ROMAN GLASSWARE FROM KOREAN PENINSULA: SILLA, GAYA, BAEKJE FROM 4th TO 6th CENTURY AD. MYTH OR REALITY. II.[*]

Bartłomiej Szymon SZMONIEWSKI[**]

Cuvinte-cheie: s*ticlă, obiecte romane din sticlă, Drumul Mătăsii, cele Trei Regate, Estul Îndepărtat.*

Key words: ***g****lass, Roman glassware, Silk Road, Korea, Three Kingdoms, Far East.*

Rezumat: *Partea a doua a articolului ia în discuție descoperiri de vase din sticlă de origine occidentală din cele Trei Regate din Peninsula Coreeană în contextul social. În perioada celor Trei Regate ale Coreei pot fi distinse trei orizonturi cronologice cu vase de sticlă: 1 - perioada care începe din al doilea sfert al secolului al IV-lea p.Chr.; 2 - orizontul care acoperă secolul al V-lea și prima jumătate a secolului al VI-lea; 3 - orizontul care reprezintă perioada de după jumătatea secolului al VI-lea. Cel mai bogat în descoperiri de obiecte din sticlă este al doilea orizont, acestea fiind predominante în înmormântările bogate atribuite conducătorilor regatului Silla în Gyeongju.*

Importurile de vase din sticlă pe teritoriile celor Trei Regate, în special în Silla și Gaya, ar trebui să fie legate de dinastiile conducătoare nomade din nordul Chinei, de exemplu triburile Xianbei, ale căror înmormântări conțin și astfel de artefacte.

Obiectele din sticlă din perioada discutată, și anume din secolul al IV-lea până în al VI-lea, aveau în Peninsula Coreeană caracterul unor obiecte de prestigiu, motiv pentru care au fost incluse și în inventarele funerare. După ce populația s-a convertit la budism, obiectele din sticlă au continuat să fie semnul unui statut social ridicat, dar funcția lor s-a schimbat - au devenit ofrande oferite în templele budiste.

Abstract: *In part two of the article, I discuss finds of western origin glass vessels from the Three Kingdoms on the Korean Peninsula in the social context.*

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

[*] This paper was written during the Japanese Society for Promotion of Sciences (JSPS) Postdoctoral Fellowship for Overseas Researchers.

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

the 4th century AD; 2 - the horizon covering the 5th and the first half of the 6th century; 3 - the horizon representing the period after the half of the 6th century. Most numerously, glassware was represented in the second of the horizons, prevailingly 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.

In the Korean Peninsula, glassware from the period discussed, namely from the fourth to the 6th century, had the character of prestige objects and this is the reason why they were being added to grave goods. After the population had converted to Buddhism, glassware continued to be the sign of a high social status but their function changed - they became gifts offered at Buddhist temples.

1. Social context of glassware

As it was already mentioned, glass vessels were discovered in burials being of a special archeological interest, and this due to their structure, as well as to grave goods given to them. The cemetery was the burial ground for kings and queens of Gaya. A fragment of a glass vessel found in the grave 91 in Daesung-dong, Gimhae seems to be the oldest dated from Korea. All the grave goods found there point to a high status of the persons buried there, and are reflecting trade contacts between Silla and China[1]. A next grave of a later epoch has been found in Okjeon M1; some of the burials there are also to be attributed to the social elites of Kaya, showing some obvious cultural influence of the kingdom of Silla[2].

Other interesting features are Gyongju burials – they are attributed to the Kim-clan[3] and coming from the horizon II. In five cases they co-occur with characteristic golden crowns[4], in one case it is cast out of silver; the crowns are thought to be the signs of royal power of Silla's kings and queens. They played part in different kinds of rites, above all, in shamanistic rituals and feasts[5]. The crowns of Silla (*daegwan*)[6] easily fit in the well-defined culture phenomenon of covering a royal head with a jewel made of sheet gold with adjoining bands; sometimes containing other decorative elements such as shapes of trees or golden antlers, they can have round, heart-shaped or leaf-like pendants. The fashion for such kind of adornment most probably came from the West; the most characteristic specimen found in this cemetery/ necropolis is a golden crown from the Tomb VI in Tillya Tepe (Afghanistan), dated in the second quarter of the 1st century AD[7].

[1] KOIKE 2014, p. 92.

[2] PARK 2012, p. 127.

[3] BARNES 2001, p. 215, Table 8.4

[4] Detailed analysis of the Old Silla Grave Goods cf. PEARSON *et al.* 1989.

[5] KIM-HOGARTH 2002, p. 159; HAM 2013, p. 48.

[6] Two kinds of such representative head adornment can be distinguished according to their shape: *mogwan* (conical cap) and *daegwan* (headband crown) HAM 2013, p. 45, 47-53, Pl. 9, fig. 3.9 and 3.10.

[7] LEIDY 2012, p. 114-115, fig. 7; manufacture: HICKMAN 2012, p. 85-86, fig. 13 and 14. About the cultural affinities of the spectacular finds from Tillya-tepe graves see OLBRYCHT 2015, p. 350-358.

Other finds of this kind are mostly made in burials in Mongolia, Jilin and Liaoning provinces in north-eastern China[8] and the possible presence of these artifacts are associated by scientists with the tribes of Xianbei, especially from their branch known as Murong-Xianbei[9]; their greatest political significance falls in the 4th century. The fashion disappeared in China by the half of the 5th century as Murong-Xianbei tribe was to a very much extent incorporated into the Northern Wei Empire, whose foundations had been set, by the way, by some other tribe of Xianbei-Tuoba's branch[10]. However, this style was continued later on in the East, in Baekje as well as in Gaya in the Korean Peninsula, and most intensely, in the Kingdom of Silla, where some very sophisticated adornment was produced, with the additional decoration of jade pendants. The most eastern land where they are found is Japan, and the best example of such site is the burial No. 126 in Niizawa Senzuka[11]. The grave goods found there, apart from a square openwork plaque from a diadem with leaf pendants as its decorative pattern, include, among others, two glass vessels (Roman and Sasanian), and other objects stylistically suggesting cultural bonds with the Korean Peninsula. Returning to Silla, it should be mentioned that there are some other artifacts showing an obvious influence of the nomads of Eurasia and, farther still, with some cultural circles from its easternest points; an example for this stylistical direction could be a dagger from the grave Gyerim-ro No. 14 in Gyongju (5th century - early 6th century)[12] and a torque from United Silla kingdom[13].

A tendency to repeat a certain number of vessels can be observed in this burial. Most often, there are two vessels (five cases); rarely, there is only one, or pieces of it[14]. In only one case of the double burial Hwangnamdaechong No. 98, the number of glass vessels is greater. In the northern grave identified as the one of the queen[15], where more gold objects have been found, a.o. an exquisite crown additionally decorated with 77 jade pendants, three glass vessels have been discovered **(Fig. 1.1)**. On the other hand, in the southern grave, where a crown of silver has been found which is decidedly less representative, as much as seven vessels were deposited; six of them are intact and of the seventh one, only bottom and upper parts are preserved, most probably belonging to the same ware **(Fig. 1.2)**. However, the southern grave is abundantly supplied with iron artifacts[16]. This untypical burial is interpreted as being the double grave of a royal pair, the female being more outstanding and representative[17]. Yet, there are no

[8] OTANI 2011, p. 81-89, fig. 1: 1-9.
[9] About Murong Xianbei cf. HOLCOMBE 2013, p. 10-15.
[10] LEIDY 2012, p. 116-117. About Murong Tuoba cf. HOLCOMBE 2013, p. 15-22.
[11] NIIZAWA 1977, p. 47-52, fig. 27-30, pl. 13, 29- 37.
[12] HAYASHI 2013, p. 426, fig. 30-32.
[13] MIYASHITA 2010.
[14] LEE 2010, Table 1.
[15] KIM 2016.
[16] PARK 2008, p. 126-128, fig. 11.
[17] In literature, the information can be found that the burials containing Golden crowns are typical for female graves (LEIDY 2012, p. 120); on the other hand, bone material is lacking and the *male* character of the grave goods is rather obvious, so it is a rather doubtful interpretation.

mentions in written sources about any female rule[18], so that this can only be interpreted as the reflection of co-ruling of the royal pair[19].

A special importance of glass vessels among the elites of Silla is also accentuated by the fact of depositing them in wooden chests which were placed in the burial chamber and filled with precious objects[20], or were put next to the bodies, most often at their heads[21], but also at their feet, as in the case of Gaya[22].

