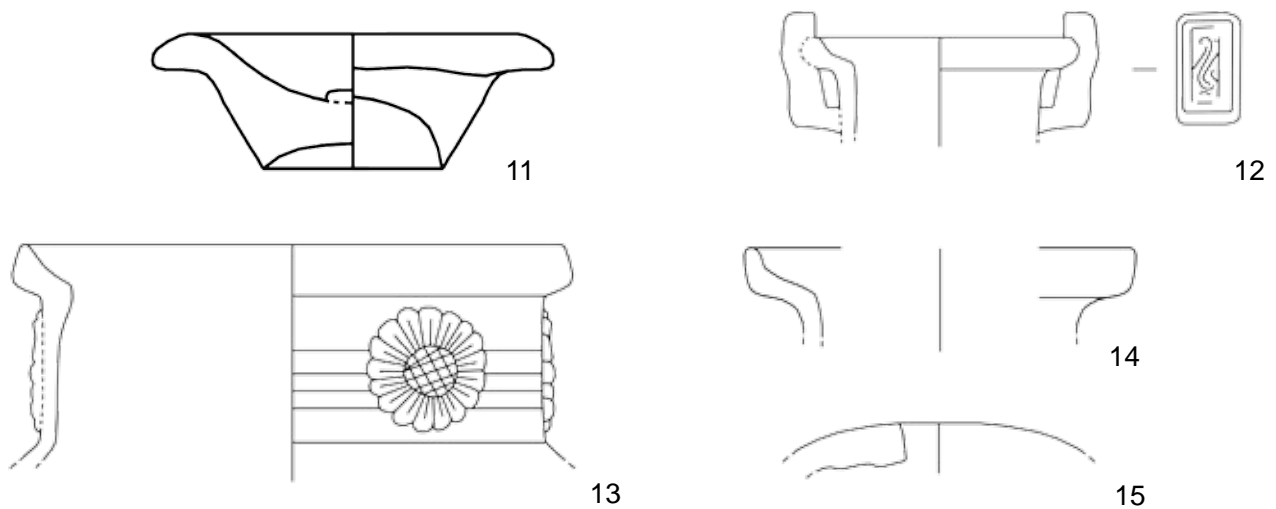
- 1. Rim Type 1, ID 7825.
- 3. Rim Type 2, ID 2164.
- 5. Rim Type 3, ID 1953.
- 7. Further variant of Rim Type 3, ID 2083.
- 8. Rim Type 3, R, ID 7311.
- 9. Rim Type 5, N + C, ID 5745.
- 11. Base Type 1.2., ID 10682.

- 2. Further variant of Rim Type 1, ID 12997.
- 4. Rim Type 2.1., ID 7954.
- 6. Further variant of Rim Type 3, ID 2893.
- 10. Exceptional shape, ID 14361.

Shapes in Ware 41 (fig. 1 - 10)



Shapes in Ware 42 - Part 1 (fig. 11 - 15)



1. Lid, ID 8411.

3. Rim Type 3, ID 3555.

5. Rim Type 4, ID 1983.

7. Rim Type 5, C, ID 2010.

9. Base Type 5.1., ID 2099.

11. Lid, ID 1253.

13. Rim Type 4, ID 1844.

15. Exceptional rim shape, ID 10835.

2. Handle (on Rim Type 4), ID 2073.

4. Further variant of Rim Type 3, ID 1935.

6. Further variant of Rim Type 4, ID 9053.

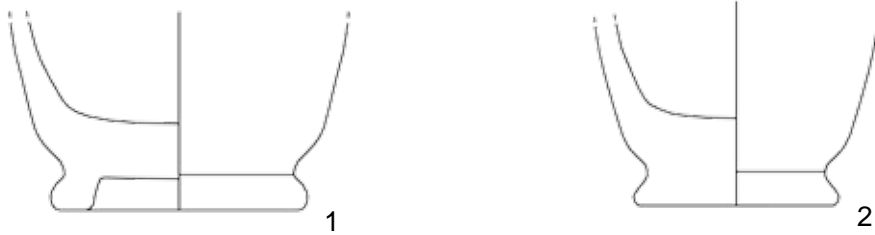
8. Base Type 1.1., ID 1268.

10. Base Type 5.3., ID 15133.

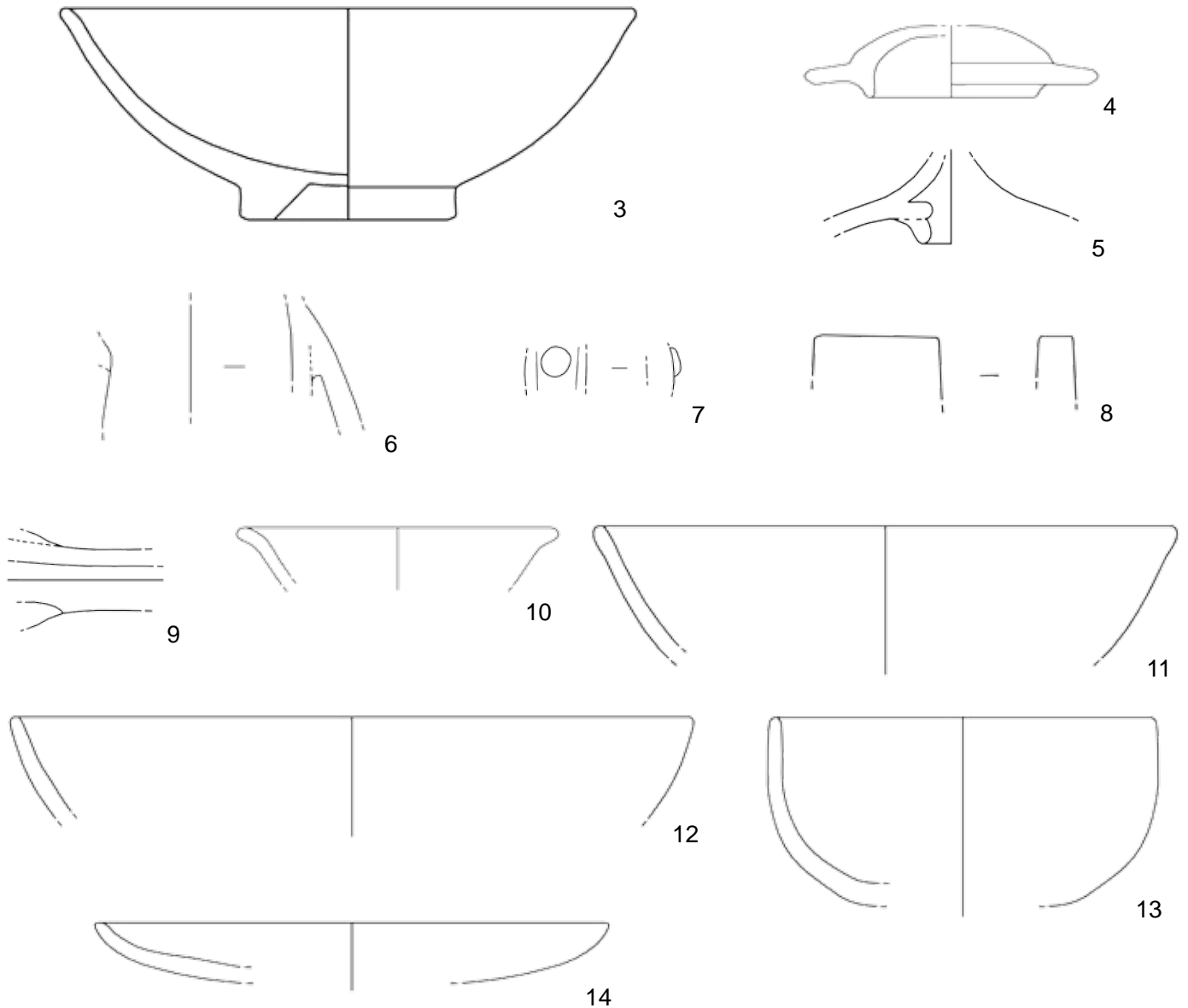
12. Handle (on Rim Type 4), ID 1208.

14. Further variant of Rim Type 4, ID 13922.

Shapes in Ware 42 - Part 2 (fig. 1 - 2)



Shapes in Ware 43 - Part 1 (fig. 3 - 14)

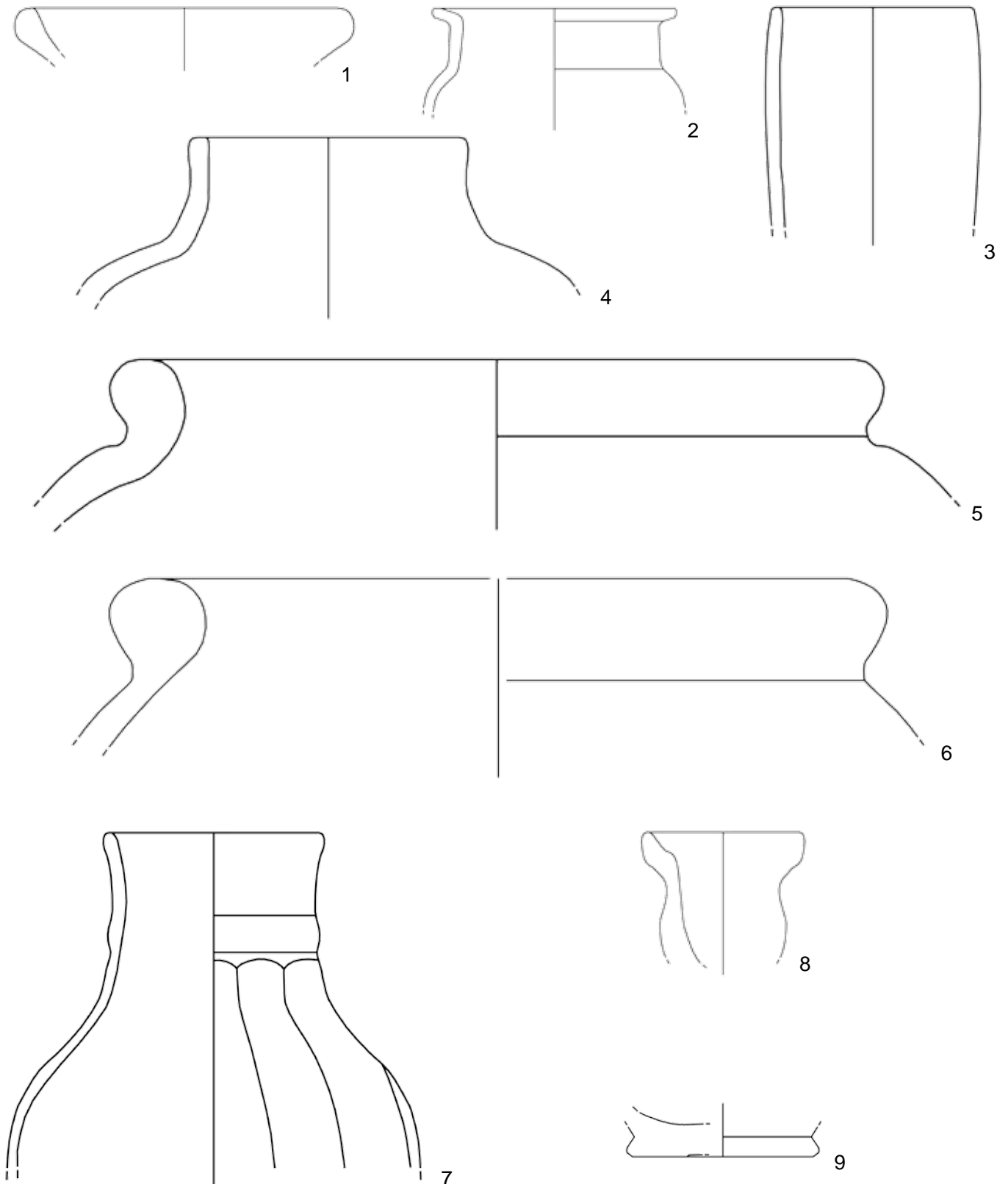


- 1. Base Type 1.1., ID 1183.
- 3. Bowl, Rim Type 2.1., Base Type 1.1., ID 2012.
- 5. Exceptional shape, lid?, ID 13330.
- 6. Handle Type 1, ID 6548.
- 7. Handle Type 2, ID 14189.
- 9. Spout, ID 7062.
- 11. Rim Type 2.1., ID 10595.
- 13. Further variant of Rim Type 3, ID 4066.

- 2. Base Type 1.3., ID 1987.
- 4. Lid, ID 7891.
- 8. Handle?, ID 6212.
- 10. Rim Type 2, ID 7865.
- 12. Rim Type 3, ID 7081.
- 14. Further variant of Rim Type 3, ID 2746.

