

ROMAN GLASSWARE FROM KOREAN PENINSULA: SILLA, GAYA, BAEKJE FROM FOURTH TO SIXTH CENTURY AD MYTH OR REALITY* (I)

Bartłomiej Szymon SZMONIEWSKI**

Cuvinte-cheie: sticlă, obiecte din sticlă romane, Drumul Mătăsii, Coreea, Cele Trei Regate, Orientul îndepărtat.

Keywords: Glass, Roman glassware, Silk Road, Korea, Three Kingdoms, Far East.

Rezumat: În prima parte a acestui articol autorul prezintă descoperirea vaselor de sticlă de factură occidentală din perioada Celor Trei Regate din peninsula coreeană. Astfel de vase de sticlă au fost descoperite printre obiectele funerare din mormintele nobiliare din timpul Regatului Silla, dar sunt răspândite și în cele din Confederația Gaya. Mai multe fragmente de obiecte din sticlă au mai fost descoperite și într-un complex de temple budiste de pe teritoriul Regatului Baekje. Producția de sticlă nu a fost cercetată în delalieu de arheologii care studiază relațiile dintre Vest și Est de-a lungul Drumului Mătăsii. Un număr considerabil de descoperiri de obiecte de sticlă relaționate cu atelierele romane reprezintă o dovadă că unele rute de pe Drumul Mătăsii se întindeau mult mai departe decât se credea anterior – până în Coreea și chiar până în Japonia. Dacă această participare are un caracter activ sau pasiv rămâne o întrebare fără răspuns. O analiză sistematică a stilului obiectelor din sticlă a stabilit existența unei puternice legături cu atelierele de sticlă Siro-Palestiniene, iar analogii între vasele din sticlă au fost descoperite de-a lungul coastei de nord a Mării Negre, chiar și în Renania. Surprinzător, analiza lor chimică a arătat că compoziția chimică a unor vase (provenite din movila nr. 98 Hwangnamdaechong – mormântul din Sud) este asemănătoare cu cele ale vaselor sasanide și din Asia Centrală. Acest fapt este cu atât mai surprinzător cu cât forma vaselor menționate nu are nicio legătură cu forma vaselor sasanide, ci se aseamănă cu cele romane târzii. În multe alte cazuri, analiza chimică și forma vaselor sugerează proveniența romană. Restul obiectelor sunt cel mai probabil produse de imitație romană din Asia Centrală.

** Bartłomiej Szymon SZMONIEWSKI: Institute of Archeology and Ethnology, Polish Academy of Sciences, Kraków, Poland and Sōka University, Tokyo, Japan; e-mail: bartheque@yahoo.fr.

În perioada celor Trei Regate Coreene se disting trei orizonturi cronologice în ceea ce privește vasele din sticlă: 1 – perioada începe din al doilea sfert al secolului IV p.Chr.; 2 – orizontul acesta acoperă secolul V și prima jumătate a secolului VI; 3 – acest orizont reprezintă perioada de după prima jumătate a secolului VI. Cele mai numeroase exemplare de sticlă se regăsesc în al doilea orizont, descoperite mai ales în Gyeongju unde se află bogatele morminte ale regilor din Silla. Importuri de vase din sticlă pe teritoriile celor Trei Regate, cu precădere în Silla și Gaya, pot fi relaționate cu dinastia nomadă conducătoare din nordul Chinei, mai precis cu triburile Xienbei, ale căror morminte conțin de asemenea obiecte din sticlă.

Abstract: *In the first part of the article, I discuss finds of western origin glass vessels from the Three Kingdoms on the Korean Peninsula. Such glassware has been discovered among the grave goods of the elites of the Kingdom of Silla, and, to the lesser extent, in those of the Gaya Confederation. Several fragments of glassware have also been discovered within the Buddhist temple complex in the territory of Baekje. Glass products have seldom been in the focus of archaeologists researching the issue of relations between the West and the East along the Silk Road. A considerably big number of such finds of glassware related with the Roman glassmaking is a proof that some routes of the Silk Road extended farther than previously thought- to Korea and even to Japan. It is still an open question, though, if this participation had an active or passive character. A systematic stylistic analysis of glassware, has established that strong links to the Syrian-Palestinian glassmaking existed, and that analogical vessels have also been discovered along the northern coasts of the Black Sea, as well as in Rhineland. Their chemical analyses, surprisingly, have shown that the chemical composition of a part of the vessels (coming from the mound no. 98 Hwangnamdaechong - Southern grave) resembles the Sasanian and Central Asian compositions. This fact is even more astonishing as shapes of the vessels mentioned are not related to Sasanian forms but to those from the Late Roman workshops. In several other cases, chemical analyses as well as the formal resemblance, both suggest Roman provenance. The rest of specimens, with a high probability, are Roman imitations produced in Central Asia.*

Three chronological horizons with glass vessels can be distinguished within the Period of the Three Kingdoms of Korea: 1 - the period starting from the second quarter of the fourth century AD; 2 - the horizon covering the fifth and the first half of the sixth century; 3 - the horizon representing the period after the half of the sixth century. Most numerous, glassware was represented in the second of the horizons, prevailing in the rich burials attributed to the rulers of Silla in Gyeongju. Imports of glass vessels to the territories of the Three Kingdoms, Silla and Gaya above all, should be connected with the nomadic ruling dynasties of Northern China, i.e. with the Xianbei tribes, whose burials also contain glassware.

1. Introduction

The field of archaeological research which concentrates on the aspects of imported glass artefacts found along the Silk Road has been the concern of many scholars, among them historians as well as archaeologists. As it can be seen in a

whole range of new publications, it is still being lively discussed¹. In most of these works, however, the analyses have been focusing on glass products found within the boundaries of China, as this land was one of the most important participants of the trade and cultural network of the Silk Road. In my opinion, however, the net of the trade routes covering the Eurasian continent was more complex, extending further than China and including also the Japanese archipelago and the Korean Peninsula as hubs of trade. Admitting that the role of political bodies connected by the net of routes should be distinguished into *active* and *passive* state entities, I am trying here to underpin the fact that the import of goods was reaching as far as Honshū Island. As the mainstream works on this issue have still marginalized the discoveries of glass artefacts in Korea and in Japan, they are also omitting the fact that it is in Korea, within the territory of the ancient Kingdom of Silla, that the very rich and important deposit of glass vessels has been found, and the most numerous one as far as East Asia is concerned. One glass vessel and one fragment of a blue knob have been documented also for the territory of the confederacy of Gaya², Silla's neighbour; moreover, some other fragments have recently been discovered in Baekje; all of these statelets were located in the Korean Peninsula.

In recent time, several works by Korean researchers have been published referring to this issue, especially by Insook Lee³ and Chun Soo Park⁴; on the other hand, some recent research on ancient glass similar objects found within the Eastern Mediterranean and the Black Sea, as well in Sasanian and Central Asian areas is prompting a new perspective on the archaeological analyses of this phenomenon. In a recent work on the subject of Gyeongju: *The Capital of Golden Silla* by Sarah Milledge Nelson⁵ the following statement can be found: *Glass bowls and pitchers have not yet been found in Baekje or Gaya graves*, which, taking all finds of glass vessels there into account, is distorting the picture of the current state of science about their widespread throughout the Korean Peninsula; moreover, this approach selectively accentuates too much the importance of one state entity there – Silla, only mentioning other formations: *...the close relationship of the Silla leadership to the leaders in the North-East*. A new look at finds of glassware will allow for a fresh perspective on the issue of their origins, as well as for a broader and more exact sketching of the scale of the far-reaching trade contacts by the end of Antiquity and in the beginnings of the Early Medieval Period in Eurasia.

2. An outline history of Silla (1), Baekje (2) and Gaya (3) (Fig. 1)

2.1. Silla

Native historical sources referring to the history of Silla and covering the period 57 BC to 935 AD were written in the Goryeo epoch (918-1392), thus, written already after its fall. These text sources are: Samguk yusa (Memorabilia of

¹ Literature review on glass along Silk Road see: ŻUCHOWSKA & SZMONIEWSKI 2017. See also PARK 2016.

² In text I transcribe Korean words using the Revised Romanization of Korean system.

³ LEE 2001; 2010; 2013; 2016.

⁴ PARK 2016.

⁵ NELSON 2017, p. 73.

the Three Kingdoms) and Samguk sagi (History of the Three Kingdoms)⁶. Mythological beginnings were colourfully and vividly described in Samguk yusa, a collection of legends, historical facts and folk-tales, including the saga about the origin of Hyeokgeose, the Silla's dynasty founder. He was said to be hatched or born from a huge, red or blue egg laid on a flat/polished stone, his birth being accompanied by a lightning, thunder and rainbow. This whole scene was crowned by a white horse kneeling before the egg placed next to the well NA under the mountain Yang as its scenery. At the age of thirteen, Hyeokgeose was said to be crowned together with the princess Alyoung and, already as a renowned leader of the Bak-klan (Pak), he founded the kingdom of Saro-guk comprising six clans and six villages. His rule extended over sixty two years and finished with his ascension to heaven⁷. Leaving this colourful founding myth where it belongs, the origin of Silla dynasty is generally derived from the Jinhan confederacy. With a high probability gained mostly on the ground of the analysis of sources written in Chinese and on the record of the Samguk saga on the other hand, a part of scholars consider its origins as the result of the contribution of the refugees from the state of Qin who settled in southeast Korea in the territory of Jinhan, which is situated south of Manhan⁸. Furthermore, they are considered by scholars to have brought metalworking skills with them, as well as the civilizational achievement of organizing themselves into political entities⁹.

Recently, the view has been represented accentuating the role of Xiongnu in the state-building processes; however, these processes, analogically to the historical events in Baekje, may have taken place in the fourth century AD, which is significantly later than these described for Goguryeo, a cultural center localized in North Korea¹⁰. The warfare with Goguryeo, ending with Silla's invasion and its taking control over its adversary, did not influence the process of its consolidation, which gained acceleration considerably during the reign of Naemul, the king from the clan of Kim (356-402 AD). In the fourth century AD, territories east from the Nakdong River were submitted, and the focus of Silla's expansion changed its direction to its other neighbour, Gaya, instead¹¹. The name Silla as a synonym of a state entity or confederacy was first in the popular use as early as Jijeung's reign (500-513 AD); its former name, Saro, defined the region, the state entity and the capital as the seat of its rulers at the same time. It was probably an abbreviation of the word Sonabol or Sorabo, meaning 'ox plain' as the dynasty's *locus originis*¹².

In the beginning of the sixth century, reforms in the Chinese style had been

⁶ Samguk yusa was written by a Buddhist monk Iryeon (1206-1289) and Samguk sagi is a compilation by Kim Busik (1075-1151). See JUNG 2012.

⁷ Jinhan confederacy, next to Mahan and Byeonhan in the historical period of Proto-Three Kingdoms of Korea (known also as Samhan) was one of the political formations in the central and southern part of the Korean Peninsula. It consisted of 12 member-state entities, and the chief of one of these entities was Saro-guk, later called Silla. See: YI 2009.

⁸ KIM 2014, p. 175.

⁹ BARNES 2001, p. 41.

¹⁰ RIOTTO 2009, p. 5-35.

¹¹ NELSON 1993, p. 243.

¹² BARNES 2001, p. 40.

introduced and in the middle of this century, a new capital was erected, having the Chinese Chang'an as a model, and founded not far from the previous fortified center¹³. In the year 527/528 or 535 AD¹⁴, Buddhism became the official state religion, and although it had been known in Silla as early as fifth century, the ranks of its supporters had been limited to the narrow circles of aristocracy. Starting from the beginning of the sixth century, the victims of Silla's forwarded expansion became such state entities as Bon-Gaya (532 AD)¹⁵ then Daegaya, and as next the settlements within the basin of the river Han. From the end of the sixth century and the beginning of the seventh century, Silla engaged in the war against its eastern neighbour Baekje supported by Yamato-dynasty from the Japanese Isles, defeated in 660 AD thanks to the alliance with the emperor from the Tang dynasty. In the year 668 AD, the kingdom of Goguryeo in the northern part of the Korean Peninsula fell; it which had been the last obstacle in the way of consolidation under the auspices of Silla, its rule now reaching as far as the river Taedong¹⁶ until 935 AD. The Silla's supremacy epoch can be divided into two main phases: Old Silla, lasting from the rising of the clan in 57 BC until 676 AD, and the second phase, the period of Unified Silla, which took place from 676 to 935 AD. More detailed division has been applied, dividing Silla's reign into the Early (57 BC-654 AD), the Middle (654-780 AD) and the Late (780-935 AD) periods¹⁷. The imports of the western glass vessels have been ascribed to Old Silla or Early phase.

2.2 *Baekje*

Baekje was another state entity localized in the south-western part of the Korean Peninsula. Similarly as in the case of Silla and Gaya, its beginnings are uncertain. Some researchers date them in the first century BC which is said to be proved by the remnants of settlements and traces of iron-working activities discovered by the river Han. Others associate the rising of this entity with the political reforms of the king Goi (234-285), or, more probably, with the king Geunchogo (346-375), when the Chinese script and vocabulary were introduced to give rise to the local bureaucracy. It is an indisputable fact, though, that Baekje originated from Mahan, a confederation of states, as it is described in *Samguk sagi*¹⁸.