Graves with glass vessels, outside Korea, have also been unearthed in Kazakhstan[23], Mongolia[24], China[25] and Japan[26]. Their common feature of Kazakh, Mongolian, Northern-Eastern Chinese and Japanese are indirect relations (nomads; burials) or direct ones (the presence of stylistical elements associated with nomadic peoples) with the nomadic environment, mainly with the tribes of Xiongnu and Xianbei.

Products of glass, with the focus of this article placed on glass vessels, were very appreciated in the societies of the Far East because of their exotic material, shapes, colors or their obscure origin and provenance from some far-off lands[27]. Most often, their transparency and similarity to jade were admired[28]. In Chinese written sources, several remarks can be found illustrating the way they were perceived:

In foreign countries water essence bowls are produced, which in reality are made by mixing five types of powdered components. Nowadays there are many [of those] who possess this method and produce them [bowls] in Jiao and Guang. Now, if we talk about the simple people, they are not willing to believe it. They say that the water essence is natural, like jade[29].

Another fragment reads:

Wang Tao[30] *was once drinking together with the other countries. Raising a colored glass (liu-li) bowl, he said to Chou I*[31]*, 'The belly of this bowl is extraordinarily empty, yet*

[18] About ruling queens in Far East see: ARAKI 1999, p. 2-5.
[19] NELSON 1993, p. 249.
[20] KIM 1983, p. 39, 45.
[21] ITO 1971, p. 120.
[22] LEE 2010, Table 1.
[23] KROPOTKIN 1970, p. 111.
[24] OTANI 2017.
[25] AN 2004; 2016.
[26] SUGIYAMA 2012.
[27] SCHAFER 1963, p. 236. See also DIEN 2007, p. 287-293.
[28] AN 2002, p. 57; HOPPÁL 2016, p. 106.
[29] (Ge Hong, Bao Puzi) Translation Marta Żuchowska. Borrowed from ŻUCHOWSKA & SZMONIEWSKI 2017, p. 170. The Baopuzi (compiled ca. 317-318 AD see: WARE 1966, p. 17), Inner Chapters: Chapter 2 - About Immortals.
[30] Wang Dao (276-339) was Eastern Jin Dynasty statestman. See SHIH-SHUO HSIN YU 2002, p. 626.
[31] Zhou Yi, courtesy name Boren (269-322) was Eastern Jin (317-420) statesman. See SHIH-SHUO HSIN YU 2002, p. 546-547.

it's called a precious vessel. Why?' Chou replied, 'This bowl is lustrous and luminous, genuinely clear and translucent. That's the only reason it's precious[32].

The information of a high valuation of glass vessels, compared to the objects of gold is especially proved by two sources:

When he [Wang Tun][33] *came back the slaves girls held out a golden washbasin filled with water and a colored glass (liu-li) bowl filled with "bath beans" (tsao-tou). Tun proceeded to empty them into the water and drink them down, supposing them to be dried cooked rice. All the slave girls cupped their hands over their mouths and laughed at him*[34].

and:

[Yüan] Ch'en[35] *often gathered members of the royal household [at his mansion], and displayed all his treasures [for them]: more than one hundred gold vessels and silver jars, about the same amount of [gold and silver] bowls, footed containers, plates and boxes. Among other drinking vessels were several scores of quartz bowls, agate cups, glass bowls, ruby goblets – such marvelous craftsmanship was not to be found in China. All came from Western Region*[36].

The imported Glassware was also a subject of poetry. The most significant is *Rapshody on a Glass bowl*[37].

While on the subject of Chinese written sources, let us have a look at a fragment from Yen Fan Lu dated in the year 1175 – it could be seen as a curiosity but also as an explanation for the superiority of glassware imported to China from other lands:

The liu-li which is made in China is rather different from that which comes from abroad. The Chinese variety is bright and sparkling, and the material is light but fragile.

---

[32] From SHIH-SHUO HSIN YU 2002, p. 440 (A New Account of the Tales of the World - Chapter 25: Taunting and Teasing). Compiled and edited by Liu Yiqing (403-444). See also translation by Jiayao An (AN 2002, p. 56-57).

[33] SHIH-SHUO HSIN YU 2002, p. 516 (A New Account of the Tales of the World - Chapter 34: Crudities and Slips of the Tongue).

[34] Wang Dun, courtesy name Chuzhong (265-324) was a Jin Dynasty (265-420) governor, general and warlord. See SHIH-SHUO HSIN YU 2002, p. 627. See also translation by Jiayao AN 2002, p. 58.

[35] Prince of Ho-chien.

[36] YANG 1984, p. 193. The mention about the custom of storing food in glass vessels at the imperial court is contained in Cui Hong zhuan, section of Jin shu (compiled in the 7th century; see AN 2002, p. 58).

[37] *Examining those rarities amid the regional tributary offerings, / One prizes the uniqueness of this bowl / It would have had to across the remote perils of the shifting sands / And traverse the precipitous dangers of the Pamir. / The way it came was obstructed and distant, / The place to which it was consigned was dark and deep. / One relied on the multitudinous paces of repeated peaks / And overlooked the myriad spans of floodinf streams […] / […] Its gleam and glitter [match] the sun's dazzle. / Its roundness and repletion [mirror] the moon's fullness. / Hairline blemishes are not to be found, / And fying dust does not adhere. / Its clarity and sparkle are on a par with a candle flame, / Its outer and inner surfaces conform to [one] shape. / Congealed frost is inadequate to match its purity, / Limpid water is unable to convey its clarity. / Its hardness is beyond that of gold or stone, / Its strength challenges the most excellent jade / Grinding does not wear it down, / Besmiriching does not soil it. / To raise this bowl to toast the guests / Is to add luster to the imperial banquet's close-packed ranks. / Its flowing luminosity is bright and briliant so as to discern what is inside, / The clear wind's glitter and gleam can be seen from without.* Pan Ni (d. 311 A.D) borrowed from DIEN 2007, p. 291-292.

If you pour hot wine into it, it will immediately break. That which is brought by sea is rather rough and unrefined, and the color is also slightly darker. But the strange thing is that even if hot water is poured into it a hundred times, it behaves like porcelain or silver and will never break[38].

The presence of glass vessels within the Buddhist complex in Baekje should not surprise us when we consider the fact that glass belonged to the seven treasures of Buddhism, next to gold, silver, lapis-lazuli, crystal and agate. In this case, the finds of glass there should be associated with the Chinese Buddhism[39] which is supported by some later finds of glass śarīra in United Silla[40]. Generally speaking, glassware in the context of Buddhist monasteries in China was a high treasured rarity and had a very high status within the hierarchy of materials[41]. From the perspective of Buddhism, glass vessels can be analyzed as belonging to two categories: as a luxury gift and as reliquaries. As the first category, Shen Hsueh-Man interprets the gesture of offering glass vessels as a form of *conspicuous consumption*, when an ideal gift of its own aesthetical value and of a high market value is never supposed to be retrieved, and so, there is the lack of any repayable material advantage. Another important feature is the perception of glass in the context of the Buddhist concept of translucent and clarity, the characteristics which are ideal for a material to enshrine the Buddha's relics[42].

Concluding the above remarks about the perception of glassware, mainly vessels, by the society of Ancient China, it should be said that the highly probable diversity of forms and coloring of the vessels can be explained by different aesthetical tastes of diverse societies inhabiting territories of East Asia. Thus, it cannot be excluded that within Proper China, lighter and more translucent kinds of glass were preferred which is supported by the finds there, and other forms of glass were traded farther as less attractive from the local aesthetical point of view. This does not mean, though, that within Chinese borders, multicolored glassware produced in Da Qin (Roman Empire) was not known; in the opposite, they were mentioned in the list of products being objects of such trade: this list includes *ten varieties of glass: red, white, green, yellow, blue-green, dark blue, light blue, fiery red and purple*[43].

2. Localization of workshops and potential routes of importing glass vessels to Korea (Fig. 2).

It is difficult to unambiguously define places of the production, as well as routes of import of glassware, taking the complex history of the regions between Mediterranean basin and the Chinese Sea into consideration. In regard of the

[38] Around 1175 AD – The Yen Fan Lu. See: NEEDHAM 1962, p. 110.

[39] About Chinese-Korean contacts in the Three Kingdoms period see: BUSH 1984 and KOUDELA & YOO 2014.

[40] JOO 2003 &HONG 2010.