Plate 52

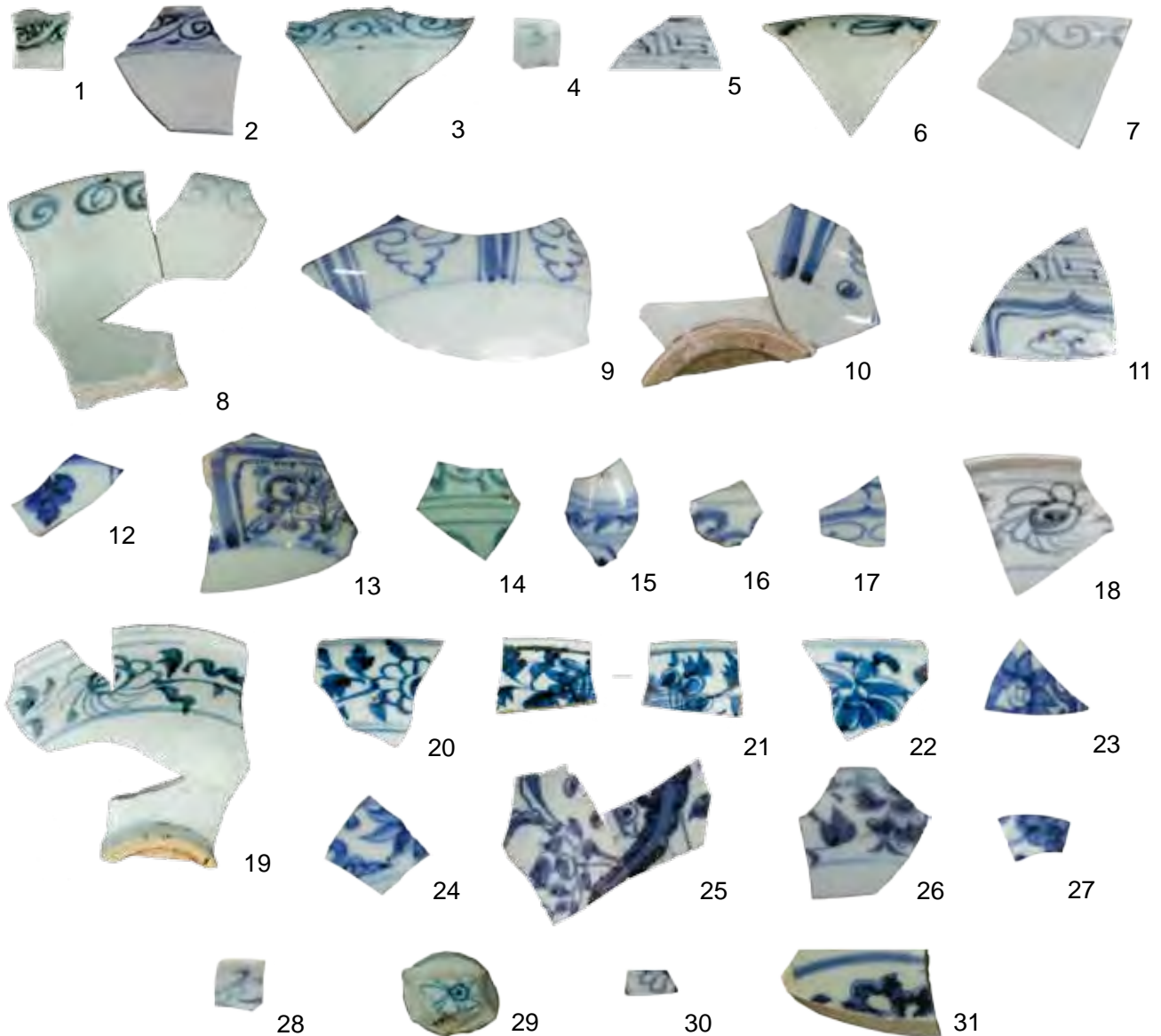
Shapes in Ware 43 - Part 2



- 1. Rim Type 3.1., ID 8952.
- 3. Rim Type 5, ID 2147.
- 5. Rim Type 6.3., ID 8955.
- 7. Rim Type 7, ID 1230.
- 9. Base Type 1.3., ID 11587.

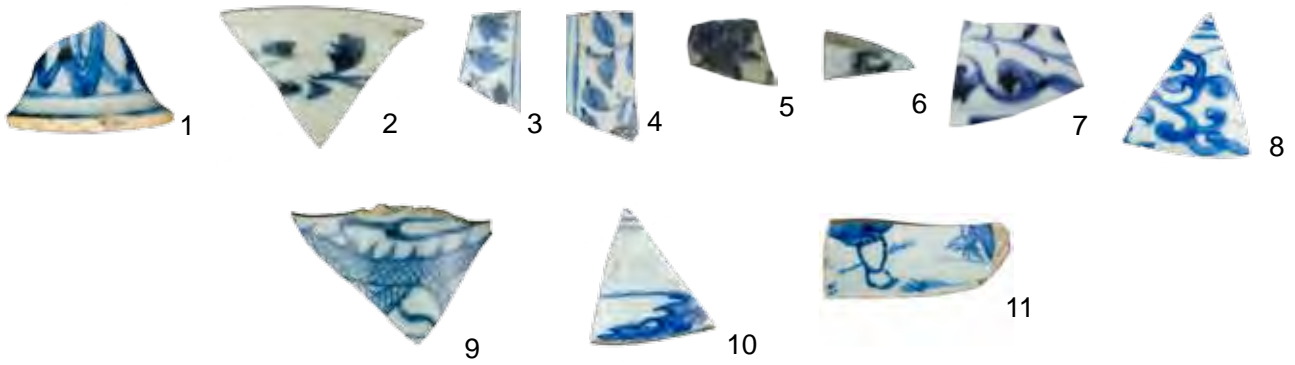
- 2. Rim Type 4, ID 1205.
- 4. Rim Type 5, N, ID 11628.
- 6. Further variant of Rim Type 6.3., ID 12875.
- 8. Exceptional rim shape, ID 8169.

Motifs in Ware 1 - Part 1

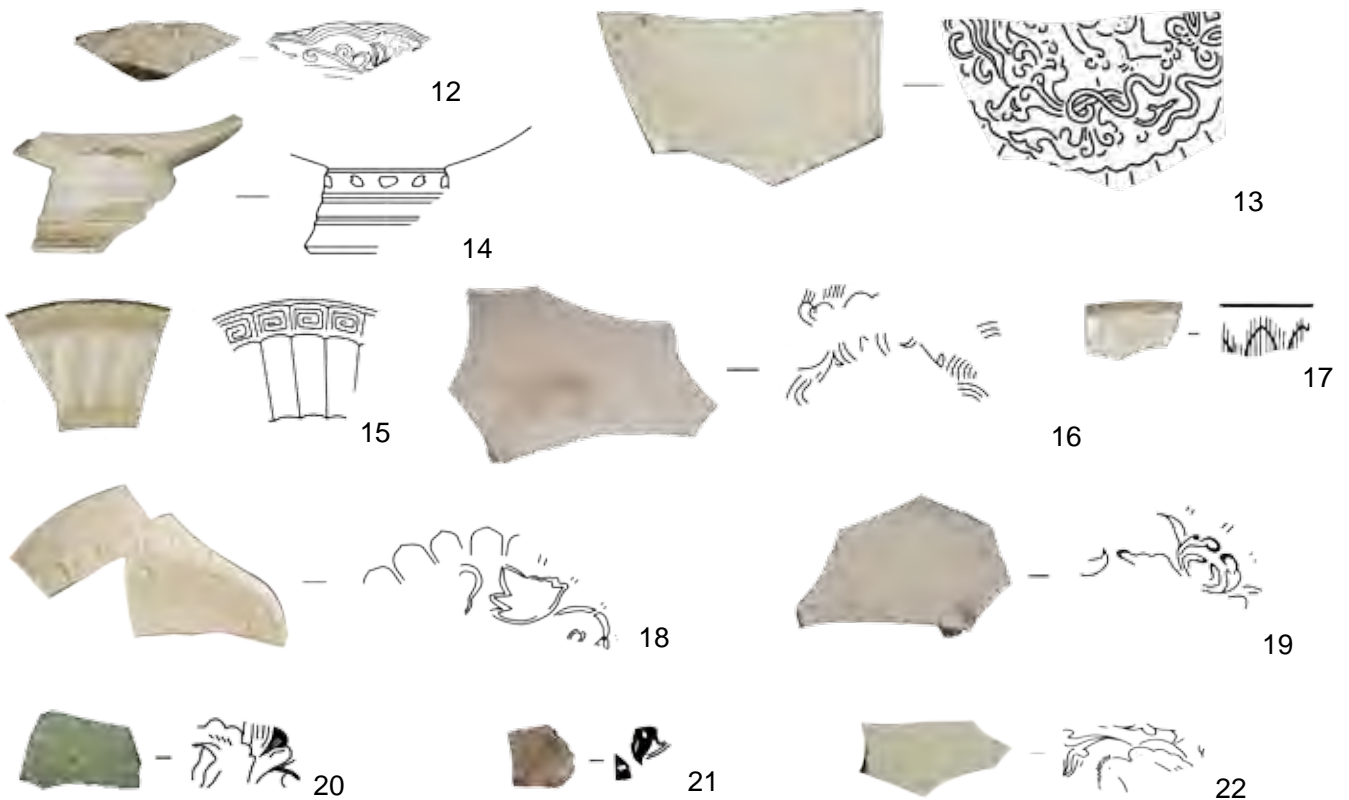


- | | |
|---|--|
| <p>1. Classic Scroll, ID 1968 (inside).
 3. Classic Scroll, ID 15657 (inside).
 5. Key Fret Scroll, ID 1821 (detail, outside).
 7. Spiral Scroll, ID 1952 (inside).
 9. Stylized Lotus-leaf Scroll with Cloud I, ID 2084 (outside).
 11. Stylized Lotus-leaf Scroll with Cloud III, ID 1821 (outside, incl. key fret scroll).
 13. Stylized Lotus-leaf Scroll with Miscellaneous Treasures, ID 1894 (outside).
 15. Various Scrolls, ID 5241 (outside).
 17. Various Scrolls, ID 13551 (outside).
 19. Chrysanthemum Scroll I, ID 1801 (outside).
 21. Chrysanthemum Scroll III, ID 2133 (both sides).
 23. Lotus, Type II, ID 2078 (outside).
 25. Lotus-Bouquet, ID 2023 (inside).
 27. Plum Blossom, ID 14509 (outside).
 29. Unknown Flower II, ID 1199 (inside).
 31. Unknown Flower IV, ID 1894 (detail, inside).</p> | <p>2. Classic Scroll, ID 2134 (inside).
 4. Cloud Scroll, ID 1707 (inside).
 6. Linear Scroll, ID 1828 (inside).
 8. Spiral Scroll, ID 1801 (inside).
 10. Stylized Lotus-leaf Scroll with Cloud II, ID 2023 (outside).
 12. Stylized Lotus-leaf Scroll with Cloud IV, ID 11909 (outside).
 14. Various Scrolls, ID 706 (outside).
 16. Various Scrolls, ID 7042 (outside).
 18. Chrysanthemum Scroll I, ID 1952 (outside).
 20. Chrysanthemum Scroll II, ID 1802 (inside).
 22. Lotus, Type I, ID 1802 (outside).
 24. Lotus, Type III, ID 4277 (outside).
 26. Peony Scroll, ID 2134 (outside).
 28. Unknown Flower I, ID 1707 (outside).
 30. Unknown Flower III, ID 13101 (outside).</p> |
|---|--|

Motifs in Ware 1 - Part 2 (fig. 1 - 11)



Motifs in Ware 2 (fig. 12 - 22)



- 1. Plantain-Leaf Scroll, ID 2127 (outside).
- 3. Small Leaves I, ID 2128 (outside, left).
- 5. Small Leaves III, ID 2139 (outside).
- 7. Tendrils, ID 2022 (outside).
- 9. Dragon I, ID 15657 (outside).
- 11. Human (peasant?), ID 2082 (inside).

- 2. Small Leaves I, ID 1828 (outside).
- 4. Small Leaves II, ID 2128 (outside, right).
- 6. Small Leaves IV, ID 7546 (inside).
- 8. Vine Design Scroll, ID 1855 (outside).
- 10. Dragon II, ID 1855 (inside).
- 12. Classic Scroll, floral Style, ID 11385 (inside, on rim).
- 13. Flowerily Tendrils, incl. fragments of an animal (lion?), ID 1216 (inside).
- 14. Irregular Dots (Scroll), ID 1845 (outside).
- 16. Linear Pattern with Waves, ID 8438 (inside).

- 15. Key Fret Scroll + Chrysanthemum Shape, ID 9045 (inside).
- 17. Flower Pedals, ID 6262 (inside).
- 19. Peony I, ID 5359 (inside).
- 21. Leaves (Peony?), ID 9813 (inside).

- 18. Lotus Pedals + Peony Leaves, ID 3407 (inside).
- 20. Peony II, ID 687 (inside).
- 22. Animal (?) in Flowerily Tendrils, ID 6306 (inside).

