

SPRAWOZDANIA ARCHEOLOGICZNE

INSTYTUT ARCHEOLOGII I ETNOLOGII POLSKIEJ AKADEMII NAUK



Archaeological Reports
72
2
Archäologische Berichte

**SPRAWOZDANIA
ARCHEOLOGICZNE**

INSTYTUT ARCHEOLOGII I ETNOLOGII
POLSKIEJ AKADEMII NAUK

SPRAWOZDANIA ARCHEOLOGICZNE



KRAKÓW 2020

Copyright © by the Authors and Instytut Archeologii i Etnologii Polskiej Akademii Nauk 2020

Editor

PIOTR WŁODARCZAK, wlodarczak.piotr@gmail.com

Editorial Secretary

ANNA RAUBA-BUKOWSKA, sprawozdania.archeologiczne@gmail.com

Editorial Committee

SYLWESTER CZOPEK, SŁAWOMIR KADROW, JANUSZ KRUK (CHAIRMAN), JAN MACHNIK, SARUNAS MILISAUSKAS, JOHANNES MÜLLER, JAROSLAV PEŠKA, ALEKSANDER SYTNIK, PRZEMYSŁAW URBAŃCZYK

All articles in this volume of *Sprawozdania Archeologiczne* obtained approval of the following specialists:

Makoto Arimura, Justyna Baron, Felix Biermann, Sebastian Brather, Igor Bruyako, Janusz Budziszewski, Kotera Chizuko, Alexandr Diachenko, Michał Dzik, Vladimir Erlikh, Mirosław Furmanek, Tomasz Gralak, Radosław Janiak, Andrzej Janowski, Paweł Jarosz, Sławomir Kadrow, Arkadiusz Koperkiewicz, Przemysław Makarowicz, Tomasz Nowakiewicz, Łukasz Oleszczak, Aleksander Paroń, Michał Pawleta, Tomasz Purowski, Joanna Pyzel, Antoinette Rast-Eicher, Vitaliy Sinika, Piotr Strzyż, Anita Szczepanek, Bartłomiej Szmoniewski, Maciej Trzeciecki, Stanisław Țerna, Andrzej Wiśniewski, Barbara Witkowska, Marcin Wołoszyn, Jakub Wrzosek, Marta Żuchowska

English proofreading

MARK TOUSSAINT

Technical Editor and Layout

JOANNA KULCZYŃSKA-KRUK

Centre for Mountains and Uplands Archaeology, Institute of Archaeology and Ethnology, Polish Academy of Sciences

Cover

So-called Światowit from Wolin. Photo by PAWEŁ SZCZEPANIK

Professor Jan Machnik. Photo by KRZYSZTOF TUNIA

Editor's Address

CENTRE FOR MOUNTAINS AND UPLANDS ARCHAEOLOGY, INSTITUTE OF ARCHAEOLOGY AND ETHNOLOGY, POLISH ACADEMY OF SCIENCES, 31-016 KRAKÓW, UL. SŁAWKOWSKA 17



Ministry of Science
and Higher Education
Republic of Poland

Volume financed by the Ministry of Science and Higher Education from the funds for science popularization activities, Contract Nr 651/P-DUN/2019

PL ISSN 0081-3834

DOI: 10.23858/SA/72.2020.2

Printed by

PARTNER POLIGRAFIA Andrzej Kardasz, Grabówka, ul. Szosa Baranowicka 77, 15-523 Białystok

Edition: 300 pcs.

Sprawozdania Archeologiczne is regularly listed in the: SCOPUS, CEJSH, ERIH Plus

CONTENTS

ARTICLES	11
Kathryn M. Hudson, Janusz Kruk, Sarunas Milisauskas Journeys of the Mind: Cognitive Landscapes, Symbolic Dialects, and Networked Identities in the European Neolithic	11
Aldona Kurzawska, Iwona Sobkowiak-Tabaka <i>Spondylus</i> shells at prehistoric sites in Poland	41
Aleksandra Gawron-Szymczyk, Dagmara Łaciak, Justyna Baron To smooth or not to smooth? A traceological and experimental approach to surface processing of Bronze and Iron Age ceramics	67
Katarzyna Trybała-Zawiślak The Chotyńiec agglomeration and its importance for interpretation of the so-called Scythian finds from south-eastern Poland	87
Bartłomiej Szymon Szmoniewski Roman and Early Byzantine finds from the Japanese Archipelago – a critical survey	117
Paweł Szczepanik Comparative analysis of early medieval anthropomorphic wooden figurines from Poland. Representations of gods, the deceased or ritual objects?	143
FIELD SURVEY AND MATERIALS	169
Marcin Wąs, Lucyna Domańska, Seweryn Rzepecki Middle Palaeolithic flint artefacts from Central Poland. Case study of the site of Polesie 1, Łowicz district, Łódź voivodship	169

Janine Mazanec, Susanne Hummel, Thomas Saile

“Raptus Sabinae?” complemented: molecular genetic studies on a female *calvarium* of the *Bandkeramik* settlement of Rovantsi in Volhynia (UA) 201

Guram Chkhatarashvili, Valery Manko, Amiran Kakhidze, Ketevan Esakiya, Maia Chichinadze, Marianna Kulkova, Mikhail Streltsov

The South-East Black Sea coast in the Early Holocene period (according to interdisciplinary archaeological investigations at the Kobuleti site) 213

Weronika Skrzyniecka

Textile impressions on the Trypillia culture pottery from Ogród and Vertebea Cave sites in Bilcze Żłote 231

Barbara Witkowska, Janusz Czebreszuk, Barbara Gmińska-Nowak, Tomasz Goslar, Marzena Szmyt, Tomasz Ważny

The cemetery of the Globular Amphora culture community at the Żłota-Gajowizna site in the light of radiocarbon analysis and dendrochronology 259

Monika Bajka, Marek Florek

Żłota culture grave from Kleczanów, Sandomierz District, Świętokrzyskie Voivodeship 285

Paweł Jarosz, Jerzy Libera

Early Bronze Age barrow in Jawczyce, site 1, Wieliczka Foothills, Lesser Poland 307

Marcin Burghardt

Classification and chronology of the collection of arrowheads from the ash-hill found in the hillfort of the Scythian Cultural Circle in Chotyńiec, site 1, Jarosław district 327

Sergey B. Valchak, Sergey D. Lysenko, Nikolai Yu. Gorbol, Sergey N. Razumov, Nikolai P. Telnov, Vitalij S. Sinika

Graves of the beginning of the Early Iron Age in barrow 1 of the “Rybkhoz” (“Fish farm”) Group in the Lower Dniester region 357

Erwin Gáll, Florin Mărginean

Archaeological Discoveries Linked to the “First Generation” of the Avar Conquerors Living East of the Tisa During the 6th-7th Centuries. The Grave Cluster in Nădlac – Site 1M 373

Tomasz Dzieńkowski, Marcin Wołoszyn, Iwona Florkiewicz, Radosław Dobrowolski, Jan Rodzik, Irka Hajdas, Marek Krąpiec

Digging the history. Absolute chronology of the settlement complex at Czermno-Cherven’ (eastern Poland). Research status and perspectives 409

Ewa Anna Lisowska, Sylwia Rodak A hillfort complex in Mysłibórz in the Sudety Mountains	467
Hanna Olczak, Dariusz Krasnodębski, Roman Szlązak, Joanna Wawrzениuk The Early Medieval Barrows with Kerbstones at the Leśnictwo Postołowo Site 11 in the Białowieża Forest (Szczekotowo Range)	511
Beata Miazga, Sylwia Rodak, Jeannette Jacqueline Lucejko, Erika Ribechini A unique early medieval pendant (kaptorga) from Opole Groszowice (Silesia, SW Poland) in the light of interdisciplinary archaeometric studies	539
Jakub Niebylski The remains of the “Battle of Kraków”, fought during World War I, as exemplified by site Sadowie-Kielnik 1, Kraków district	555
DISCUSSIONS AND POLEMICS	585
Denys Grechko Chronological schemes of the Late Hallstatt period (HaD) in Central Europe: new opportunities for the synchronization and refinement of dates	585
REVIEWS AND SHORT REVIEW NOTES	355
Joanna Wawrzениuk (Review) Andrzej Bronisław Pankalla, Konrad Kazimierz Kośnik, <i>Indygeniczna psychologia Słowian. Wprowadzenie do realnej nauki</i> . Kraków 2018: Universitas, 216 pp.	607
Halina Taras (Review) Katarzyna Trybała-Zawiślak, <i>Wczesna epoka żelaza na terenie Polski południowo-wschodniej – dynamika zmian i relacje kulturowe (The Early Iron Age in south-eastern Poland – dynamics of changes and cultural relations)</i> . Rzeszów 2019: Wydawnictwo Uniwersytetu Rzeszowskiego. ISBN 978-83-7996-726-1. 402 pp.	615
Information for Contributors	621

Sprawozdania Archeologiczne is regularly listed in the International Current Awareness Service: Anthropology. Selected material is indexed in the International Bibliography of social and Cultural Anthropology.

Indexed in:

IBZ – International Bibliography of Periodical Literature

IBZ – CD-ROM



Dedicated to Professor Jan Machnik for His 90th Birthday

Bartłomiej Szymon Szmoniewski¹

ROMAN AND EARLY BYZANTINE FINDS FROM THE JAPANESE ARCHIPELAGO – A CRITICAL SURVEY

ABSTRACT

Szmoniewski B. S. 2020. Roman and Early Byzantine finds from the Japanese Archipelago – a critical survey. *Sprawozdania Archeologiczne* 72/2, 117-141.