The origin of Baekje's ruling dynasty is associated with the migration of one of the tribes, probably Buyeo, considered its rulers' ancestors from the North. After the loss of the capital in Hanseong (today- a district of Seoul) and regions by the river Han to Goguryeo in 475, the center of the state shifts south. The new capital is founded in Ungjin (present-day Gongju), and as next, in Sabi (modern day Buyeo County) in the Geum River region. The direction of the territorial expansion was forwarded to territories by the river Yeongsan, and later to the

¹³ BARNES 2001, p. 42.

¹⁴ KOUDELA & YOO 2014, p. 7.

¹⁵ Also known as Geumgwan Gaya.

¹⁶ In North Korea.

¹⁷ LEE & LEIDY 2013, p. 3.

¹⁸ YI 2009, p. 23-28.

regions in the basin of the Soemjin River, which were in focus of interest and under the influence of Daegaya. The latter were conquered in the year 512 by the king Muryeong with the support of the state Yamato (from the Japanese archipelago).

The conquest of these regions with a high level of technological development stimulated the growth of Baekje. The intensified interest in the east direction in the sixth century resulted in the cooling off the friendly relations with Silla, which, having being its close ally, mainly during the fifth century, had supported Baekje against Goguryeo. In the struggles for domination over the regions by the river Han and over the territories of Gaya confederation, Silla gained the upper hand occupying the first in 554, and the latter in 562. In the sixth century, there was a renewed intensification of the warfare with Goguryeo, struggles allied only once by Silla in the middle of the sixth century; this was also the last instance of Silla's military help. During this century, the contacts with Chinese dynasties intensified greatly. This resulted in strong Chinese influences on Baekje, in its politics as well as in culture- for example, Chinese titles were given to rulers and other important positions within the state body, in its economy, Chinese influences strengthened- products, crafts and techniques were imported from the Heartland. Any attempts to involve the Sui dynasty in the war with the northern neighbour did not bring the desired results. However, Tang, the new Chinese ruling dynasty, did not show much interest at first in the conflict between three kingdoms, moreover, they tried to convince Baekje and Silla to bring about some neutrality in the relations with Goguryeo. In the years to follow, with the growing stabilization within the Tang Imperium, this relation changed, and in the effect, a coalition with Silla against Baekje and Goguryeo came into life. In the result, Baekje fell in the year 660 and Goguryeo – in 668¹⁹. In the history of Baekje, three chronological stadia can be distinguished: Hansong Period (trad. 18 BC to 475 AD), Ungjin Period (475-538) and Sabi Period (538-660)²⁰. The fragments of glass vessels found by archeologists are dated in the Sabi Period²¹.

2.3 Gaya

Gaya is the name for the confederacy consisting of six smaller state entities constituting a kind of a tribal union, which had not been completely unified to form one homogenous political body, as it was the case of the neighbouring entities Silla or Baekje. Gaya's beginnings are being originated from the confederation Byeonhan, and the year 42 AD is considered to be the year of its foundation²². Until now, no agreement has been reached among scientists on the periodization of the confederation's development. Some researchers represent the view that the first alliance of six Gayas existed as early as the end of the second century; they concentrated around Daegaya in Goryeong, and after the first half of the third century, another alliance of six Gayas was created with its core in Bon-Gaya (Geumgwan Gaya) Gimhae. According to same new and more probable

¹⁹ JUNG 2015; BARNES 2001, p. 32-36.

²⁰ KWON 2008, p. 68, Tabl. 1.

²¹ KOH *et al.* 2012, p. 4173.

²² BARNES 2001, p. 37; KIM 2012, p. 20-26.

approach, though, the Gaya confederation existed in the third and fourth centuries, and in the fifth and sixth century, two entities were dominant: the Lower and the Upper confederations, localized around Daegaya and Bon-Gaya²³.

The history of Gaya was marked with constant military struggles with its neighbours who set their eyes on these attractive regions rich in mineral resources, of strong trade traditions and highly developed technologies. Relations with Yamato (Wa) have not yet been historically elucidated- above all, in the context of a remark from *Nihon Shoki* (The Chronicles of Japan) chronicles mentioning the existence of headquarters of the Yamato government (Mimana Nihonfu) in Minama (Imna) localized in Gaya in the fourth century. Historians still cannot agree on an interpretation of this information, according to which, some see in it a Japanese colony in the southern extremity of the Korean Peninsula lasting from the fourth to the seventh century, while others explain it as a region from which a colonization process started from the Peninsula to the Isles²⁴. More recently, the probable duration of the entity is limited to the sixth century, and its role is understood more in categories of a military or diplomatic office than as a center of political administration²⁵. Gaya's duration is generally divided into two periods: Early Gaya (first to fourth centuries) and Late Gaya (fifth and sixth centuries)²⁶. Suggestions regarding a more detailed chronological division are based, above all, on the analysis of the particular elements included in grave goods found up to this date²⁷.

3. Localization of finds of glass artefacts (Fig. 2).

3.1. *Silla*

The most numerous and diversified collection of glass vessels has been discovered in burials interpreted by most researchers as royal graves, or graves of elites and concentrated in Gyeongju Basin. Gyeongju is said to be founded by the mythical king mentioned before by the name of Hyeokgeose, hatched from an egg, in the year 57 BC in the region Jinhan, known at first as a village Saro. As a central trade hub first, and then as a capital, Silla functioned until its fall in the year 935 AD²⁸. Its golden age starts in with the rule of king Naemul around the second half of the sixth century and was related with Silla's growth as a strong confederation state.

Another very important urbanistic change took place in the sixth, but more probably in the late seventh century, as the town taking example of the Chinese Tang dynasty's capital Chang'an: a grid pattern (fang system) was laid²⁹. Leaving these architectural details aside, more attention should be drawn here to barrows, since it is in them that some glass artefacts have been found. These earthen hills with stone mounds take a prominent position in the modern urban landscape.

²³ MOON 2012, p. 71.

²⁴ See discussion BARNES 2001, p. 38.

²⁵ MOON 2012, p. 77.

²⁶ BARNES 2001, p. 40.

²⁷ MOON 2012, p. 72.

²⁸ RHI 2013.

²⁹ RHI 2013, p. 16.

Within the basin of the river Gyeongju, there are more than 1800 such *hills*, among which about 150 of them consist a group of large barrows. The barrows belonging to the group are interpreted as burials of kings and members of royal families. Twenty-six barrows from the group have diameters more than 35 meters. The royal burial grounds of Silla are characterized by the specific type of construction of the graves- they are stone-mounted tombs with underground wooden burial chamber covered with piles of stone and earth (called *Jeokseok Mokgwak Bun*)³⁰ associated with the steppe traditions, and especially with the barrows of Altay³¹. The characteristics of the grave goods, and especially the abundance of gold objects are believed to reflect the tradition of the steppe which is said to having been implanted among the elites of Silla through the agency of Goguryeo where local elites were very keen in imitating nomadic standards and fashion.³² Glass vessels were deposited as grave offerings in the barrows identified as the burials of the Kim clan.³³

The most numerous and most diversified collection of glass vessels has been found in the largest barrow in Gyeongju: Hwangnamdaechong (North and South, No. 98) (**Fig. 3**). The burial consisted of two connected barrows with the diameter of 50 meters each, and with the combined length of 120 meters at the height of about 23 m. Two burials were found there - the northern and the southern ones. The reconstructed wooden burial chamber was about 6.8 m long (E-W) and 4.6 m wide (N-S), and it was 4 m high. It contained a lacquered coffin encased in an outer coffin and the treasure chest at the eastern end of the chamber. In the opposite to the northern one identified as a single pit, the southern mound is a multi-type pit. In the main pit of the northern barrow, there was a coffin and a chest surrounded by a low stone platform. Among the grave goods found in both graves, about 58.191 artefacts have been documented; apart from glass vessels, there were gold, silver and gilt bronze accessories and horse riding equipment, curved jadeite (comma-shaped) beads weapons, iron ingots, iron implements and silk textiles³⁴. The combined weight of all gold artefacts from the southern burial was 4 kg. The glass vessels in both burials were placed in the chests, among other precious objects³⁵. A detailed analysis allowed for determining the age of the southern burial as slightly younger. It is interpreted the burial of Nulji, the king who died in the year 458³⁶. The kind of finds from the northern part point to a female burial, most probably of a queen³⁷.

Two glass vessels: a beaker and fragment of the foot and small fragment of the rim (both probably from the same footed beaker) have been excavated also in the mound No. 155, called *The tomb of the Heavenly Horse* because of the find of birch mudguards with a painted heavenly horse. The barrow had the diameter of

³⁰ LEE 2016, p. 55.

³¹ LEE & LEIDY 2013, p. 7, 8 see also HAYASHI 2013.

³² LEE & LEIDY 2013, p. 8.

³³ BARNES 2001, p. 215, Table 8.4.

³⁴ KIM 1983, p. 44; PARK 2008, p. 126; JANG & KWON 2012.

³⁵ KIM 1983, p. 41-45.

³⁶ PARK 2008, p. 125, Fig. 9 and 10.

³⁷ KIM 2016.

47 m, and its remaining height is 12.7 m; as such, it is included in the group of middle-sized barrows. The wooden burial chamber was 6.6 m long (E-W), 4.2 m wide (N-S) and about 2 m high. Inside the chamber, there was a lacquered wooden coffin surrounded by a low platform built of small pebbles; a chest with grave goods was placed at its eastern wall. The reconstructed parameters of the chest were 1 m wide x 1.8 m long x 0.8 m high. In the chest, next to mudguards and other glass vessels, diverse valuable objects have been found, e.g. seven bird-shaped wine cups, czy tez twenty-four pieces of ox-horn. The grave is interpreted as a possible burial of Jijeung - the king who died in the year 513/514³⁸.

Other vessels have been found in the closest neighbourhood of the barrows No. 98³⁹ and 155⁴⁰, in barrows No. 127⁴¹, 128⁴² and 129⁴³ in Hwangnam-dong⁴⁴, as well as 400 m east in the grave Ga-13 in Wolseong-no cemetery in Hwang-o-dong in the center of Gyeongju⁴⁵. As it was mentioned above, these graves, in regard to their form, should be included to typical royal funeral features of Silla, called *jeokseok mokgwak bun* which designates mounded tombs with underground wooden chamber covered with piles of stones and earth. In the case of the grave No. 4 from the cemetery in Angye-ri in Wolsong, although by some of researchers it is included to the same category of burials, an objection should be made that it has nothing to do with royal burials despite its general structure⁴⁶.

In the case of finds of two glass vessels published in the monography *Silk Road and Silla, the Road of Glass (Silkeulodeuwa Silla – yuriui gil*, 2015) as objects found in barrows in the cemetery of Geumcheok-ri⁴⁷, I have not been able to reach to any information about the context of their discovery. The cemetery is localized in a peripheral area of Gyeongju; constructed as a cluster of wooden chamber tombs covered with stones and earthen mound⁴⁸, it is ascribed to a clan from a village Daesu⁴⁹.

3.2. Gaya

A fragment of a knob of a cobalt-blue colour has been found in the burial No. 91 which represents the type of the wooden burial chamber in the cemetery in Daesung-dong, in the town of Gimhae (South Gyeongsang Province); it is interpreted as a burial ground for kings and elites of Bon-Gaya (Geumgwan Gaya)⁵⁰. The outer parameters of the grave were 8.20 x 4.80 m, and those of the wooden chamber were 6.50 x 2.80 m. The grave goods, apart from the glass

³⁸ KIM 1983, p. 35-40.

³⁹ Hwangnamdaechong (Great Tomb of Hwangnam).

⁴⁰ Cheonmachong (Flying Horse Tomb).

⁴¹ Geumnyeongchong (Tomb of the Golden Bell).

⁴² Geumgwangchong (Gold Crown Tomb).

⁴³ Seobongchong (Tomb of the Auspicious Phoenix or Swedish Phoenix Tomb).

⁴⁴ ITO 1971a, p. 119-120; ITO 1971b, Taf. 18, 1-2, Abb. 70, 1-2.

⁴⁵ In this grave two glass vessels, however, a bowl (?) is fragmentarily preserved.

⁴⁶ BARNES 2001, p. 231.

⁴⁷ SILKEULODEUWA 2015, p. 170, No. 163 and 164.

⁴⁸ LEE 2017, p. 120.

⁴⁹ BARNES 2001, p. 215, Table 8.4.

⁵⁰ PARK 2008, p. 113: 116.

fragment mentioned, included a gold plated bronze, bronze horse trappings, a bronze bowl, a fire pit shaped pedestal, a short necked jar, a pedestal bowl. The chronology of the grave is related to the end phase III of the cemetery, which is dated in the second quarter of the fourth century⁵¹.

A glass vessel of somewhat later chronology has been found in the burial M1 in the cemetery Okjeon (Okjeon Tomb cluster, Hapcheon region). More than 100 graves have been discovered there, of diverse construction types, dated from Early to Late Kaya periods. The burial ground is considered to be the central cemetery of the Daraguk district, which was a part of Daegaya⁵². The grave M1 belongs to the group of burials appearing in this cemetery at the half of the fifth century, it is a stone-lined chamber tomb with an earthen mound. Its parameters are: mound length: 21.4 m; chamber 21.6 x 21.6 m⁵³. The funeral rite, apart from the principal corpse, was accompanied also by three sacrifice burials. The grave goods, next to the pottery, included also: a gilt bronze quiver, gold earrings with pendants, a bracelet, a gilt bronze buckle, and a gilt bronze saddle. The presence of a glass vessel among these grave goods is associated with Silla's influences in this region in the Late Gaya Period⁵⁴. Most interesting in this context of influences is the lack of glass vessels in an extraordinarily rich grave M3, where some other artefacts of Silla's provenance have been found. The dating of the grave M1, according to different scientists, covers the period between the half of the fifth to the beginning of the sixth century⁵⁵.

