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Influence of the Roman Empire on textile economy during the roman period in Poland

Influência do Império Romano na economia têxtil durante o período romano na Polónia

MAGDALENA PRZYMORSKA-SZTUCZKA
Archaeological Museum in Biskupin, Poland
m.przymorska@biskupin.pl
https://orcid.org/0000-0002-4169-0154

ABSTRACT: There is a substantial body of evidence for the wide-ranging interactions and connections between the Wielbark Culture and the Roman Empire. Roman imports are frequently identified in the burials of prominent members of the Wielbark Culture in Poland, with notable discoveries including three amber distaffs found in the necropolises of Czarnówko, Lubowidz, and Kowanówko. Furthermore, textile finds may also indicate such connections. The evidence suggests that two potential types of fabrics – Virring and Mogantiacum – could have been produced in the northern provinces of the Roman Empire and then transported to the area of the Wielbark Culture. These issues may be addressed through an examination of the strontium isotope composition in the wool of archaeological fabrics.
KEYWORDS: Textile Economy; Roman Period in Poland; Wielbark Culture; Distaff; Textiles.

RESUMO: Existe um *corpus* de evidências substancial das amplas interações e conexões entre a Cultura de Wielbark e o Império Romano. As importações romanas são frequentemente identificadas em enterramentos de membros proeminentes da Cultura de Wielbark na Polónia, incluindo-se entre as descobertas mais notáveis três fusos de âmbar das necrópoles de Czarnówko, Lubowidz e Kowanówko. Além disso, os achados têxteis poderão também indicar conexões desse tipo. As evidências sugerem que dois tipos potenciais de tecidos – os tipos Virring e Mogantiacum – poderão ter sido produzidos nas províncias setentrionais do Império Romano e posteriormente transportados para a área da Cultura de Wielbark. Estes temas podem ser tratados através de uma análise da assinatura de isótopos de Estrôncio da lã usada em têxteis arqueológicos.
PALAVRAS-CHAVE: Economia Têxtil; Período Romano na Polónia; Cultura de Wielbark; Fuso; Têxteis.