Artifacts discovered on the Japanese archipelago, which are interpreted as being of Roman and Byzantine provenance, are critically discussed in the following article. In light of chemical analyses, some of the glass artifacts found, including beads and vessels, are related to the glass typical of Mediterranean workshops. They were imported in the times of their production. New numismatic discoveries from Okinawa, dated to the fourth century, were found in layers associated with the sixteenth and seventeenth centuries, and cannot be contemporaneous with the glass imports. The silk textile from Shōsō-in, despite its superficial similarity to Early Byzantine art products, seems to be a Central Asian/Chinese imitation, probably woven in the workshops of Chang'an. Thus, finds of Mediterranean origin, produced in the Roman and Early Byzantine epochs, are insignificant in their number and their imports were isolated cases. However, their presence supports the thesis that the Japanese archipelago should be included as part of the ancient network of the Silk Road.

Keywords: Japan, Silk Road, Trade, Exchange, Roman Byzantine period

Received: 09.04.2020; Revised: 07.05.2020; Accepted: 13.05.2020

¹ Institute of Archaeology and Ethnology, Polish Academy of Sciences, Ślawkowska st. 17, 31-016 Kraków, Poland; bartheque@yahoo.fr; <https://orcid.org/0000-0003-0737-434X>

1. INTRODUCTION

The Japanese archipelago is poor in finds of Mediterranean provenance due to its significant distance from the main trade routes of Eurasia. This fact is contrasted with the relatively large number of finds of Central Asian and Sasanian origin (Mierse 2017). Each discovery of artifacts from the Roman or Byzantine provenance in Asia continuously enjoys much attention of scientists. Among such finds, coins from the Roman and Byzantine Empires are most numerous represented, along with their imitations and copies; apart from them, there are also glass products (*cf.* Borell 2008a; 2008b; Borell *et al.* 2014; Szmoniewski 2016; Źuchowska 2015; 2016; Źuchowska and Szmoniewski 2018). Unfortunately, this results in much misinformation in the literature, because many reports of such finds are uncritically associated with these two Empires (*cf.* Markovic *et al.* 2017). Artifacts that could be related with the Mediterranean basin include glass (beads and vessels), coins, and textiles – all of them found in four regions in Japan: the Honshu, Kyushu, Shikoku and Okinawa Islands. These discoveries have not yet been the subject of one synthetic, critical discussion. This article, I hope, will be able to fill this gap.

2. THE DESCRIPTION OF ARTIFACTS ASSOCIATED WITH THE MEDITERRANEAN CULTURE CIRCLE

2.1. Glassware

This group of finds includes two kinds of glass products: 1) beads; 2) vessels.

2.1.1. Glass beads

Glass beads are the most abundant of glass artifacts found on the Japanese archipelago (Fig. 1). Over 600,000 (as of 2013) of them have been found at sites dated to the Yayoi and Kofun periods (Oga and Tamura 2013, 36). Of these, 4,323 specimens, discovered at 63 sites, have been analysed by means of X-ray fluorescence. The results obtained from these analyses have shown their three compositional classes: lead glass, potash glass group and soda glass group. Here, most interesting is the large group of soda glass. This group has been further subdivided into five sub-groups, in which a single class has been defined, *i.e.* the SI group „typical natron glass” with two sub-divisions: SIA and SIB (a-c), which use antimony oxide as their compound (Oga and Tamura 2013, 46-47). In a new study by Tomomi Tamura and Katsuhiko Oga (2016), the SI group was reanalyzed and divided into one type with antimony – type A, with five compositional subtypes (A1-A4 and A-Other: tabular beads), and one type without antimony: Type B. Beads among subtypes A1 to A3 represent cobalt blue beads, manufactured by various techniques (mainly the folding tech-

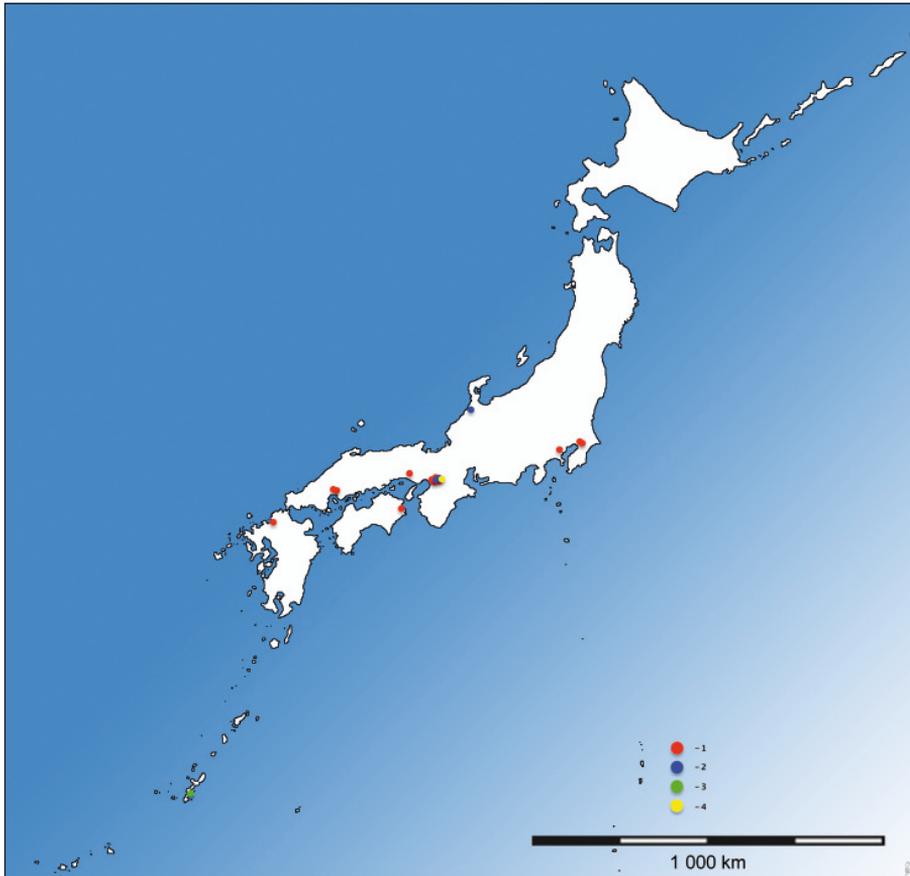


Fig. 1. Distribution of finds examined in text; 1 – glass beads; 2 – glass vessels; 3 – coins; 4 – textile

nique). Thus, subtype A-Other: tabular beads is represented by only a single, light blue, opaque bead. Subtype A4 represents multi-layered beads with traces of gold in the inner layer. Subtypes of type B differ in their various levels of MnO , TiO_2 , Fe_2O_3 and represent different types of beads *vis-à-vis* their manufacturing methods: segmented, folded, attached and ring-shaped beads.

In sub-type A1, cobalt blue beads, made by the segmenting or folding method, are the most numerous. They have been discovered at sites dated from the second half of the late Yayoi period to the end of the Yayoi period (early 2nd century BC – second century A.D. – Osandai, tomb 5, Chiba pref., Ochayadori, tomb 1, Kanagawa pref., Yadani D site, Hiroshima pref.) and to the early Kofun period (from the early 3rd century to the early 4th century A.D. – Odappe Kofun, Chiba pref., Mengahira Kofun, Oita pref.) in the amount of 3 to 9 specimens per site (Yayoi – 10 pieces, total; Early Kofun – 17 pieces, total). The group of

beads from the period of the Middle Kofun (later 4th century A.D.) including beads of sub-type A1 in the number of 60 pieces (Namitsuki Kofun, Nara pref.). Three beads of sub-type A2 were found in a tomb of the Middle Kofun (Kazakufiyama kofun, Osaka pref.), in which other beads belonging to sub-types A3 (4 pcs), B1 (253 pcs), B2 (38 pcs), B3 (126 pcs) and B-Other: segmented (2 pcs). From the same period, beads of sub-types A4 (3 pcs) and B3 (3 pcs) were discovered in one tomb (Utsukushi No 1 Kofun, Kyoto pref.), and beads of sub-type B1 were also discovered at two sites (8 pcs – Kuninari Kofun, Hiroshima pref., and 1 pc. – Meikegaya no 25 Kofun, Osaka pref.). One bead belonging to Sub-type A4 was dated to the Late Kofun (Taku-Urigasaka, Fukoka pref. – 6th century A.D.; Tamura and Oga 2016, 9-13, Table 3). Sub-type A1 co-occurred with group PI in the Yayoi period and P2 in the Early Kofun, while in the Middle Kofun Period, sub-types A2, A4, B1-3 and B-Other co-occurred mainly with PI and less frequently PII (Oga and Tamura 2013, Table 1; Tamura and Oga 2016, Table 3).

The most interesting examples are golden-foil beads with traces of gold from Utsukushi No. 1 kofun – later 5th century A.D. (3 pcs; Figs 2: 2, 4: 3) and Taku-Urigasaka, Fukoka pref. – 6th century (1 pc.; Tamura and Oga 2016, 9-13, Table 3). It should also be mentioned that one gold-foil bead was found in mound 126 in Niizawa Senzuka 126 (Fig. 2: 1; Niizawa 1977, 62, Fig. 44, Pl. 40: 2).