3.3. Baekje

Several fragments of glass vessels belonging to two types: blue/purple (5 fragments) and yellowish-brown (1 fragment) have been found in 1993 during the archaeological research of the Neung-sa temple localized between the outer walls surrounding the town Buyeo and royal graves in Neungsan-ri. They have been discovered in the *center room of manufacturing site* along with hundreds of beads of different colours and shapes⁵⁶. The temple complex stylistically refers to the sacral compounds in Baekje. It consisted, as it has been shown by the results of archaeological excavations, of a central wooden pagoda, an image hall, and of a lecture hall⁵⁷. This complex was founded in the year 556 which has been documented by the find of an inscription śarīra niche informing of a śarīra rite performed by the princess Maehyong, the sister of king Wideok in the thirteenth year of his rule⁵⁸. Fragments of glass artefacts found there are dated in the Late Sabi Period.

⁵¹ SHIN 2013, p. 104, 109.

⁵² BARNES 2001, p. 133; PARK 2012, p. 125.

⁵³ PARK 2012, Table 4.

⁵⁴ PARK 2012, p. 127.

⁵⁵ PARK 2012, p. 134-135, Table 5.

⁵⁶ KOH *et al.* 2012: 4173, Fig. 1.

⁵⁷ KWON 2008, p. 89.

⁵⁸ KWON 2008, p. 89, Fig. 26.

4. The glass vessels - analysis (Figs. 5-14).

Glass vessels from the royal graves of Silla, since they were found by Japanese researchers in the third decade of the twentieth century, have always been associated with Roman workshops localized in the eastern part of the Mediterranean, and in the basin of the Black Sea⁵⁹. Research led by Korean archeologists starting from the seventies of the twentieth century have brought subsequent finds of glass vessels, also connected with the glass workshops of the Roman Empire, and especially Syrian ones⁶⁰. Detailed analyses of the vessels from the South mound of Hwangnamdaechong have brought a surprise by proving that they had three different chemical composition showing similarities to the Sasanian and Central Asian (Kushan/Bactrian) glassmaking traditions⁶¹. This fact is even more astonishing as the stylistic form of the vessels at our first glance resembles those of the Roman, and not of the Sasanian Empire. Unfortunately, in the case of the Central-Asian glassmaking, further comparisons are impossible due to the lack of finds of glassmaking sites from the fifth and seventh centuries and any comparative analyses have to be carried out with finds of a different chronology⁶².

The basis for the typology of the vessels is constituted on the collection of 19 specimens preserved in a shape enabling their identification (Fig. 4 & 5)⁶³. In the case of the finds from Baekje⁶⁴ (Fig. 12: 3) and Daesong-dong (Fig. 6: 1), the fragments found are too small to categorize them to any of the types. According to the forms of the vessels, 5 groups can be distinguished: cups, beakers, jugs, bowls and toilet bottle⁶⁵.

The most numerous group in the number of 8 elements are cups. Within this category, three subgroups can be distinguished, identified: 1) non-decorated (Fig. 4: 5, 6, 9; Fig. 5: 6; Fig. 7: 3-6); 2) with the surface decorated with blue dots (Fig. 5: 1-3, Fig. 8: 4-6); 3) with facet cut surface (Fig. 4: 10, Fig. 9: 3). Considering the technological aspect, pontil marks preserved in the bottom of several cups point to the implement of free blowing⁶⁶ (Fig. 6: 2-4).

Four cups with non-decorated surfaces (Hwangnamdaechong, Northern and Southern graves; Angye-ri, grave 4) differ, above all, according to their colour (Fig. 4: 5, 6, 9; Fig. 5: 6; Fig. 7:3-6). Except for one cup, they all represent simple forms. In Insook Lee's view, the dark-blue vessels are local products

⁵⁹ ITO 1971a, p. 119-120.

⁶⁰ KIM 1983, p. 44-45.

⁶¹ LANKTON *et al.*, 2010, p. 234-235.

⁶² LANKTON *et al.*, 2009, p. 584-586.

⁶³ According to Insook LEE 2016, p. 55, the total number of glass vessels is 26 from nine royal kofun (tombs) in Korea. More than eleven glass vessels similar to Late Roman forms are of an uncertain provenance, however found in Korea – LANKTON *et al.* 2009, p. 579; see for example Fig. 6: 5 and similar to Roman Glass Vessels Fig. 6: 6-7.

⁶⁴ Blue fragments: KOH *et al.* 2012, p. 4173, Fig. 1.

⁶⁵ The terminology according to STERN 2001 and HARDEN 1936. The classification differs from the one proposed by LEE 2016, p. 56-67.

⁶⁶ For the description of the glassblowing process, see STERN 1999, and about pontil marks see WHITEHOUSE 2015.

manufactured *using imported glass*⁶⁷. According to chemical compositional analysis, the light green coloured cup with a rounded rim and ring like foot may represent the later expression of Kushan/Bactrian glassmaking tradition, however a shape is linked to late Roman (fourth century) workshops (**Fig. 7: 1, 2**)⁶⁸. Interesting is that chemical analysis of the deep blue glass fragments of a vessel from Beakje⁶⁹ as well as a plate from Niizawa Senzuka, grave 126, are similar to Roman, especially Eastern Mediterranean⁷⁰.

The next three cups (Geumnyeongchong, Okjeon M1) are characterized by a surface ornament in the form of two bands decorated with blue blobs (**Fig. 5: 1-3, Fig. 8; 4-6**)⁷¹. It is highly possible that two cups from Geumnyeongchong have been made in one workshop as indicated by same dimensions and decoration layout. Glass vessels from the Roman Empire displaying such a decoration imitated luxury metal vessels inlaid with precious gems. The ones with blue dots as well as those with multicoloured ones, both are considered most characteristic products of the late Roman glass industry (**Fig. 8: 1-3**)⁷². Among the vessels with the blue dots decoration, three basic types are distinguished according to their shape: 1) hemispherical cups; 2) conical beakers; 3) con-shaped base lamps⁷³. The arrangement and the number of dots has become the criteria for more detailed categorizations. In this context, it is worth to point out to the fact that one of the types from the northern part of the Black Sea displays the pattern of overlapping zigzags⁷⁴. Vessels with dot pattern were widespread to various extents over the whole territory of the Roman Empire and over the neighbouring areas⁷⁵, the least number found on the British Isles⁷⁶. Several potential areas of their production are pointed to, beginning with the West- Gallic-Rhine area with the most important production centers in North Gallic areas, as well as in Cologne or Trier, in Aquileia, in Sevegliano, Balkan-Pannonian area, Northern part of the Black Sea, Asia Minor and Palestine. On this latter area, in Jalame, about a hundred fragments of vessels have been found, decorated with blue dots; the find has been made on the site of a workshop from which, products were to be traded with goods from the areas extending from The Black Sea basin to the eastern coast of Africa⁷⁷. Considering the coloring of dots used in the surface decoration of vessels

⁶⁷ LEE 2013, p. 122. The oldest forms of dark-blue cups/bowls but of different parameters, and cast in molds, are known from the eastern Mediterranean where their chronology is set between the second/first centuries BC to the first century AD. See: *ancient glass* 2013, p. 24 and 26, 369-370.

⁶⁸ A vessel of similar form dated to fourth century has been found in Syre, Lebanon: HARDEN 1949, p. 152, 154, Fig. 1: 6.

⁶⁹ KOH *et al.* 2012, p. 4177-4178, Table 2, Nos. 18-22.

⁷⁰ ABE *et al.* 2018, p. 218.

⁷¹ In literature, a term *Nuppen glaser* or *Nuppen becher* is applied, see: WHITEHOUSE 1997, p. 207; WEINBERG & STERN 2009, p. 136.

⁷² BOŢAN & APARASCHIVEI 2015, p. 159.

⁷³ FREMERSDORF 1962; SOROKINA 1972; BARKÓCZI 1972; SAZANOV 1993; ZASETSKAYA 2000.

⁷⁴ SOROKINA 1972, Abb.3; SAZANOV 1993, Fig. 2-5; ZASETSKAYA 2000, Fig. 2-8.

⁷⁵ SAZANOV 1993, p. 331, Fig. 1.

⁷⁶ COOL & PRICE 1995, p. 88.

⁷⁷ BOŢAN & APARASCHIVEI 2015, p. 159, 162.

and the presence of polishing lines, it has been accepted until recently that vessels with a monochromatic decoration (mainly of blue colour) are typically found both in the western and in the eastern part of the Roman Empire, while polychromatic ones containing of up to four colours (blue, green, brown/brownish-yellow) are typical for its western part⁷⁸. This view, however, is changing, due to some new discoveries with polychromatic decoration from Crimea⁷⁹. In the West, hemispherical cups began to appear around mid-third century⁸⁰, or from the second half of this century⁸¹. In the case of the Eastern part, it is widely accepted that the beginning of their production was the half of the third century or the years after 380/400 AD⁸². These hemi-spherical forms were manufactured in the provinces until the end of the fourth and the beginning of the fifth century, and the production reached its peak in the fourth century. In the East, they were manufactured throughout the almost entire fifth century⁸³. However, vessels from the Korean Peninsula differ from the classical vessels with the blue dots decoration regarding their form and the arrangement of decorative patterns. The first difference can be seen in the shape resembling more a cone than a hemisphere, and the forms of the rim are different. The second difference can be stated on the ground of the number and arrangement of blue dots which are ordered in two bands, and of their colours. In the archaeological record, no direct analogies with the vessels from Korea could be noticed. The closest similarity regarding the shape of the vessel is to be seen in the cup from a burial of the Chernyakhov culture found in Zhurovka/Zhurivka in Ukraine and dated in the end of the fourth century⁸⁴. Its shape and rim are similar but the surface has only one band of dots. Regarding the arrangement of dots in two bands, it is known from the conical lamp from Palestine or Egypt (type III), except for the colour of the dots⁸⁵. The interesting fact is that the vessels with blue dots, although of slightly different proportions, are said to have been found in various sites in Korea (**Fig. 8: 7-9**); unfortunately, there is no closer information on the find available⁸⁶.

One specimen from this group, a facet-cut cup, can be included to the category of cold-worked decoration glass (**Fig. 4: 10, Fig. 9:3**). The object shows the closest similarity to Sasanian cut glass⁸⁷ which, highly probably, was imitating early Roman facet-cut types of vessels⁸⁸. In the Mediterranean Sea basin, the origin of this kind of decoration is being associated with the fashion for colourless imitation of rock crystal from the last third of the first and early second centuries.

⁷⁸ WHITEHOUSE 1997, p. 207.

⁷⁹ SHABANOV 2016, p. 166-172, Fig. 6.

⁸⁰ WHITEHOUSE 1997, p. 207.

⁸¹ BOȚAN & APARASCHIVEI 2015, p. 159.

⁸² WHITEHOUSE 1997, p. 207, SAZANOV 1993, Fig. 1b.

⁸³ WHITEHOUSE 1997, p. 207.

⁸⁴ SIMONOVICH 1964, Fig. 1; KROPOTKIN 1970, p. 111, Fig. 71:1 & 77:4; RAU 1972, p. 158, 180, Fig. 48:14.

⁸⁵ STERN 2001, p. 293, Cat. No. 157.

⁸⁶ SILKEULODEUWA 2015, p. 171-66, no. 165, 166, 174, no. 168.

⁸⁷ For example SIMPSON 2014, p. 214, Fig. 20.21: 12-13, 20.22, 20.23, 20.24, 20.25.

⁸⁸ WHITEHOUSE 2005, p. 41; SIMPSON 2014, p. 214; TATSUMI 2016.

In this period, implementing of concave oval facets as well as of the circular ones began, where facets were placed very close to each other and frequently overlapped. Such decoration was most frequently used with conical beakers. They are discovered with different frequencies within the Roman Empire, and also outside its borders where such finds are dated in the second and the third centuries⁸⁹. During the second century, the mode of decorating changed to zoned facet cutting. In this period, various arrangements of motifs were implemented-like rice-shaped or circular facets. The vessel from Korea shows similarities to some early Roman cut glass forms but, above all, to the Sassanian tradition. The closest linkage to it can be seen in the vessel stored at the Corning Museum of Glass and dated between the fifth and sixth centuries⁹⁰. The vessel from Hwangnamdaechong (Northern) has two grooves dividing the upper and the lower band consisting of two rows of facets. The space between the grooves is decorated with a single band of oval facets in the horizontal position. Such grooves separating two bands of decorations are known from the surfaces of early Roman as well as late Roman facet-cut vessels⁹¹.

Another group consists of six beakers (Hwangnamdaechong - no. 98 (Southern), Geumgwanchong - no. 128; Cheonmachong - no. 155; Geumnyeongchong - no. 127 and Woelsung-ri Ga 13) (Fig. 4: 2, Fig. 5: 4-5, 7-8, Fig. 13: 4-5)⁹². Apart from one specimen which was mold-blown (Fig. 5: 9, Fig. 9: 2), all the others were most probably blown. Four of them have approximately the same shape and two of them are additionally footed. Two of them are light-green coloured and transparent, two others are grayish-green and one is translucent and dark-blue. In two cases, the upper part of rim is rounded and bluish green or blue and on the surface of one beaker such colour, net pattern was used in zig-zag decoration. The lower part of the vessel is in two cases covered with three irregular zigzags forming continuous lozenges of different sizes applied counter-clockwise. Some additionally engraved lines are enclosing the zigzag decoration in one of both beakers and in the other- they are above the half of the height of the vessel.