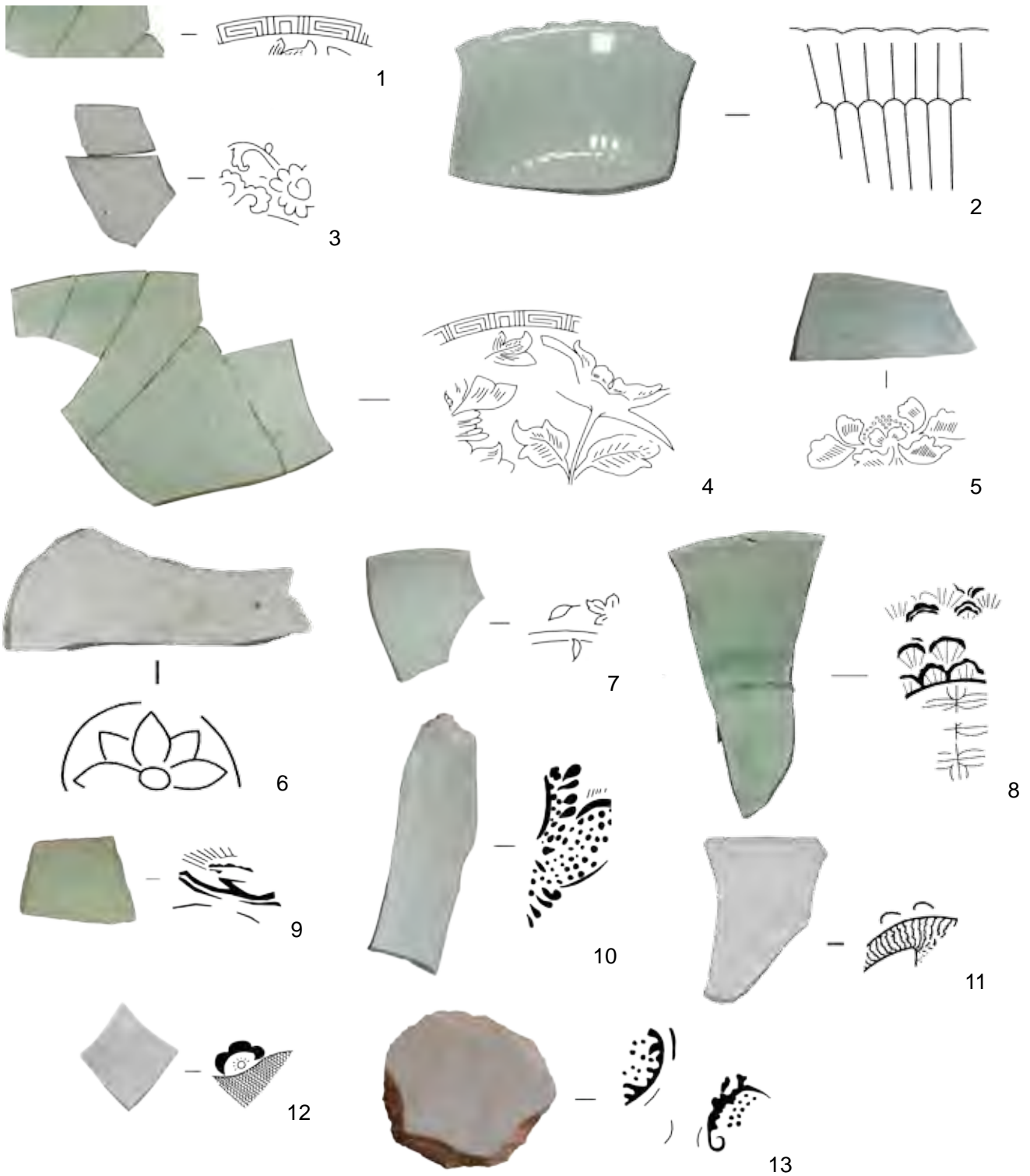
Motifs in Ware 3



- 1. Line Design, ID 14849 (inside).
- 3. Zig-zag Scroll, ID 8440 (outside).
- 5. Leaves Scroll II, ID 1721 (inside).
- 7. Combed Lines, ID 14736 (inside).
- 11. Linear Pattern with Waves, ID 6195 (inside).

- 2. Line Design, ID 1629 (inside).
- 4. Leaves Scroll I, ID 1227(inside).
- 6. Leaves Scroll III, ID 8129 (outside).
- 8. Lotus I, ID 1207 (inside).
- 9. Lotus I, ID 1815 (inside).
- 10. Lines (vertical) with streaks, ID 13298 (inside).

Motifs in Ware 4 - Part 1



1. Key Fret Scroll, ID 11407 (detail, inside).

3. Floral Scroll I, ID 5119 (inside).

5. Peony II, ID 4691 (inside).

7. Chrysanthemum Leaves, ID 3450 (inside)

9. Bird, ID 4303 (inside).

11. Dragon I (?), ID 11110 (inside).

13. Pair of Fish (?), ID 173 (inside).

2. Chrysanthemum Pedal Print, ID 1200 (inside).

4. Peony I, ID 11407 (inside).

6. Flower I (Lotus), ID 13701 (inside).

8. Small Leaves Scroll + Crossed Leaves, ID 2862 (inside).

10. Flying Duck, ID 6223 (inside).

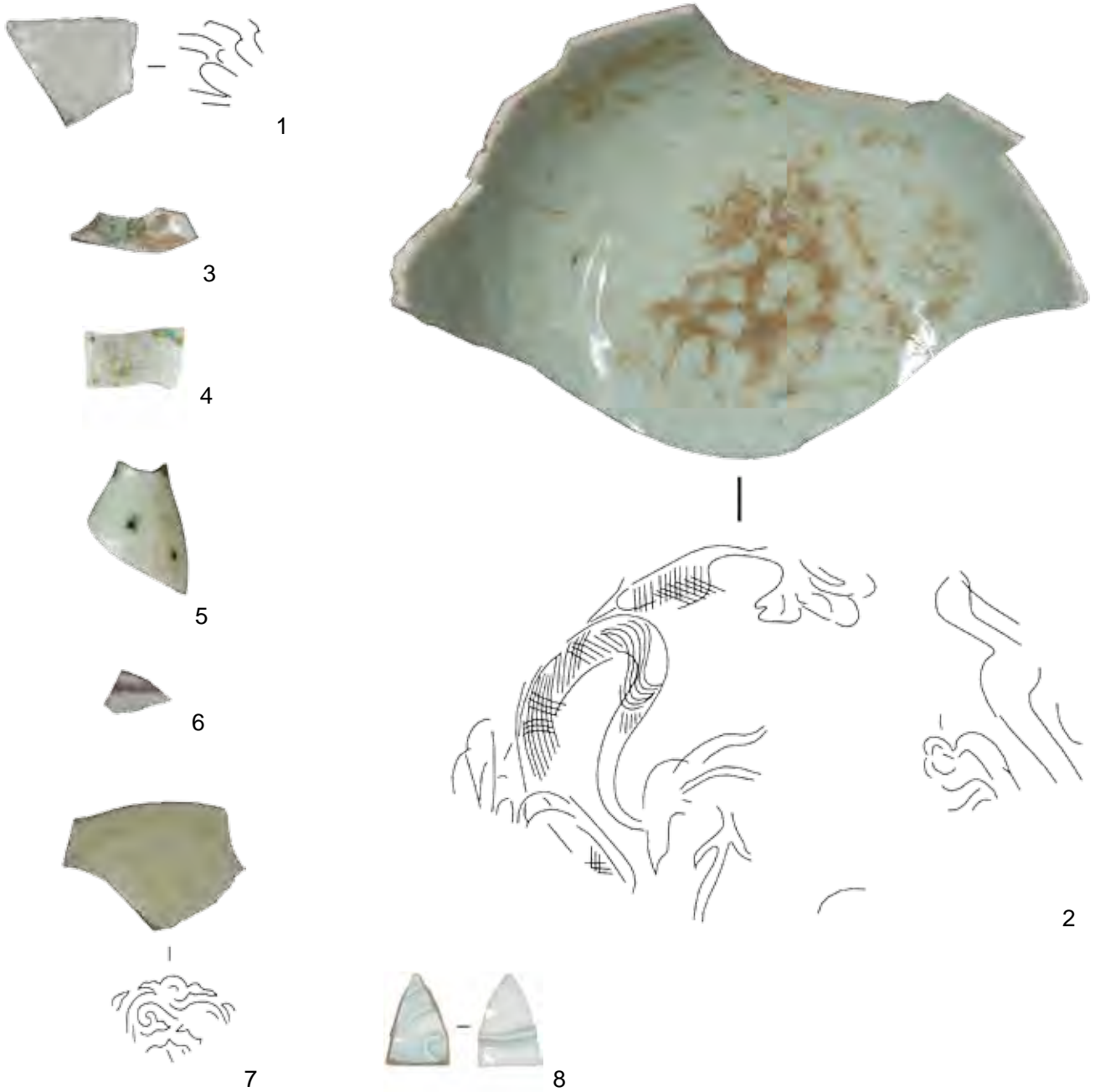
12. Fish and Flower, ID 5767 (inside).

Motifs in Ware 4 - Part 2



1. Phoenix I, ID 788 (inside).
2. Clouds I, ID 5161 (outside).
3. Clouds II, ID 2311 (inside).
5. Curved Lines, ID 13862 (inside).
7. Curvy Lines II, ID 5802 (inside).
9. Diagonal Lines I, ID 5164 (outside).
11. Combed Scratches, ID 4462 (outside).
13. Peony, ID 9679 (inside).
4. Cloud Scroll, ID 1880 (outside).
6. Curvy Lines I, ID 3583 (outside).
8. Wave Lines I, ID 1302 (outside).
10. Lines (combed), floral?, ID 8030 (inside).
12. Tendrils, ID 823 (outside).
14. Islamic Script (?), ID 6839 (outside).

Motifs in Ware 4 - Part 3 (fig. 1 - 8)



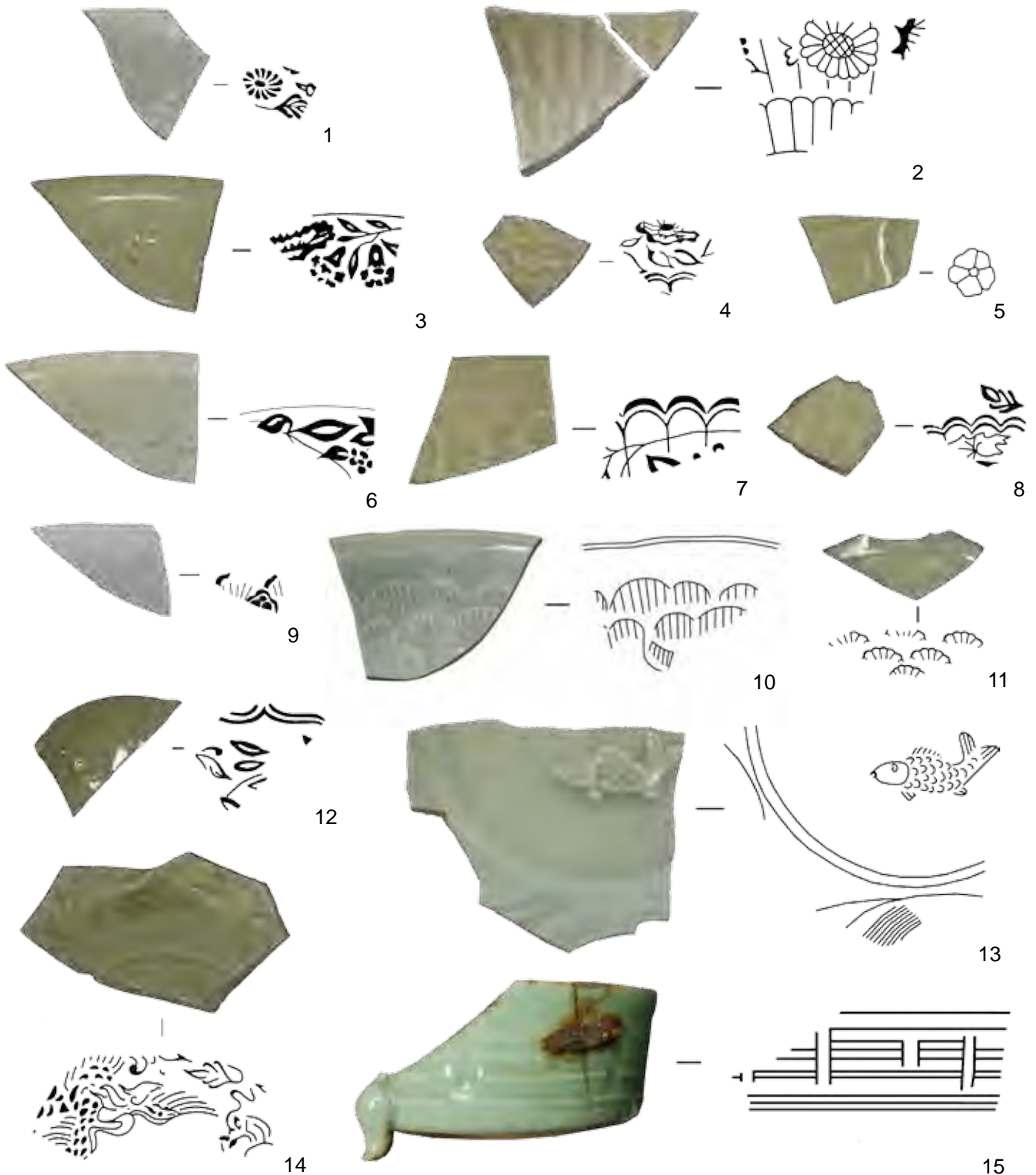
Motifs in Ware 5 - Part 1 (fig. 9)



- 1. Flying Duck II (?), ID 5801 (outside).
- 3. Floral ?, ID 6270 (inside).
- 5. Black Spots (Iron Spots), ID 2671 (outside).
- 7. Tendrils, ID 6072 (inside).
- 9. Chrysanthemum Scroll I, ID 1245 (detail, inside).

- 2. Fish (?), ID 1880 (inside).
- 4. Flowers, ID 8203 (outside).
- 6. Lines (circular), ID 7271 (outside).
- 8. Beads, ID 15505 (both sides).

Motifs in Ware 5 - Part 2



1. Chrysanthemum Scroll I, ID 1971 (inside).
3. Floral Scroll I, ID 3105 (inside).
5. Unknown Flower II, ID 6395 (inside).
6. Leaves and Flower Scroll, ID 2177 (inside).
7. Leaves on Pedals I, ID 6840 (inside).
9. Small Leaves Scroll I, ID 2359 (inside).
11. Small Leaves Scroll III, ID 3094 (inside)
12. Small Leaves, ID 3106 (inside).
14. Phoenix, ID 4482 (inside).

2. Chrysanthemum Scroll II, ID 2165 (inside).
4. Floral Scroll II, ID 8814 (inside).
8. Leaves on Pedals II, ID 14614 (inside).
10. Small Leaves Scroll II, ID 1891 (inside).
13. Pair of Fish II, ID 2156 (inside).
15. Eight Trigrams, ID 1241 (outside).