The Authors compared the results of the analyses of glass beads from Japan with specimens found in the Mediterranean area. Sub-type B2 corresponds with the Levantine I type, and sub-type A1 is close to glass containing antimony (antimony-only), but does not strictly match distinguished groups of such glass from the Mediterranean. It is interesting that nearly all beads of such origin, except 4 pieces of subtype A4 (gold in leaf), are blue cobalt. The kind of bead mentioned here can be included in the class of gold-in-glass beads, which probably constitutes a portion of both the segmented and single-bead groups. The origin of this type of bead is associated with Egyptian workshops, where they had probably been manufactured since the Ptolemaic times (Ptolemaeus II Philadelphus; see Spaer 1993, 10). Multiple gold/glass beads and fragments of gold/glass vessels dated to the late 3rd century BC were excavated on the Isle of Rhodes. It is therefore assumed that the oldest specimens are dated *prior to the 3rd century BC* (Spaer 1993, 10). The workshops manufacturing them (the production being evidenced, *i.a.*, by finds of grooved stone molds) were documented on two Egyptian sites: on Elephantine Island, in a house *FB* dated between the 2nd and 3rd centuries A.D. (Kucharczyk 2011, 64, 65, fig. 8), and in Kom-el-Dikka in Alexandria, dated to the late Roman Period (Rodziewicz 1984, 146-159, 241-243, figs. 265-266, Pl. 72). Alexandria is generally considered a production hub of beads, and it is thought that it was from there that specialized glassmakers came to Elephantine Island in the Early Roman Period (Rodziewicz 2005, 25, 27, 35). However, some regions in Southern Egypt, like Nubia, are also assumed to be such centres, along with the northern shores of the Black Sea – especially when we take into account the sheer quantity of such finds (Spaer 1993, 18). Gold beads and silver beads enjoyed great popularity on vast areas from

Europe to Roman Britannia during the whole period of Roman rule (Bonn 1977, 197-199, pl. XV), including the Central European Barbaricum (Mączyńska-Tempelmann 1985, 22, 64-65, 188, Taf. 14: 387) and reaching the northern Pontic area (Aleksyeva 1978, 27-33, Tabl. 26; Stawiarska 1985, 103). It is assumed that the beads were cheaper substitutes of those made of precious metals: gold or silver. The most fascinating group of gold/glass beads were found in India and Korea. Within the latter region, some 200 gold/glass and silver/glass artefacts have been excavated, prevailing in royal burials of Baekje and Silla; they are mostly multiple tubes as well as single beads (Francis 1985, 14). Chemical analyses of several specimens from the site in Korea have shown that their chemical composition is based on soda glass with a low content of MgO and K₂O – natron was a raw material – and that the purity of gold foil used was between 19.9 – 22.6K (Kim and Kim 2012, 213-214, fig. 7, Tables 2 and 3).

The group of cobalt beads raises some interesting questions (Fig. 2: 3 and 4). Cobalt as a pigment is very special due to its colouring properties (Gratuze *et al.* 2018). It is the prevailing kind of pigment used in the production of natron glass beads from Japan (Tamura and Oga, 2016, 11). It would be an extremely difficult task to identify and locate the mines sourcing the material used in this kind of glass production, despite the fact that two main locations with such resources are known to researchers as having been explored in Antiquity: Egypt and Iran (Kaczmarczyk 1986, 373-374; Matin and Pollard 2015, 2017; Gratuze *et al.* 2018; Mierse 2017). Some other possible locations are deposits in the eastern part of Turkey and in the Caucasus (Tite and

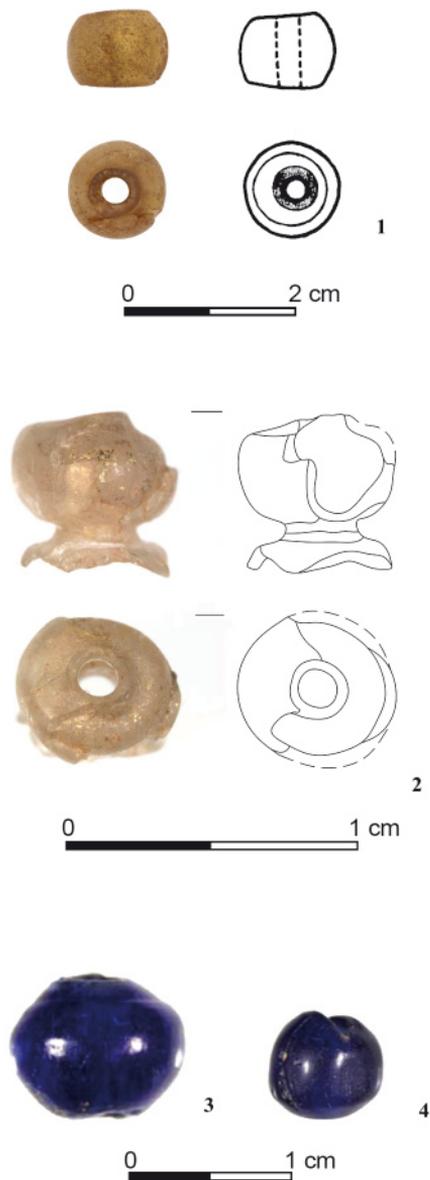


Fig. 2. Gold-in-glass beads (1, 2) and cobalt beads (3, 4) discovered in Japan; 1 – Niizawa Senzuka, burial mound, No 126, Nara Prefecture (courtesy of Tokyo National Museum); 2 – Utsukushi, burial mound, No 1 (after Nagaokakyo-shi 2012); 3, 4 – Kazafukiyama burial mound (after Oga and Tamura 2013)

Shortland 2008, 75). The chemical composition of the analysed beads is approximately the same as in a certain part of the Egyptian finds, belonging to type N, and including both subgroups – N1 (low-MnO) as well as N2 (high MnO), and dated from about 550 BC to the 4th century A.D. (Late-Ptolemaic-Roman Period; Abe *et al.* 2012, 1979; Tamura and Oga 2016, 15). In the case of this Egyptian evidence, as well, it is assumed that the raw material used was imported from Iran (Kaczmarczyk 1986, 373-374). The higher content of MnO in types B2 and B3 does not necessarily involve the use of cobalt as the pigment, because the ratios of other components – for example, PbO and CuO – are reminiscent of types A1 and B1 with low quantities of MnO (Tamura and Oga 2016, 15). Such low-manganese cobalt ores have indeed been located in Qamsar in Central Iran (Matin and Pollard 2015, 171, 2017). Iran as the land of origin of the cobalt used as a pigment in the production of natron glass is additionally indicated by some analyses of lead isotope ratios of natron glass (Tamura and Oga 2016, 16).

2.2.2. Glass vessels

Vessels make up the second category of glass associated with the Mediterranean culture circle. Two artifacts of this group have been found in Japan: a plate from a burial in Niizawa Senszuka in Asuka (near Nara), and the lower part of a bottle from the site Jike in Ishikawa. Some researchers also include one vessel from Shōsō-in, a treasure house of the Tōdai-ji Buddhist temple, in the same group, because its chemical composition belongs to the alkali-lime glass category (Hayashi 1975, 88, fig. 16; Mierse 2017, 8, Fig. 1; Żuchowska and Szmoniewski 2017, 182).

2.2.2.a. Niizawa Senszuka, barrow 126 (Figs 3-5)

The cluster in Niizawa Senszuka contains about 600 graves with tombs, and out of this number, 125 burials have been archeologically explored and documented (Fig. 3). The cluster is situated in the valley of Ochioka, south of the city of Kashihara, in the southern part of the Nara basin. The whole site consists of different types of graves with different tombs, ranging from small-scale, keyhole-shaped and square ones, to round tombs. The cluster is dated between the second half of the 4th century and the 6th century A.D. One of the richest and the most interesting burials with regard to grave goods, is grave No. 126, dated to the Middle Kofun period in the second half of the 5th century A.D.). This burial belongs to a small group of mounded tombs of a rectangular shape, which are oriented along an East-West axis. The length of the mound is 22 meters, its width is 16 meters, and its height is 1.5 m. Inside, in its southern part, there was a rectangular burial pit with a wooden split-log coffin. Grave goods were found inside the coffin, as well as outside it. These included, *i.a.*, a sword, a hinoshi (a traditional Japanese iron) and lacquered platters outside the coffin; inside it, there were personal jewels such as gold earrings with



Fig. 3. General view of the burial mound cluster in Niizawa Senszuka, Nara Prefecture (after Niizawa 1977);
1 – location of burial mound, No 126; 2 – photo of burial mound No 126 (photo by Author)

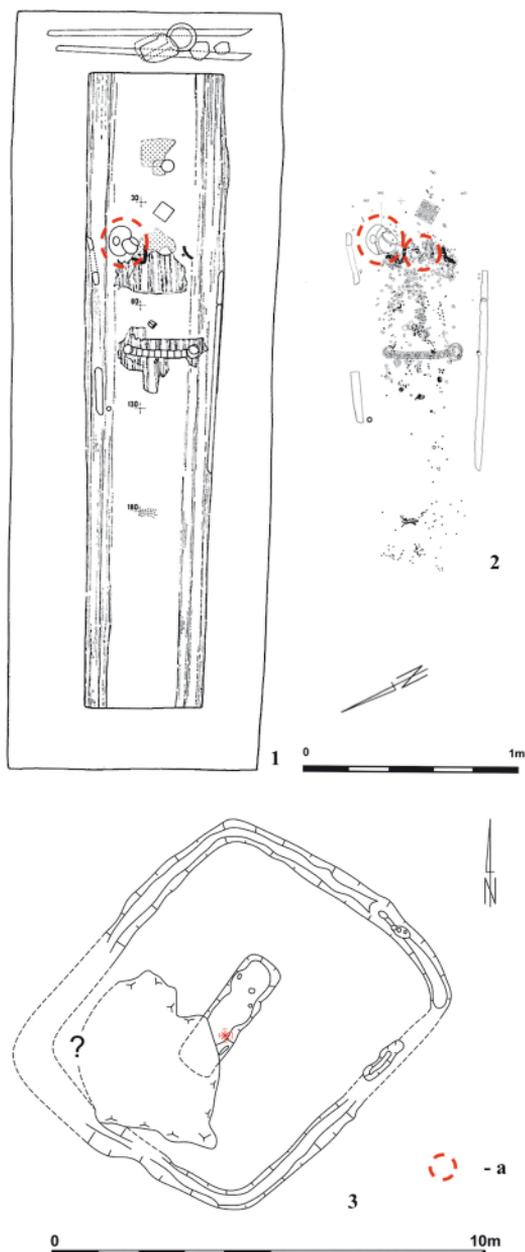


Fig. 4. Horizontal layout of the graves with a gold-in-glass bead and glass vessels (1, 2) and a gold-in-glass bead (3); 1, 2 – Niizawa Senzuka, burial mound, No 126, Nara Prefecture (after Niizawa 1977); 3 – Utsukushi, burial mound, No 1 (after Nagaokakyo-shi 2012); a – deposition area