Footed beakers resemble each other in their form and they have similar shape, with tabular rim folded inward⁹³. The first of two footed beakers is decorated with the band decoration consisting of irregular zigzag trails at the half of the height as well as in the lower part. An additional horizontal trail is running along the lower zigzag trail. There are engraved lines above and below the upper zigzag. The other vessel is decorated with a tubular projecting roll in its lower part, topped with a foot which is profiled in its upper segment.

The group of four beakers presented here shows some similarity regarding the shape, the kind of surface decoration and technical details. In the

⁸⁹ OLIVIER 1984; WEINBERG & STERN 2009, p. 51-52.

⁹⁰ WHITEHOUSE 2005, p. 44-45, No. 49.

⁹¹ YATSENKO 2006, Tabl. III: 29-33, 35, 37; RAU 2008, p. 225, Fig. 5: 3.

⁹² In one case, Woelsung-ri Ga 13, it is hardly possible to identify it exactly, due to the state of preservation.

⁹³ The tabular foot folded inward, rolled, from mounds 128 and 129 are very similar to fragments of feet of vessels found on the northern coast of the Black Sea and dated in the fourth and fifth century AD. See ZASETSKAYA 2008, p. 34-36, Fig. 12: 8-15.

archaeological record available, no analogies could be found to this group of vessels, except two specimens discovered in a burial in Jal-Ailik, Keteman Tube in Kyrgyzstan and dated in the fourth/fifth century (**Fig. 10: 5**)⁹⁴ and from a rich grave from Kara Agach in Kazakhstan (**Fig. 10: 6**)⁹⁵. However, on the surface of the first beaker, there are two irregular zigzags in the lower and the upper part of the beaker, and in its lower part, the zigzag is closed by a horizontal thread. The second vessel, also a beaker, green colour of cylindrical form and tapering downwards with small foot, slightly bigger than vessels from Silla was made. The upper-middle part was decorated with one whole and second partial zigzags. Upper zigzag was more marked and between them slightly wavy line was located. Lower part of the beaker was also decorated with two zigzags trails, however, more elongated contiguous each other making irregular lozenges. The rim and edge of the foot probably were folded. The chronology of this grave included also golden ornaments are still under discussion and covers the period from the fifth⁹⁶ or first century of the fifth century⁹⁷ to the sixth and seventh century.⁹⁸ Stanislav Shabanov links this beaker from Kara Agach to the group of glass beakers decorated with thread in oval shape⁹⁹. However, none of the vessels from mention group have not decorated with zigzag trail on the surface and the form of the ovals, in more cases are different¹⁰⁰. Footed vessels differ from the forms known from the Mediterranean Sea basin and the Black Sea basin¹⁰¹.

On the other hand, such a specific surface decoration in the form of a single zigzag, mainly of blue colour, was a typical decorative pattern in Syro-Palestinian area in the fourth, and in the beginning of the fifth century (**Fig. 11: 4**). This decorative motif was applied to jugs, jars and kohl tubes¹⁰². Overlapping zigzags making out continuous lozenges of different sizes and various colours; such trails are also known from the Syrian workshops sites, especially in the layers dated fourth and fifth centuries¹⁰³. It is worth mentioning that this kind of decoration using a blue trail or thread as it is seen on the conical vessel of the Sorokina's type III from the Chernyakhov burial in Zhurovka/Zhurivka (end of the fourth century)¹⁰⁴, in which vessels of the similar shape to the one from Korean burial vessel with blue-dots decoration can be compared; in this latter grave, a semi-circular vessel of blue glass has been found. The whole group can be dated between the fourth and the beginning of fifth century¹⁰⁵. The same decorative pattern can be identified in the western provinces of the Empire as it was

⁹⁴ LEE 2013: 126, Fig. 6: 10.

⁹⁵ KROPOTKIN 1970, p. 30, 111, No. 1023, Fig. 76: 7.

⁹⁶ ZASETSKAYA 1994, p. 103.

⁹⁷ KROPOTKIN 1970, p. 30, however in page 111 he dated to 5th century.

⁹⁸ AMBROZ 1981, p. 17-18, Fig. 7: 9 & 11.

⁹⁹ SHABANOV 2012, p. 343, 346, Fig. 4: 4

¹⁰⁰ SHABANOV 2012, Fig. 3, 4.

¹⁰¹ SOROKINA 1963, p. 147-154, Fig. 9.

¹⁰² STERN 2001, p. 23, Cat. No 117, 144; STERN 2015, p. 89-90, 7.15.

¹⁰³ STERN 2001, Cat. No. 187, 188, 189.

¹⁰⁴ SOROKINA 1971, p. 92; SIMONOVICH 1964, Fig. 1, KROPOTKIN 1970, p. 109-110, Fig. 77: 1.

¹⁰⁵ SOROKINA 1971, p. 89-90, 2:11.

continuously in use as late as the Early Medieval Period¹⁰⁶. Similar vessels decorated with irregular zigzags forming continuous lozenges have been found also in China. The first of analogically decorated Chinese glass vessels, in this case a cup, has been found in the Feng family cemetery in Jingxian (Hebei Province), in the grave of Madame Zu dated AD 521, and associated with Roman glassmaking workshops at the Pontic coasts¹⁰⁷. The second is a small bottle having been discovered in a Stupa of Qingshan Temple, Shanxi, from the period of Tang dynasty (AD 741) and associated with the Islamic craft of glassmaking¹⁰⁸. Tabular rim usually folded out (occasionally folded inward) in bowls and dishes was applied throughout the whole Roman Empire, whilst most numerous in the Palestine area. During Late Roman period, the rims are vertical¹⁰⁹.

The last of this group, a beaker, was moulded and decorated with the typical honeycomb design of a dark-blue colour (**Fig. 5: 9, Fig. 9: 2**). Rim folded slightly out and up, conical body, tapering one side downwards with irregular flattened bottom. Across the main body, upper zone vertical ribs are to be found of different sizes, extending upwards to the underside of the rim, with an irregular honeycomb pattern below and extending across the bottom. Beakers of this type are known both in the western as in the eastern part of the Roman Empire (**Fig. 9: 1**) and extended as far as northern Pontic area and dated from the first half of the fourth century to the early/half of the fifth AD. They are yellowish, light green, purple and dark blue¹¹⁰. They are mainly found in burials however, their archaeological context is much diversified¹¹¹. Two areas of their widespread have been identified as of these products' distribution and the one of their manufacturing- The eastern one, Syro-Palestine region, and the western one, extending as far as Cologne. The supposed function of such artifacts is still the heart of the discussion around them. The findings seem to point out, however, that the cups could be meant to be applied as lamps¹¹².

Artefacts completely different are jugs, of which, two specimens have been found as yet. The first of them, in the southern burial Hwangnamdaechong, is a jug with trefoil mouth, a tall neck with smooth transition to a kind of shoulder, ovoid body, and a pushed-in foot with tubular base ring (**Fig. 4: 1, Fig. 11: 3**). On the exterior of the mouth, under the rim, circuit of blue thread is to be found. Coil handle same dark blue colour as thread under the rim in an inward curve like a shoulder is attached under the mouth. From the upper part of neck to shoulder, a thin dark blue thread is running, partly damaged, with approximately 11 irregular revolutions. This jug is related, as well as by its trefoil mouth, as of blue

¹⁰⁶ STERN 2001, p. 23; CABART 2008, p. 76, Fig 1: 1398.1 and Fig. 3; WHITEHOUSE 1986, p. 120-122, Fig. 1 and 2.

¹⁰⁷ LAING 1991, p. 109, 111, Fig. 5; AN 2002, p. 50; China: DAWN 2004, p. 156-157, No. 66.

¹⁰⁸ TANIICHI 2004, p 40; KOTERA 2012, p 177, Fig. 101.

¹⁰⁹ WEINBERG, STERN 2009, p. 98.

¹¹⁰ SOROKINA 1979, p. 60-61, 63, Fig. 1: 6-8, 25-26, 46-50, 2: II; WHITEHOUSE 2001, p. 111-113, No. 606.

¹¹¹ BOȚAN & CHIRIAC 2011, p. 170, FRIEDHOFF 1989, p. 46, fig. 5: 7; CABART 2008, p. 74, fig. 1: 1381.8

¹¹² BOȚAN & CHIRIAC 2011, p. 170.

threads, and to the lesser extent, the shape like in the Mediterranean basin, especially its western coasts (Levantine). When analyzing the studies on their Syro-Palestynian origins, we can find similar forms dated as early as the mid-second to the half of fourth century (**Fig. 11: 1-2**)¹¹³. Regarding the results of specialized chemical analyses showing two different glass-making compositions used to manufacture these vessels and the fact that there are no analogies found, researchers' attention has been drawn to Sasanian workshops, and mainly those in Bactria and Tokharistan, producing noble metal jugs¹¹⁴. The latter evolving from the Hellenistic and Roman stylistic traditions; as an example of this evolvement, metal vessels can serve, and in the case of glass products, *the subsequent translation into glass of these metal forms could result in glass vessels both (more Hellenistic?) and less Roman*¹¹⁵. In my opinion, the interpretation suggested above, though interesting, seems exaggerated when taking into account numerous analogies to jugs from the Syro-Palestinian glass-making circle.

The second of these vessels is a round mouth jug, made of transparent green glass with a similarly coloured handle (**Fig. 11: 5**). Its rim is rounded and its neck shows the marked transition to piriform body with slightly rounded base. The coil handle applied to shoulder and attached under the rim in the form of the "S" (glass folded down against the side of the mouth and snapped off). Jugs resembling this one were manufactured in the Bosphorus workshops. They show some significant similarities to the vessels of the group VI, according to Irina Zasetskaya. An analogical jug has been found in the grave No. 181 in the cemetery in Kertch dated in the last quarter of the fifth century (**Fig. 11: 6**). Jugs of this form are considered to be local products from workshops on the Bosphorus or the eastern coasts of the Mediterranean¹¹⁶.

The most interesting artefact is a shallow bowl on stem with amber translucent and brown opaque (?) pattern from Hwangnamdaechong, Northern tomb (**Fig. 4: 8, Fig. 12: 4**), as well as a fragment of a vessel of the identical surface decoration from Baekje (**Fig. 12: 3**). The style of this decoration reflects the style typical for the group of band glass vessels¹¹⁷. They are characterized in most cases by the presence of white opaque trails¹¹⁸. Glass vessels decorated in this manner were most frequently used as perfume flasks¹¹⁹, though they are also known in other forms as, for example, a jug from a rich grave in the vicinity of Brescia produced probably in Northern Italy¹²⁰. In the context of finds from the northern

¹¹³ STERN 2001, p. 204, Cat. No.94, and compare trefoil mounted jug: STERN 2001, p. 201, Cat. No. 92, 203, Cat. No. 93.

¹¹⁴ LANKTON *et al.* 2009, p. 586.

¹¹⁵ See CARTER 2003; MARSHAK 2004.

¹¹⁶ ZASETSKAYA 2008, p. 43, 46, 119, Tabl. XIII: 5, Fig. 16: 2.

¹¹⁷ LEE 2013: 124 wrote: *The delicate marbled patterning of the glass of the stem cup ... replicates the effect of banded agates such as onyx or sardonyx*. Onyx wares were a short episode in the production of luxury glass vessels imitating onyx, probably made in one workshop on the Iberian Peninsula during the reign of Augustus and Tiberius until 35 AD, see FLEMING 1999: 22-23.

¹¹⁸ GROSSMANN 2002, p. 12, fig. 11, STERN 2001, p. 60-62, Cat. No. 4-6.

¹¹⁹ GROSSMANN 2002, p. 12.

¹²⁰ STERN 2015, p. 80-81, Fig. 7.5.

part of the Apennine Peninsula, most interesting is Insook Lee's referring the artefact to the marble glass goblet stored in the British Museum and found in a grave in Lombardy¹²¹. Shallow bowl on stem was a form of a vessel which was scarcely spread within the Roman Empire. One of their concentration has been found in a localization in Egypt, in Karanis, where several wholly preserved features of this kind as well as their fragments have been discovered. Vessels in this shape have been included by Harden to class IV A (shallow bowl on stem) of the chronology referring them to the fourth and fifth centuries¹²². Similar decoration, however with an opaque white trail, was used to decorate almost identical vessels (cone beaker, palm cup) dated to fifth and sixth century acquired in Cologne in Germany¹²³. This small group shallow bowls on stem is considered to comprise artefacts imitating metal vessels and the beginning of their production is set in the Early Imperial Period¹²⁴. However, the chemical analysis of the vessel fragment from Kingdom of Beakje indicates Central Asian compounds according to Brill's division with K_2O – 4.6 wt. % and Al_2O_3 – 3.1 wt.%¹²⁵.

The next vessel worth of some closer description is a fragment of a toilet bottle (**Fig. 13: 3**). It belongs to a group of small artefacts called *unguentaria*, sometimes referred to as *lacrimaria*¹²⁶ or *balsamaria*¹²⁷, which not only were of glass but also ceramic¹²⁸. Their purpose, mainly as containers for cosmetic substances is evidenced by the remains of these substances inside them. They were also used to store pigments, salves, medicines, including dried herbs¹²⁹. Glass *unguentaria* of diverse shapes are dated from the first to the beginning of the fifth century¹³⁰ whilst shapes similar to the find from Guemcheok cemetery were popular during the first century¹³¹ until first half of the second century (**Fig. 13: 1-2**).¹³² Vessels of this type were widespread throughout the entire Roman Empire within the

¹²¹ LEE 2016, p. 56.