[41] SHEN 2002, p. 72-74.

[42] SHEN 2002, p. 77-78.

[43] Weilüe (Brief Account of Wei) written by Yu Huan between 239 and 265 AD. See HIRTH 1885: 73, new translation: HILL 2004: http://depts.washington.edu/silkroad/texts/weilue/weilue.html#section12.

forms of vessels and their decorative patterns, Syro-Palestinian manufacturing centers seems to be the most probable provenance. It is true that the results of chemical analyses of a part of vessels from the mound No. 98 which are typical for this circle, show their chemical composition to be *plant ash soda glass with magnesia higher than 1.5 wt.%*[44] and so they seem to be made according to different recipes than those used in the Roman Empire which were based on soda-lime glass[45]; the closest linkage connects them with the Sasanian and Central-Asian products[46]. In other cases, the lack of such chemical analyses makes their identification and chemical description impossible as yet. Most interesting are close stylistical connections of a part of the glassware with those made according to the formulae from Veh Ardašīr. At this site, as well as in Niniveh, artifacts imported from the Late Roman Empire and made of natron glass have been discovered, deep bowls and conical lamps with blue dots among them[47]. Within the Sasanian Empire, Mesopotamia, and with a high probability Southern Caucasus, were the main centers of glassware manufacturing. They were located in the zone of the interpenetration of Sasanian and Roman political interests and influences. Very much important was also the fact that Mesopotamia was located in the close neighborhood to the very active Eastern Mediterranean centers, where numerous glass products have been discovered, although no direct traces of glassware production there have been found and played an active role in the exchange of prestige goods[48]. A big role was played also by Christian and Judaic societies which were maintaining close contacts with their own kind living beyond Euphrates; these contacts resulted in the increased intensity of the trade between the East and the West[49]. In the case of the southern Caucasus, the probability is high that glass products found there were imports from the workshops situated on the coasts of the Black Sea[50]. Thus, it is probable that the routes on which products from the Syro-Palestinian workshops[51] were transported ran through the territories of the Sasanian Empire[52] as far east as Honshū [53]; along these overland routes, small caravans of camels carried goods wrapped in cotton and placed in wicker baskets protecting the goods from being damaged. Obviously, it was Sogdian merchants who played the most important role in these imports[54]. These routes

[44] LANKTON *et al.* 2009, p. 580.

[45] FREESTONE 2005; FREESTONE 2006.

[46] LANKTON *et al.* 2009, p. 582.

[47] SIMPSON 2015, p. 80; SIMPSON 2003, p. 149, fig. 3.

[48] For example, Palmyra: GAWLIKOWSKA 2015 or Dura Europos: GROSSMAN 2011. Long-distance trade: BALL 2000, p. 123-139; ŻUCHOWSKA 2010 and 2013. After the fall of Dura Europos in 256 and the fall of Palmyra's magnificence at the end of the 3th century, the road of the hearse rises north, through Asia Minor and on to Constantinople, and Syria itself is no longer part of the Silk Road - DIEN 2004, p. 25-26.

[49] DIGNAS & WINTER 2007, p. 208-209. See also GAWLIKOWSKI 1983 and BERNARD 2005.

[50] SIMPSON 2015, p. 94.

[51] GORIN ROSEN 2000.

[52] MEREDITH -GOYMOUR 2006, p. 123.

[53] ABE, SHIKAKU & NAKAI 2018.

[54] JÄGER 2003.

could also be the ways of the transfer of anonymous craftsmen and raw materials necessary for glassware production towards Central Asia. Local glassmakers accustomed with the Roman techniques and traditions were later producing similar glassware using local raw materials[55]. Recycling of the Roman glass vessels, as for example a beaker with blue dots decorated in the Sasanian style of cutting[56] or gold (?) paintings of Sasanian style in a figural composition on the surface from plate Niizawa Senzuka from Japan[57], obviously points to the attractively of Roman models and to the possibility that local craftsmen were lacking skills necessary for the production of similar artifacts. At this point, it is necessary to underline that the range of forms, shapes and patterns of the Sasanian glassware is much poorer than of their Roman equivalents.

In literature, there is similarity between certain vessels from Korea and the glassware from the workshops along the Rhine. Yet, similar forms as displayed by the latter appear also in the Syro-Palestinian glassmaking circle, which is explained by the phenomenon of an extraordinary uniformization encompassing products from Rhineland, Egypt, Syria and North Pontic production areas in regard to the shapes of vessels, as well as to the decorative patterns[58].

The second potential region of their production as pointed to by analyses of a part of vessels from the burial 98 is Central Asia, especially Bactria and Tocharistan. Problematic is, however, a relatively small number of specimens found in this area which can be dated in the period between the 5th and the 7th centuries; another problem is connected with the difficulties of the chronological identification of finds, and, last but not least, the complete lack of sites which could be glassmaking workshops[59]. The types of the receptures are as many as 16, according to Abdurazakov, which shows how great was the diverseness of the techniques used in glassmaking between the 2nd century BC to the 14th century AD in the valleys of the rivers Surkhandaryo and Kashkadaryo, and in ancient Khorezm in Southern Uzbekistan[60]. Among chemical analyses published, and concerned with glass artifacts dated in the 4th and 5th centuries from the Surhandarja valley, most interesting results point to a high percentage of Al_2O_3 alternating between 11.03 wt.% and 2.41 wt.%, with K_2O lying between 5.11 wt.% and 2.73 wt.%; for artifacts from Kashkadarja valley (4th – 6th century) analyses show Al_2O_3 alternating between 13.27 wt.% and 2.27 wt.% and K_2O from 4.05 wt.% to 1.02 wt.% which suggests a clear advantage of plant-ash soda limes of Central Asian origins as their chemical compounds, and, to a lesser extent, plant ash soda related to Sasanian glass[61]. Apart from one result of the analysis of a colorless fragment of

[55] If merchants were travelling along this route, why should we not assume that craftsmen were also taking it?

[56] SIMPSON 2015, p. 95, fig. 17:1.

[57] MASUDA 1972.

[58] STERN 2001, p. 130.

[59] LANKTON *et al.* 2009, p. 585, 586; ABDURAZAKOV 2009, p. 216.

[60] ABDURAZAKOV 2009, Table: 8.1, 8.2, 8.3. Chemical types of glass from Uzbekistan: Table 8.4.

[61] ABDURAZAKOV 2009: sample 8 from Table 8.2 has a lower content of K_2O than Sasanian glass (over 2%), however the content of Al_2O_3 is lower – 2.27% and MgO 5.40%.

bottle from Kashkadarja valley (4th – 5th century), which is most closely related to the chemical compounds of a bluish green trail (colored with CuO) with an ewer from the mound 98[62], all other finds show a huge discrepancy in regard to percentages of their respective chemical compounds[63]. Such discrepancy is thought to be the evidence of experiments conducted by local glassmakers introducing new techniques, raw materials and decorative patterns; thus, this region *joue un role important dans la propagation de ces innovations dans toute l'Asie centrale*[64].

A more recent interpretation of three of the analyzed vessels from the mound 98 (2, 6 and 7) using the cluster analysis has shown their closer similarity to glass beads and bead making debris from Bara in northwestern Pakistan, however dated broadly from 2nd century BC to 2nd century AD. These finds may serve a proxy for at least one type of Central Asian glass from within the Kushan Empire that extended from northern India to northern Afghanistan, and the vessels manufactured according to similar formulae may represent the later expression of a Kushan/Bactrian glassmaking tradition[65].

In this context of the Central-Asian origin of the vessels, a remark from 'The History of Northwestern Dynasties' seems to be especially interesting[66]:

At the time of Shi Tsu[67] a merchant of Ta Yüeh Shih Kuo[68] traded in the capital. He spoke of his ability to make glass of five colors by smelting stone. Thereupon ore was gathered from the mountains and smelted in the city. Results were obtained. The luster of the glass objects made was more beautiful than that of those which came from the west. A crystal Palace large enough to accommodate more than one hundred persons was constructed at the Imperial command. The light and color shining through the building looked beautiful. So much so that all those who gazed upon it marveled and believed it to be the work of the gods. Henceforth the value of glass went down in the country, and the people no longer regarded it as a rarit[69].

The terms Yuezhi or Greater Yuezhi were applied by Chinese written sources for Kushan and their successors Heftalites, i.e. it related to the territories of Bactria and Tocharistan[70]. The rules of those state entities sent diplomatic missions as

Glass produced in Central Asia has similar composition to Sasanian glass, however, Central Asian glass has higher concentration of K_2O, and sometimes also Al_2O_3 (ŻUCHOWSKA 2016).