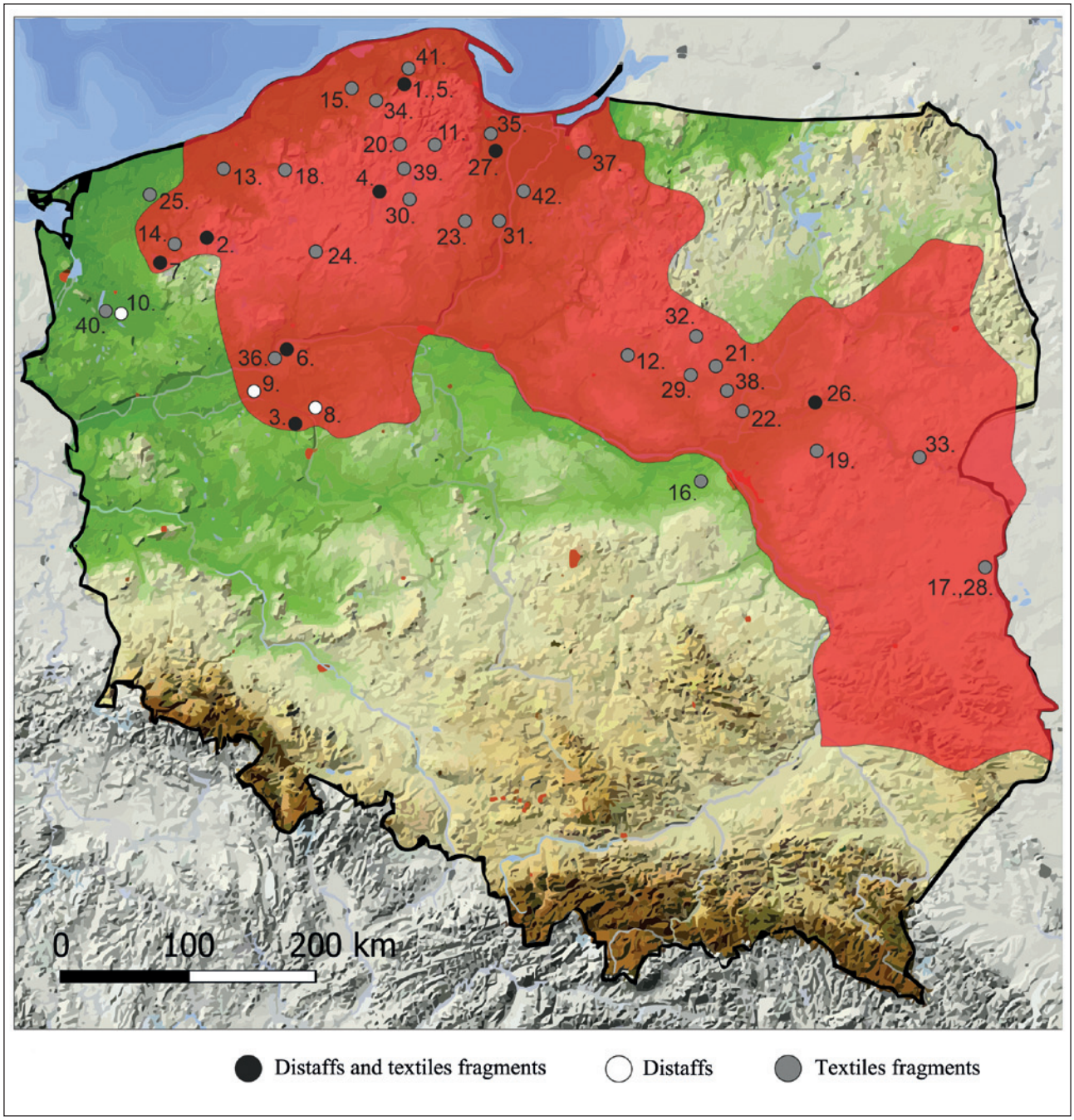
At the beginning of the first century AD, a large part of Europe came under the dominion of the Roman Empire, and the influence of Roman culture was further spread to regions beyond the Empire's borders. The evidence of these contacts with the Roman Empire can also be attested by the presence of Roman imports in the territory that is now Poland. These included luxurious bronze, silver and glass vessels (cauldrons, wine strainers and scoops, goblets), numerous examples of *terra sigillata* and relatively frequent Roman coins and ornaments (gold and enamelled fibulae, beads), as well as rarer swords (Kolendo 1998: 19). The arrival of these goods was primarily due to trade, either as gifts, tribute, or war booty. Alternatively, they may have been offered as payment for service in the Roman army. The primary motivation behind the interest of ancient Mediterranean polities in the regions situated to the north of the Carpathians was the amber trade. The route taken by these travellers to reach the south was via the Baltic Sea, Kuyavia region, Lower Silesia and the Moravian Gate, and finally reaching the Adriatic Sea. However, these contacts were selective and focused mainly on luxury items. It is therefore pertinent to enquire whether contacts with the Roman Empire may have influenced the textile industry of the northern communities at that time. If so, how was this evidenced, and can these traces be identified in the archaeological record? This article will attempt to answer these questions.

The available evidence indicates that Roman imports were predominantly luxury objects, while utilitarian items such as tools were less common. It is likewise reasonable to posit that organic materials, such as textiles, may have constituted a proportion of imported luxury goods (Kolendo 1998: 19). The most comprehensive source of information on textiles in present-day Poland between the 1st and 3rd centuries AD is provided by a large number of textile fragments, mostly discovered in Pomerania. Nevertheless, textile fragments have also been identified in the tombs of the Wielbark Culture in northern Greater Poland, Mazovia and Podlasie (Kaczmarek 2016: 61) (Map 1). The identified weaves were as follows: linen 1/1, repp, twill 2/2, twill 2/2 – herringbone and twill 2/2 – diamond weave (Maik 2012: 109). The most prevalent weave was the 2/2 plain twill, which typically makes up over 50% of all fabrics and is observed throughout the Roman period. Herringbone and diamond weaves are less frequent (Kaczmarek 2016: 137). The Z twist in the warp and weft was the predominant technique during the early Roman period. However, from the B/C phase onwards, the use of fabrics with a mixed twist of Z and S yarns became prevalent (Maik 2012: 112). The quality of the fabrics, including wool, was maintained at a consistently high standard throughout the Roman period in Poland (Maik 1988: 103–105).