¹²² HARDEN 1936, p. 128- 130, pl. IV: 356 and XIV: 356.

¹²³ WHITEHOUSE 2001, p. 214-215, No.780, 781.

¹²⁴ HARDEN 1936, p. 130.

¹²⁵ KOH *et al.* 2012: Table 2: NS-23, the authors classified this fragment as Sasanian, p. 4178. See BRILL 2009, p. 122, Table 3.1.

¹²⁶ The terms *lacrimarium* or *lacrimatorium* (vessels of tears), wrongly used due to such interpretation of the fact of their finding in cemeteries and based on the citation from the Psalm 56,8 'put my tears into your bottle' has been rejected, see ANDERSON-STOJANOVIĆ 1987, p. 106, n. 6; SILVINO & ROBIN 2010, p. 68.

¹²⁷ The term *balsamarium* seems also not completely proper in reflecting the function of such vessels, see ANDERSON-STOJANOVIĆ 1987, p. 106. Moreover, it is considered to be a neo-Latin term. See: FONTAINE *et al.* 2012, p. 39-47.

¹²⁸ ANDERSON-STOJANOVIĆ 1987, p. 105-122.

¹²⁹ STERN 2001, p. 43; PÉREZ-ARANTEGUI *et al.* 1996, p. 649-655, there other examples p. 654; SILVINO & ROBIN 2010, p. 68; GREENEWALT *et al.* 1985, p. 84-85; ALCOCK 1980, p. 62; CARINGTON SMITH 1982, p. 293.

¹³⁰ STERN 2001, p. 43; ANTONARAS 2006, p. 77, Fig. 6: Unguentaria.

¹³¹ KUNINA & SOROKINA 1972, p. 158-158, Fig.1, 6: 2, 19, 22, 27, 29; ALEKSEYEVA & SOROKINA 2007, p. 61-63.

¹³² ROBIN *et al.* 2012, p. 182-184, Fig. 3 & 4.

Mediterranean¹³³, they are significantly more probable to be found in the southern than in the north-western provinces of the Imperium, which is explained by the suggestion of smaller interest in fragrant substances by the provincial population¹³⁴. They are discovered there mostly in the funeral context, mainly around the Mediterranean¹³⁵ as well as Pontic basins¹³⁶, and also in settlements in the north-western provinces¹³⁷. The assumption of their use over significantly long periods of time can be supported by a find of an *unguentarium* almost identical with a specimen found in Korea and additionally set in gold, and of a shape resembling an amphora dated in the Early Byzantine Period¹³⁸.

The last category of glass vessels to be discussed here are bowls (**Fig. 4: 4, Fig. 5: 10, Fig. 14: 3-4**). They have been found in the southern grave of Hwangnamdaechong (no. 98) and in Seobongchong (no. 129). Both specimens found there are of blue colour. The upper part of the specimen from the barrow No. 98 is slightly bent toward the inside; the bowl from barrow no. 129, additionally, has one projecting ban on its surface. In two cases, their base is ring-shaped. According to Insook Lee, these forms are more related to the eastern stylistical tradition than to any other, which he considers to be supported by the finds of similar vessels at the burial sites in Datong and Feng Monu¹³⁹. However, an links these finds from Feng Monu tomb with Roman glassmaking tradition (examples or Roman forms **Fig. 14: 1-2**)¹⁴⁰. Recently, one more such blue bowl has been found in burial M1 in Yihe-Nur Cemetery Inner Mongolia from the Northern Wei Period (**Fig. 14: 5**)¹⁴¹; this specimen, according to analyses, is closely related to Sasanian glassware, similarly to the dark-blue bowl from the southern grave in the mound No. 98; its chemical composition is very similar to Veh Ardašir glass (Sasanian)¹⁴². It should be noted that bowls and cups discovered mainly in Southern China (Guangxi Zhuang Autonomous Region) in Han time graves¹⁴³

¹³³ LELJAK 2012, p. 123, Fig. 1A and B.

¹³⁴ STERN 2001, p. 43.

¹³⁵ STERN 2001, p. 43, ANTONARAS 2006, p. 76, fig.2: 126.

¹³⁶ KUNINA & SOROKINA 1972; ALEKSEEVA & SOROKINA 2007, p. 63.

¹³⁷ STERN 2001, p. 43.

¹³⁸ HÖPKEN 2010, Abb.13.

¹³⁹ LEE 2016, p. 56.

¹⁴⁰ AN 2015, p. 224-237.

¹⁴¹ CHEN *et al.* 2016, p. 43, 51, Fig. 34. In the same burial, a silver bowl with four ovals has been found. A similar set consisting of a gilt silver bowl with a portrait medallion and plant motif and with Sasanian glass vessel was discovered in the M 107 tomb in Datong dating back to the times of the Emperor Xiaowendi (471-499), items chronology: fourth (?) – fifth century. It is worth to mention here that another stem bowl with a portrait medallion, however, with faces similar to Central Asian faces (?), was discovered in another, M109 tomb also from Datong. Third, in turn, a vessel with a portrait medallion was also found in Datong in deposit (?), dated to the fifth century (WANG 2017). While the vessel from Inner Mongolia seems to be the original product of the Graeco-Roman world, in the case of other vessels they imitate western style and can be named after Boris Marshak (2004) as hellenized but originated in Central Asia - probably in Bactria /Tocharistan.

¹⁴² LANKTON *et al.* 2009, p. 234. Interesting is that the chemical analysis of one of the vessels from Niizawa Senzuka mound 126, a bowl indicated close relations to Sasanian glass from Veh Ardašir. See ABE *et al.* 2018, p. 216, 218, Fig. 2:a, b and 3: a.

¹⁴³ OTANI 2017.

demonstrate similarity to Eastern Mediterranean forms. However, their chemical composition is different to Western glass¹⁴⁴. It is therefore likely such glass could have been produced locally in China¹⁴⁵.

Three chronological horizons can be distinguished, in which glassware imported to the Korean Peninsula have been discovered¹⁴⁶:

Horizon I – from second quarter of fourth century – with one fragment being a dark blue knob from the burial No. 91 in Daesong-dong.

Horizon II – fifth century – first quarter of the sixth century. This period is characterized by the most numerous and varied collection of glass vessels found. This collection starts with the specimens from Ga-13 Weolseong, dated in the first quarter of fifth century¹⁴⁷, and closes with the finds from Geumgwanchong and Seobonchong, of the chronology defined as the last quarter of fifth century. In the light of some recent analyses, the double burial from Hwangnamdaechong is from the fifth century, i.e. its southern chamber is dated at the half of the fifth, and the southern chamber - in the third quarter of this century. From the same century is also one burial with glass vessels, within Silla's territory, found at the site located outside the Gyongju center, in Angyeri; it is the feature No. 4. In the case of the burial in Okjeon, its chronology is uncertain, however, it is between the second and the third quarter of the fifth century¹⁴⁸. Finally, finds from mounds in Geumnyeongchong and Cheonmachong should be mentioned. To the same group as these, glass vessels from the cemetery in Guemcheok, generally dated in the fifth century and published only recently, should also be included.

Horizon III - from the second quarter of the sixth century to the final phase of United Silla. From the perspective of this article, fragments from Baekje should be ascribed as belonging to the earliest section of this horizon. The lack of glass vessels in burials is being associated with the introduction and widespread of Buddhist funeral rites in Korea, which means using cremation urns without any addition of grave goods¹⁴⁹. It is considered that from that time, glassware was used above all in Buddhist śāṛīra relic deposits from pagodas of the United Silla period*.

¹⁴⁴ ŻUCHOWSKA & SZMONIEWSKI 2017.

¹⁴⁵ BORELL 2010, p. 134-138; ŻUCHOWSKA & SZMONIEWSKI 2017, p. 115-116, Fig.1.

¹⁴⁶ The lack of an unified typological system for graves of Silla has been strongly emphasized as it causes different, often diametrically discrepant dating, cf. BARNES 2001, p. 211-214. Therefore, I have accepted the chronology by Kim, with some modifications, cf. BARNES 2001, p. 211-214. Therefore, I have accepted the chronology by PARK (2016: Table 1) with modifications.

¹⁴⁷ The chronology of this burial is also referred to as the end of the fourth century. See SILKEURODEUWA 2015, p. 146, No. 135.

¹⁴⁸ PARK 2012, p. 128-129 & 134-135 table 4 & 5.

¹⁴⁹ NELSON 1993, p. 248.

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BIBLIOGRAPHY

ABE *et al.* 2018 – Y. Abe, R. Shikaku & I. Nakai, *Ancient glassware travelled the Silk Road: Nondestructive X-ray fluorescence analysis of tiny glass fragments believed to be sampled from glassware excavated from Niizawa Senzuka Tumulus No. 126, Japan*, *Journal of Archaeological Science: Reports* 17 (2018), p. 212-219.

ALEKSEYEVA & SOROKINA 2007 – E. M. Алексеева & Н. П. Сорокина, *Коллекция стекла античной Горгоппии*, Москва, 2007.

ALCOCK 1980 – J. P. Alcock, *Classical religious belief and burial practice in Roman Britain*, *Arch Journal* 137 (1980), p. 50-85.

AMBROZ 1981 – А. К. Амброз, *Восточноевропейские и среднеазиатские степи V – первой половины VIII вв., Степи Евразии в эпоху Средневековья*, Москва, 1981, p. 10-23.

AN 2002 – J. An, *Glass vessels and ornaments of the Wei, Jin and Northern Dynasties*, *Orientalia Venetiana* 14 (2002), p. 45-70.

AN 2015 – J. An, *Feng Sufu mu chutu de boli qi*, in: *Bei Yan Feng Sufu mu*, Beijing, p. 224-237.

Ancient glass 2013 – *Ancient Glass: Feast of Color*, Miho Museum, 2013.

ANDERSON-STOJANOVIĆ 1987 – V. Anderson-Stojanović, *The Chronology and Function of Ceramic Unguentaria*, *AJA*, 91/1 (1987), p. 105-122.

ANTONARAS 2009 – A. C. Antonaras, *Glass vessels from Roman and Early Christian Thessaloniki and its surroundings (1st century BC - 6th century AD)*, in: K. Janssens, P. Degryse, P. Cosyns, J. Caen & L. Van't dack (eds), *Annales du 17^e Congrès de l'Association Internationale pour l'Histoire du Verre*, Anvers 2006, Antwerp, p. 74-79.

BARKÓCZI 1972 – L. Barkóczi, *Spätrömische Glasbecher mit aufgelegten Nuppen aus Pannonien*, *FolArch* 23 (1972), p. 69-94.

BARNES 2001 – G. L. Barnes, *State Formation in Korea: Historical and Archaeological Perspectives*, Richmond, 2001.

BORELL 2010 – B. Borell, *Trade and glass vessels along the maritime Silk Road*, in: B. Zorn & A. Hilgner (eds.) *Glass along the Silk Road from 200 BC to AD 1000*, Mainz, 2010, p. 127-142.

BOȚAN & CHIRIAC – 2011 – S.P. Boțan & C. Chiriac, *Some general considerations regarding the discoveries of Roman Glass vessels from (L)Ibida – Slava Rusă (Tulcea County)*, *SAA* 17 (2011), p. 163-182.

BOȚAN & APARASCHIVEI 2015 – S. P. Boțan & D. Aparaschivei, *Late roman blob-decorated glassware from Scythia Minor*, *Quaderni friulani di archeologia* 25 (2015) p. 159-172.

CABART 2008 – H. Cabart, *Le verre des inhumations tardives de Laneuvelotte (Meurthe-et-Moselle)*, *Bulletin de l'Association Française pour l'Archéologie du Verre*, 2008, p. 74-77.

CARINGTON SMITH – 1982 J. Carington Smith, *A Roman chamber tomb on Monasteriaki Kephala*, *ABSA* 77 (1982), p. 255-91.

CARTER 2003 – M. L. Carter, *Preliminary notes on a silver-gilt ewer with bird medallions in a private collection*, *Silk Road Art and Archaeology*. Kamakura: The Institute of Silk Road Studies 9 (2003), p. 195-211.

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CHEN *et al.* 2016 – Y. Chen, G. Song & Y. Ma, *The Results of the excavation of the Yihe-Nur Cemetery in Zhengxiangbai Banner (2012-2014)*, *The Silk Road* 14 (2016), p. 42-57.

China Dawn 2004 - China, *Dawn of a Golden Age, 200–750*, in: J. C. Y. Watt, A. Jiayao, A.F. Howard, B. Marshak, S. Bai & Z. Feng (eds), New York/Yale/New Haven/London, 2004.

CHOI 2016 – B. H. Choi, *Silla jeokseongmokgwakbun giwon yeonguui banghyang*, Choebyeonghyeon banghyang, 21 (2016), p. 125-175

COOL & PRICE 1995 – H.E. Cool & J. Price, *Roman Vessel Glass from Excavations in Colchester, 1971-85*, Colchester, 1995.

FLEMING 1999 – S. J. Fleming, *Roman Glass. Reflections on Cultural change*, Philadelphia.

FREMERSDORF 1962 – F. Fremersdorf, *Die römischen Gläser mit aufgelegten Nuppen*, Köln, 1962.

FRIEDHOFF 1989 – U. Friedhoff, *Beigaben aus Glas in Körpergräbern des späten 3. und des 4. Jahrhunderts: ein Indiz für den sozialen Status des Bestatteten ?*, *Kölner Jahrbuch für Vor- und Frühgeschichte* 22 (1989), p. 37-48.