[62] Chemical analysis of the trail has shown its similarity to composition of Sasanian glass from Veh Ardašīr, por. LANKTON *et al.* 2010, p. 234.

[63] ABDURAZAKOV 2009; table 8:2 sample 3 and LANKTON *et al.* 2010, Table 1, vesel 1 ewer – bluish green trail.

[64] ABDURAZAKOV 2001, p. 400-401; ABDURAZAKOV 2009, p. 216.

[65] LANKTON *et al.* 2010, p. 223.

[66] Yoshida HARADA (1939, p. 60-61) was the first to draw attention on to fragment and I borrowed his translation.

[67] Emperor Taiwu of Northern Wei (408–452 AD).

[68] Dayuezhi.

[69] HARADA 1939, p. 60-61. See other translations: AN 2002, p. 64-65; Żuchowska in ŻUCHOWSKA & SZMONIEWSKI 2017, p. 171-172.

[70] THIERRY 2005 , p. 423; LA VAISSIÈRE 2007; LANKTON *et al.* 2009, p. 587.

well to Northern Wei as to Liang[71]. The first of those missions to Northern Wei took place in the year 456, and the next one only in the year 507. Since that year, Hephtalites sent tributaries almost annually until the year 558 (from 534 to 537 - to Western Wei), and in the years 524, 530, 532 such missions took place even twice a year[72].

Vessels made according to the chemical compound similar to the types of the Central-Asian (Silk Road) glasses as they were categorized by Brill[73], have been found in the burial No. 16 localized near Datong[74]. First of the artifact is a ewer/beaker made of dark opaque glass, resembling very much to local ceramics products[75]. A next vessel being a cup has been found together with three other vessels and a fragment of a foot in the grave of Feng Sufu[76] in Beipiao in Liaoning province, dated in the year 415 AD[77]. The cup made of translucent greenish glass has a convex bottom, slightly cut-in neck and the rim folded inward[78]. Interesting is the rim of the cup folded inward, similarly to the other shallow bowl with the foot in the form of a ring from this grave, reminds the the rims of two steamed cups from the grave No. 128 in Korea. According to Jiayao An, the bowl from the grave in Datong mentioned above, together with two other small vessels from this grave as well as a set of another seven ceramic products from a pagoda in Digxian were made by Bactrians at Datong (Pingcheng)[79]. Finally, a glass vessel from the treasure in Hejia village[80] should be mentioned buried in the first (?) half of the 8th century[81], which, after being chemically analyzed, shows striking similarities to Central Asian glassware, the same similarities can be observed in a fragment of a similar vessel from the Togujai (Moji) site in Xinjiang[82]. According to some new proposal, the vessel from Hejia is thought to belong to gifts[83], which were offered at the Imperial Court of Tang by the envoy from Kapiśa[84] in 619 AD. A crystal cup[85] is said to belong to these gifts, which is being interpreted as a glass artifact now[86]. This suggestion is very tempting when we remember that Begram was

[71] LUNG 2011, p. 27.

[72] KUWAYAMA 2002, p. 128, Table 2.

[73] BRILL 2009, Table 3.1 and 3.2.

[74] AN 2009, p. 383-384, Table 19.4.

[75] ŻUCHOWSKA & SZMONIEWSKI 2017, p. 172, fig. 8, 9; CHEN *et al.* 2016, Table 1.

[76] Younger brother of the Emperor Wencheng, Northern Yan (409-436AD).

[77] Two cups, bowl, lower fragment of the foot, and a duckshaped *unguentarium* FENG SUFU 2015, p. 34-37, fig. 23: 1-4 and 24: 1, Plates : 29: 1-3, 30: 1-3, 31: 1-3, 32: 1-3. Jiayao An linked these five glasswares to the northeastern Roman provinces glassmaking workshops (AN 2015, p. 233.)

[78] FENG SUFU 2015, fig. 23: 1 and 3, plate 29 and 32: 1-2.

[79] AN 2009, p. 385. See also CHENG 2014, p. 136-141.

[80] HUA WU DA TANG CHUN 2013, p. 101, no. 12.

[81] HANSEN 2012, p. 152 (not longer after 731 AD).

[82] LU *et al.* 2017, p. 116-117. See also BRILL 2009, p. 146, Tabl. 3.2. & 3.3.6.

[83] LIN 2017; AIHAITI *et al.* 2017.

[84] Kapiśa was situated in Afghanistan and centered on what now is Kabul.

[85] In 619, envoys from Kapiśa to the Tang court offered valuable belts, golden chains, rock crystal cups, glass, and date seedlings see: BIELENSTEIN 2005, p. 349.

[86] The Chinese believed that the glass is a product of nature and often linked it with crystal or jade. See ŻUCHOWSKA & SZMONIEWSKI 2017, p. 170.

localized just in the place of the later state Kapiśa, which will be explained below; this fact could point to a certain continuation of a probable glassmaking tradition that had been evolving there since the Kushan period. However, yet another mention about a similar gift offering from Chieh can be found, which took place before the year 619[87]. Chieh was probably localized in West Turkestan. Begram placed south from Bactria was the place of a spectacular find in two storerooms, anciently sealed off, in the so-called Palace in the New Royal City; the storerooms were filled with luxury goods coming from Graeco-Roman Mediterranean, India and China. Among these imported treasures, a diversified set of glassware was found consisting *of cut-glass vessels, mold- blown glass, glass with faceted decorations, colored enameled vessels and vessels with applied molded relief decoration, even bowls of millefiori or mosaic glass* and *multi-colored asks in the shape of fish and boats*[88]. These artifacts are dated, according to recent analyses, in the first or in the early 2nd century AD.[89] It is suggested that they were brought in via the sea route across the Red Sea and Indian Ocean[90]. However, I would like to draw the attention to some doubts expressed by Sanjyot Mehendale, when she wrote: … *Begram was not merely a crossroads storage site but a trading center with its own workshops or ateliers*[91]. The localization of Begram within the very center of these old trade routes caused the fact that the city was connecting many routes running West toward the Caspian Sea and Mediterranean, from the South- from India seaway toward Mediterranean with the route of the Silk Road running East. The researcher in her analyses points to the fact that the question of the deposit of Begram has never really been solved as yet by associating it to some royal treasure, and thus, its interpretation can be different: *Central Asia in general and the Begram area in particular may have had local products – cultivated, manufactured or existing naturally – which were valued, even coveted by the Roman, Chinese and Indian worlds and which were traded for goods such as those discovered at Begram* and, due to this, it could as well be *a customs depot where trade taxes in kind were protected*[92]. Thus, within these territories, at some later points of time, different branches of craft could also evolve, among them glassmaking, relating to Mediterranean traditions but with a stamp of local provenance.

Some evidence of contacts between envoys from Korean Ambassadors with Central Asia representants is said to be presented by somewhat later paintings in Afrasiab (second half of 7th century) in present-day Uzbekistan; they were made later, this is true, but they could also suggest that such high-ranking contacts could take place also in the past[93]. An analysis of these frescoes and their comparison with other depictions of Korean ambassadors from the wall paintings in Xian

[87] In 619, envoys from Chieh to the Tang court offered a valuable belt, a golden chain, a crystal cup, and 490 pieces of glass see BIELENSTEIN 2005, p. 339-340, 345.

[88] MAIR 2012; see also WHITEHOUSE 2012, p. 54-63.

[89]At beginning the deposition time was related to mid-3rd century AD. Now, an early 2nd century AD date for the concealment of the treasure BALL 2000, p. 136-137.

[90] BOȚAN 2014.

[91] MEHENDALE 1996, p. 58.

[92] MEHENDALE 1996: 60. See also: MAIR 2014; BHATTACHARYA-HAESNER 2016.

[93] KIM 1983, p. 45.

and Dunhuang, as carried out by Etsuko Kageyama, has brought some interesting results. The Japanese researcher has proved that this depiction is a stereotypical depiction of Korean envoys, the stereotype having been created in Xian, as next applied in Dunhuang, and finally in Afrasiab. Considering this interpretation as being true, we cannot but agree with her conclusion that these depictions *can no more be taken as evidence that Korean ambassadors actually visited Samarkand in the second half of the 7th century*[94].