Bender Jørgensen (1992: 126) has postulated that fabrics were imported from the Roman Empire to Barbaricum, referring to them as Virring-type. These fabrics are distinguished by a high number of threads per 1 cm (a minimum of 16), in a diamond or herringbone weave with a 20/18 report and a ZS[1] yarn twist, and formed on a warp-weighted loom. These fabrics spanned a vast geographical area, from Gaul and Britain to Jutland, southern and western Scandinavia, and northern Poland (Maik 2012: 114). In contrast, fabrics of this type are less frequent within the Roman Empire, yet have been identified in contexts with an abundance of textile remains (Bender Jørgensen 1992: 129). The high degree of homogeneity observed in these fabrics leads Bender Jørgensen (1986: 346) to conclude that they originated from a professional production context. Moreover, she suggests that the provenance of these fabrics can be traced to Northern Gaul and the border areas between the Roman Empire and Germania Libera. From there, the Virring-type fabrics spread southwards and further north and northeast, beyond the borders of the Roman Empire (Bender Jørgensen 1986: 346–347; 1992: 133–134). The veracity of Bender Jørgensen's claims has been subjected to scrutiny by Wild (1988: 81–82) and Maik (2012: 115–116), with a summary of the findings presented in Kaczmarek (2016: 145–146). In opposition to the assumption that the Virring-type fabrics represent imports from the Roman Empire, Wild (1988) put forward a series of the following counterarguments:

– the twist of the ZS yarn is observed in archaeological fabrics of both the 2/2 twill weave, dating to the Hallstatt period (6th c. BC), and the diamond

[1] Bender Jørgensen (1986: 346) also included the plain 2/2 twill in this type. However, in a subsequent publication (Bender Jørgensen 1992: 126), the term "Virring type" refers explicitly to diamond and herringbone weave fabrics in ZS yarn twist.



MAP 1 Map of Poland showing the distribution of distaffs and textiles remains of the Wielbark Culture (edited by M. Sosnowski): 1 – Czarnówko; 2 – Gronowo; 3 – Kowalewko; 4 – Leśno; 5 – Lubowidz; 6 – Mirosław; 7 – Nowy Łowicz; 8 – Kowanówko; 9 – Lutom; 10 – Żalęcino; 11 – Babi Dół-Borcz; 12 – Dąbek; 13 – Dębczyno; 14 – Drawsko Pomorskie; 15 – Głuszyno; 16 – Grodzisk-Kałęczyn; 17 – Gródek nad Bugiem; 18 – Grzybnica; 19 – Jartypory; 20 – Kamienica Szlachecka; 21 – Kitki; 22 – Kleszewo; 23 – Kościelna Jania; 24 – Lędyczek; 25 – Lubieszewo; 26 – Nowy Szelków; 27 – Pruszcz Gdański; 28 – Masłomęcz; 29 – Modła; 30 – Odry; 31 – Opalenie; 32 – Pielgrzymowo; 33 – Sarnaki; 34 – Szczypkowice; 35 – Ulkowy; 36 – Walkowice; 37 – Weklice; 38 – Węgra; 39 – Węsiory; 40 – Wierzbno; 41 – Wilkowo; 42 – Malbork-Wielbark.

weave, found in the pre-Roman period in Gaul and the Late Roman period. Therefore, the appearance of this type of weave in the area of Germania Libera is not indicative of Roman influence.

– the technological differences between Virring-type fabrics from the northern provinces and those from Germania Libera are minimal, as evidenced by the 20/18 report, which is not a typical representation of a Roman fabric.
– there is a possibility that Virring-type fabrics were not held in high enough regard by the Barbarians as a luxury product (Wild – Bender Jørgensen 1988: 81–88).