GREENEWALT *et al.* 1985 - C.H. Greenewalt, D.G. Sullivan, C. Ratté & T.N. Howe, *The Sardis campaigns of 1981 and 1982*, *Bulletin of the American Schools of Oriental Research Supplement* 23 (1985), p. 53-92.

GROSSMANN 2002 - R. A. Grossmann, *Ancient Glass. A Guide to the Yale Collection*, New Haven, 2002.

GROSSMANN 2011 – R. A. Grossmann, *Ancient glass from Dura-Europos in perspective*, in: L.R. Brody & Gail. L. Hoffman, *Dura-Europos: Crossroads of Antiquity*, Boston, 2011, p. 275-281.

FONTAINE *et al.* 2012 – P. Fontaine, C. Fontaine-Hodiamont & M. Lenoble-Pinson 2012, *D'unguentarium à balsamaire. Les noms des vases à parfum en verre hellénistiques et romains. Vocabulaire latin et terminologie actuelle*, *Signa* 1 (2012), p. 39-47.

HARDEN 1936 – D. B. Harden, *Roman glass from Karanis found by the University of Michigan Archaeological Expedition in Egypt 1924–1929*, Ann Arbor, 1936.

HARDEN 1949 – D. B. Harden, *Tomb-Groups of glass of roman date from Syria and Palestine*, Iraq 11/2 (1949), p. 151-159.

HAYASHI 2013 – T. Hayashi, *The Altai and Silla from the Viewpoint of Archaeological Findings*, *Proceedings of the 11th Seoul international altaistic conference synchronic and diachronic studies on Altaic languages*, Seoul, p. 415-432.

HÖPKEN 2010 - C. Höpken, *Orient trifft Okzident: Glas im Osten und Westen des Römischen Reiches*, *Kölner Jahrbuch* 43 (2010), p. 379 – 398.

ITO 1971a - A. Ito, *Zur Chronologie der frühsillazeitlichen Gräber in Südkorea. A. Textband*, München, 1971.

ITO 1971b - A. Ito, *Zur Chronologie der frühsillazeitlichen Gräber in Südkorea. B. Tafelband*, München, 1971.

JANG & KWON 2012 – H.-J. Jang & Y.-S. Kwon, *Hwangnamdaechong chultojigmul yeongu-hyeongyeongjumunhwajae yeonguso sojangjigmul-eul jungsim-eu*, *Journal of the Korean Society of Costume* 62/7 (2012), p. 41-53.

JUNG 2012 – B.-S. Jung, *The Cultural-Historical Significance of the Samguk yusa (Memorabilia of the Three Kingdoms)*, in: Roderick Whitfield (ed.) *Korean Buddhist Culture: Accounts of a Pilgrimage, Monuments, and Eminent Monks*, 2012, p. 31-66

KIM 1983 – W.-Y. Kim, *Recent archaeological discoveries in the Republic of Korea*, Tokyo, 1983.

KIM 2014 – H. J. Kim, *Korean Responses to Historic Narratives of Sino–Korean Relations and China's New International Relations Thinking*, in: N. Horesh & E. Kavalski (eds.) *Asian Thought on China's Changing International Relations*, London, 2014, p. 173-191.

KIM 2016 - H. J. Kim, *Hwangnamdaechong bugbun pijangjaui seongbyeol-e daehan saeloun jeobgeun*, *Hangugsayeonguhwi* 174 (2016), 3, p. 73-103.

KROPOTKIN 1970 - В. В. Кропоткин, *Римские импортные изделия в восточной Европе (II в.до н.э. – V в.н.э.)*, Свод археологических источников Д1-27, Москва, 1970.

KOH *et al.* 2012 – M.-J. Koh, H.-T. Kang, N.-Y. Kim & G.-H. Kim, *A Comparison in Characteristics of Chemical Composition of Glass Vessels Excavated from Neungsalli Temple in Buyeo, Korea, from Baekje Period*, Bulletin Korean Chemistry Society 33 (2012), 12, p. 4173-4179.

KOTERA 2012 – C. Kotera, *Garasu ga kataru kodai Higashi Ajia*, Tokyo, 2012.

KUNINA & SOROKINA, 1972 - Н. З. Кунина & Н. З. Сорокина, *Стеклянные баллазамарии Боспора*, ТГЭ 13 (1972), p. 146-177.

KOUDELA, YOO 2014 – P. Koudela & J. Yoo, *The Role of Korea in Cultural Transmission between China and Japan during the Three Kingdoms Period*, Prague Papers on the History of International Relations, 2 (2014), p. 7-21.

KWON 2008 - O.-Y. KWON, *The Influence of Recent Archaeological Discoveries on the Research of Paekche History*, Early Korea 3. Reconsidering Early Korean History through Archeology, p. 65-112.

LAING 1991 – E. Johnston Laing, *A Report on Western Asian Glassware in the Far East*, Bulletin of the Asia Institute, New Series, 5 (1991), p. 109-121.

LAING 1991 – E. Johnston Laing, *A Report on Western Asian Glassware in the Far East*, Bulletin of the Asia Institute, New Series, 5 (1991), p. 109-121.

LANKTON *et al.* 2009 - J.W. Lankton, I. Lee, G.-H. Kim & H.-T. Kang, *Bactrian Glass Vessels in Korean Tombs?* in: *Annales du 17^e Congrès d'Association internationale pour l'histoire du verre*, Anvers 2006, p. 578-589.

LANKTON *et al.* 2010 – J. W. Lankton, B., Grautze, G. H. Kim, L. Dussubieux & I. Lee, *Silk Road glass in ancient Korea: The contribution of chemical compositional analysis*, in: B. Zorn and A. Hilgner (eds.), *Glass along the Silk Road from 200 BC to AD 1000*, Mainz, 2010, p. 221-237.

LEE 2001 – I. Lee, *Silk Road Trade and Roman Glass from Korea*, Jungang Asia yeongu 6 (2001) p. 327-337.

LEE 2010 – I. Lee, *Early glass in Korean Tombs – cultural context*, in: B. Zorn & A. Hilgner (eds.), *Glass along the Silk Road from 200 BC to AD 1000*, Mainz, 2010, p. 211-219.

LEE 2013 – I. Lee, *Of Glass and Gold. Silla Tombs, the Silk Road and the Steppe*, in: S. Lee, D. P. Leidy (eds.), *Silla Korea's Golden Kingdom*, New York, 2013, p. 115-131.

LEE 2016 – I. Lee, *The Silk Road Treasures of Ancient Korea: Glass and Gold*, in: G.J. Kim (ed.), *The Eastern Silk Road Story. 2015 Conference Proceedings*, Paris/Bangkok, 2016, p. 53-60.

LEE 2017 – K. Lee, *Discovery of Pictures Hidden for Half a Century*, Journal of Korean Archaeology, 2016, p. 120-123.

LEE & LEIDY 2013 - S. Lee & D.P. Leidy, *Silla, an Introduction*, in: S. Lee & D. P. Leidy (eds), *Silla Korea's Golden Kingdom*, New York, 2013, p. 3-11.

LELJAK 2012 – M. Leljak, *Typology of the Roman Glass Vessels from the Croatian Part of the Province Pannonia*, Haemus Journal 1 (2012), p. 121-133

MARSHAK 2004 – B. Marshak, *Central Asian metalwork in China*, in: J.C.Y Watt (ed.), *China. Dawn of a Golden Age, 200-750 AD*, New Haven, 2004, p. 47-55.

MOON 2012 – C.R. Moon, *Research on Kaya History and Issues of Academic Debate*, Early Korea 1. The rediscovery of Kaya in History and Archaeology, 3 (2012), p. 49-104

NELSON 1993 – S. M. Nelson, *The Archaeology of Korea*, Cambridge, 1993.

NELSON 2017 - S. M. Nelson, *Gyeongju: the Capital of Golden Silla*, London/New York, 2017.

OLIVIER 1984 - A. Olivier, *Early Roman Faceted Glass*, Journal of Glass Studies 26 (1984), p. 35-58.

OTANI 2017 – I. Otani, *Mongoru narabini Chūgoku no iseki de shutsudo shita Kan dai heikō-ki no garasu yōki (shiryō shūsei)*, Kanazawadaigaku kōkogaku kiyō 76 (2017), p. 65-73.

PARK 2008 - C.-S. Park, *Kaya and Silla in Archaeological Perspective*, Early Korea. Reconsidering Early Korean History through Archeology 1, (2008), p. 113-153.

PARK 2012 - H.-W. Park, *Archaeological Research on Kaya: Past, Present, and Future*, Early Korea 3 (2012) p. 105-168.

PARK 2016 - H.-W. Park, *Godae dongbug asia chulto lyuligi ui iibyenglo wa yeogsajeog baegyeong*, Journal of Korean Archaeological Studies 101 (2016), p. 168-207.

PÉREZ-ARANTEGUI *et al.* 1996 - J. Pérez-Arantegui, J.Á.Paz-Peralta & E. Ortiz-Palomar, *Analysis of the Products Contained in Two Roman Glass unguentaria from the Colony of Celsa (Spain)*, Journal of Archaeological Science 23 (1996), p. 649-655.

RAU 1972 - G. Rau, *Körpergräber mit Glasbeigaben des 4. nachchristlichen Jahrhunderts im Oder-Weichsel-Raum*, ActaPraehArch 3 (1972), p. 109-214.

RAU 2008 - G. Rau, *Spätantike Facettschliffgläser in Nord- und Osteuropa*, Acta PraehArch 40 (2008), p. 221-240.

RHI 2013 - J. Rhi, *The Ancient City Gyeongju. Space and Monuments*, in: S. Lee & D.P. Leidy (eds), *Silla Korea's Golden Kingdom*, New York, 2013, p. 13-29

RIOTTO 2009 - M. Riotto, *Ancient Koreans and Xiongnu: What was the Nature of Their Relationship?*, Journal of Northeast Asian History 6 (2009), 1, p. 5-35.

ROBIN *et al.* 2012 - L. Robin, T. Silvino & N. Garnier, *Les "Balsamares" en contexte funéraire à Lyon/Lugdunum (I^e-II^e s. apr. J.-C.)*, *Un état de la question*, in: D. Frère & L. Hugot (eds.) *Les huiles parfumées en Méditerranée occidentale et en Gaule VIII^e siècle av. - VIII^e siècle apr. J.-C.*, p. 179-189.

SAZANOV 1993 - A.V. Sazanov, *Verres à décor de pastilles bleues provenant des fouilles de la mer Noire*, in: *Le verre de l'Antiquité tardive et du haut Moyen-Âge*, Guiry-en-Vexin, 1995, p. 331- 341.

SHIN 2013 - K. Shin, *Daeseongdong 88, 91 hobun-ui mulyeobgwa uiui*, Gogo gwangjang 13 (2013), p. 89-112.

SILKEULODEUWA 2015 - *Silkeulodeuwa Silla - yuriui gil*, Gyeonju.

SILVINO & ROBIN 2010 - T. Silvino & L. Robim, *Les vases dits « à parfums » dans les rites funéraires*, Dossiers d'Archéologie (Parfums dans l'Antiquité) 337 (2010), p. 68-69.

SIMONOVICH 1964 - Э. А. Симонович, *Работы на черняховских памятниках в Приднепровье*, КСИА 102 (1964), p. 80-87.

SIMPSON 2014 - St. J. Simpson, *Sasanian glass: an overview*, in: D. Keller, J. Price & C. Jackson, *Neighbours and successors of Rome: traditions of glass production and use in Europe and the Middle East in the later 1st millennium AD*, Oxford, 2014, p. 200-231.

SHABANOV 2012 - S. Shabanov, *Two conical glass beakers from the Late Roman Period in the Crimea*, *Materiały i Sprawozdania Rzeszowskiego Ośrodka Archeologicznego* 33 (2012), p. 339-349.

SHABANOV 2016 - С. Б. Шабанов, *Стеклянный кубок группы Nuppen-gläser из погребального комплекса позднеримского времени могильника Нейзац*, in: И.Н. Храпунов (ed.) *Крым в сарматскую эпоху (II в. до н. э. IV в. н. э.). II. 20 лет исследований могильника Нейзац*, Симферополь, 2016, p. 166-178.

SOROKINA 1963 - Н. П. Сорокина, *Позднеримское и раннесредневековое стекло с Таманского городища*, in: Б. А. Рыбаков, *Керамика и стекло древней Тмутаракани 1*, Москва, 1963, p. 134-171.

SOROKINA 1971 - Н. П. Сорокина, *О стеклянных сосудах с каплями синего стекла из Причерноморья*, СА 4 (1971), p. 85-101.

SOROKINA 1972 - N. P. Sorokina, *Die Nuppen-gläser von der Nordküste des Schwarzen Meeres*, *Annales du 5^e Congrès International d'Étude Historique du Verre*. Prague, 6-11 juillet 1970, Liège, p. 71-79.

SOROKINA 1979 - Н. П. Сорокина, *Стеклянные сосуды IV—V вв. и хронология Цебельдинских могильников*, КСИА 158 (1979), 2014, p. 57-67.

STERN 1999 - E. M. Stern, *Roman Glassblowing in a Cultural Context*, AJA 103/3 (1999), p. 441-484.

STERN 2001 - E. M. Stern, *Roman, Byzantine, and Early Medieval Glass: Ernesto Wolf Collection*, Ostfildern, Hatje Cantz, 2001.

STERN 2015 - E. M. Stern, *Roman Glass from East to West*, in: J. Bayley, I. Freestone, C. Jackson (eds.) *Glass of the Roman World*, Oxford / Philadelphia, 2015, p. 77-94.