Finally, another probable place of the production of the vessels, taking into account the similarity of the vessels with blue dots and the jug, we could suggest the northern coast of the Black Sea. However, in this case, the possibility that these vessels were imports from the Syro-Palestinian area should also be considered seriously. Very probable is the thesis that it was via Southern Caucasus that the glassware was imported to the Sasanian Empire which seems to be supported by the finds of such imports from the Gilan province[95] and from there, farther, across Central Asia, to their Korean destination.

Similarly as in the case of a potential place of their production, it is difficult to establish with certainty their routes of import to the Korean Peninsula. The role of the nomadic societies living in the steppe zones, especially of the peoples from Northern China, i.e. Xianbei, both Murang and Tuoba tribes, seems to be most important[96].

In the first horizon dated in the second/third quarter of 4th century contacts with Former Yan (337-370)[97] and Northern Wei (386-535) are being suggested to be the prior ones, which, more generally, means cultural influences of the Murong and Tuoba of Xianbei tribes. With a high probability, Western Jin can also be pointed to. Both in the burials of Northern Wei and Western Jin, glass vessels have been found which resemble those Korean ones[98]. On the other hand, the role of Lelang commandery active since the year 108 BC and subjugated by Goguryeo in 313 AD cannot be excluded.

The second horizon with the chronology established in the period between the 5th century to the first half of the 6th century AD falls into the times of solidification of Silla as a state entity, the times of its raising power and increased activity in the region. For this epoch, Silla's transregional contacts with ruling dynasties in China, especially with Northern Wei[99], are accentuated. The intermediary in these contacts with the world of the steppe is considered to be Goguryeo, where numerous noble metal products came from, deposited in the graves of Silla. Unfortunately, apart from one exception, no localizations could be ascribed to the finds from the area occupied by this state entity as yet.

The last horizon related to the period starting in the second half of the 6th century is associated with the widespread of Buddhism; admittedly, Chinese dynasties played an important role also in this process.

[94] KAGEYAMA 2002, p. 319.
[95] SHIKAKU 2013, p. 356-357; 2016.
[96] About Korean contacts with Steppe see RÓSEN 2009.
[97] Possible also Later Yan (384-409). See LEE 2010, p. 215.
[98] HOPPÁL 2016; AN 2016.
[99] Possible also Northern Yan (407-436).

Sara Nelson suggests that vessels produced in Central Asiatic workshops, i.e. the Bactrian moved *north of the Altai Mountains* and *across the Eurasian Steppes to Liaoning could have gone directly from Northern Yan or Northern Wei to Silla*[100]. The route across the steppe seems to be an attractive hypothesis, not only as a way of circulation of products from Central Asia, but also of imports from the Roman Empire and the wider sense West provenance which is supported by the growing number of such finds[101]. Thus, second to Xiongnu's role[102] in the distribution of luxury goods across the steppe, the tribes of Xianbei are most probable candidates, and in the later times, also nomadic peoples living there[103].

The most probable route, however, seems to be the one leading from Bactria/ Tocharistan, through Tarim basin around the Taklamakan desert and Turpan-Hami depression, to Hexi-corridor, and farther east. Most important part was played certainly by the Sogdian merchants used as go-betweens starting from the 5th century, and perhaps even earlier, who as small peddlers left Gansu or Turfan heading, among other routes and destinations, in the steppe[104]. It is supported by numerous finds of glassware and by many depictions of glass vessels on the paintings in the Dunhuang caves[105] **(Fig. 3-5)**. By this route, most probably, Roman Sasanian and Central Asian products were transported. The last region mentioned above was probably most important and the direction was known also due to the Buddhist monks, Faxian (337? -422?) and Xuanzang (600? – 664) among them, travelling there from the fifth to the seventh centuries[106].

3. Conclusions

The finds of glassware within the Korean Peninsula, in the regions of Silla and Paekche kingdoms as well as within the boundaries of Gaya confederation are striking due to their great number compared to other territories of the Far East. They show huge similarities to the glass products from the Roman Empire and especially from the eastern coasts of the Mediterranean, i.e. from the Palestyno-Syrian circle. The results of the specialist analyses of some of the vessels, however, point to the Sasanian and Central Asiatic cultural circle. It should not be excluded, though, that a part of the vessels was produced by travelling craftsmen from the Roman Empire imitating, with a diverse success, the glassware of the Roman provenance. 'Romanizing glass', the term frequently used in literature, seems to express well the character of these products. Here, the most interesting region seems to be Bactria/Tocharistan. Considering these regions as the most probable hubs of glassware trade throws a new light on the productive

[100] NELSON 2017, p. 73.

[101] BROSSEDER 2015, p. 260-266, fig. 29.

[102] Problem of the hypothesis about the redistribution of luxury goods by Xiongnu see HONEYCHURCH 2015, p. 288-290; BROSSEDER 2015.

[103] STARK 2015.

[104] LA VAISSIÈRE 2002, p. 202-204; LA VAISSIÈRE 2004.

[105] TANIICHI 1986. Similar depiction to glass vessel from Hejia treasure is known from the painting of The Kumtura (Qumtura) Thousand Buddha Caves AIHAITI *et al.* 2017, fig.1: 3.

[106] SEN 2006.

possibilities of this area, being often ignored due to its location between great civilizations of Rome, Sasanian Empire and China, but playing an undoubted role in the production and transfer of prestige goods. It seems to be supported by the production of metal vessels, mainly of noble metals, which has brilliantly been concluded by Borys Marshak: *the silversmiths of Central Asia often reproduced prestigious models – in Bactria these were Hellenistic or, occasionally, Roman – but they did not copy them mechanically and would invariably add small, seemingly incidental ornamental details that they had memorized in their early training*[107]. An analogical process could be suggested in the case of glass vessels. A possible activity of is the one of a workshop in Datong (Pingcheng), being the capital of Northern Wei until 494 AD, because of the interesting accumulation of metal vessels associated with Bactrian- Tocharian silversmiths there.

The appearing of a vessel in rich graves, conspicuous due to their construction as well as to their inventory, points to their special prestige status. One of the proofs of their special treating may be an ear of a jug mended by the means of a golden wire[108].

Undoubtedly, a great role in the imports of glassware to Silla was played by the nomads of Murong and Tuoba tribes of Xianbei peoples, the founders, among others, of Former Yan, Western Yan, Later Yan and Northern Wei state entities, whereby the last dynasty mentioned here played, in my view, especially important role in this process.

Fragments discovered in Baekje should certainly be associated with Buddhism and the perception of glassware as the one of the seven Buddhist treasures. However, this religion influenced the change in the character of glassware, which, in the place of grave goods, became gifts offered to Buddhist temples[*].

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.

[107] MARSHAK 2004, p. 50.

[108] Analysis of the golden wire see: HWANG & YUN 2015.

[*] This paper could not be written without help of many people. Foremost, I would like to express my special gratitude to professor Toshio Hayashi from Sōka University (Tokyo) for his help in my research, sharing his knowledge and support. Special thanks are to Dr. Ryuji Shikaku (Okayama) and Dr. Marta Żuchowska (Warsaw) for interesting and inspiring discussions. I am grateful to professor Michiyo Moriya (Tokyo) for help in reading Japanese, Kyungsoo Yun (Seoul) Korean and professor Li Jingxiu (Beijing) Chinese Literature. Special thanks goes to Dr. Danica Staššíková-Štukovská (Nitra), Professor Michel Kazanski (Paris), Dr. Etsuko Kageayama (Nara), Dr. St John Simpson (London) for all their help in collecting the specialist literature. I would like to express my gratitude to Valentina Voinea (Constanta) for her encouragement which helped me in competition of this paper. Last but not least, I want thank to Agnieszka Świetlicka (Piaski Luterskie) for help in translation of this paper into English.

ABDURAZAKOV 2001 – A. Abdurazakov, *La production artisanale en Bactriene-Tokharestan*, in: P. Leriche, C. Pidaev, M. Gelin, K. Abdoullaev (eds.) *La Bactriene au careffour des routes et des civilisation de l'Asie centrale: Termez et les villes de Bactriane-Tokharestan*, Paris, 2001, p. 399-402.

ABDURAZAKOV 2009 - A. Abdurazakov, *Central Asian Glassmaking During the Ancient and Medieval Periods*, in: Gan Fuxi, R. Brill, Tian Shouyun (eds.), *Ancient Glass Research along the Silk Road*, Singapore, 2009, p. 201-219.