decorative chain pendants, gold, spiral-shaped pendant decorations, gold hair decorations, gold and silver rings and bracelets, a gilt bronze belt buckle, a rectangular gold plate with a dragon motif in openwork carving, a bronze mirror, and a glass bowl and dish (Dictionnaire 1989, 146; Niizawa 1977). Close to the head of the buried body, there were two glass vessels, put one into the other (Fig. 4: 1, 2). The first vessel, a bowl, has a circular form with a short neck and a folded rim. On its surface, there are rounded facets. At its widest, the rim is 7.8 cm, its main body is 8.7 cm, the height is 6.7 cm, and the walls are 1.5 mm thick (Fig. 5: 2, 6: 2). The second vessel is a plate of a dark-blue color (of cobalt shade), with a diameter between 14.1 and 14.5 cm, and a height of 3 cm (Fig. 5: 1, 6: 1). On the bottom, as seen from the outside, there is a pontil mark. The surface of the vessel was decorated with golden paint at a later time. The painted figure of a bird was depicted in the centre, and in the circular band around it, there was a human figure holding a ring in one hand and leading a horse by a bridle with the other. The horse has an oval head decoration. Behind the horse, a symmetrical, geometricized tree was painted, and another, more realistic tree was painted next to it. Moreover, painted flower petals were scattered in several spots. On the other side of the human figure with the ring,



Fig. 5. Glass vessels from Niizawa Senzuka; 1, 2 – Burial mound, No 126, Nara Prefecture (courtesy of Tokyo National Museum)

another human depiction was found, surrounded with foliage motifs (?); but, due to the poor state of preservation, it is difficult to identify (Fig. 6: 1). Sei-ichi Masuda associates the style of these depictions with the West-Asian tradition. Based on his analysis of the details, he assumed that the decorative motifs on this vessel were the work of a Persian craftsman from the Sasanian period, produced during his stay in China, or applied *during its eastward transportation* (Masuda 1972, 355-356, Fig. 3; Abe *et al.* 2018, 218). Some traces of the golden paint have been preserved and are visible also on the foot of the vessel. Both vessels have been chemically and stylistically analyzed; the analyses have supported the thesis about the first of them being a Sasanian product, whilst the other (blue) is natron glass (Abe *et al.* 2018). It is also interesting what a Roman vessel was used by a Sasanian craftsman, which, in light of some new interpretations of finds from the territories of the Sasanian Empire, points to the possibility that other Roman vessels were also used by Sasanian glassmakers (Simpson 2015, 95, fig. 17: 1). It is quite likely that gold paint is an imitation of Roman gold/glass vessels of the 3rd and 4th centuries A.D. (Whitehouse 2001, 239). The wide range of subjects used for decorating the surface refer to diverse symbolic

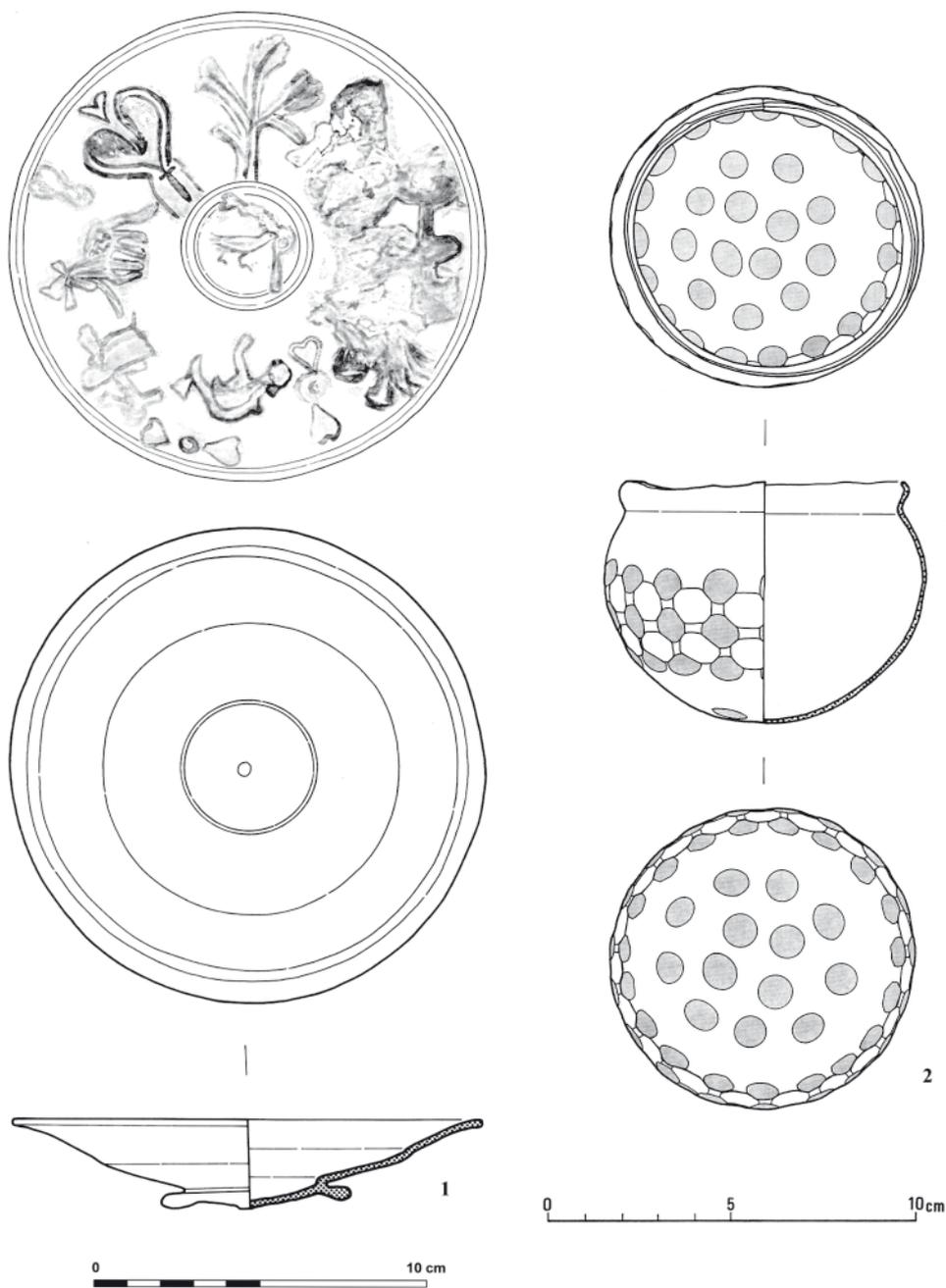


Fig. 6. Glass vessels from Niizawa Senzuka; 1, 2 – Burial mound, No. 126, Nara Prefecture (after Niizawa 1977)

meanings from pagan and mythological themes, as well as Christian and Jewish themes, and also, depictions of married couples, animals and plants. It should also be noted that such gold/glass items were often used as grave goods (Stern 2001, 139-140; Whitehouse 2001, 239-252). In the available archeological evidence, no analogies could be found to the vessels from Niizawa Senzuka. The resemblance can be traced among glassware from Northern Egypt, and especially, in some finds of plates (class 1 A) from Karanis (Harden 1936, 46-67). Some similarity can be found in a dish and plates on foot-ring from there; however, dishes from Karanis mostly have their rims involuted and are oval shaped (Harden 1936, Pl. I, XI: 1-17, 60, Fig. 1: b, d, e). Among this group, there were vessels of purple and brown shades. The first occurrence of this type of vessel is dated by Harden to the end of the 3rd century A.D., and the peak of their production was in the 4th and early 5th centuries A.D. (Harden 1936, 47). Hayes (1975, 2-3) suggested they they date to the 5th and 6th centuries. Recently, Harden's chronology of this type is considered preferable (Whitehouse 2001, 239). This dating corresponds with the chronology of the burial in Niizawa Senzuka, which took place in the mid-5th century. The latest chemical analysis of this plate has shown that it was produced in the eastern Mediterranean basin (Abe *et al.* 2018).

In this place, a historic discovery should be mentioned, which included *a jar in bright blue color, and a plate in a water-white color*. This find was made in 1872, on the southern slope of the Emperor Nintoku kofun – Daisen-ryo, in Otori, Osaka prefec. They had been discovered in a stone coffin, but were later reburied. Because of their reburial, their details remained unknown (Sugiyama 2011, 550). The rest of the objects found there are now on display in the Boston Museum (Masashi 2010). It should be taken into consideration that other imperial burials could also contain glass vessels among the other grave goods deposited there, which most probably was a common practice in that time in Japan, and also in Korea. The prohibition of further archeological research of the imperial burials makes the verification of this suggestion impossible to conduct. In the tombs designated as imperial (containing remains of emperors or their family members) since 1871, all forms of archaeological research have been forbidden. This is because, officially, the tombs contain the remains of imperial ancestors and their spirits. However there are other reasons, such as the linking of the Yamato imperial rulers with Korea's dynasties and the low probability of identification of tombs with mythological emperors whose line is said to have begun in 660 B.C. (*cf.* Imamura 1996, 194; Edwards 2000).