Motifs in Ware 5 - Part 3



1



2



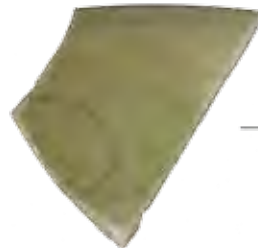
3



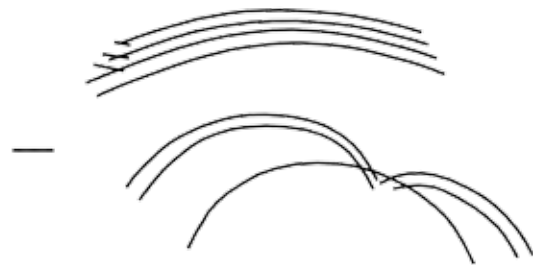
4



5



6



7

1. Miscellaneous Treasures I, ID 1245 (inside).

3. Miscellaneous Treasures IV, Coral, ID 2310

5. Arcs, ID 10095 (outside).

7. Curves (combed), ID 81 (outside).

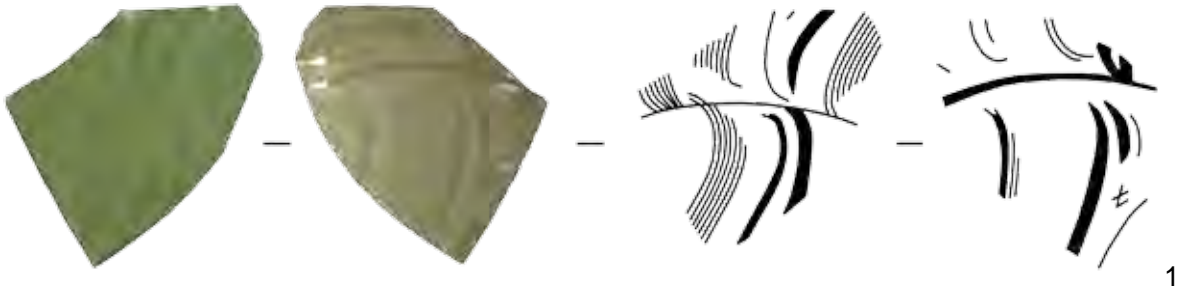
additionally Lines (circular, combed) with Scratches (combed).

2. Miscellaneous Treasures II, ID 1854 (inside).

4. Miscellaneous Treasures IV, Endless Knot on Pedal Print, ID 8378 (inside).

6. Curvy Lines Design, ID 7078 (inside).

Motifs in Ware 5 - Part 4



- 1. Wavy Lines Design, ID 6534 (both sides).
- 3. Floral Design Scroll (stylized flowers?), ID 2055 (inside).
- 5. Floral Design Scroll II (?), ID 7008 (inside).

- 2. Floral Design Scroll (combed), ID 2872 (inside).
- 4. Floral Design Scroll (small), ID 1244 (detail, inside).
- 6. Lotus Leaf Design (combed), ID 1245 (outside), additionally Combed Scratches and Lines (circular, combed).

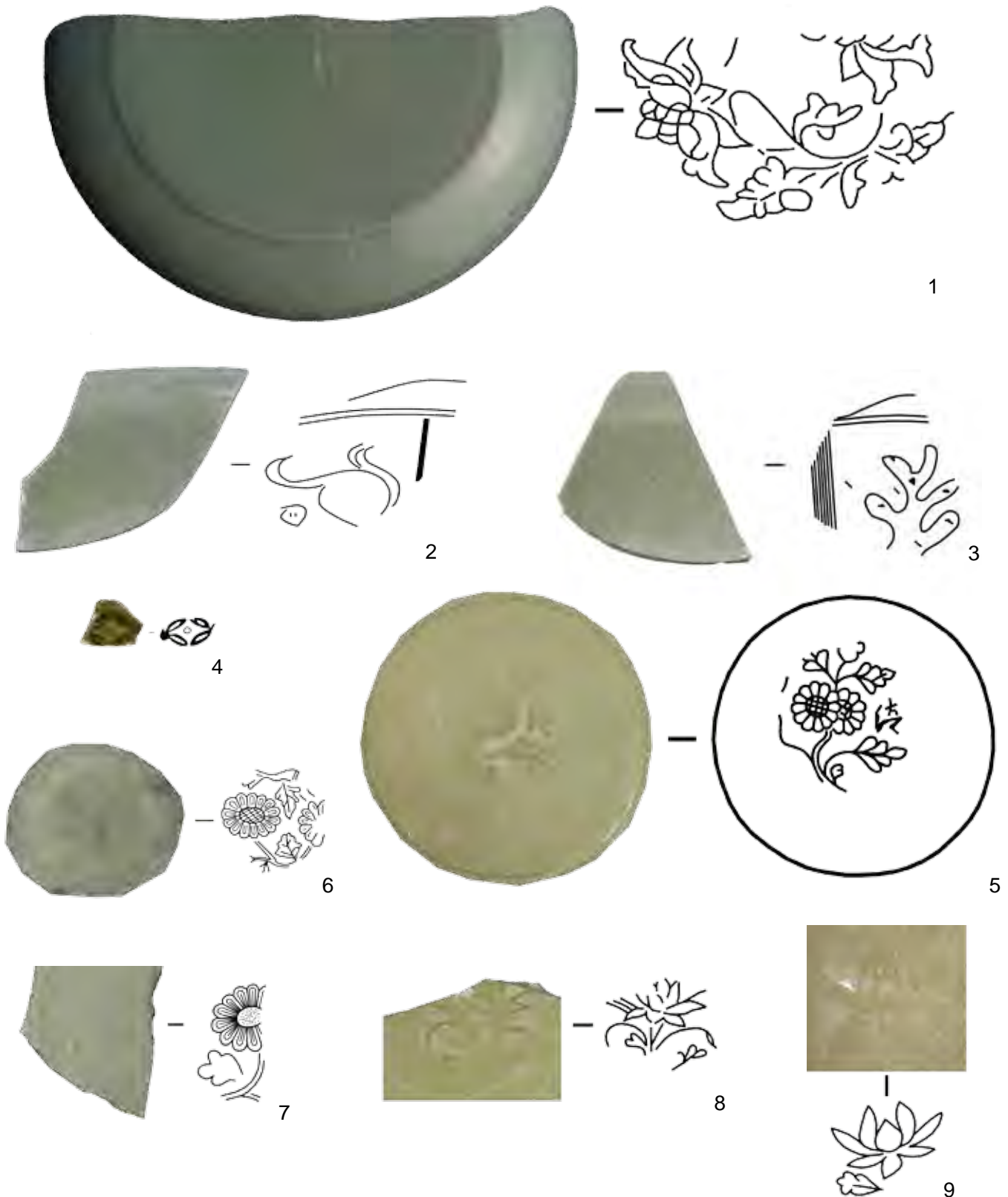
Motifs in Ware 5 - Part 5



- 1. Lotus Leaf Design (small), ID 1897 (outside).
- 3. Lotus Leaf Design (wide), ID 4482 (outside).
- 5. Lines (curvy, combed), ID 6662 (detail, inside).
- 7. Pedal Design, ID 7078 (outside).
- 9. Leaves (plain), ID 701 (inside).

- 2. Lotus Leaf Design (simple), ID 7874 (outside).
- 4. Line Design, ID 2072 (outside).
- 6. Lines (radial), ID 7653 (inside).
- 8. Lotus Design (?), ID 81 (inside).
- 10. Plantain Leaves, ID 2055 (outside).

Motifs in Ware 5 - Part 6



1. Peony I, ID 2170 (outside).

3. Miscellaneous Treasures III, Coral, ID 2079, (inside).

5. Chrysanthemum I, ID 2000 (detail, inside).

7. Chrysanthemum III, ID 8777 (detail, inside).

9. Lotus II, ID 2483 (detail, inside).

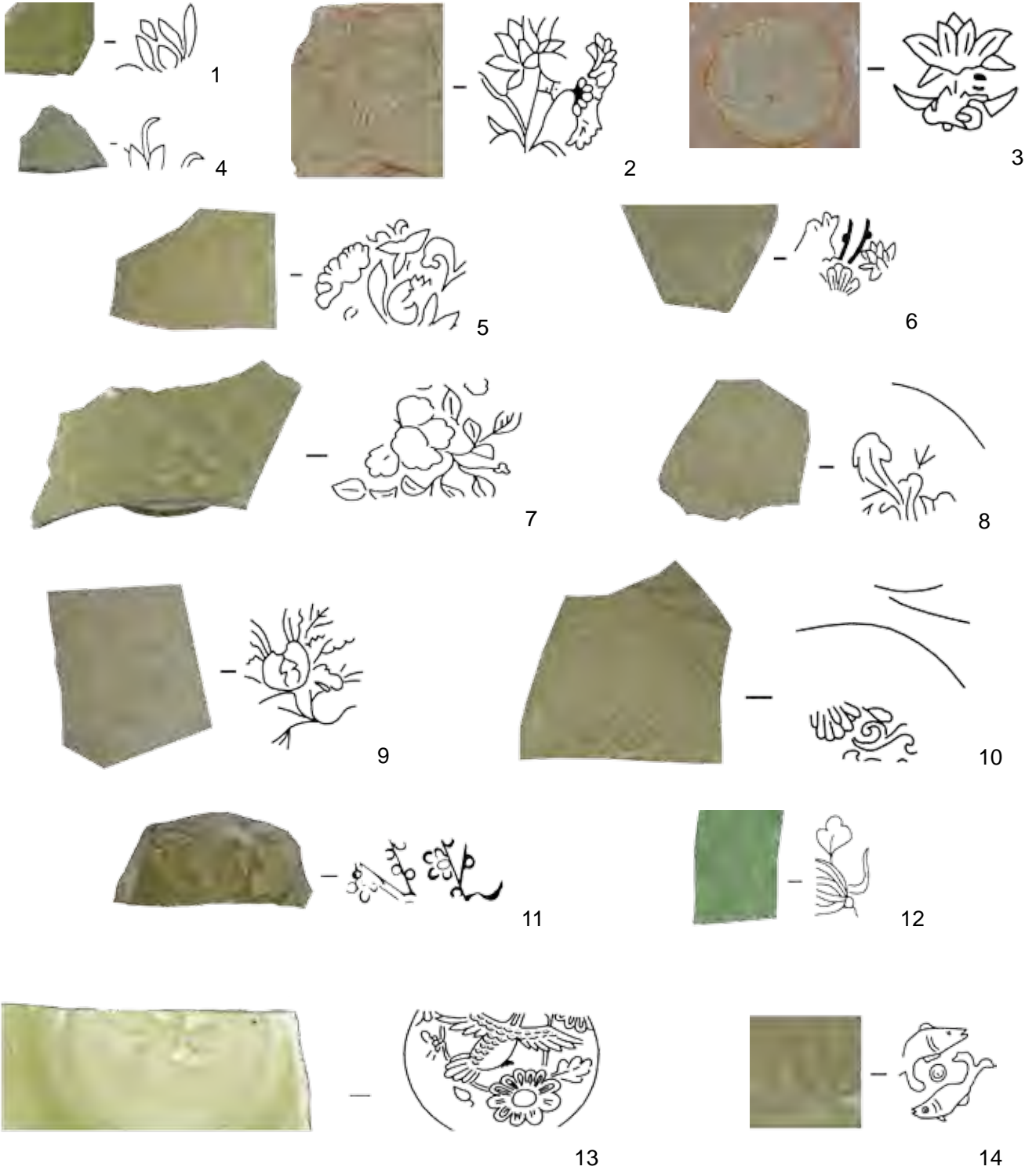
2. Miscellaneous Treasures III, Pair of Fish? ID 2226 (inside).

4. Rhombus Design, ID 7231 (inside).

6. Chrysanthemum II, ID 2155 (detail, inside).

8. Lotus I, ID 10824 (detail, inside).

Motifs in Ware 5 - Part 7



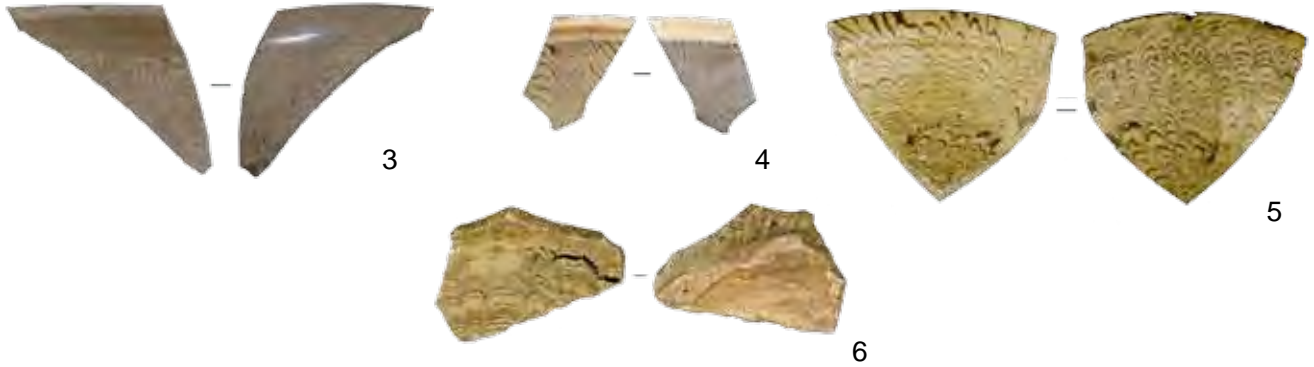
1. Lotus III, ID 2094 (detail, inside).
3. Lotus V, ID 2157 (detail, inside).
5. Lotus Bouquet I, ID 6292 (detail, inside).
7. Peony II, ID 2072 (inside).
9. Peony IV, ID 3733 (detail, inside).
11. Plum Blossom, ID 6341 (inside).
13. Flying Duck in Chrysanthemums, D 1244 (detail, inside).