AIHAITI *et al.* 2017 – M. Aihaiti, S. Kim, C. Hao, *Sichou zhi lushang de zhong ya boli qi jian lun zhong ya boli qi xiang zhongguo, chaoxian bandao he riben zhi chuanbo*, Kaogu yu wenwu 224 (2017), 6, p. 104-110.

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

AN 2004 - J. An, *The art of Glass along the Silk Road*, in: J.C.Y. Watt, J. An Jiayao, A.F. Howard, B. Marshak, Su Bai, Zhao Feng (eds.), *China, Dawn of a Golden Age*, New York–Yale–New Haven–London, 2004, p. 200–750, 57–65.

AN 2009 – J. An, *Glasses of the Northern Wei Dynasty found at Datong*, in: G. Fuxi, R. Brill, T. Shouyun (eds.), *Ancient glass research along the Silk Road*, Singapore, 2009, p. 379–386.

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

AN 2016 – J. An, *Sichou zhi lushang de boli qi*, in: F. Luo, X. Rong, *Sute ren zai Zhongguo: kao gu fa xian yu chu tu wen xian de xin yin zheng*, Beijing, 2016, vol. 1, p. 1-12.

ARAKI 1999 – T. Araki, *Sokuten bukō to Ajia no jotei*, Sinica 10/12 (1999), p. 2-5.

BALL 2000 – W. Ball, *Rome in the East. The Transformation of an Empire*, London - New York, 2000.

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

BERNARD 2005 – P. Bernard, *De l'Euphrate à la Chine avec la caravane de Maès Titianos (c. 100 ap. n.è)*, Comptes Rendus de l'Académie des Inscriptions et des Belles Lettres" 149 (2005), 3, p. 929–968.

BHATTACHARYA-HAESNER 2016 – C. Bhattacharya-Haesner, *Central Asia: A Melting Pot of Persian, Greek, Indian and Chinese Cultural Traditions*, Indian Journal of History of Science 51 (2016), 4, p. 630-643.

BIELENSTEIN 2005 – H. Bielenstein, *Diplomacy and Trade in the Chinese World 589-1276*, Leiden-Boston, 2005.

BOȚAN 2014 - S. P. Boțan, *The Road to the Indies. The glass evidence*, Studia Antiqua et Archaeologica 20 (2014), p. 153-170.

BROSSEDER 2015 – U.B. Brosseder, *A Study on the Complexity and Dynamics of Interaction and Exchange in Late Iron Age Eurasia,* in; J. Bemmann, M. Schmauder, *Complexity of Inter Action along the Eurasian Steppe Zone in the First millennium CE*, Bonn, 2015, p. 199-332.

BRILL 2009 – R. H. Brill, *Opening remarks and setting the stage. Lecture at the 2005 Shanghai International Workshop on the Archaeology of Glass along the Silk Road*, in: Gan Fuxi, R. Brill & Tian Shouyun (eds.) *Ancient glass research along the Silk Road*, Singapore, 2009, p. 109–148.

BUSH 1984 – S. Bush, *Parallels between Chinese and Korean Ornamental Motifs of the Late Fifth and Early Sixth Centuries AD*, Archives of Asian Art 37 (1984), p. 60-78.

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.

CHENG 2014 – B. Chen, *Exchange across Media in Northern China*, in: R.O. Lopes, *The Transcendence of the Arts in China and Beyond: Historical Perspectives*, Lisbon, 2014, p. 114-145.

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

GAWLIKOWSKI 1983 – M. Gawlikowski, *Palmyre et l'Euphrate*, Syria. Archéologie, art et histoire 60 (1983), 1-2, p. 53-68.

GAWLIKOWSKA 2015 - K. Gawlikowska, *The Glass Industry in Palmyra*, Syria. Archéologie, art et histoire 92 (2015), p. 291-298.

DIEN 2004 – A. Dien, *Palmyra as a Caravan City*, The Silk Road 2 (2004), 1, p. 21-28.

DIEN 2007 – A. Dien, *Six Dynasties Civilization*, New Haven, 2007.

DIGNES & WINTER 2007 – B. Dignas, E. Winter, *Rome and Persia in Late Antiquity. Neighbours and Rivals*, Cambridge, 2007.

FREESTONE 2005 - I.C. Freestone, *The Provenance of ancient glass through compositional analysis*, Materials Research Society Symposium Proceedings 852 (2005), OO8.1.1-OO8.1.13.

FENG SUFU 2015 - *Bei Yan Feng Sufu mu*, Beijing, 2015.

FREESTONE 2006 - I.C. Freestone, *Glass Production in Late Antiquity and the Early Islamic Period: a Geochemical Perspective*, in: M. Maggetti, B. Messiga (eds.), Geological Society, Special Publications 257 (2006), p. 201-216.

FRESQUE DE DUNHUANG 1989 – *Les fresques de Dunhuang*, in: *500 ans d'art chinois*. Peinture 15, vol. 2, Shanghai, 1989.

GROSSMANN 2011 – Grossmann, *Ancient Glass From Dura-Europos in Perspective*, in: L. R. Brody, Gail. L. Hoffman, *Dura-Europos: Crossroads of Antiquity*, Boston, p. 275-281.

GORIN-ROSEN 2000 – Y. Gorin-Rosen, *The Ancient Glass Industry in Israel*, NENNA 2000, p. 49-63.

HAM 2013 – S.-S. Ham, *Gold Culture of the Silla Kingdom and Maripgan*, in: S. Lee, D.P. Leidy, *Silla Korea's Golden Kingdom*, New York, 2013, p. 31-67

HANSEN 2012 – V. Hansen, *The Silk Road. A New History*, Oxford, 2012.

HARADA 1939 - Y. Harada, *The Interchange of Eastern and Western Cultures as Evidenced in the Shosoin Treasures*, Memoirs of the Research Department of the Toyo Bunko, 11 (1939), p. 55-78.

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, 2013, p. 415-432.

HICKMAN 2012 – J. Hickman, *Bactrian Gold: Jewelry Workshop Traditions at Tillya Tepe*, in: J. Aruz, E. Valtz Fino (eds.), *Afghanistan. Forging Civilization along the Silk Road*, New York, 2012, p. 78–87.

HILL 2003 – J.E. Hill, *The Peoples of the West" from the Weilue: A Chinese Description of the West, Including the Roman Empire (Da Qin)*, translated and annotated by Mr. John Hill, http://depts.washington.edu/silkroad/texts/weilue/weilue.html#section12.

HIRTH 1885 – F. Hirth, *China and the Roman Orient: Researches into Their Ancient and Mediæval Relations as Represented in Old Chinese Records*, Leipzic & Munich, Shanghai & Hongkong, 1885.

HONEYCHURCH 2015 – W. Honeychurch, *Inner Asia and the spatial Politics of Empire. Archaeology, Mobility, and Culture Contact*, New York, 2015.

HOLCOMBE 2013 – C. Holcombe, *The Xianbei in Chinese History*, Early Medieval China 19 (2013), p. 1-38

HONG 2010 – Y. Hong, *Ancient Buddhist Reliquaries in China and Korea*, Chinese Archaeology 10/1 (2010), p. 184–195.

HOPPÁL 2016 - K. Hoppál, *Contextualising Roman-Related Glass Artefacts In China. An Integrated Approach to Sino-Roman Relations*, Acta Archaeologica Academiae Scientiarum Hungaricae 67 (2016), p. 99–114.

HUA WU DA TANG CHUN 2013 - Hua wu da Tang chun: *Hejia Cun yi bao jing cui*, Beijing, 2013.

HWANG & YUN 2015 – H.S. Hwang, E.Y. Yun, *Gukbo je193-ho bongsuhyeong yuribyeong geumsa ui teukseong gwa jejakgibeom yeongu*, Journal of Conservation Science 31 (2015), 1, p. 21-27.

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

JÄGER 2003 – U. Jäger, *Glasbeladene Kamele auf dem Wege nach Zentralasien und Ostasien?*, Münsterische Beiträge zur antiken Handelsgeschichte 22 (2003), 2, p. 56-67.

JOO 2003 – Y.-H. Joo, *Kankoku no garasu-sei shari yoki*, Bulletin of the Ancient Orient Museum 23 (2003), p. 167-200.

KAGEYAMA 2002 – E. Kageyama, *A Chinese Way of Depicting Foreign Delegates Discerned in the Paintings of Afrasiab*, Cahiers de Studia Iranica 25 (2002), p. 313–27.