A fragment of a glass vessel linked with Roman production has been unearthed in the Jike site in Ishikawa prefecture. This site is situated in a sand dune on the coast of the Sea of Japan, about 1 km southeast of the Keta Shrine. In pit SBT04, positioned in the southern part of the site and dated to the second quarter of the 8th century, a triangle glass vessel was discovered, measuring 1.4 × 1.4 × 1.6 cm, with walls that are 1.2 mm thick. The color of this fragment is yellowish, of an ash gray hue. A chemical analysis showed that the fragment mentioned above was produced out of soda glass, and it is interpreted as a fragment from the bottom of a small Roman bottle. This find is associated with rituals that could have



1



2



3



Fig. 7. Shōsō-in; 1 – Shōsō-in (The treasure house), Nara Prefecture (photo by Author); 2, 3 – Glass vessel from Shōsō-in, Nara Prefecture. Treasure number: Middle section 70 (1 – after Glass objects 1965; 2 – Courtesy of the Imperial Household Agency)

been performed by Shinto priests from the nearby temple Keta. It is also assumed that this fragment could have been used in the temple Yanagida-shadoke, the ruins of which are situated about 800 meters east-southeast of the Keta Shrine, and are dated to the end of the 7th or beginning of the 8th century (Sugiyama 2011, 544-545).

In Shōsō-in (Fig. 7: 1), in a treasure house of the Tōda-ji temple, six glass vessels are preserved (only three, including the presented cobalt glass, were from the initial deposit) (Figs 7: 2 and 3; Mierse 2017, 8). This is a truly unique set, as is the entire collection of luxury objects of foreign provenance, which were gifts of the Empress Kōmyō, widow of

the Emperor Shōmu. The latter received numerous luxury artifacts during his rule in the middle of the 8th century. Shortly after his death in 756 A.D., they were passed on by the widowed Empress to the Tōdai-ji temple. One of these vessels has been associated with Mediterranean workshops. It is a blue cup, produced out of alkali-lime glass. Its surface is decorated with 22 circular coils ordered in three rows: two of them contain eight elements each, and the lower one has six. According to Hayashi, it was a product of the Eastern Roman Workshops (Hayashi 1975, foldout 1). The base of the cup is made of silver and most probably was added later (Laing 1991, 115; Źuchowska and Szmoniewski 2017, 182; different view *i. Mierse* 2017, 10). The decoration of rings and trails on the surface of the vessel was almost unknown within the circle of the Roman glassmaking tradition. Thus far, I am aware of one example of a transparent, pale blue-greenish glass cup with similar decorations of chunks (parison rolled in chunks of glass) and a ring from the Corning Museum of Glass, dated to the 1st century A.D. (Whitehouse 1997, 208, no. 358). Some analogies to cups or bowls with blue prints (Mierse 2017, 11-15) are suggested in the literature, but they seem dissimilar. In these cases, the decoration is based not on rings, but on blue dots encompassed by trails of glass (Szmoniewski 2018, 161, 162-163, fig. 5: 1-3, fig. 8: 4-9). There is also a proposal that this cup originated as a *late Sasanian or early Islamic period product from an Iranian glass workshop* (Mierse 2017, 10). A nearly identical vessel, but of a green color, is known from the Songrim-sa pagoda, Chilgok county, North Gyeongsang province, Korea (dated around 935 – the end of the later Silla/early Goryeo period), and was probably produced in the second half of the 7th century or in the 8th century (Hong 2010, 193, fig. 13; Źuchowska and Szmoniewski 2017, 182). A similar type of decoration is documented on the surface of a translucent white glass cup from the hoard of Hejia, Xi'an in China, which is dated to the mid-8th century – not long after 731 A.D. (Hansen 2012, 152; Hua wu da Tang chun 2003, 101, no. 12), and from a fragment discovered in Togujai, near Moji in Xinjiang autonomous region, China (Lu *et al.* 2017, 116-117). As chemical analyses show, the chemical formula of these vessels is based on a component related to Central Asian glassware (Lu *et al.* 2017, 116-117; see also Brill 2009, 146, Tabl. 3.2. and 3.3.6). According to a new proposal, the vessel from Hejia is thought to be among the gifts that were offered at the Imperial Court of Tang by the envoy from Kapiša (which was situated in Afghanistan and centred on what is now Kabul) in 619 A.D. (Lin 2017; Aihaiti *et al.* 2017). Thus, glass vessels of this type might have been produced in Central Asia, where different branches of crafts could also evolve – among them, glassmaking related to Mediterranean traditions, but with a stamp of local provenance (see Szmoniewski 2018 and 2019).

2.2.3. Coins

In the year 2016, during the excavations carried out within the Katsuren castle in Uruna, Okinawa prefecture, a few coins of foreign origin were found (Fig. 8). This building, which consists of five enclosures, is situated on a limestone ridge around 90 m above sea

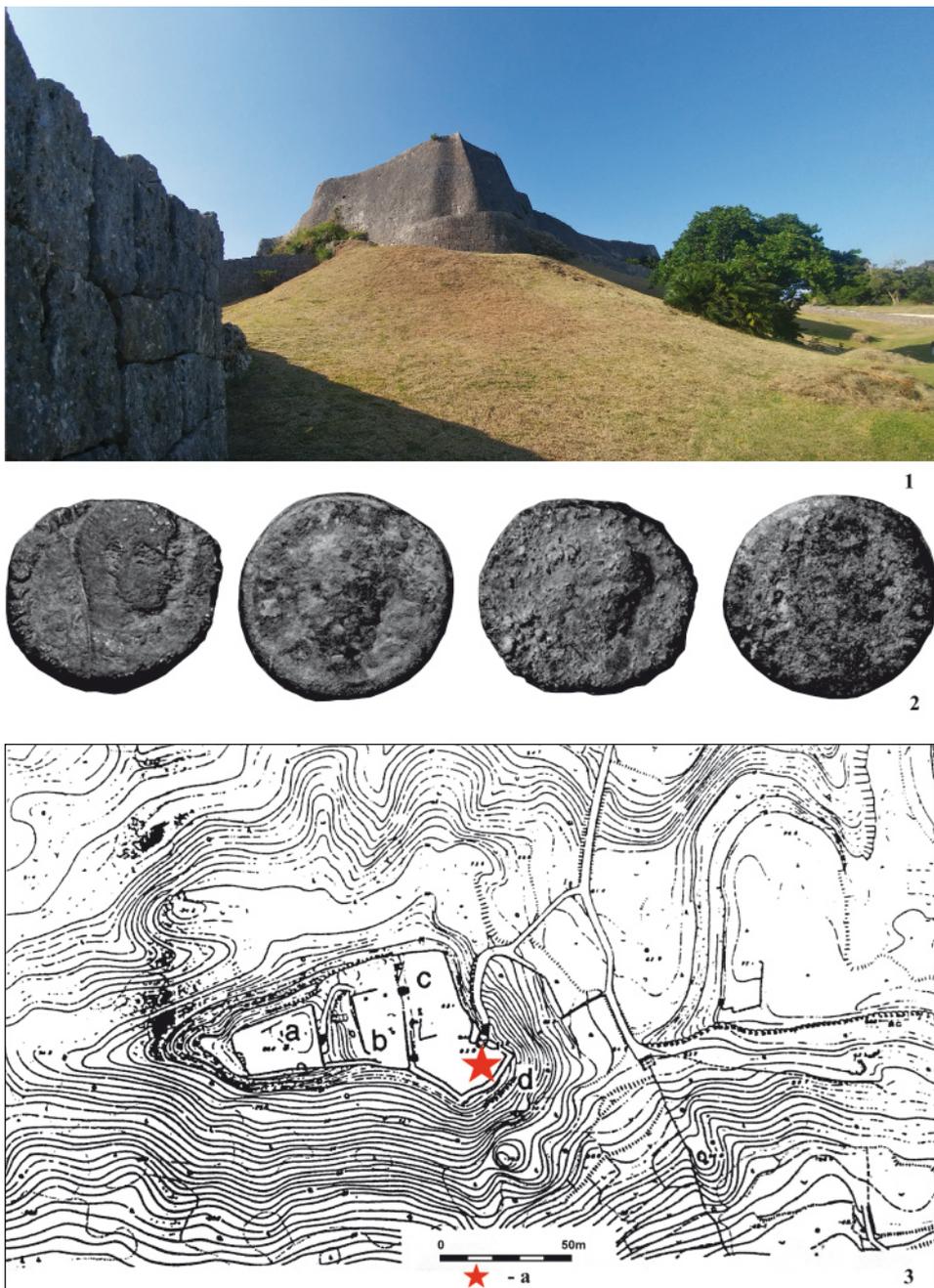


Fig. 8. Katsuren Castle; 1 – Katsuren Castle, Okinawa (photo by Author); 2 – Early Byzantine coins (Courtesy of Uruma City Education Board); 3 – Plan of Katsuren Castle (after Pearson 1999), a – location of coins