A contrasting perspective is presented by Maik (2012: 115). His findings suggest that the wool from Virring fabrics belongs to types 1 and 2 (as in Odry-type fabrics), and is therefore no different from the wool source of the other fabrics found in the region of Pomerania. The identification of a specific report characteristic of Virring fabrics, which may serve to differentiate imported fabrics, nonetheless lacks convincing evidence, according to Maik. Furthermore, diamond-weave fabrics with a report of 20/14, 20/22 or 20/36, and a high thread density per 1 cm, have been identified in northern Europe. Maik (1988: 170; 2010: 715) identifies these as belonging to the same type as the aforementioned fabrics, yet Bender-Jørgensen omitted them from the import category. Maik (1988: 171) asserts that there is no evidence to suggest that these fabrics could not have been produced locally. He further postulates that they may have been patterned on Gallic fabrics, which would indicate the influence of the Celts rather than the Romans on the textile economy of central and northern Europe. It is also a possibility that only part of the Virring-type fabrics were imported, while others were developed in Barbaricum based on the original designs (Maik 2010: 716). Notwithstanding the aforementioned arguments, Maik (2010: 716; 2012: 116) does not dismiss the possibility that Virring-type fabrics with reports 20/18, 28/18, as well as 20/22 and 20/36, may in fact have been Roman imports in Barbaricum. However, Kaczmarek (2017: 578) has correctly identified a significant flaw in the assumption that the Barbarians were lacking the technical skills to produce high-density weave fabrics of a quality comparable to those of the Virring-type. This assertion was first made by Maik (1988: 171), who further posits that the more probable imports from the Roman Empire are what he terms the Mogontiacum type (Maik 2010: 717; 2012: 116–117). These fabrics display a distinctive 2/2 diamond weave, shifted along the warp, and a symmetrically broken weft. In Poland, examples of Mogontiacum-type fabrics have been excavated at Lędyczek, Nowy Łowicz, and Odry. In the Roman Empire, the production of this type of fabric is attested at the eponymous site of Mainz (Mogontiacum) in south-west Germany (Maik 2012: 116).

All types of woollen textiles identified in Barbaricum have their counterparts in the Roman Empire. Consequently, it is not possible to accurately identify local products based on their technological characteristics (Kaczmarek 2016: 198). The strontium isotope composition of the archaeological wool may potentially elucidate the geographical origin of the textiles. The increasing use of this method over recent years is evidenced by numerous studies (see, e.g., von Carnap-Bornheim *et al.* 2007; Frei *et al.* 2009; Frei 2014; Frei *et al.* 2015; Frei *et al.* 2017a; Frei *et al.* 2017b; Kiseleva *et al.* 2021; Woźniak – Bełka 2022). However, this method has limitations, as addressed elsewhere in the literature (see, e.g., von Hollstein *et al.* 2015; Makarewicz – Sealy 2015; Kaczmarek 2017; Toxvaerd 2020; Zieliński *et al.* 2021).

A total of ten textile fragments comprising both twill and diamond weave, with varying densities, yarn twist and wool quality (Fig. 1 and Table 1) from the Wielbark culture necropolis of Czarnówko were checked for strontium isotope compositions.[2] The strontium isotopes provide compelling evidence that the analysed wool textiles originated from the region of northern Poland. Samples MPS_01 and MPS_02 are outliers in this assemblage and suggesting that their provenance can be traced to central Scandinavia. The results indicate that the analysed fabrics do not derive from southern Poland or the wider southern European region. Similarly, the potential provenance of the Czarnówko fabrics from Denmark and Skåne in western Sweden is also unsubstantiated. The diamond-weave fabric, composed of thin, evenly twisted yarn with a high thread number per 1 cm, giving the impression of a luxury product, was also found to has a local origin. The available evidence allows little, if any, room for the suggestion that woollen textiles from southern regions found their way into the assemblage from Czarnówko.

The textiles identified as potential imports from Roman Empire are silk and knotted fabrics. Here, an exceptional discovery was made in Czarnówko, comprising a fragment of a silk textile and a bundle of silk fibres. Microscopic analysis has revealed that the

[2] The isotopic analyses and interpretations were carried out by Zdzisław Bełka from the Adam Mickiewicz University in Poznań, as a part of a research project entitled "Textile tools, textiles and craftsmen of the Wielbark culture. A Holistic Approach to the Evidence for Textile Production at Czarnówko, Lubowidz and Wilkowo as a Case Study", led by Magdalena Przymorska-Sztuczka. The project has received funding from the National Science Centre in Poland (NCN).