SUGAYA 2014 - H. Sugaya, *Moza furuchichi kofun-go no seiritsu to higashi azia sekai no doko*, Shikkokinobugy. Hakuginnobuki, Osaka-Sakkai, p. 1-30.

TANIICHI 2004 - T. Taniichi, *Islamic glass vessels excavated from tombs dated 1018 and 1020 of the Liao dynasty*, Orient: Report of the Society for Near Eastern Studies in Japan 39 (2004) p. 39-51.

TATSUMI 2016 - Y. Tatsumi, *Sasan Cho Perusya Enkei Kiriko garasu-wan no Genkei*, Tenri sankokanto 30 (2016), p. 71-74

WANG 2017 - X. Wang, *Shi xi yi he naoer M1 chutu renwu yin wan*, Wenwu 1 (2017), p. 50-59.

WEINBERG & STERN 2009 - G. D. Weinberg & E. M. Stern, *The Athenian Agora*, vol. 34, *Vessel glass*, Princeton, 2009.

WHITEHOUSE 1986 - D. Whitehouse, *An Anglo-Saxon Cone Beaker from Faversham*, Journal of Glass Studies 28 (1986), p. 120-122.

WHITEHOUSE 1997 - D. Whitehouse, *Roman Glass in The Corning Museum of Glass*, 1, Corning, New York, 1997.

WHITEHOUSE 2001 - D. Whitehouse, *Roman Glass in The Corning Museum of Glass*, 2 Corning, New York, 2001.

WHITEHOUSE 2005 - D. Whitehouse, *Sasanian and Post-Sasanian Glass in The Corning Museum of Glass*, Corning, New York, 2005.

WHITEHOUSE 2015 - D. Whitehouse, *The Pontil in the Roman World: a preliminary survey*, in: J. Bayley, I. Freestone & C. Jackson (eds), *Glass of the Roman World*, Oxford and Philadelphia, 2015, p. 57-60.

ZASETSKAYA 1994 - И. П. Засецкая, *Культура кочевников южнорусских степей в гуннскую эпоху (конец IV-V вв.)*, Москва, 1994.

ZASETSKAYA 2000 - И. П. Засецкая, *О двух классификациях стеклянных сосудов с декором из напаянных капель и нитей синего стекла*, Нижневожский археологический вестник 3 (2000), p. 209-237.

ZASETSKAYA 2008 - И. П. Засецкая, *Стеклянная посуда некрополя Боспора второй половины IV - рубежа VI-VII вв. н. э. (из собрания Государственного Эрмитажа)*, Боспорские исследования 20 (2008), Симферополь-Керчь, 2008.

YI 2009 - H. Yi, *The formation and development of the Samhan*, Early Korea. The Samhan Period in Korean History 2, p. 17-59.

ŻUCHOWSKA & SZMONIEWSKI 2017 - M. Żuchowska & B. Sz. Szmoniewski, *Glass along the Silk Road in the first millennium AD*, Archaeologia Polona 55 (2017), p. 161 - 188.

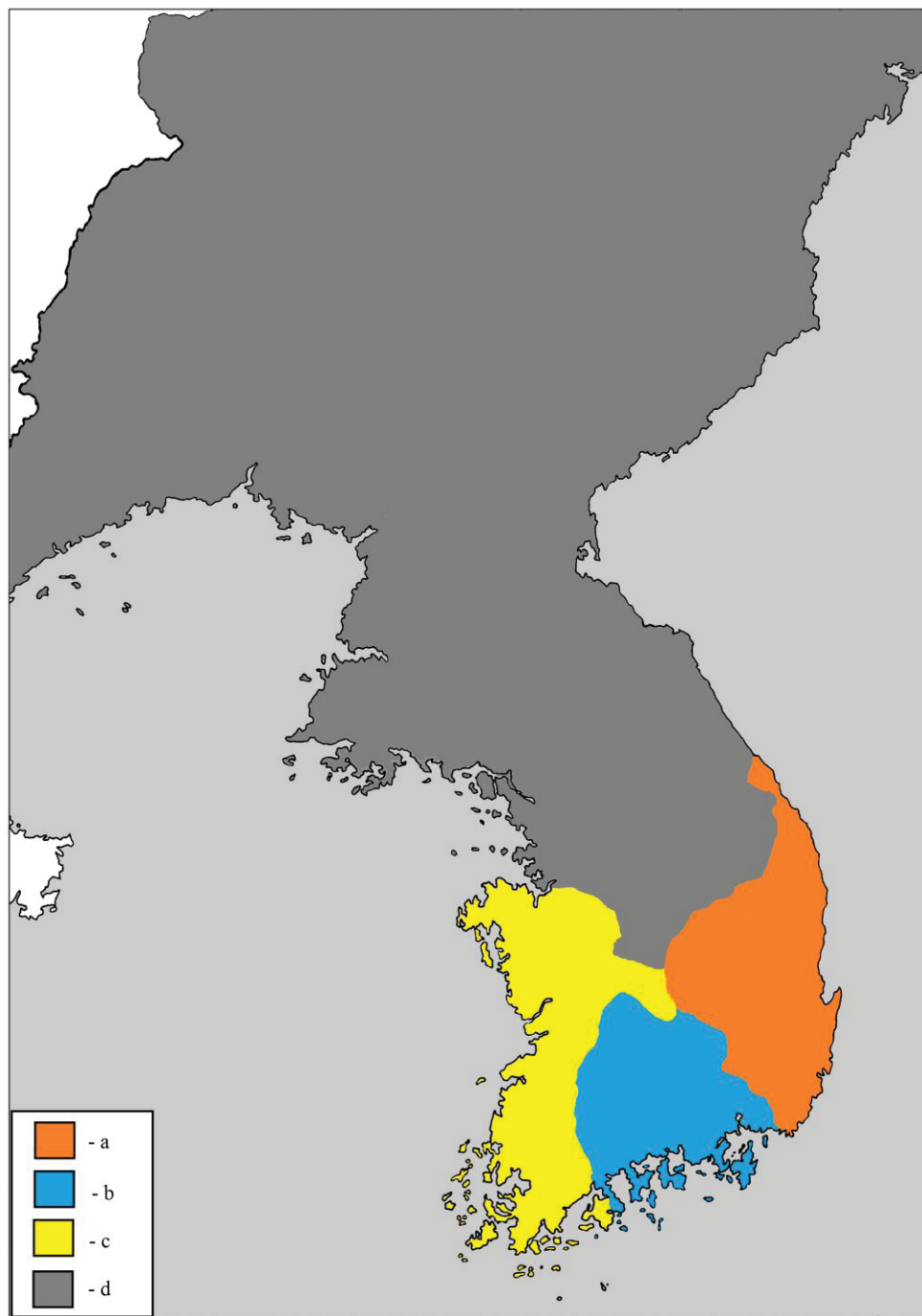


Fig. 1 - Political Geography of the Korean Peninsula in 482 A.D. (after KIM 2012, drawing B. Sz. Szmoniewski). a- Silla, b- Gaya, c- Baekje, d- Goguryeo.



Fig. 2 - Location of finds of glassware on the Korean Peninsula 1-3 – Silla; 4-5 – Gaya; 6 – Baekje (drawing B. Sz. Szmoniewski). 1- Gyeongju basin, 2 – Geumcheok-ri, 3 – Angye-ri, 4 – Daesungdong, Gimhae, 5 – Okjeon, Hapcheon, 6 – Neung-sa.

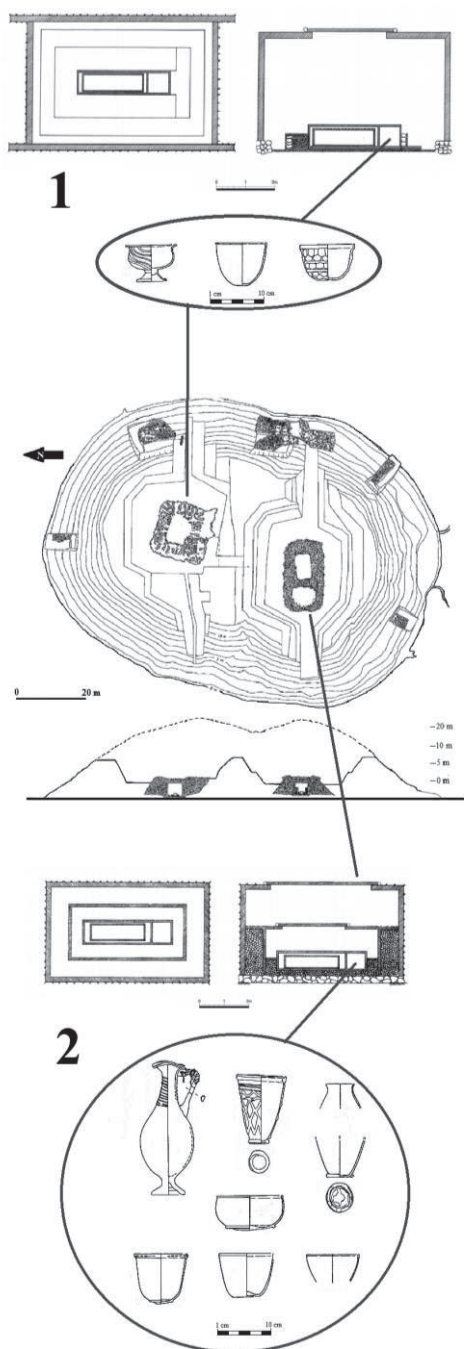


Fig. 3 - Glass vessels position in Hwangnamdaechong (no. 98).
1 – Northern grave, 2 – Southern grave (after CHOI 2016, SUGAYA 2014).

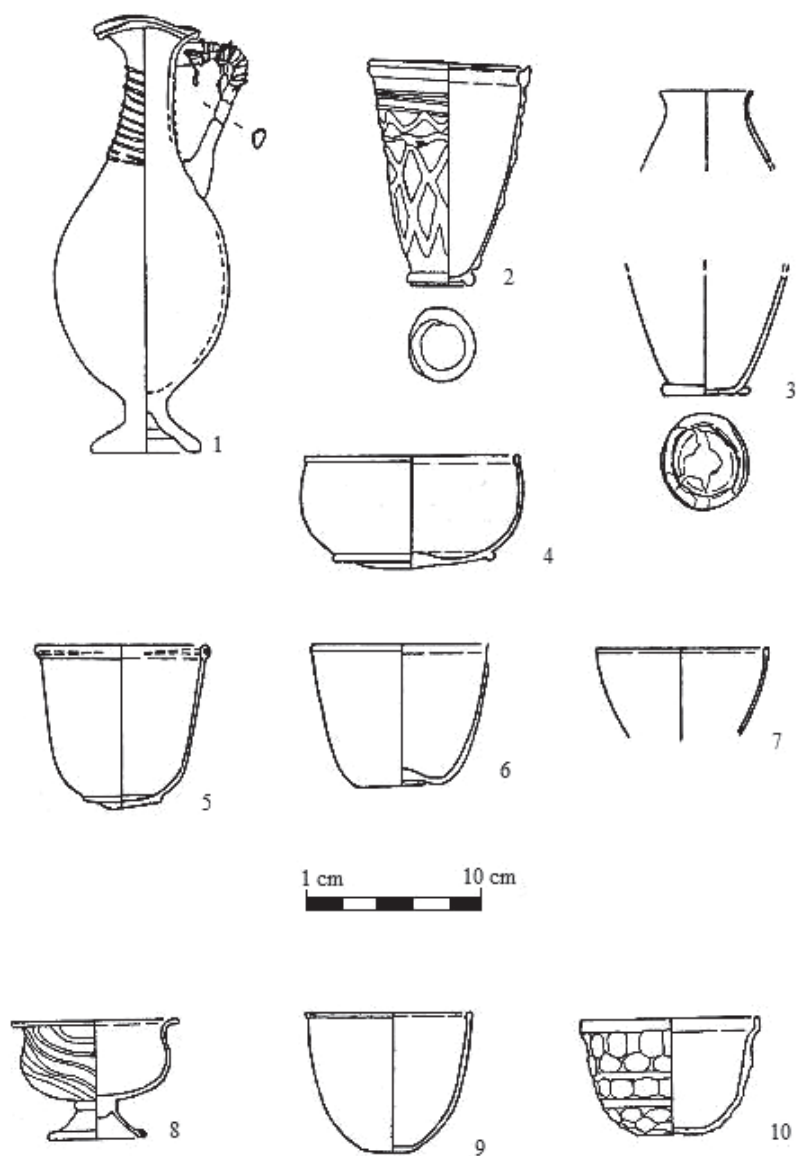


Fig. 4 - Glass Vessels from Hwangnamdaechong (no. 98).
1-7 Southern Tomb; 8-10 – Northern Tomb (after SUGAYA 2014).