level, with a strategic view of the entire southwestern part of the island. There coins were found in four of the enclosures, which covered a total acreage of 7600 m². Four specimens dated to the 3rd and 4th centuries have been identified, and one dated to the Ottoman epoch (17th century). The Roman coins are made of copper, with diameters between 1.6 and 2 cm; their surfaces are very damaged and worn off, with the barely-visible motif of a ruler. This makes their identification and typological classification very difficult. In the case of the most well-preserved coin, it has been ascribed to Constantius the Second and his administration in the time between 337-361 A.D. With regard to the other coins, they all are related to the edition from the time between 320-370 A.D. (Fig. 8: 2; personal communication of Makiko Tsumura). It is hardly possible, however, to connect the time of their arrival in Japan with the time of the imports of glassware from the Mediterranean workshops, because the castle of Katsuren is from a much later period. Its history can be divided into five periods. Up to the 12th century (period I), the castle walls had not yet been constructed. Its fortification walls are probably from the second phase, i.e., from the 13th century. According to a local tradition, the first Lord of Katsuren Castle, the Katsuren Aji, was the fifth son of Tatsei (1300-1308). The most intensive period of construction fell in the time of Amawari (early to mid-15th century). On the site where enclosure 2 stood, which contained the palace, four layers were distinguished, and it was there that multiple artifacts were found: jade beads, Ming glaze pottery, coins, earthenware (probably local products) and other types of pottery. Coins, mainly Chinese and of diverse chronology, were discovered in various locations in the Ancient Ryukyu, and also in other castles within this territory (Pearson 1999, 289-293, fig. 4 a and b; Ladefoged and Pearson 2000, fig. 1). From some earlier periods, a few coins from the Han epoch were also documented (Pearson 2013, 11); moreover, 36 finds of Chinese coins of Kaiyuan Tongbao were made at 8 sites in the Okinawa Islands, and 28 finds came from two sites on Yeayama Island, with the earliest from the site of Sakieda Akasaki, Ishigakijima; they were mainly minted in the 7th and 8th centuries (Pearson 2013, 74, 80, 133-134, 278, fig. 6.3.3.4). Yet, the most numerous group is dated to the Song epoch – mostly Northern Song (Pearson *et al.* 2000, 226; Pearson 2013, 206). To this must be added that Byzantine coins, and their imitations or bracteates from the Far East, are gold items. The only deposit of Roman bronze coins (1st-3rd c.) from Ling-shi, Shansi province, seems to be a collection, as evidenced by the eighteenth coin of Henry III – King of Poland and France, issued in 1589 (Thierry 2012, 30-32). However, more single finds of Roman coins are known from Southern and South-Eastern Asia (Hoppá *et al.* 2018).

2.2.4. Textiles

Jōdai-gire (the Japanese term for ancient fabric) from Shōsō-in includes over 170,000 textiles and their fragments (each fragment was counted separately). Their exact number is difficult to estimate due to a *mishap in the past*, namely that they had been mixed and



Fig. 9. Textile with lions from Shōsō-in, Nara Prefecture (Courtesy of the Imperial Household Agency)

confused with the textiles from the Hōryū-ji i and Tōdai-ji temples. They are still being classified into categories and types. The debate concerning their provenance is still fierce, and according to Atsuhiko Ogata (2012, 6) *none of the textiles of Shoso-in was manufactured in Europe, such as Persia, Central Asia, or the west of China*. It is probable that most, if not all of them were produced in China and Japan. In the literature, one of the textiles is described as the most exotic of the entire collection; it is a *joku* with lions and human figures, under a flowering tree on light-brown ground, thought to be of Byzantine origin and a product of Syrian workshops (Figs 9 and 10: 1, 2). The artifact described here, dated to last half of the 8th century and preserved only fragmentarily in two (?) parts, was a kind of a mat, hung vertically in halls of Buddhist temples. The preserved fragment is a weft-faced, twill damask weave, 99 cm long and 52.2 cm wide. Three units of the same pattern are repeated (Matsumoto 1984, 229-230, no. 49). At first glance, the pattern of the textile seems to be the product of Mediterranean workshops (see discussion in Mierse 2017, 35). Kazuko Yokohari, on the other hand, underlined a Chinese technique of weaving (Yokohari 2006, 171). A closer analysis of the designs suggests some analogies to the sphere of Chinese art influence, especially to the workshops of the Tang epoch. Without going deeper into the details of the depictions, I would like to focus on some select details. First, the motif of a lion, which at first sight seems to be related to early Byzantine depictions,



Fig. 10. Textile with lions and analogies of its representations; 1, 2 – Textile with lions from Shōsō-in – details; 3 – Stone element of Sarcophagus of Li Shou grave (d. 631 or 632), Jiaocun, Shaanxi Province, China; 4 and 5 – Clay figurines of Kunrung (Kunlun) from Tang era (618-907) graves; 6 – Stone element of Sarcophagus of Empress Zhenshun (d. 737), Xi'an, Shaanxi Province, China; 1, 2 – Courtesy of the Imperial Household Agency; 3 and 4 – after Chinas 1993; 5 – The Art Institute of Chicago – Open Access Image, 6 – after Wang 2014

suggests rather to reflect the Chinese style. The lion in China was a little-known animal, and in most cases, depictions of it were imitations of foreign motifs, mainly Sasanian and maybe also Roman ones (Szmoniewski 2013). Particularly, the end of its tail, as seen in this fragment, and the arrangement of the muzzle, have their equivalents in depictions of lions and other *phantastic* animals in Chinese art. Good examples of such depictions are stone elements of the funeral sarcophagus of Empress Zhenshun (Consort Wu, died 737), discovered in Xi'an, Shaanxi province (Wang 2014, 3: 4) as well as a stone pillar also discovered in Xi'an (Fig. 10: 6; Haussig, 1992, 152-153). Half-naked keepers of animals also find their equivalents in the art of the Tang period – above all, in figural depictions in sculpture. They depict foreigners, mostly half-naked, with curly hair and knee-length trousers (pantalons), which can be identified with Black Africans or Southeastern Asians, for whom the ancient Chinese used the expression “Kurung” (Kunlun) (for origin and meaning see: Zhu, Hu 2019, 124). However, in the Tang era, the name “Zangi” or “Zānji” was used for Black slaves from Africa, (Zhu, Hu 2019, 124; Wyatt 2010, 313) who were kidnapped and sold in slave markets or presented as gifts for Chinese envoys (Wyatt 2010, 313). Besides historical information about Black Africans in China during the Tang era (Xiong 1990; Wilensky 2002), the pottery figurines also confirmed their presence (Chinas 1993, 70, 71). Thus, the models for these depictions in the presented textile from Shōsō-in might be people from South Eastern Asia or from Africa, who are mostly presented as half naked with knee-length trousers and curly hair (Fig. 10: 4-5).

The last element I would like to discuss is a stylized depiction of a bird resembling a peacock. Similar motifs of birds with the characteristic feather on their heads also occur – one can easily find equivalents in Chinese art; a good example here may be the decoration on the door of Li Shou's sarcophagus (died 631 or 632) from Jiaocun, near Sanyuanxian, Shaanxi province (Fig. 10: 3; Chinas 1993, 183). This depiction seems to represent the Feng Huang bird. It is worth pointing out that this motif, taken from the Chinese art tradition, appears in the Byzantine circle in the Middle Byzantine period. According to K. Yokohari (2006, 171), *it is possible that the Chinese wove it after seeing a Western image*, which was not an exception in China. Moreover, the Japanese researcher allows for the possibility that the *Horyu-ji samit initiated the production of hunting-motif samit silks in the West, in particular in the area of Byzantine influence during and after the eighth century*. Therefore, we could be dealing with a renewed adaptation of this modified motif with lions – motif, which this time, came from the East to the West.

3. SUMMARY AND CONCLUSIONS

My purpose was to show that in spite of many reports about alleged finds of products of Roman and Byzantine workshops in the Japanese archipelago, their number is actually small and limited to the glassware artifacts imported there in the times directly succeeding

their production. In the case of numismatic finds, coins were imported long after their minting. Other products associated with the Byzantine Empire, *e.g.*, textiles, were Asiatic (from Central Asia or China), with the exception of their stylistic linkage to their western equivalents in some cases. Three routes of their influx are possible.

As far as beads are concerned, their co-occurrence with group PI and PII, produced in South India (PI) and Central Vietnam and coastal regions of South China (PII), suggests a sea route; the beads included in these two groups, along with other Indo-Pacific beads found their way to Japan and were later deposited in burials. A special role in the production of beads was undeniably played by India, where several sites containing finds with gold-in-glass beads were documented, with the artifacts most probably manufactured *in situ* (contra this view, Francis 2002, 92). The analyses conducted thus far of gold foil and silver beads from Bara, near Peshawar in Pakistan (the site dated from the 2nd c. BC to the 2nd c. A.D.), have supported the thesis of their local provenance; the same is true in the case of a find from Harinajanpur (India). The analyses of 3 beads from Arikamedu (India), however, as well as those excavated in Koktepe (Uzbekistan) and Khuan Lukpad (Thailand), have proven that all of these artefacts came from the Mediterranean Basin (Dussubieux and Gratuze 2003, 319). Some analyses conducted on a portion of the vessels excavated from double burial 98 in Hwangnamdaechong have shown their closer similarity to glass beads and bead making debris from the aforementioned Bara site (Lankton *et al.* 2010, 223). In light of these analyses, it seems that we cannot exclude the existence of a continental route, apart from the maritime one, as a route for the influx of this type of glass products to East Asia. The offshore imports of gold/glass beads, *i.e.*, finds of them, are mapped with various frequency along the South-Asian trade route (Francis 2002, 91-93).

This is an astonishing perspective that opens to researchers who focus on the fact that the greatest concentration of such finds in this part of Asia, as well as the greatest diversity of variants of gold in glass beads (ranging from simple to segmented, and in the production of which natron prevailed as a raw material), can be found in many burials of the Three Kingdoms of Korea (Kim and Kim 2012, 213-215, Table 1, Fig. 7: 1); thus, we cannot exclude that it is from these hubs that they were imported to Japan. Intensive trade and exchange obviously took place between Gaya, Silla, Peakche (Korea) and Wa in Japan, a thesis supported by the finds of various artifacts of Korean origin made of iron and noble metals; or, as an alternative interpretation, the artifacts could be a result of the adaptation of the house heating system typical for southwestern Korea, such as that known from the Peakche site (Park 2018; Woo 2018).