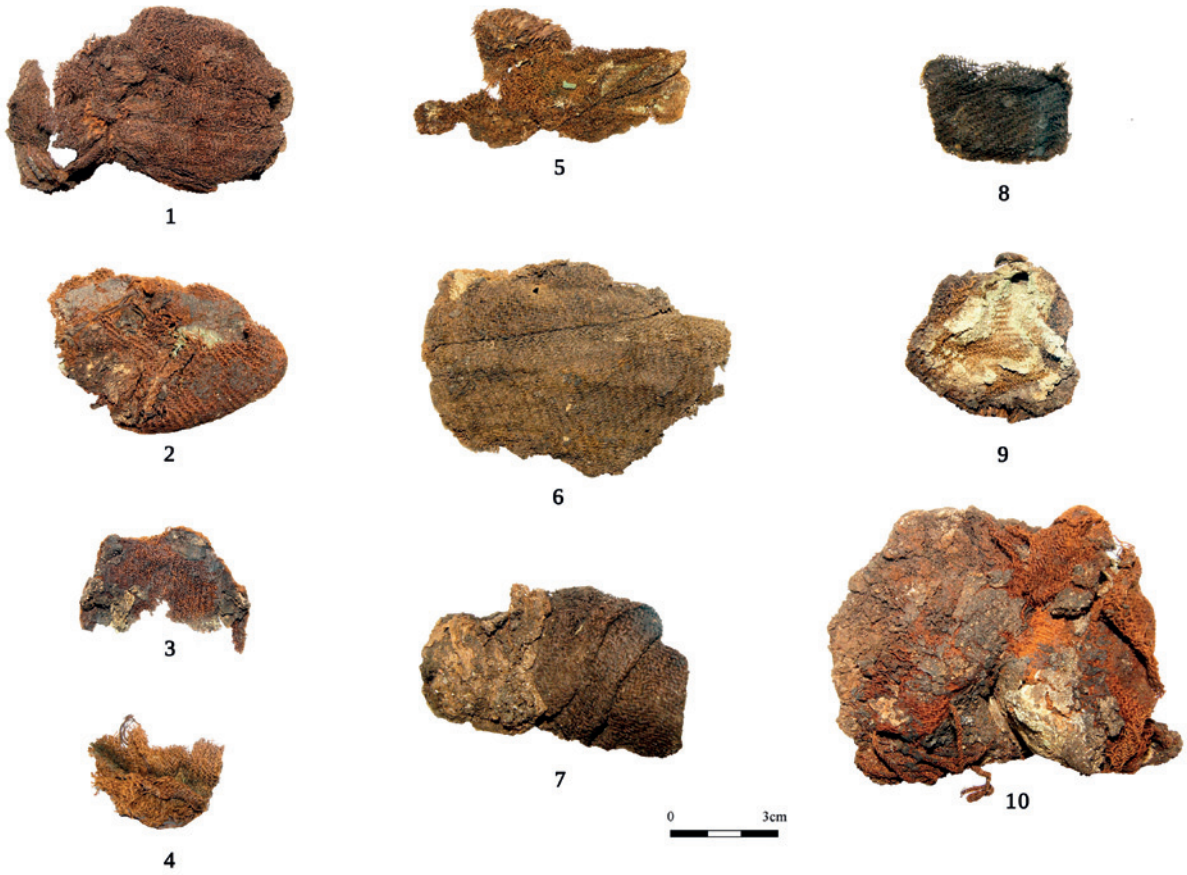


FIG. 1 Textiles from the Wielbark Culture cemetery at Czarnówko, northern Poland. Fabrics are labelled with the number in Table 1 (photo by the author).