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

KIM-HOGARTH 2002 – H.-K. Kim-Hogarth, *Syncretism of Buddhism and Shamanism in Korea*, Seoul, 2002.

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

KOIKE 2014 - F. Koike, *Korea Peninsula*, Japanese Journal of Archeology 2 (2014), p. 90-92.

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.

KROPOTKIN 1970 – В. В. Кропоткин, *Римские импортные изделия в восточной Европе (II в.до н.э. – V в.н.э.)*, Свод археологических источников *Д*1-27, Москва, 1970.

KUWAYAMA 2012 – S. Kuwayama, *Across the Hindukush of the First Millennium: a Collection of the Papers*, Kyoto, 2012.

LA VAISSIÈRE 2002 – É. de la Vaissière, *Histoire des Marchands Sogdiens*, Paris, 2002.

LA VAISSIÈRE 2004 – É. de la Vaissière, *Sogdian Trade*, Encyclopedia Iranica, http://www.iranicaonline.org/articles/sogdian-trade, (accessed on 24.08. 2018).

LA VAISSIÈRE 2007 – É. de la Vaissière, *Is There a "Nationality" of the Hephtalites?*, Bulletin of the Asia Institute 17 (2007), p. 119-132.

LANKTON *et al.* (2009) - J.W. Lankton, I. Lee G.-H. Kim, H.-T. Kang, *Bactrian Glass Vessels in Korean Tombs*? in: Annales du 17e 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, A. Hilgner (eds.), *Glass along the Silk Road from 200 BC to AD 1000*, Mainz, 2010, p. 221–237.

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.

LEIDY 2012 – D. P. Leidy, *Links, Missing and Otherwise: Tillya Tepe and East Asia*, in: J. Aruz & E. Valtz Fino, *Afghanistan. Forging Civilization along the Silk Road,* New York, 2012, p. 112-121.

LIN 2017 – M. Lin, *Tangwude er nian ji bin guo gongpin kao – jian lun xian hejiacun tang jiao zang yuan wei daming gong qiong link u huangjia baozang*, Kaogu yi wenwu 6 (2017), p. 94-103

LU *et al.* 2017 – X. Lu, Z. Liu, D. He, X. Liu, *Hejiacun tang dai jiaocang baoshi ji boli wan jiance baogao*, Kaogu yu wenwu 6 (2017), p. 114-120.

LUNG 2011 – R. Lung, *Interpreters in Early China*, Amsterdam, 2011.

MAIR 2012 – R. Mair, *Glassware from Roman Egypt at Begram (Afghanistan) and the Red Sea Trade* http://www.britishmuseum.org/research/online_journals/bmsaes/issue_18/mairs.

aspx (accessed on 01.09.2018).

MAIR 2014 – R. Mair, *Models, Moulds and Mass Production: the Mechanics of Stylistic Influence from the Mediterranean to Bactria*, Ancient West & East 13 (2014), p. 175-195.

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.

MASUDA 1972 – S. Masuda, *On the Painted Sassanian Glass Receptacle found in Japan*, The Memorial Volume of the Vth International Congress of Iranian Art and Archaeology, Tehran–Isfahan–Shiraz, 11th–18th April 1968, Teheran 1972, p. 353-356.

MEHENDALE 1996 – S. Mehendale, *Begram: along Ancient Central Asian and Indian trade routes*, Cahiers d'Asie centrale 1 (1996), 2, p. 47-64.

MEREDITH-GOYMOUR 2006 - H. Meredith-Goymour, *Disentangling Material Cultures: Late Roman and Sasanian Facet Cut Glassware*, in: C. Greenlaw (ed.) *Late Antiquity. SOMA 2004: Symposium on Mediterranean Archaeology Proceedings of the Eighth Annual Meeting of Postgraduate Researchers*, BAR 1514, Dublin, 2016, p. 123-130.

MIYASHITA 2010 – S. Miyashita, *Orientalisation et évolution des torques — les torques observés sur les sculptures des sépultures du Royaume Unifié de Silla*, AL-RĀFIDĀN 31 (2010), p. 33-70.

NEEDHAM 1962 – J. Needham, *Science and Civilisation in China. Volume 4: Physics and Physical Technology. Part 1: Physics*, Cambridge, New York, Port Chester, Melbourne, Sydney 1962.

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.

NIIZAWA 1977 - *Nīzawa sendzuka 126 gōfun' Nara ken kyōiku iinkai*, Nara, 1977.

OLBRYCHT 2015 – M.J. Olbrycht, *Arsacid Iran and the Nomads of Central Asia – Ways of Cultural Transfer*, in: J. Bemmann, M. Schmauder, *Complexity of Inter Action along the Eurasian Steppe Zone in the First millennium CE, Bonn*, 2015, p. 323-390.

OTANI 2011 – I. Otani, *San En kinzoku soushingu no kenkyu,* Kanazawadaigaku kōkogaku kiyō 32 (2011), 87-105.

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), 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.

PEARSON *et al.* 1989 - R. Pearson, I. W. Lee, W. Koh, A. Underhill, *Social Ranking in the Kingdom of Old Silla, Korea: Analysis of Burials*, Journal of Anthropological Archaeology 8 (1998), p. 1-50.

ROSÉN 2009 – S. Rosén, *Korea and the Silk Road,* The Silk Road 6 (2009), 2, p. 3-14.

SEN 2006 – T. Sen, *The Travel Records of Chinese Pilgrims Faxian, Xuanzang, and Yijing Sources for Cross-Cultural Encounters between Ancient China and Ancient India*, Education about Asia 11 (2006), 3, p. 24-33.

SHIKAKU 2013 – R. Shikaku, *Sasanian Glass and the Silk Road*, Ancient Glass, Miho Museum, 2013, p. 354-357

SHIKAKU 2016 – R. Shikaku, *Sasan garasu wa dokode tsukurareta noka –den Iran hokubu Yurai shiryo no kento*, Tenri Sankokanto 30 (2016), p. 103-118

SIMPSON 2003 – St.J. Simpson, *Sasanian glass from Nineveh*, Annales du 16^{e} Congrès de l'Association Internationale pour l'Histoire du Verre, London 2003, Nottingham 2005, p. 146–151.

SIMPSON 2015 – St.J. Simpson, *Sasanian Glassware from Mesopotamia Gilan, and the Caucasus*, Journal of Glass Studies 57 (2015), p. 77-96.

SCHAFER 1963 – E.H. Schafer, *The Golden Peaches of Samarkand. A Study of T'ang Exotics*, Berkeley-Los Angeles-London, 1963.

SHIH-SHUO HSIN-YU 2002 – *Shih-shuo Hsin-yu, Liu I-ch'ing* with commentary by Liu Chun. Translated with introduction and notes by Richard B. Mather, Ann Arbor, 2002.

SHEN 2002 – H.-M. Shen, *Luxury or Necessity: Glassware in Sarira Relict Pagodas of the Tang and Northern Song Periods*, Orientalia Venetiana 14 (2002), p. 71-110.

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

SUGIYAMA 2011 – S. Sugiyama, *Glass Bowl Unearthed From Okinoshima Island*, Okinoshima Island and Related Sites in the Munakata Region. Study Report 1, 2011, p. 541-554.

STARK 2015 – S. Stark, *Luxurious Necessities: some Observations on Foreign Commodities and Nomadic Polities in Central Asia in the Sixth to Ninth Centuries*, in: J. Bemmann, M. Schmauder, *Complexity of Inter Action along the Eurasian Steppe Zone in the First Millennium CE*, Bonn, 2015, p. 463–502.

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

TANIICHI 1986 – T. Taniichi, *Roman and Post-Roman Glass Vessels depicted in Asian Wall Paintings*, Orient: Report of the Society for Near Eastern Studies in Japan 22 (1986), p. 128-142.

THIERRY 2005 – F. Thierry, *Yuezhi et Kouchans*, in: O. Bopearachchi, M.-F. Boussac (eds.) *Afghanistan: Ancient carrefour entre l'Est et l'Ouest*, Turnhout, 2005 p. 421-527.

TONKOU 2002 – *Tonkou sekkutsu no chinpin*, Hong Kong, 2002.

WARE 1966 – J.R. James, *Alchemy, Medicine and Religion in the China of A.D. 320: The Nei Pien of Ko Hung*, Dover, 1966.

WHITEHOUSE 2012 – D. Whitehouse, *The Glass from Begram*, in: J. Aruz, E. Valtz Fino, *Afghanistan. Forging Civilization along the Silk Road*, New York, 2012.