Blue beads frequently discovered in Korea could well be manufactured by some local craftsmen with the use of imported raw materials (Lee 2013, 119, Pl. 64), as was the case in South East Asia, where *the methods or workers, perhaps both, had been transferred from another, more established site* (Lankton and Dussubieux 2006, 121-122). In the area just mentioned, a significantly broad range of chemical compositions of glass products is apparent, which indicates a high probability of three distinct origins and archaeological tra-

ditions (Lankton and Dussubieux 2006, 121-122). From the same perspective, beads could be manufactured in various regions and with the use of different types of minerals and raw materials, using melted as well as remelted glass, which would have resulted in the differentiation of chemical components and their various concentrations in slightly different types of glass production (Lankton and Dussubieux 2006, 121-122). In the case of cobalt aluminate, in its natural, primordial form, it is not of blue colour at all, but rather pinkish; therefore, in order to achieve this special blue hue, it had to be dissolved in water with the addition of sodium bicarbonate, ammonia or plant ash. Such a mixture, after being heated to a temperature between 800-1000°C to obtain the amalgamation of the components, and after the precipitation process, would render the desired pigment (Nicholson and Henderson 2006, 198). The resulting form of the material could easily be transported and traded over longer distances or used locally, misleading our analyses and causing us to search for a possible Mediterranean provenience of the artifacts. However, according to some researchers, *only Near Eastern cobalt blue glass and gold-foiled glass beads were imported from Mediterranean regions* (Dussubieux cited in Gratuze 2013, 328).

The grave goods found in mound 126 at Niizawa Senzuka, 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 that suggest cultural bonds with the Korean Peninsula, both stylistically as well as by the repeated number of two glass vessels, which corresponds with such finds in the several graves of Gyeongju. The gold, openwork plaque belongs to a kind of adornment that most probably came from the West. The most characteristic specimen found in this cemetery/necropolis is a golden crown from Tomb VI in Tillya Tepe (Afghanistan), dated to the second quarter of the 1st century A.D. Other finds of this kind are mostly from burials in Mongolia, Jilin and Liaoning provinces in north-eastern China, where this fashion disappeared by the mid-5th century. However, this style was continued later on in the East – in Baekje and Gaya on the Korean Peninsula, and most intensely, in the Kingdom of Silla (Szmoniewski, 2019, 214-215). It is only through systematic research of imperial burials that we could answer the question of whether rulers' graves in Japan contain glassware as is the case in Korea; this issue however, cannot be solved as yet due to the prohibition of archeological research in such burials.

In the case of the coins from Katsuren Castle on Okinawa Island, they should also be associated with a sea route as far as their import is concerned. Katsuren was an important trade hub on the eastern coast of Okinawa, and as such, a dangerous rival of Shuri, capital of Ryukyu Kingdom. Rich and diverse discoveries from the enclosures of Katsuren support its far-reaching trade contacts. At the foot of the castle, Yambaru Sen – Okinawan trading ships – were berthing until as late as the 20th century.

Thus, the finds of products of Mediterranean origin from the Roman and the Early Byzantine Periods are scarce, which points to the unique character of their import. This all supports the view that the Japanese archipelago should indeed be included into the network of the Silk Road routes, but its role was only passive.

Acknowledgements

This paper could not be written without the help of many people. Foremost, I would like to express my special gratitude to Professor Toshio Hayashi from Soka University (Tokyo) for his help in my research during the JSPS Fellowship for Overseas researchers (2016-2018), sharing his knowledge and support. Special thanks are due to Dr. Makiko Tsumura (Tokyo), Dr. Chizuko Kotera (Tokyo), Dr. Ryuji Shikaku (Okayama) and Dr. Marta Żuchowska (Warsaw) for interesting and inspiring discussions. Special thanks goes to Professor Koichi Yukishima for all his helping in collecting illustrations. I would also like to thank the Tokyo National Museum, Imperial Household Agency and Uruma City Education Board for permission to use materials for illustrations. The paper was written during the tenure of a Fellowship for Overseas Researchers from the Japan Society for the Promotion of Science (JSPS).

References

- Abe Y., Harimoto R., Kikugawa T., Yazawa K., Nishisaka A., Kawai N., Yoshimura S. and Nakai I. 2012. Transition in the use of cobalt-blue colorant in the new kingdom of Egypt. *Journal of Archaeological Science* 39, 1793-1808.
- Abe Y., Shikaku R. and Nakai I. 2018. 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, 212-219.
- Alekseyeva Ye. M. 1978. *Antichnyye busy Severnogo Prichernomorja* (= *Svod arkhelogicheskikh istochnikov* G1-12/2). Moskva: Nauka.
- Aihaiti M., Kim S. and Hao C. 2017. 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* 6, 104-110.
- Boon G. C. 1977. Gold-in-glass beads from the Ancient World. *Britannia* 8, 193-207.
- Borell B. 2008a. Some western imports assigned to the Oc Eo period reconsidered. In J.-P. Pautreau, A.-S. Coupey, V. Zeitoun and E. Rambault (eds), *From Homo Erectus to the living traditions. Choice of papers from the 11th International Conference of the European Association of Southeast Asian Archaeologists, Bougon, 25th-29th September 2006*. Chiang Mai: Siam Ratana, 167-174.
- Borell B. 2008b. The Early Byzantine lamp from Pong Tuk. *The Journal of the Siam Society* 96, 1-26.
- Borell B. 2010. Trade and glass vessels along the maritime Silk Road. In B. Zorn, and A. Hilgner (eds), *Glass along the Silk Road, from 200 BC to AD 1000*. Mainz: Römisch-Germanisches Zentralmuseum Mainz, 127-142.
- Borell B., Beireñice B. and Boonyarit Chaisuwan. 2014. Contacts between the Upper Thai-Malay Peninsula and the Mediterranean World. In N. Revire and S. Murphy (eds), *Before Siam: Essays in Art and Archaeology*. Bangkok: River Books, 98-117.

- Brill R. H. 2009. Opening remarks and setting the stage. Lecture at the 2005 Shanghai International Workshop on the Archaeology of Glass along the Silk Road. In: G. Fuxi, R. H. Brill and T. Shouyun (eds), *Ancient glass research along the Silk Road*. Singapore: World Scientific Publishing, 109–148.
- Chinas 1999. Chinas Goldenes Zeitalter. Die Tang-Dynastie (618-907 n. Chr.) und das kulturelle Erbe der Siedenstrasse. Dieter Kuhn (ed.). Dortmund: Edition Braus.
- Dussubieux L. and Gratuze B. 2003. Nature et origine des objets en verre retrouvés à Begram (Afghanistan) et à Bara (Pakistan). In O. Bopearachchi, C. Landes, and C. Sachs (eds), *De l'Indus à l'Oxus: archéologie de l'Asie centrale*. Lattes: Association imago-musée de Lattes, 315-323.
- Edwards W. 2000. Contested access: The Imperial tombs in the postwar period. *Journal of Japanese Studies* 26(2), 371-392.
- Francis P. 1985. *A survey of beads in Korea (= Occasional papers of the Center for Bead Research 1)*. New York: Lapis Route Books.
- Francis P. 2002. *Asia's maritime bead trade: 300 B.C. to the present*. Honolulu : University of Hawai'i Press.
- Glass 1965. *Glass objects in the Shosoin*. Shosoin Office (ed.). Tokyo: Nihon Keizai Shimbun Sha.
- Gratuze B. 2013. Provenance analysis of glass artefacts. In. K. Janssens (ed.), *Modern methods for analysing archaeological and historical glass 1*. Chichester: Wiley, 311-343.
- Gratuze B., Pactat I. and Schibille N. 2018. Changes in the signature of cobalt colorants in late antique and early Islamic glass production. *Minerals* 8(6), <https://www.mdpi.com/2075-163X/8/6/225> (access 7.01.2020).
- Hansen V. 2012. *The Silk Road. A new history*. Oxford: Oxford University Press.
- Harden D. B. 1936. *Roman glass from Karanis found by the University of Michigan Archaeological Expedition in Egypt 1924–1929*. Ann Arbor: University of Michigan Press.
- Hausig H. W. 1992. *Archäologie und Kunst der Seidenstrasse*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Hayashi R. 1975. *The Silk Road and the Shōsō-in The Heibonsha survey of Japanese art*. New York: Weatherhill.
- Hayes J. 1975. *Roman and Pre-Roman glass in the Royal Ontario Museum: a catalogue*. Toronto: Royal Ontario Museum.
- Hong Y. 2010. Ancient Buddhist Reliquaries in China and Korea. *Chinese Archaeology* 10(1), 184-195.
- Hoppál K., Adhityatama S., Vida I. and Lu Y. 2018. All that glitters is not Roman' Roman coins discovered in East Java, Indonesia: A study on new data with an overview on other coins discovered beyond India. *Dissertationes Archaeologicae* 3(6), 461-492.
- Hua wu da Tang chun 2003. *Hua wu da Tang Chun : Hejia cun yi bao jing cui*. Beijing: Wen wu chu ban she.
- Imamura K. 1996. *Prehistoric Japan: New perspectives on insular East Asia*. Honolulu: University of Hawaii Press.