2. Lotus IV, ID 3856 (detail, inside).
4. Lotus VI, ID 8868 (inside).
6. Lotus Bouquet II, ID 13974 (detail, inside).
8. Peony III (?), ID 10091 (detail, inside).
10. Unknown Flower and Tendrils, ID 10852 (detail, inside).
12. Unknown Flower, ID 1021 (detail, inside).
14. Pair of Fish I, ID 1897 (detail, inside).

Motifs in Ware 7 (fig. 1 - 2)



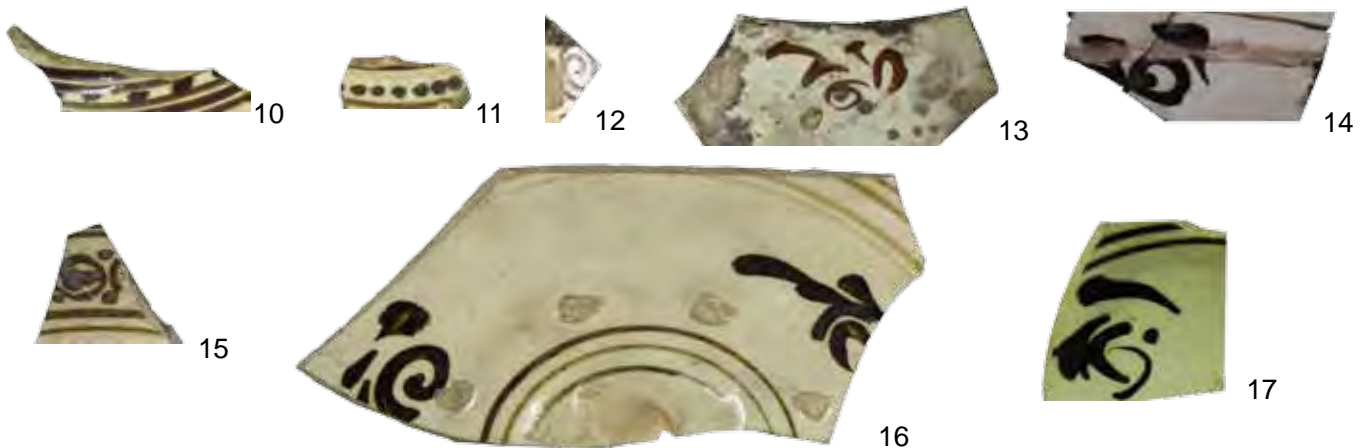
Marbling Patterns in Ware 8 (fig. 3 - 6)



Motifs in Ware 9 (fig. 7 - 9)



Motifs in Ware 11 - Part 1 (fig. 10 - 17)



1. Lines (radial), ID 10801 (inside).
3. Marbling Pattern I, ID 1908.
5. Marbling Pattern III, ID 1995.
7. Lines (circular, wide), ID 9015 (inside).
9. Irregular Spots II (and Line (circular)), ID 6006 (inside).
11. Lines and Dots II, ID 16500 (detail, outside).
13. Ornamental Design I, ID 2121 (detail, outside).
15. Ornamental Scroll II, ID 15584 (detail, outside).

2. Lines (radial), ID 11399 (inside).
4. Marbling Pattern II, ID 2046.
6. Marbling Pattern IV, ID 15904.
8. Irregular Spots I (and Lines (circular)), ID 2190 (inside).
10. Lines and Dots I, ID 15628 (detail, outside).
12. Spiral, ID 4934 (outside).
14. Ornamental Scroll I, ID 928 (detail, outside).
16. Ornamental Scroll III, ID 2001 (inside).

Scale 1:2

Motifs in Ware 11 - Part 2



1. Ornamental Scroll VII, ID 2112 (detail, outside).
3. Irregular Spots I, ID 4689 (outside).
5. Irregular Spots III, ID 5504 (outside).
6. Spot Design I, ID 8012 (inside).
7. Spot Design II, ID 1860 (inside).
9. Spot Design IV, ID 8126 (inside).
11. Spot Design VI, ID 2876 (outside).
13. Floral Scroll IV, ID 12070 (outside).
15. Chrysanthemum Scroll II, ID 2400 (outside).
17. Chrysanthemum Scroll III (Leaf), ID 1939 (outside).

2. Spots (big), ID 13126 (outside).
4. Irregular Spots II, ID 3081 (inside).
8. Spot Design III, ID 1614 (inside).
10. Spot Design V, ID 15127 (inside).
12. Floral Scroll III, ID 7863 (outside).
14. Chrysanthemum Scroll I, ID 5191 (outside).
16. Chrysanthemum Scroll III, ID 3805 (outside).

Motifs in Ware 11 - Part 3



1. Chrysanthemum I, ID 2014 (detail, outside).
3. Unknown Flower I, ID 8090 (inside).
5. Leaves Scroll I, ID 1217 (outside).
9. Leaves Scroll V, ID 12465 (detail, outside).
11. Leaves Scroll VII, ID 12435 (inside).
13. Leaves Scroll IX, ID 6171 (outside).
15. Leaves Scroll XII, ID 4520 (outside).
17. Leaves III, ID 6608 (inside).

2. Chrysanthemum II, ID 3846 (outside).
4. Unknown Flower II, ID 5418 (outside).
6. Leaves Scroll II, ID 2075 (outside).
8. Leaves Scroll IV, ID 3845 (outside).
10. Leaves Scroll VI, ID 1171 (detail, inside).
12. Leaves Scroll VIII, ID 13723 (inside).
14. Leaves Scroll XI, ID 15627 (outside).
16. Leaves?, ID 5357 (outside).
18. Small Leaves I, ID 96 (inside).
19. Small Leaves II, ID 1915 (inside).
20. Fish, ID 3732 (outside).

Motifs in Ware 11 - Part 4 (fig. 1 - 19)



Motifs in Ware 14 (fig. 20 - 21)



Motifs in Ware 16 - Part 1 (fig. 22 - 25)



- 1. Fish, ID 15567 (outside).
- 3. Script (?), ID 6512 (inside).
- 5. Clouds, ID 3260 (outside).
- 7. Leaves I, ID 15631 (outside).
- 9. Script, „guan“, ID 7422 (outside).
- 11. Floral Scroll I, ID 1970 (outside).
- 13. Floral Scroll V, ID 1799 (inside).
- 15. Floral Scroll VII, ID 3048 (outside).
- 17. Leaves IV, ID 7770 (outside).
- 19. Fish III, ID 2103 (inside).
- 21. Lines (circular) and Leaves, ID 14671 (inside).
- 23. Leaves Design I, ID 11026 (inside).
- 25. Leaves Design III, ID 11059 (inside).

- 2. Script, ID 3236 (inside).
- 4. Ornamental Scroll V, ID 3261 (outside).
- 6. Bamboo Leaves, ID 250 (outside).
- 8. Leaves II, ID 1944 (outside).
- 10. Ornamental Scroll VI, ID 1204 (outside).
- 12. Floral Scroll II, ID 15439 (outside).
- 14. Floral Scroll VI, ID 608 (outside).
- 16. Leaves Scroll X, ID 14745 (outside).
- 18. Fish II, ID 1798 (outside).
- 20. Small Leaves, ID 866 (outside).
- 22. Spot Design I, ID 7102 (inside).
- 24. Leaves Design II, ID 15808 (inside).

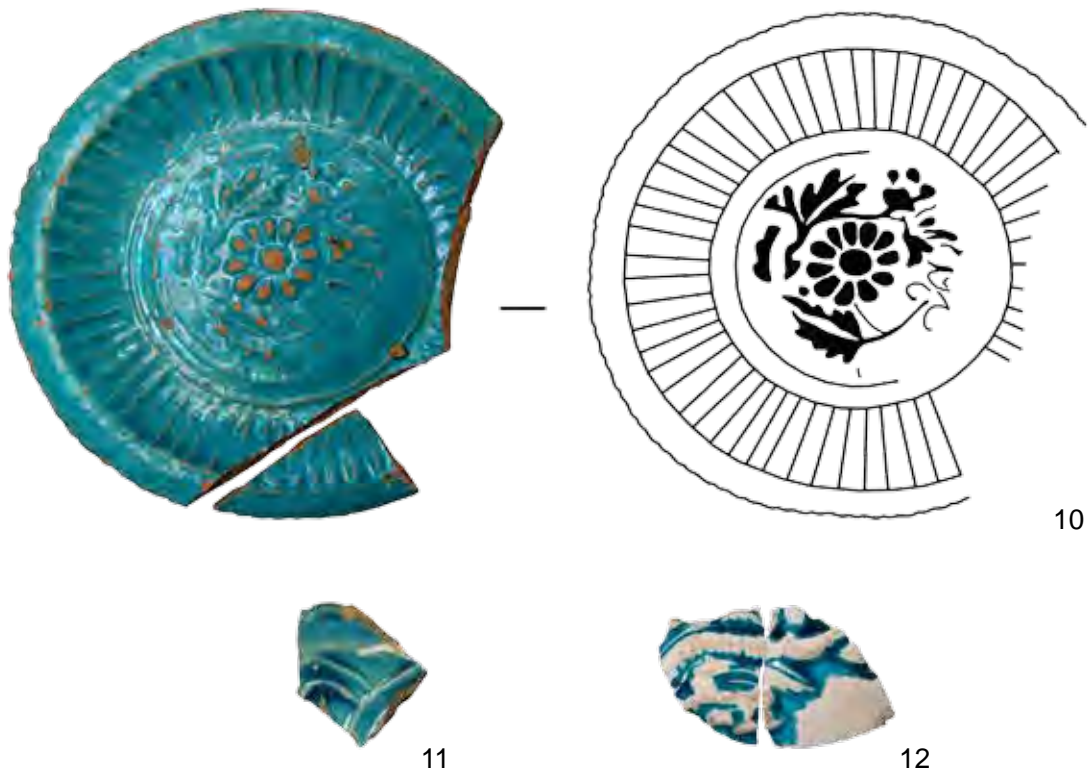
Motifs in Ware 16 - Part 2 (fig. 1 -4)



Motifs in Ware 18 (fig. 5 - 9)



Motifs in Ware 19 (fig. 10 - 12)



- 1. Leaves Scroll I, ID 1911 (inside).
- 3. Peony?, ID 8639 (inside).
- 5. Ornamental Scroll I, ID 2176 (detail, inside).
- 7. Floral Design I, ID 14814 (inside).
- 9. Fish, ID 8735 (inside).
- 11. Leaves Scroll, ID 1903 (inside).

- 2. Peony, ID 2152 (inside).
- 4. Flower?, ID 14548 (inside).
- 6. Floral Design I, ID 1856 (inside).
- 8. Bamboo, ID 2124 (outside).
- 10. Chrysanthemum, ID 1232 (inside)
- 12. Dragon (?), ID 1233 (outside).

Motifs in Ware 20 (fig. 1 - 4)



Motifs in Ware 23 (fig. 5 - 7)



Motifs in Ware 24 (fig. 8)



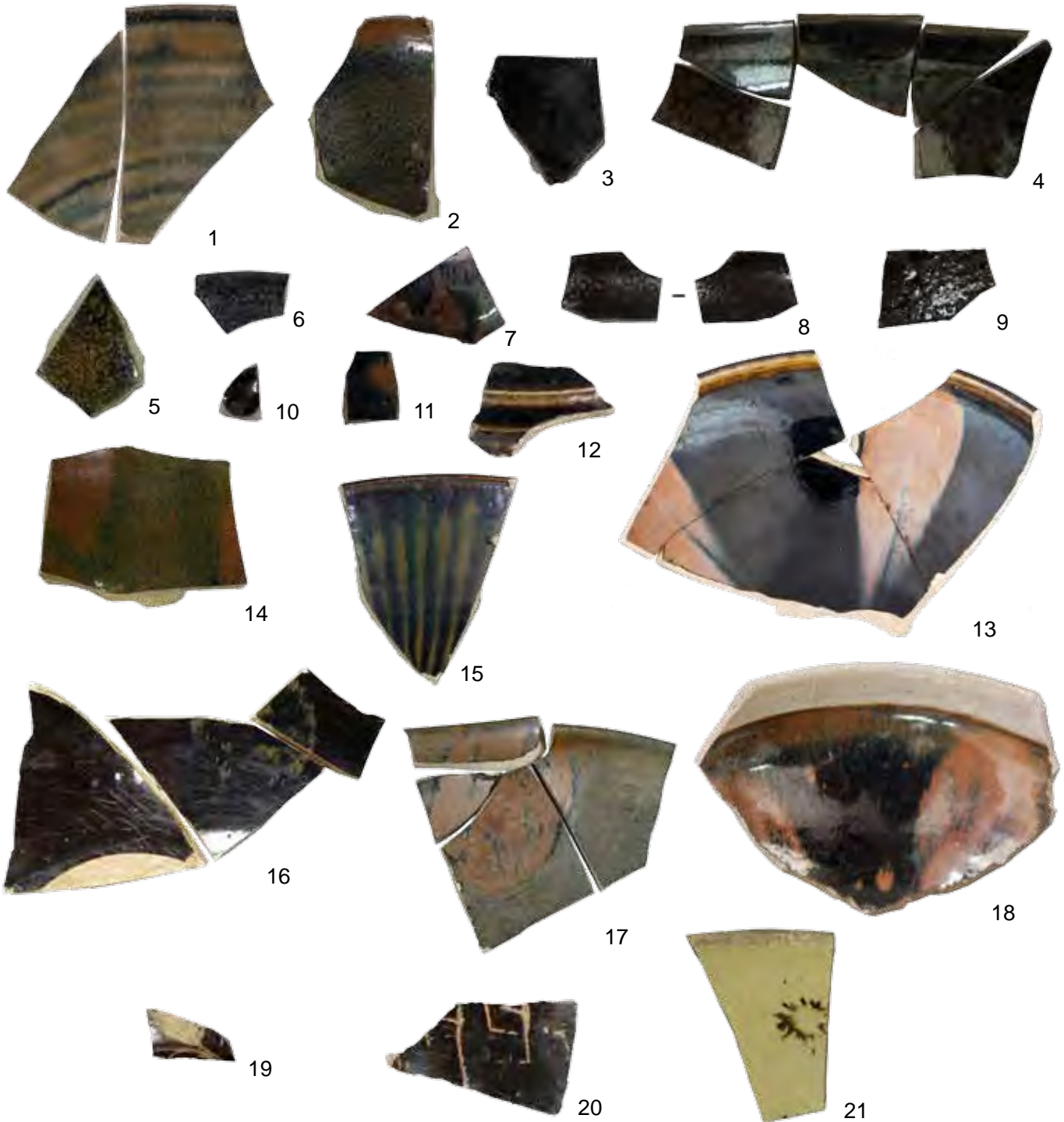
Motifs in Ware 27 (fig. 9 - 12)



- 1. Splashes (purple), ID 1176 (inside).
- 3. Serrated Pattern, ID 1822 (inside).
- 5. Floral Scroll?, ID 13279 (outside).
- 9. Lines, ID 2454 (outside).
- 11. Lines, ID 9934 (outside).