YANG 1984 – Hsuan-chih Yang, *A Record of Buddhist Monasteries in Lo-Yang*, translated by Yi-t'ung Wang, Princeton, 1984.

ŻUCHOWSKA 2010 – M. Żuchowska, *Palmyra and the Far Eastern Trade*, Studia Palmyreńskie 12 (2010), p. 381–387

ŻUCHOWSKA 2013 – M. Żuchowska, *From China to Palmyra: the Value of Silk*, Światowit XI (LII)/A 2013, p. 42-57.

ŻUCHOWSKA 2016 - M. Żuchowska, *Importowane naczynia szklane w Chinach w I tysiącleciu n.e.*, Archeologia Polski 61 (2016), p. 77-112.

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.

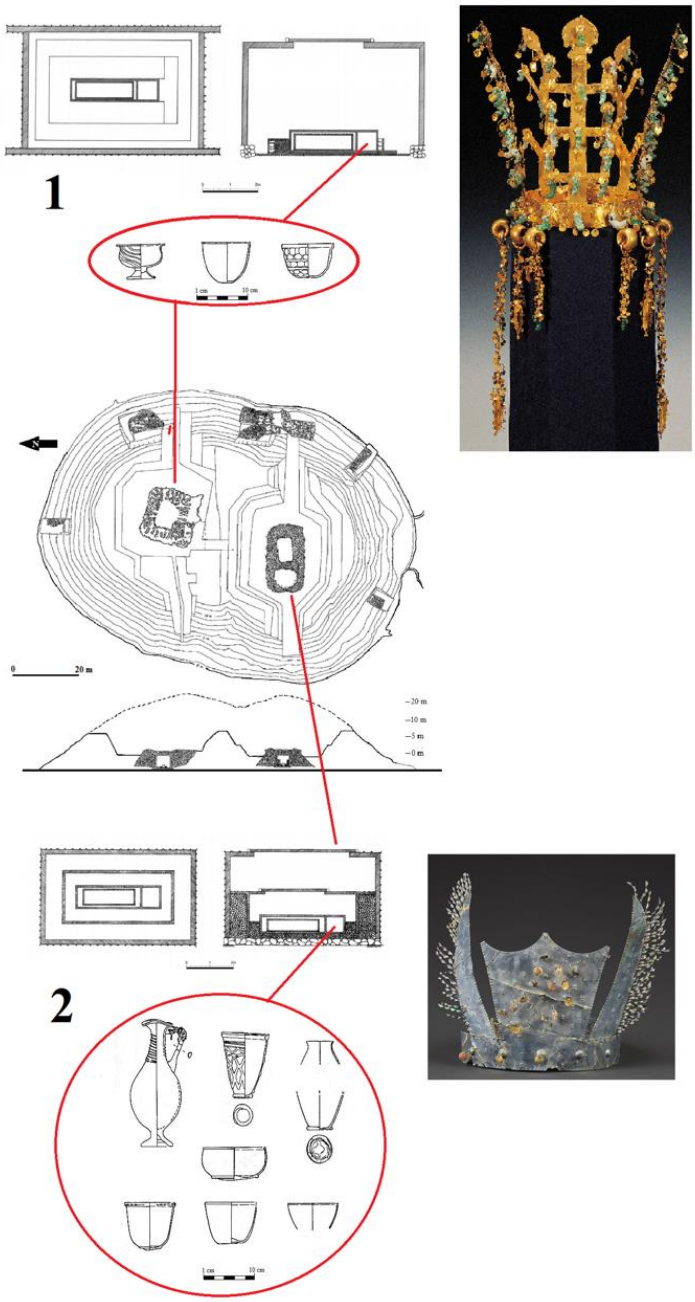

Fig. 1 - Glass vessels, Golden and Silver Crowns position in Hwangnamdaechong (no. 98). 1 – Northern grave, 2 – Southern grave (after CHOI 2016, SUGAYA 2014 and the National Museum of Korea).

Fig. 2 - Possible production areas of glass vessels discovered in Korean Peninsula. 1 – Syro-Palestinian, 2 – Sasanian, 3 – Central Asian, 4 – Northern Black Sea, 5 – Datong, 6 – findspots in Korea (drawing B.Sz. Szmoniewski).

Fig. 3 - Glass vessels depicted in Dunhuang cave no. 57 - Early Tang (618-712) (after TONKOU 2002).

Fig. 4 - Glass vessels depicted in Dunhuang cave no. 401 – Early Tang (618-712) (after TONKOU 2002).

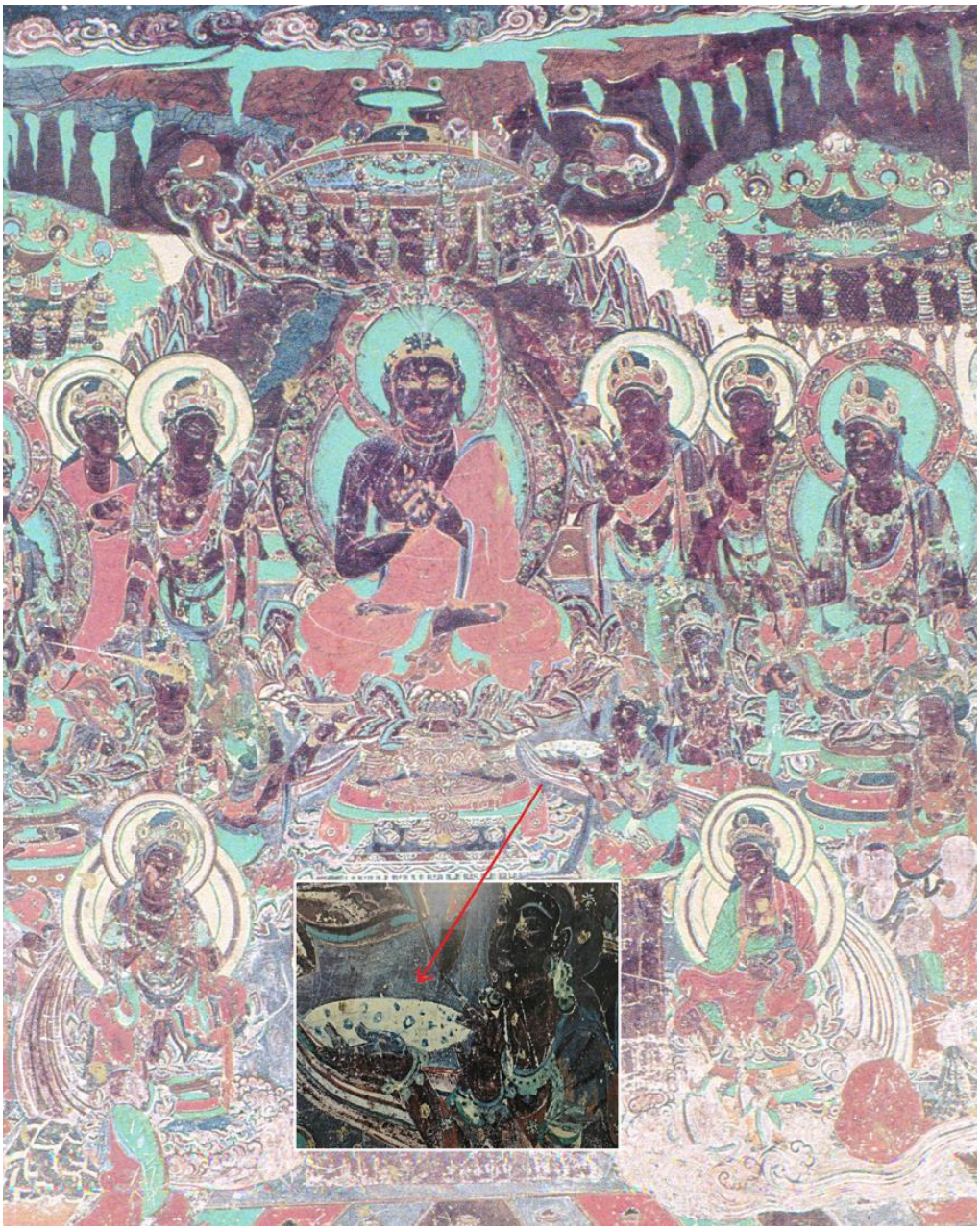

Fig. 5 - Glass vessels depicted in Dunhuang cave no. 217– Middle Tang (712-781) (after Fresques de Dunhuang 1989).