TABLE 1 SUMMARY OF THE TECHNICAL CHARACTERISTICS AND 87SR/86SR ISOTOPE DATA FOR TEXTILES FROM THE WIELBARK CULTURE CEMETERY AT CZARNÓWKO (SEE FIG. 1)

NO.	GRAVE NO.	WEAVE	THREAD TWIST		DENSITY PER 1 cm		THREAD THICKNESS (mm)		$^{87}SR/^{86}SR$	ANALYTICAL ERROR	SAMPLE NO.
			S1	S2	S1	S2	S1	S2			
1	374/96	Diamond twill 2/2	z	s	24	20	0.30	0.30	0.711108	± 0.000096	MPS_03
2	406/99	Twill 2/2	z	z	16	14	0.46	0.46	0.718541	± 0.000081	MPS_05
3	406/99	Twill 2/2	z	z	20	16	0.40	0.47	0.713866	± 0.000119	MPS_07
4	530/09	Twill 2/2	z	s	12	12	0.50	0.56	0.714049	± 0.000072	MPS_04
5	1455/10	Twill 2/2	4z 4s	4z 4s	14	14	0.42	0.43	0.716687	± 0.000138	MPS_14
6	1458/10	Twill 2/2	4z 4s	4z 4s	14	14	0.58	0.59	0.731377	± 0.000016	MPS_02
7	1495/12	Twill 2/2	z	s	10	10	0.64	0.66	0.717597	± 0.000130	MPS_08
8	1497/12	Twill 2/2	z	z	14	10	0.48	0.46	0.716278	± 0.000126	MPS_15
9	1798/15	Twill 2/2	s	s	15	12	0.60	0.61	0.719755	± 0.000057	MPS_17
10	1802/15	Twill 2/2	z	z	16	12	0.46	0.45	0.731898	± 0.000151	MPS_01

textile has suffered damage, as evidenced by interwoven warp threads. It can be identified as either a gauze weave fabric or a sprang (Maik 2018: 155). Additionally, the site of Pielgrzymowo near Nidzica yielded traces of silk (Maik 2012: 50). The presence of silk fabrics in archaeological materials from former Roman provinces is largely confined to the 3rd and 4th centuries AD. These include textile remains from Trier in Germany, Holborough in the United Kingdom, Conthey in Switzerland, Komárom in Hungary (ancient Brigetio), and Palmyra in Syria (Maik 2018: 158). The discovery of silk products in Czarnówko, a region that received a significant influx of luxury goods from the Roman Empire, provides further evidence of the extensive and frequent interactions between the southern Baltic coast and the Roman Empire. At present, the geographical origin of the Czarnówko silks can only be hypothesized. The probable provenance of the gauze weave is China, while the sprang fabric may have originated in Syria (Maik 2018: 158). The knotted fabric came to light from princely grave from Pielgrzymowo[3] (Maik 2010: 713–714; 2012: 117–118). The fragments were small and poorly preserved, and it is possible that they originally formed part of a shroud (Kaczmarek 2016: 148). The fragment from Pielgrzymowo, dated to the C2 phase, is a woollen fabric covered with "hair" made from the knots characteristic of the Turkish system (Ghiordes) (Maik 2010: 713; 2012: 50, 116).

The distaffs, which are unique finds, serve as illustrative evidence of the Roman influence on the textile economy between the 1st and 3rd centuries AD on the territory of what is now Poland. These are slender, elongated objects on which fibres were wound and from which thread was twisted using spindles (Wąsowicz 1989: 38). Some examples feature a wooden shaft connected by cylindrical bronze plates, amber or glass beads, and bronze discs. Examples of this type have been found in Gronowo, Leśno or Nowy Łowicz. Other distaffs are crafted from amber beads strung on a bronze rod, as exemplified by finds from Czarnówko, Lubowidz, and Kowanówko. In Roman provinces, there are specimens entirely made of bone, glass, horn, jet, silver, iron or wood (Isings 1957: 94–95; Wąsowicz 1989: 44; Gottschalk 1996: 486; Gleba 2008: 110–122; Gostenčnik 2010: 76; Facsády 2010: 170; Schuster 2010: 762; Kovancaliev 2019: 126; Petcu – Petcu-Levei 2022: 170). It can be observed that glass, metal and bone specimens frequently have a ring at the bottom (worn on the finger), which serves to facilitate the holding of the distaff (cf. Pasztókai-Szeöke 2011: 132; Abascal – Cebrián 2011–2012: 653; Dohijo 2016: 150; Ratiu 2016: 138; Danković 2020: 85; Fernández Otero 2021: 84). Due to their shape, distaffs were often referred to as sticks or sceptres. Additionally, they were identified as spindles or objects associated with worship, the use of cosmetics, as well as hairpins (Antoniewicz 1919: 45–49; Álvarez-Ossorio 1929 *apud* Fernández Otero 2021: 86; Wielowiejski 1993: 69; Facsády 2010: 165). Distaffs are predominantly finds from elite female burials. To date, the largest number of amber distaffs (over 50) has been reported from Aquileia (Calvi 2005: 71–81). It is widely accepted that the amber distaffs were produced in the Aquileian workshops, which were renowned for their amber industry. The raw material used for these items was sourced from the Baltic coast. In the vicinity of Aquileia, distaffs have been unearthed in the graves of early Roman women, and their northward distribution is evident along the amber route. Three distinct areas can be identified where amber distaffs are found in concentrations.