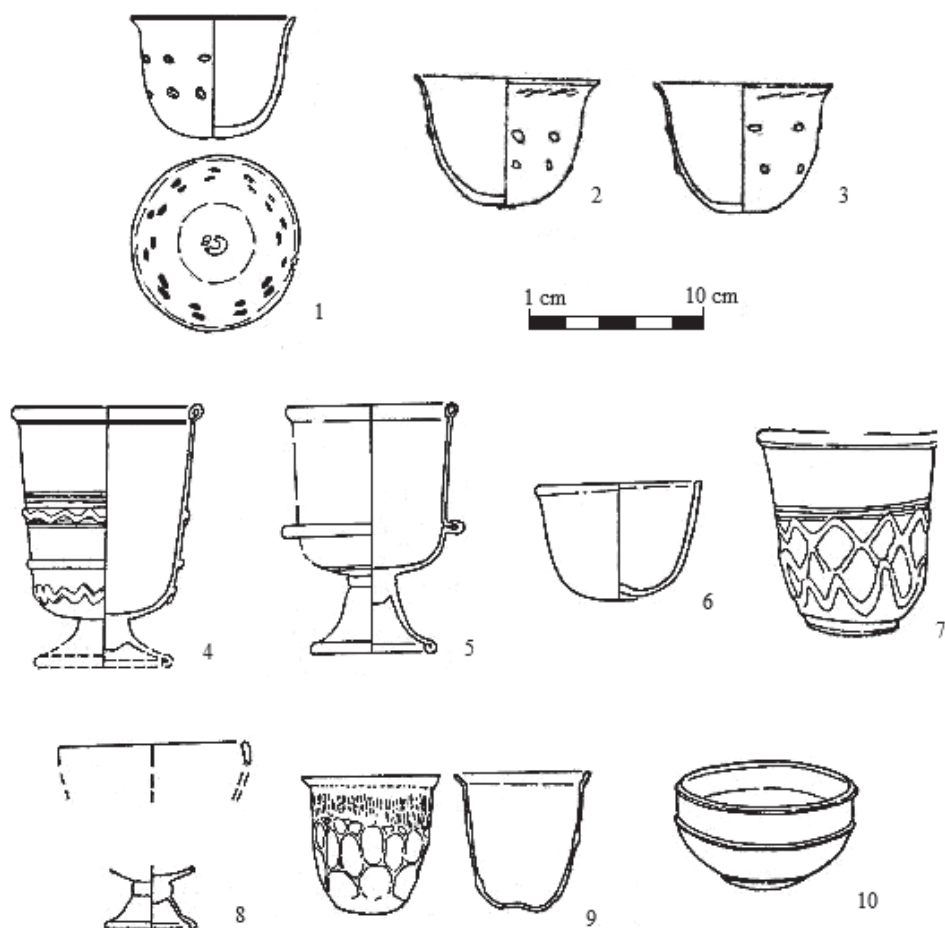


Fig. 5. Glass vessels. 1 – Okjeon M1; 2, 3 – Geumnyeongchong (mound 127), 4, 5 – Geumgwangchong (mound 128); 6 – Angye-ri, grave 4; 7, 10 – Seobongchong (mound 129); 8, 9 – Cheonmachong (mound 155) (after SUGAYA 2014).

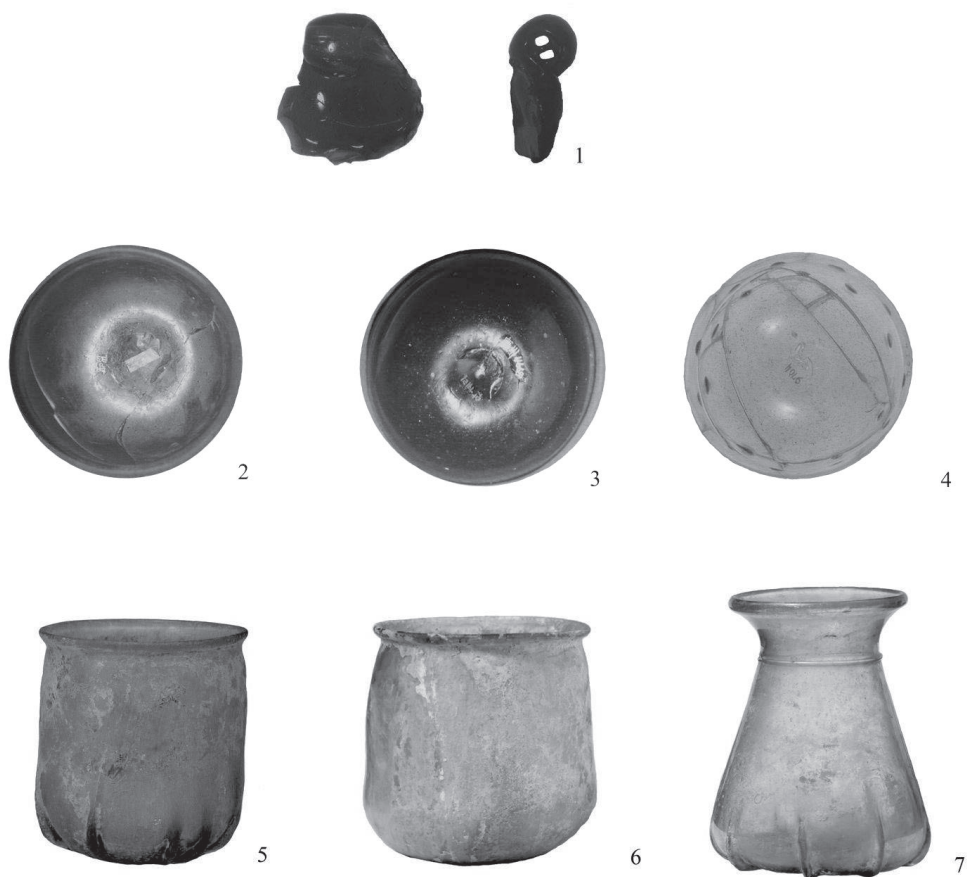


Fig. 6 - Glass vessels: 1 - Gimhae grave 88; 2-4 - pontil marks (2 - Hwangnamdaechong - Southern grave (mound 98), 3 - Angye-ri, grave 4, 4 - Seobongchong (mound 129); 5 - findspot unknown from Korea; 6, 7 - examples of Roman glass (6 - 2nd-3rd c. AD, H.: 7.8 cm; 7 - Cyprus, 3rd-4th c. AD, H.: 8.8 cm). (1-5 after SILKEULODEUWA 2015, 6, 7 - Metropolitan Museum of Art, Public Domain).

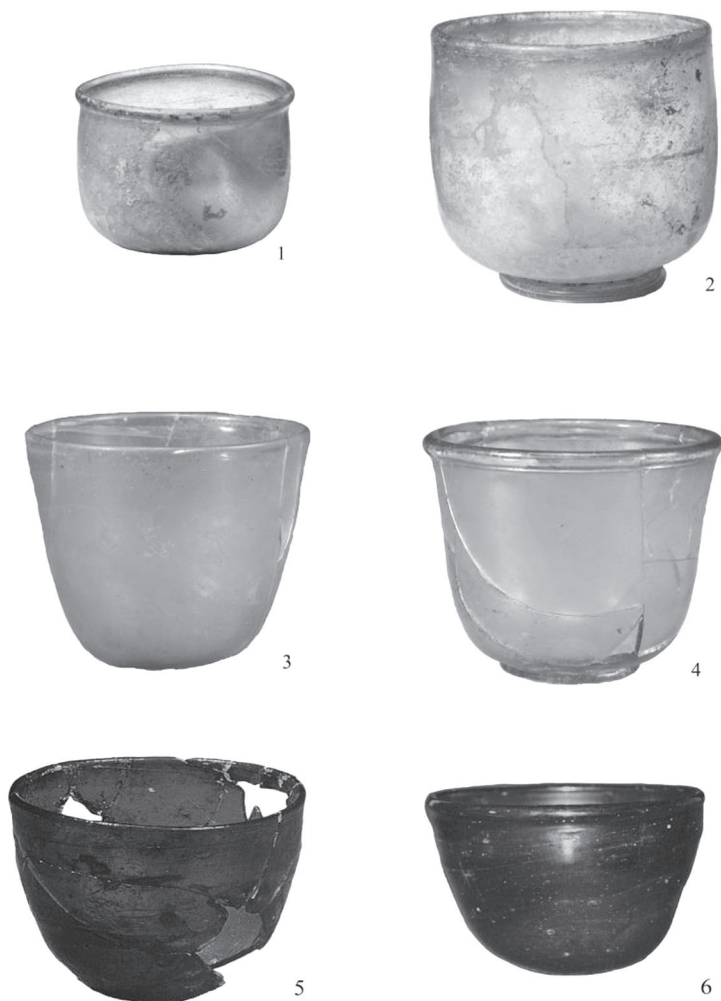


Fig. 7 - Glass vessels: Cups. 1, 2 – examples of Roman glass cups (1 – 3rd-4th c. A.D., Cyprus H.: 4.2, D. 5.5 cm; 2 - 3rd-4th c. AD, H.: 7.6 cm, D. 7.9 cm). 3, 4, - Hwangnamdaechong, Southern grave (3 – H.: 10.2 cm, D. 9.3 cm, 2 – H.: 6.3 cm, D. 12.7 cm). 5 - Hwangnamdaechong, Northern grave (5 - H.: - 7.7 cm, D. 9.5 cm), 6. – Angye-ri, grave 4 (H.: - 6.5 cm, D. 10 cm). (1, 2 - Metropolitan Art Museum, Public Domain; 3-6 – after SILKEULODEUWA 2015).



Fig. 8 - Glass cups with blobs. 1-3 - Examples of Roman cups with blobs (1 - 4th c. AD, Cyprus, H.: 7, 1 cm, D. 8.8 cm; 2 - 4th c. H.: 10 cm, D. 10 cm; 3 - 4th c., Paestum, Italy (?), H.: 12.3 cm, D. 11.1 cm); 4, 5 - Geumnyeongchong (mound 127; 4 - H.: 7.1 cm, 10.4 cm; 5 - 7.1 cm x 10.4 cm); 6 - Okjeon M 1 (H.: 7.1 cm, D. 9.7 cm); 7, 9 - Korea, find spot (9-10 c. ?); 8 - Hwanghae, North Korea (9-10 c. AD?) (1-3 - Metropolitan Art Museum, Public Domain; 4-8 - after SILKEULODEUWA 2015).



Fig. 9 - Glass cups. 1 – Example of a Roman cup with a honeycomb, Cologne (?) (H.: 7 cm, D. 7.5 cm); 2 - Cheonmachong (mound 155, H.: 7.4 cm, D. 7.8 cm; 3 - Hwangnamdaechong, Northern grave, H.: 6.6 cm, D. 9.4 cm) (1- Metropolitan Art Museum, Public Domain; 2, 3 - SILKEULODEUWA 2015).



Fig. 10 - Glass beakers. 1 – Wolsung-ro, grave Ga 13 (H.: 12.5 cm, D. 10.7 cm; 2- Seobongchong (mound 129, H.: 9.6 cm), 3 – Hwangnamdaechong, Southern grave 98, (H.: 12.8 cm, D. 9.5 cm); 4 - Geumgwangchong (mound 128, H.: 9 cm, D. 7.1 cm); 5 – Jal-Ailik, Keteman Tube, Kyrgyzstan (4th/5th c. AD); 6 – Kara Agach, Kazakhstan, (4th c. AD, H.: 16 cm, D. 10 cm and 5.3 cm), (1-4 after SILKEULODEUWA 2015, 5 – LEE 2013).



Fig. 11 - Glass jugs and a bottle. 1-2, 4 – Examples of Roman jugs 1 - with trefoil rim (4th – 5th c. AD, H.: 15.9 cm); 2 – (4th-5th c. AD, H.: 15.1 cm); 3 - Hwangnamdaechong, Southern grave (H.: 25 cm, D. 9.5 cm); 4 – Roman bottle with the turquoise zigzag and trails decoration (Roman Palestine (?), 4th-5th c. AD, H.: 10. 7 cm); 5 – Geumcheol cemetery, (no. dim.); 6 – Kertch, Crimea grave 181/1902 (last quarter of the 5th c. AD, H.: 18.2 cm, D. 8.6 cm/6.4 cm/6.6 cm) (1, 2, 4 – Metropolitan Art Museum, Public Domain; 3, 5 – SILKEULODEUWA 2015; 6 – ZASETSKAYA 2008).



Fig. 12 - Glass vessels. 1, 2 – Examples of Roman Glass mosaic bottles (1, 2 – first half of the 1st c. AD, 1 – H.: 10.2 cm; 2 – 6.2 cm); 3 – Hwangnamdaechong, Northern grave (H.: 7.7 cm, D. 9.5 cm), 4 – Neung-sa (1-2 Metropolitan Art Museum, Public Domain; 4 – SILKEULODEUWA 2015; 4 – KOH *et al.* 2012).



Fig. 13 - Glass vessels. 1, 2 - Examples of Roman perfume bottles (*unguentaria*) from Cyprus (1 - mid-1st–early 2nd century AD, H.: 7.6 cm; 2 - 1st–2nd c. AD, H.: 8.6 cm; 3 - perfume bottle from Geumcheol cemetery; 4, 5 - Foot from beakers: 4 - Geumgwangchong (mound 128); 5 - Cheonmachong (mound 155) H.: 5.3 cm. (1, 2 - after Metropolitan Museum of Art, Public Domain; 3-5 - after SILKEULODEUWA 2015).



Fig. 14 - Glass bowls. 1, 2 – Roman examples from Cyprus (1 - ca. 3rd century A.D., 3.2 cm x 7.3 cm x 3.5 cm; – 2 – 2nd half of 1st century AD, 4.1 cm x 8.9 cm x 8.6 x 4 cm); 3 - Hwangnamdaechong, Southern grave. 4 - Seobongchong (mound 129) (H.: 5.3 cm, D. 10.4 cm); 5 – Yihe-Nur cemetery, tomb M1 (Northern Wei, H.: 4 cm, D. 9.5 cm). (1, 2 - after Metropolitan Museum of Art, Public Domain; 3-4 – after SILKEULODEUWA 2015, 5 – MI 2016).