- Kaczmarczyk A. 1986. The source of cobalt in ancient Egyptian pigments. In J. S. Olin and M. J. James (eds), *Proceedings of the 24th International Archaeometry Symposium*. Washington, D.C.: Smithsonian Institution Press, 369-376.
- Yokohari K. 2006. The Hōryū-ji Lion-hunting silk and related silks. In R. Schorta (ed.), *Central Asian textiles and their contexts in the Early Middle Ages (= Riggisberger Berichte 9)*. Riggisberg: Abegg-Stiftung, 155-173.
- Kim N. Y. and Kim G. H. 2012. Asan myeong-amli Bakkjimeule yujeog chulto yuliguseul-ui hwahag-jeog teugseong. *Journal of Conservation Science* 28(3), 205-216.
- Kucharczyk R. 2011. Glass from area F on Kom el-Dikka (Alexandria). Excavations 2008. *Polish Archaeology in the Mediterranean* 20 (Research 2008), 56-69.
- Ladefoged T. N. and Pearson R. 2000. Fortified castles on Okinawa Island during the Gusuku Period, AD 1200-1600. *Antiquity* 74, 404-12.
- Laing F. J. 1991. A report on Western Asian glassware in the Far East. *Bulletin of the Asia Institute. New Series* 5, 109-121.
- Lankton J.W. and Dussubieux L. 2006. Early glass in Asian maritime trade: a review and an interpretation of compositional analyses. *Journal of Glass Studies* 48, 121-144.
- Lankton J. W., Gratuze B., Kim G. H., Dussubieux L. and Lee I. 2010. 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: Römisch-Germanisches Zentralmuseum Mainz, 221-237.
- Lee I. 2013. Of glass and gold. Silla tombs, the Silk Road and the steppe. In: S. Lee and D. P. Leidy (eds), *Silla Korea's Golden Kingdom*. New York: Metropolitan Art Museum, 115-131.
- Lin M. 2017. 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, 94-103.
- Lu X., Liu Z., He D., Liu X. 2017. Hejiacun tang dai jiaocang baoshi ji boli wan jiance baogao. *Kaogu yu wenwu* 6, 114-120.
- Markovic L., Vranes A. and Jelic Mariokov M. 2017. The story of the Silk Road and Nara's Shosoin treasure repository of the Emperor. Conference: The Asian Conference on Arts and Humanities 2017. <https://papers.iafor.org/submission35719/>.
- Masashi T. 2010. Beikoku Bosuton Bijutsukan shozō iwayuru 'den Nintokuryō shutsudohin' no chōsa. *Shoryōbu kiyō [Ryōbo hen]* 62, 1-17.
- Masuda S. 1972. On the painted Sassanian glass receptacle found in Japan. In *The memorial Volume of the Vth International Congress of Iranian Art and Archaeology (Tehran, Isfahan, Shiraz, 11th-18th April 1968)*. Tehran: Ministry of Culture and Arts, 353-356.
- Matin M. and Pollard A. M. 2015. Historical accounts of cobalt ore processing from the Kāshān Mine, Iran. *IRAN (Journal of the British Institute of Persian Studies)* 53, 171-183.
- Matin M. and Pollard A. M. 2017. From ore to pigment: a description of the minerals and an experimental study of Cobalt ore processing from the Kāshān mine, Iran. *Archaeometry* 59(4), 731-746.
- Matsumoto K. 1984. *Jōdai-gire: 7th AND 8th Century Textiles in Japan from the Shōsō-in and Hōryūji*. Kyoto: Shikosha.

- Mierse W. E. 2017. The significance of the Central Asian objects in the Shōsō-in for understanding the international art trade in the seventh and eighth centuries. *Sino-Platonic Papers* 267, 1-52.
- Nagaokakyō-shi 2012. Nagaokakyō-shi maizō bunkazai sentā. Utsu Hisashi 1 gōfun ni tsuite hakkutsu chōsa seika kara ~ kōeki zaidanhōjin, 1-10. http://nagaokakyō-maibun.or.jp/asset/00032/download/utsukushi1goufun_tama.pdf.
- Niizawa 1977. *Niizawa sendzuka 126 gōfun' Nara ken kyōiku iinkai*. Nara: Institute of Archaeology.
- Nicholson P. T. and Henderson J. 2006. Glass. In P. T. Henderson and I. Shaw (eds), *Ancient Egyptian materials and technology*. Cambridge: Cambridge University Press, 195-227.
- Oga K. and Tamura T. 2013. Ancient Japan and the Indian Ocean interaction sphere: chemical compositions, chronologies, provenances and trade routes of imported glass beads in Yayoi-Kofun Period (3rd Century BCE-7th Century CE). *Journal of Indian Ocean Archaeology* 9, 35-65.
- Ogata A. 2012. The Shoso-in textiles of the era of Emperor Shomu. *Textile Society of America Symposium Proceedings* 720 <http://digitalcommons.unl.edu/tsaconf/720>.
- Park C. S. 2018. Kaya, Silla, and Wa: changing relationships and their historical backgrounds. In M. E. Byington, K. Sasaki and T. Bale (eds), *Early Korea-Japan interactions*. Seoul: Korea Institute, Harvard University 2018, 133-181.
- Pearson P. 1999. Regional settlement in Okinawa: The Yokatsu Peninsula and its offshoots. *Journal of East Asian Archaeology* 1, 277-323.
- Pearson R., Li M., and Li G. (2000). Port, city, and hinterlands: archaeological perspectives on Quanzhou and its overseas trade. In A. Schottenhammer (ed.), *Quanzhou and its overseas trade in the Song and Yuan dynasties*: Leiden: Brill.
- Pearson R. 2013 *Ancient Ryukyu. An archaeological study of island communities*. Honolulu: Hawaii University Press.
- Rodziewicz M. 1984. *Les habitations romaines tardives d'Alexandrie à la lumière des fouilles polonaises à Kom el-Dikka (= Alexandrie 3)*. Warsaw: PWN – Éditions Scientifiques de Pologne.
- Rodziewicz M. 2005. *Elephantine XXVII: Early Roman Industries on Elephantine (= Archäologische Veröffentlichungen 107)*. Mainz: Zabern.
- Simpson S. J. 2015. Sasanian glassware from Mesopotamia Gilan, and the Caucasus. *Journal of Glass Studies* 57, 77-96.
- Spaer M. 1993. Gold-Glass beads: a review of the evidence. *Beads: Journal of the Society of Beads Researchers* 5, 9-25.
- Stawiarska T. 1985. Paciorki szklane z obszaru Polski północnej w okresie wpływów rzymskich (= *Biblioteka archeologiczna* 28). Wrocław: Zakład Narodowy im. Ossolińskich.
- Sugiyama S. 2011. Glass bowl unearthed from Okinoshima island and related sites in the Munakata region. *Study Report* 1, 541-554.
- Dictionnaire 1989. *Dictionnaire historique du Japon*, volume 15, 1989. Lettres M (2) et N (1), 146.
- Stern E. M. 2001. *Roman, Byzantine, and Early Medieval Glass: Ernesto Wolf Collection*, Ostfildern: Hatje Cantz.
- Szmoniewskiy B. S. (= Szmoniewski B. S.) 2013. Obraz lva v izobrazitelnom iskusstve Kitaya: svyazyushcheye zveno mezhdru Vostokom i Zapadom (ot Han' do Tsin). *Uchenyye zapiski Otdela Kitaya Instituta Vostokovedeniya RAN* 11, 456-468.

- Szmoniewski B. S. 2016. Bizantijskaya moneta i yeye podrazhaniya (moneta mertvykh) na primere nakhodok iz pogrebeniy avarskogo kaganata, na Shelkovom puti i priliegayushchikh territoriy (VI-VIII vv.). *Kratkie Soobshcheniia Instituta Arkheologii* 44, 254-274.
- Szmoniewski B. S. 2018. Roman glassware from Korean Peninsula: Silla, Gaya, Baekje from fourth to sixth century A.D. Myth or reality (I). *Pontica* 51, 151-191.
- Szmoniewski B. S. 2019. Roman glassware from Korean Peninsula: Silla, Gaya, Baekje from fourth to sixth century A.D. Myth or reality (II). *Pontica* 52, 213-236.
- Tamura T. and Oga K. 2016. Archaeometrical investigation of natron glass excavated in Japan. *Microchemical Journal* 126, 7-17.
- Tempelmann-Maczyńska 1985. *Die Perlen der römischen Kaiserzeit und der frühen Phase der Völkerwanderungszeit im mitteleuropäischen Barbaricum (= Römisch-germanische Forschungen 43)*. Mainz: Zabern.
- Thierry F. 2012. Rome et la Chine, trois notes de numismatique. *Archéothéma* 19, 27-33.
- Tite M. S. and Schortland A. J. 2008. *Production technology of faience and related early vitreous materials (= Oxford University School of Archaeology Monographs 72)*. Oxford: Oxford University.
- Wang Q. 2014. Muzang zhong de su du bo: Zai lun wuhuifei shi guo yongshi shenshou tu Wangqingwei. *Dunhuang xue ji kan* 83(1), 145-158.
- Whitehouse D. 1997. *Roman glass in the Corning Museum of Glass*, 1. New York: Corning Museum of Glass.
- Whitehouse D. 2001. *Roman glass in the Corning Museum of Glass*, 2. New York: Corning Museum of Glass.
- Wilensky J. 2002. The magical Kunlun and “devil slaves”: Chinese perceptions of dark-skinned people and Africa before 1500. *Sino-Platonic Papers* 122, 1-51.
- Woo J. -P. 2018. Interactions Between Paekche and Wa in the third to sixth centuries A.D. based on patterns of trade and exchange. In M. E. Byington, K. Sasaki and T. Bale (eds), *Early Korea-Japan interactions*. Seoul: Korea Institute, Harvard University, 183-230.
- Wyatt D. J. 2010. *The Blacks of Premodern China*. Philadelphia: The University of Pennsylvania Press.
- Xiong V. C. 1990. The Story of a Kunlun Slave in Tang Chang'an. *Chinese Historians* 4, 77-81.
- Zhu Y. and Hu R. 2020. A brief analysis of semantic interactions between loanwords and native Words in the Tang Dynasty. In J.-F. Hong, Y. Zhang and P. Liu (eds), *Chinese Lexical Semantics. 20th Workshop, CLSW 2019, Beijing, China, June 28-30, 2019, Revised Selected Papers*. Cham: Springer International Publishing, 123-129.
- Żuchowska M. 2015. “Roman Textiles” in the Hou Han Shu. A 5th century Chinese vision versus Roman reality. *ANABASIS. Studia Classica et Orientalia* 6, 216-242.
- Żuchowska M. 2016. Importowane naczynia szklane w Chinach w I tysiącleciu n.e. *Archeologia Polski* 61, 77-112.
- Żuchowska M. and Szmoniewski B. S. 2017. Glass along the Silk Road in the first millennium AD. *Archaeologia Polona* 55, 161-188.