– Aquileia and the neighbouring regions,
– the region along the *Limes Germanicus*,
– the Pannonia Superior province
(Danković 2019: 221).

At the time of writing, approximately a dozen distaffs have been discovered in Poland (Map 1). The specimens from Czarnówko, Lubowidz and Kowanówko are preserved in their original form with the amber beads strung on a bronze rod[4] (Fig. 2: 1–3). Following the typology developed by Gottschalk (1996: 486), all three amber distaffs belong to the Aquileia type. The distaffs from Czarnówko and Kowanówko can be assigned to Group A, while the specimen from Lubowidz represents Group B (Gottschalk 1996: 486;

[3] Another fragment of a knotted fabric comes from princely grave no. 3 from Wrocław-Zakrzów, associated with the Przeworsk culture (Maik 2010: 714).

[4] The length of the distaff from Lubowidz is 22.7 cm, from Czarnówko 22.5 cm, and from Kowanówko 24.5 cm.

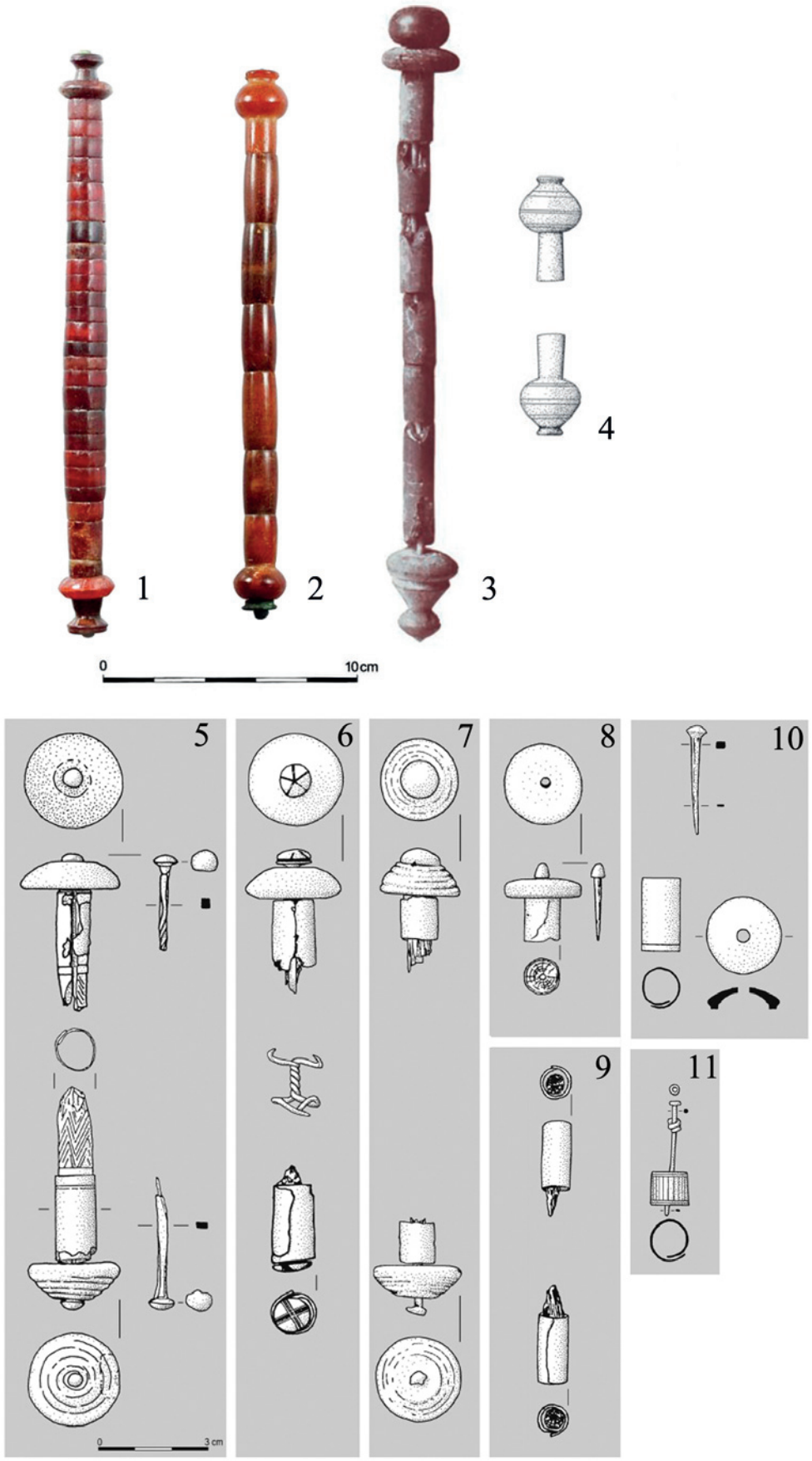


FIG. 2 Distaffs from the Roman period in Poland: 1 – Czarnówko; 2 – Lubowidz; 3 – Kowanówko; 4 – Pruszcz Gdański; 5 – Nowy Łowicz; 6 – Kowalewko; 7 – Leśno; 8, 9 – Gronowo; 10 – Lutom; 11 – Żalęcino (1, 2 photo by the author; 3, 4 after Schuster 2018, ryc. 42; 5 – 11 after Schuster 2010, Abb. 3, 4).

Schuster 2018: 91). The other specimens known from Poland are only partially preserved and were recovered from the following sites: Gronowo, Kowalewko, Leśno, Lutom, Mirosław, Nowy Łowicz, Nowy Szelków, Pruszcz Gdański and Żalęcino (Fig. 2: 4–11) (Hahuła 1993: 76; Wielowiejski 1993: 71; Schuster 2010: 759–763; Schuster 2018: 91; Kurzawska *et al.