- 2. Splashes (green), ID 2657 (both sides).
- 4. Lines (curved), ID 6487 (inside).
- 6. Script?, ID 1664 (outside).
- 8. Lines (diagonal), ID 1989 (outside).
- 10. Lines, ID 4637 (outside).
- 12. Lines, ID 11674 (outside).

Motifs in Ware 28



- | | |
|---|--|
| 1. Blurred Lines (circular), ID 3003 (inside). | 2. Hare's Fur, ID 10280 (inside). |
| 3. Hare's Fur (blurred), ID 15155 (inside). | 4. Hare's Fur (big), ID 1740 (inside). |
| 5. Hare's Fur (spots), ID 8439 (inside). | 6. Hare's Fur (spotted), ID 293 (inside). |
| 7. Tortoise Shell, ID 132 (outside). | 8. Oil Spots, ID 14093 (both sides). |
| 9. Oil Spots (small), ID 1742 (inside). | 10. Irregular Spots, ID 14439 (inside). |
| 11. Irregular Splashes (medium), ID 10834 (inside). | 12. Enhancement of the Shape, ID 2250 (outside). |
| 13. Russet Streaks, ID 12468 (inside). | 14. Russet Streaks on Hare's fur, ID 2499 (inside). |
| 15. Russet Streaks (small), ID 8488 (inside). | 16. Leave Print, ID 6882 (inside). |
| 17. Leave Print on Hare's Fur, ID 14574 (inside). | 18. White Glazed Rim and Russet Streaks, ID 1076 (inside). |
| 19. Floral Scroll I, ID 1155 (outside). | 20. Script?, ID 13765 (outside). |
| 21. Unknown Flower I, ID 6701 (exception, inside). | |

Motifs in Ware 30 (fig. 1 - 2)



Motifs in Ware 32 (fig. 3)



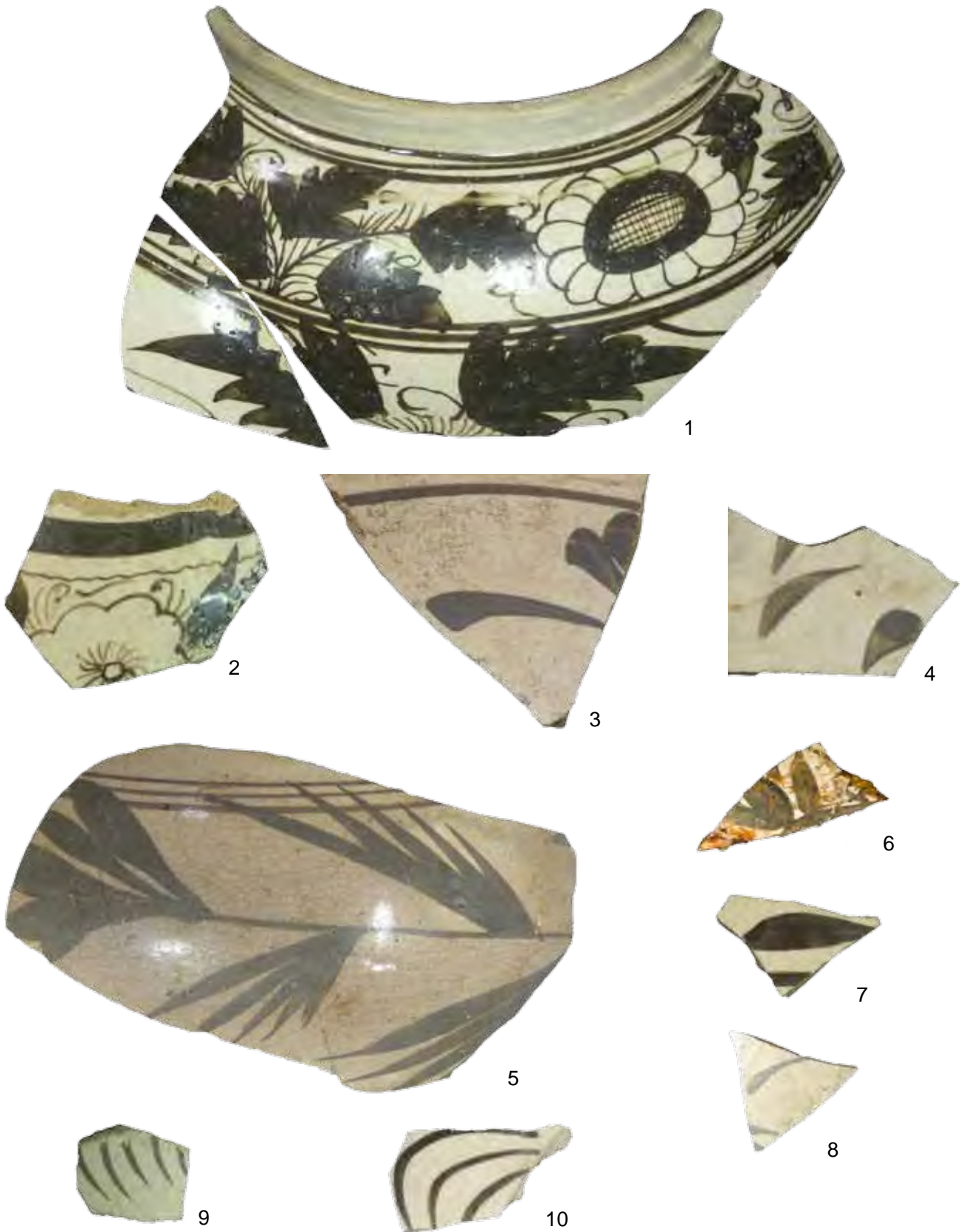
Motifs in Ware 35 - Part 1 (fig. 4 - 17)



1. Line (circular), ID 12479 (inside).
3. Floral Scroll I, ID 14678 (outside).
5. Ornamental Design I, ID 14533 (detail, outside).
7. Ornamental Design VI, ID 7844 (outside).
9. Spot Design III, ID 2198 (detail, inside).
11. Spot Design V, ID 9601 (inside).
13. Leaves Scroll I, ID 2050 (outside).
15. Spot Design I, ID 4000 (outside).
17. Chrysanthemum Scroll I (Leaves), ID 3806 (outside).

2. Lines (floral?), ID 12826 (outside).
4. Line Design I, ID 2302 (inside).
6. Ornamental Design II, ID 2130 (outside).
8. Spot Design II, ID 2189 (outside).
10. Spot Design IV, ID 6022 (inside).
12. Floral Scroll II, ID 11177 (outside).
14. Spiral Design I, ID 2376 (outside).
16. Ornamental Design III, ID 8131 (outside).

Motifs in Ware 35 - Part 2

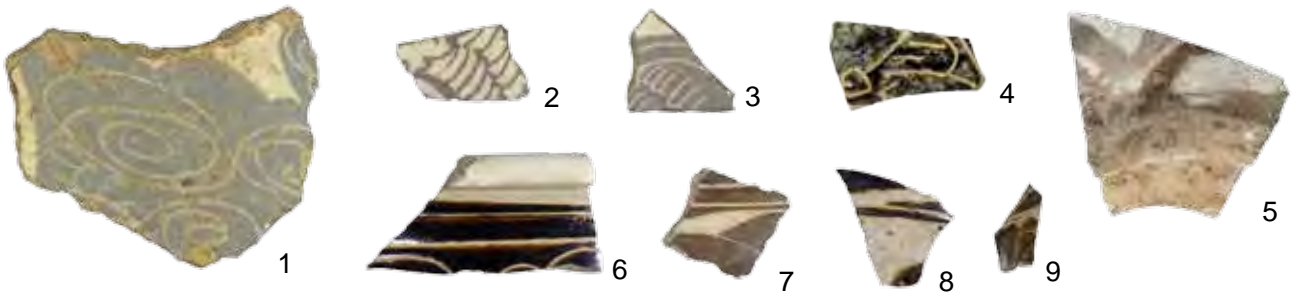


1. Chrysanthemum Scroll I, ID 2182 (outside).
3. Leaves Design I, ID 2067 (detail, outside).
5. Bamboo Scroll I, ID 14308 (outside).
7. Small Leaves I, ID 10623 (outside).
9. Slim Leaves (short), ID 346 (outside).

2. Floral Scroll I, ID 4687 (outside).
4. Leaves Design II, ID 8700 (detail, inside).
6. Bamboo Scroll II, ID 11168 (outside).
8. Small Leaves II, ID 1456 (outside).
10. Slim Leaves (long), ID 10820 (outside).

Plate 74

Motifs in Ware 35 - Part 3 (fig. 1 - 9)



Motifs in Ware 37 (fig. 10 - 16)



Motifs in Ware 38 (fig. 17 - 20)



1. Clouds I, ID 13285 (outside).
3. Figural II?, ID 12839 (outside).
5. Ornamental Design V, ID 2194 (outside).
7. Leaves Scroll II, ID 13156 (outside).
9. Floral Scroll II, ID 13621 (outside).
11. Floral Scroll II, ID 1868 (outside).
13. Floral Scroll IV, ID 1826 (outside).
15. Script (Chinese), ID 14571 (outside).
17. Floral I, ID 14912 (outside).
19. Lines, ID 4629 (outside).

2. Figural?, ID 14323 (outside).
4. Ornamental Design IV, ID 2126 (outside).
6. Lines (circular and curvy), ID 7787 (outside).
8. Leaves Scroll?, ID 4427 (outside).
10. Floral Scroll I, ID 1924 (outside).
12. Floral Scroll III, ID 11289 (outside).
14. Floral Scroll V, ID 5220 (outside).
16. Slim Leaves I, ID 15754 (outside).
18. Line (curved), ID 15882 (outside).
20. Lines, ID 5789 (outside).

Motifs in Ware 39 (fig. 1 - 3)



Motifs in Ware 40 - Part 1 (fig. 4 - 23)



1. Leaves Design (outside) and Ornamental Design I (inside), ID 2118.
3. Ornamental Design III, ID 14778 (outside).
5. Ornamental Lines II, ID 5556 (detail, inside).
7. Ornamental Lines II.II., ID 2167 (outside).
9. Ornamental Lines III.I., ID 882 (inside).
11. Ornamental Lines IV, ID 2687 (inside).
13. Ornamental Lines V, ID 14487 (inside).
15. Ornamental Lines VI, ID 6469 (outside).
17. Ornamental Design II, ID 7465 (outside).
21. Chrysanthemum?, ID 5035 (inside).

2. Ornamental Design II, ID 2129 (outside).
4. Ornamental Lines I, ID 2181 (inside).
6. Ornamental Lines II.I., ID 12997 (inside).
8. Ornamental Lines III, ID 2150 (detail, inside).
10. Ornamental Lines IV, ID 1953 (inside).
12. Ornamental Lines IV, ID 2037 (detail, inside).
14. Ornamental Lines V.I., ID 14839 (inside).
16. Ornamental Design I, ID 2164 (outside).
18. Chrysanthemum I, ID 1923 (inside).
20. Chrysanthemum III, ID 5744 (outside).
22. Lotus I, ID 5556 (inside).

Plate 76

Motifs in Ware 40 - Part 2 (fig. 1 - 17)



Motifs in Ware 41 - Part 1 (fig. 18 - 22)

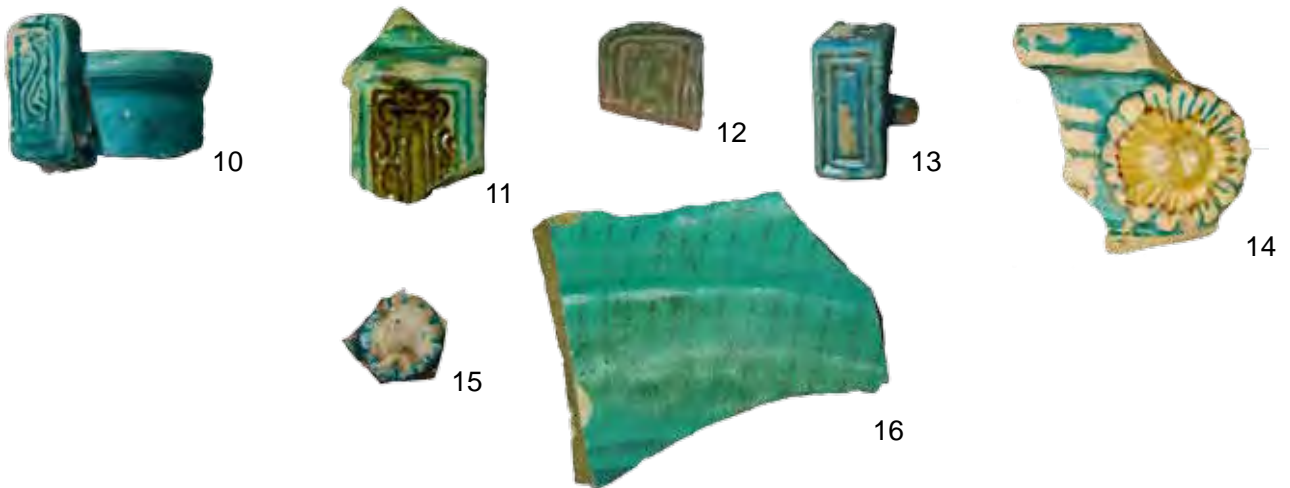


- | | |
|---|--|
| <p>1. Flower II, ID 12856 (inside).
 3. Floral Scroll I, ID 1840 (outside).
 5. Floral II, ID 14946 (inside).
 7. Floral III.I., ID 1006 (inside).
 9. Chrysanthemum Leaves, ID 1250 (inside).
 11. Small Leaves II, ID 3547 (outside).
 13. Red Leaves I, ID 2044 (inside).
 15. Fish I, ID 1813 (inside).
 17. Script (Chinese), ID 7153 (outside).</p> <p>19. Flower I, ID 1268 (inside).
 21. Flower III, ID 2122 (inside).</p> | <p>2. Flower III, ID 10458 (inside).
 4. Floral?, ID 922 (inside).
 6. Floral III, ID 6330 (inside).
 8. Floral IV, ID 11421 (inside).
 10. Small Leaves I, ID 4099 (inside).
 12. Small Leaves?, ID 15658 (outside).
 14. Red Leaves II, ID 2487 (outside).
 16. Fish II, ID 2148 (inside).
 18. Lines (circular and curved), ID 2010 (detail, outside).
 20. Flower II, ID 3726 (inside).
 22. Leaf, ID 5748 (inside).</p> |
|---|--|

Motifs in Ware 41 - Part 2 (fig. 1 - 9)



Motifs in Ware 42 (fig. 10 - 16)

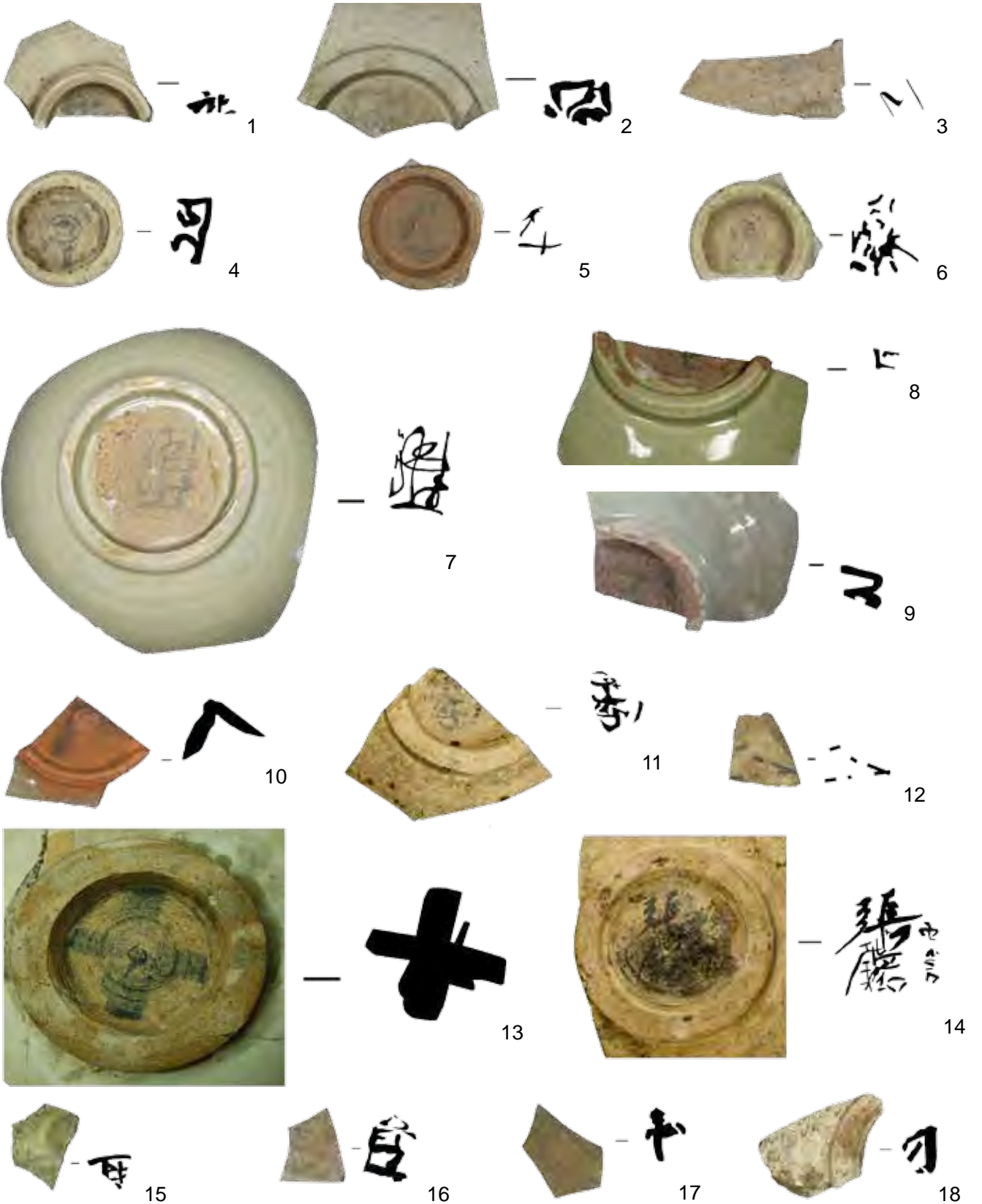


Motifs in Ware 43 (fig. 17)



- | | |
|---|--|
| 1. Peach, ID 15903 (inside). | 2. Swan, ID 2175 (inside). |
| 3. Animal Mask, ID 2099 (outside). | 4. Ornamental Design I, ID 2073 (outside). |
| 5. Floral Scroll I, ID 1846 (outside). | 6. Bird, ID 2021 (outside). |
| 7. Cow, ID 1196 (outside). | 8. Dragon I, ID 1858 (outside). |
| 9. Dragon II, ID 3641 (outside). | 10. Ornamental Design I, ID 1208 (outside). |
| 11. Ornamental Design II, ID 1194 (outside). | 12. Ornamental Design III, ID 14603 (outside). |
| 13. Rectangles, ID 1236 (outside). | 14. Chrysanthemum I, ID 1844 (outside). |
| 15. Chrysanthemum I (small), ID 1193 (outside). | 16. Black Lines, ID 1220 (exception, inside). |
| 17. Chrysanthemum I, ID 14585 (outside). | |

Marks - Part 1

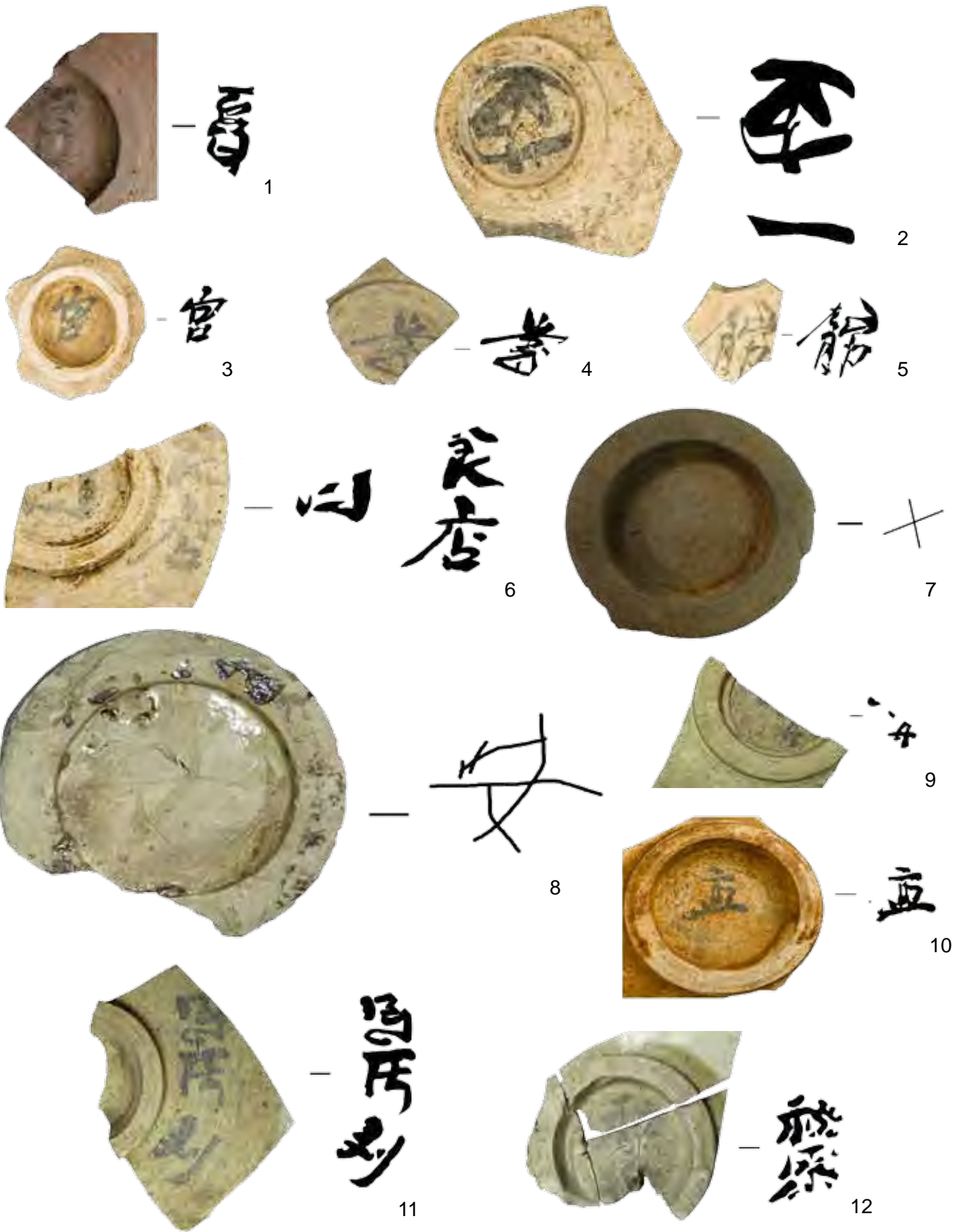


- 1. ID 5359, Ware 2.
- 4. ID 1258, Ware 4.
- 7. ID 1257, Ware 5.
- 10. ID 4067, Ware 5.
- 13. ID 1226, Ware 11.
- 16. ID 1275, Ware 11.

- 2. ID 1815, Ware 3.
- 5. ID 6398, Ware 4.
- 11. ID 6353, Ware 9.
- 14. ID 2154, Ware 11.
- 17. ID 2378, Ware 11.

- 3. ID 1629, Ware 3.
- 6. ID 14497, Ware 4.
- 9. ID 2142, Ware 5.
- 12. ID 9446, Ware 9.
- 15. ID 892, Ware 11.
- 18. ID 4073, Ware 11.

Marks - Part 2



1. ID 148, Ware 11.

4. ID 1265, Ware 11.

7. ID 1388, carved, Ware 11.

10. ID 1860, Ware 11.

2. ID 1251, Ware 11.

5. ID 1270, Ware 11.

8. ID 1393, carved, Ware 11.

11. ID 1904, Ware 11.

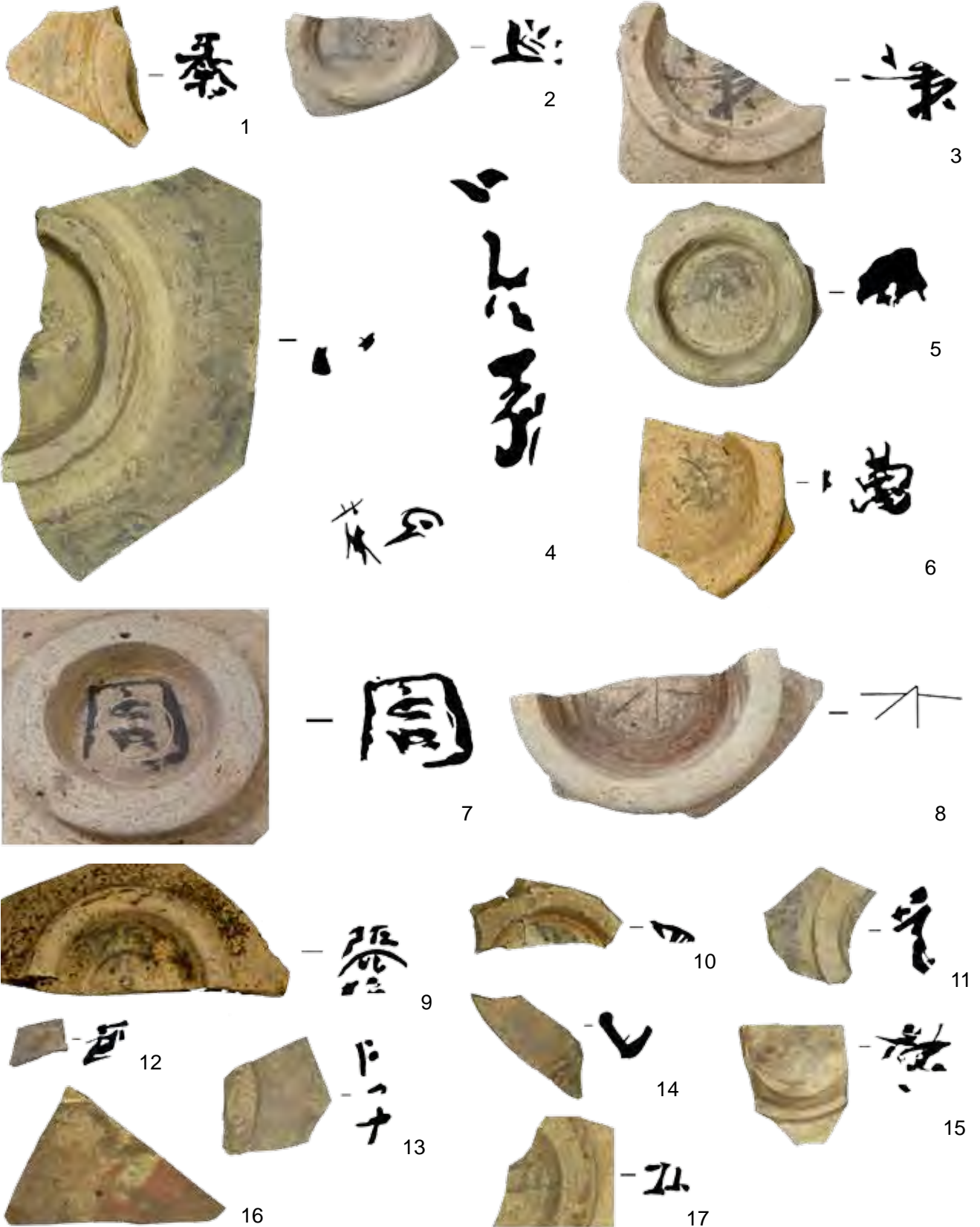
3. ID 1263, Ware 11.

6. ID 1274, Ware 11.

9. ID 1853, Ware 11.

12. ID 1936, Ware 11.

Marks - Part 3



1. ID 1943, Ware 11.
 4. ID 2001, Ware 11.
 7. ID 2173, Ware 11.
 10. ID 4321, Ware 11.
 13. ID 5742, Ware 11.
 16. ID 8124, red splash, Ware 11.

2. ID 1973, Ware 11.
 5. ID 2058, Ware 11.
 8. ID 2178, carved, Ware 11.
 11. ID 4511, Ware 11.
 14. ID 5877, Ware 11.
 17. ID 8156, Ware 11.

3. ID 1975, Ware 11.
 6. ID 2153, Ware 11.
 9. ID 3530, Ware 11.
 12. ID 5671, Ware 11.
 15. ID 6601, Ware 11.

Marks - Part 4



- 1. ID 9139, Ware 11.
- 4. ID 11518, Ware 11.
- 7. ID 13286, Ware 11.
- 10. ID 14876, Ware 11.
- 13. ID 1002, Ware 20.
- 16. ID 8416, Ware 20.
- 19. ID 1831, Ware 20.

- 2. ID 10320, Ware 11.
- 5. ID 13125, Ware 11.
- 8. ID 13723, Ware 11.
- 11. ID 1261, Ware 16.
- 14. ID 1882, Ware 20.
- 17. ID 1192, Ware 20.
- 20. ID 1851, Ware 20.

- 3. ID 11103, Ware 11.
- 6. ID 13129, Ware 11.
- 9. ID 14388, Ware 11.
- 12. ID 4235, Ware 16.
- 15. ID 4566, Ware 20.
- 18. ID 1262, Ware 20.
- 21. ID 1863, Ware 20.

Marks - Part 5



1



2



3



4



5



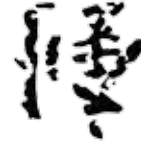
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7



8



9



10



11



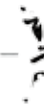
12



13



14



15



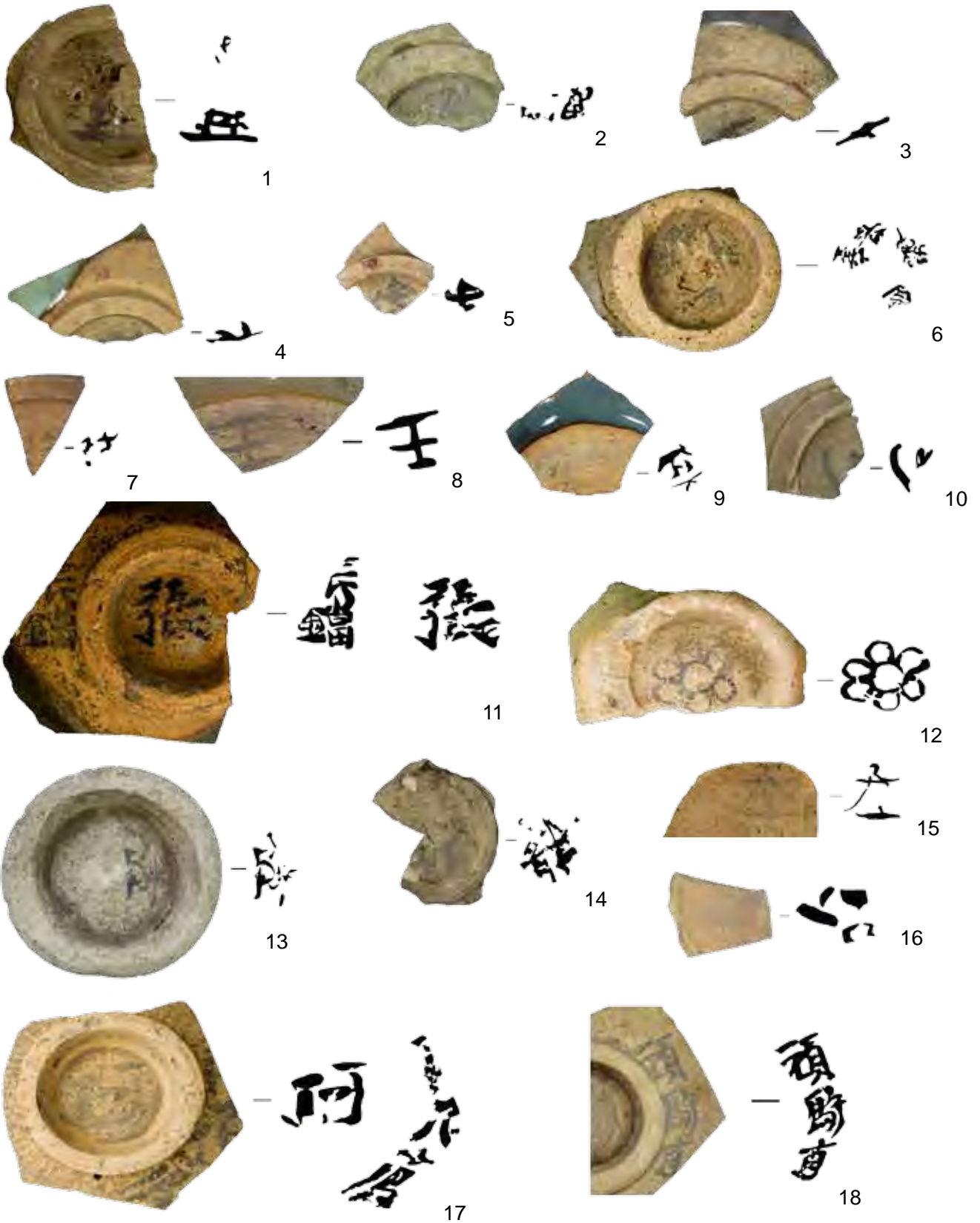
16

- 1. ID 1267, Ware 20.
- 4. ID 1810, Ware 20.
- 7. ID 1972, Ware 20.
- 10. ID 2171, Ware 20.
- 13. ID 4133, Ware 20.
- 16. ID 4538, Ware 20.

- 2. ID 1272 + ID 1279, Ware 20.
- 5. ID 1871, Ware 20.
- 6. ID 1967, Ware 20.
- 8. ID 2007, Ware 20.
- 11. ID 2825, Ware 20.
- 14. ID 4065, Ware 20.

- 3. ID 1278, Ware 20.
- 9. ID 2159, Ware 20.
- 12. ID 3974, Ware 20.
- 15. ID 4074, Ware 20.

Marks - Part 6

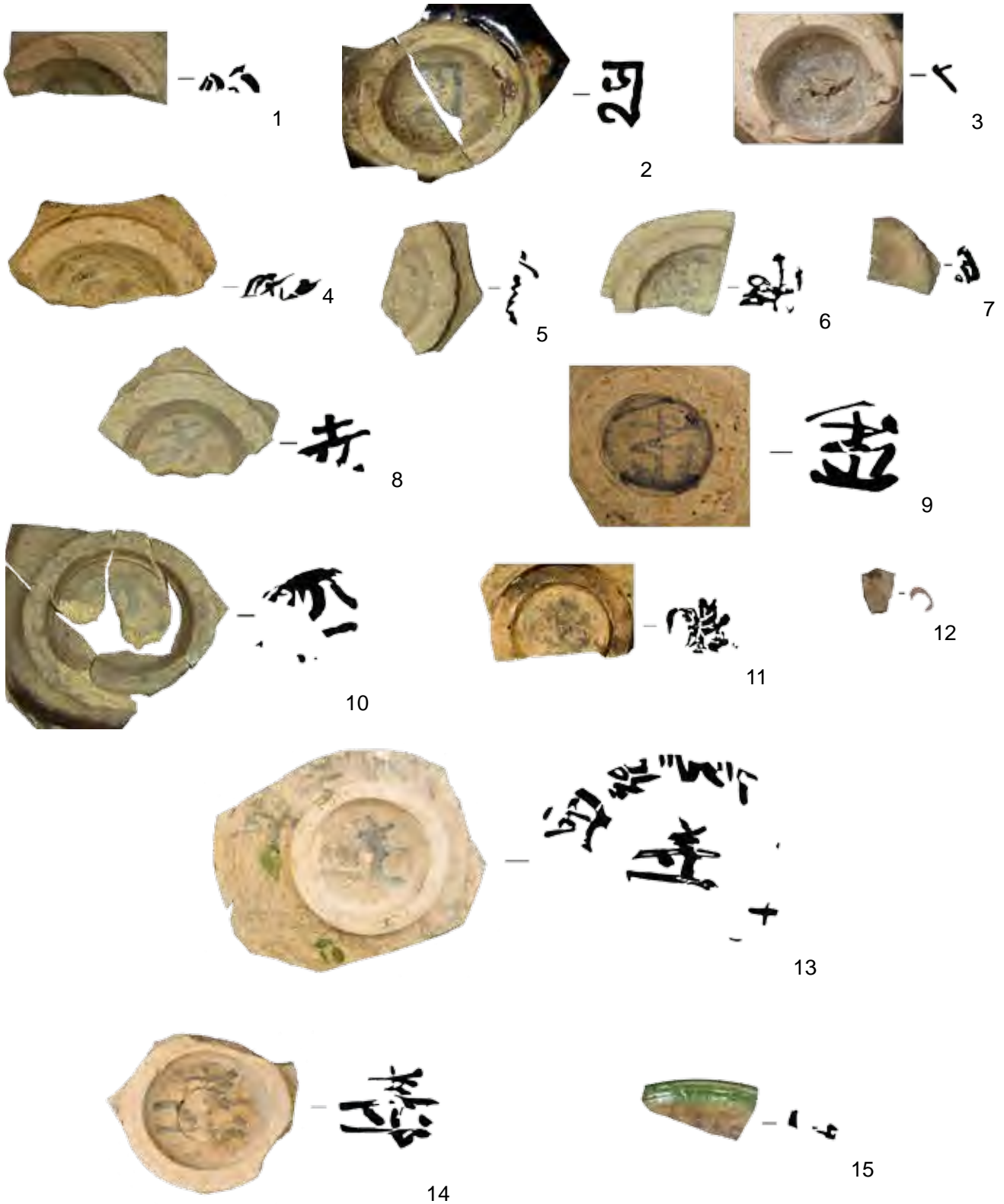


- 1. ID 5223, Ware 20.
- 4. ID 8479, Ware 20.
- 7. ID 15601, Ware 20.
- 10. ID 6139, Ware 20.
- 13. ID 2149, Ware 20.
- 16. ID 4183, Ware 23.

- 2. ID 5715, Ware 20.
- 5. ID 14305, Ware 20.
- 8. ID 1260, Ware 20.
- 11. ID 1228, Ware 20.
- 14. ID 1280, Ware 22.
- 17. ID 15143, Ware 23.

- 3. ID 7286, Ware 20.
- 6. ID 15144, Ware 20.
- 9. ID 4072, Ware 20.
- 12. ID 2108, Ware 20.
- 15. ID 1850, Ware 23.
- 18. ID 1259, Ware 23.

Marks - Part 7



- 1. ID 207, Ware 28.
- 4. ID 1907, Ware 28.
- 7. ID 13360, Ware 28.
- 10. ID 4686, Ware 35.
- 13. ID 1268, Ware 41.

- 2. ID 1281, Ware 28.
- 5. ID 1942, Ware 28.
- 8. ID 14522, Ware 28.
- 11. ID 5556, Ware 40.
- 14. ID 15903, Ware 41.

- 3. ID 1865, Ware 28.
- 6. ID 4229, Ware 28.
- 9. ID 1862, Ware 28.
- 12. ID 10736, red, Ware 40.
- 15. ID 3555, Ware 41.