* 2024: 13). These distaffs were manufactured from wooden segments that were connected by cylindrical bronze plates, the ends of which were decorated with amber or glass beads and bronze discs. The assemblage of distaffs and their fragments from Poland is dated to the B2/C1-C1a sub-period, spanning a period from the end of the 1st century to the beginning of the 3rd century AD. However, the evidence does not indicate that these tools were unknown prior to this period to the communities from the present-day Poland. It is possible that the distaffs were crafted from wood in the form of a simple stick and did not necessarily have to be interred with the deceased. Alternatively, they could have decayed. The evidence implies that the Roman influence is discernible in the utilisation of luxury amber items and the burial context of distaffs, which were frequently buried within the rich female graves. The hypothesis may be further advanced that in the Barbaricum, local tool manufacturers began to imitate imported luxury items. Wooden rods were fitted with bronze plates and decorated with amber or glass beads at their ends (Wielowiejski 1993: 75). The distaffs discovered in Poland are paralleled by finds in other regions of the Roman Empire, including Italy (e.g. Aquileia) and the provinces (e.g. Harleen, Cologne), as well as in the ancient city of Viminacium, now located in Serbia (Gottschalk 1996: 496–497; Calvi 2005: 71–81; Danković 2019: 216). The use of these tools in Italy during the Early Iron Age (Gleba 2008: 109) is also worthy of note, as it predates the establishment of the Roman Empire.

The question of the extent of Roman influence on the textile economy in ancient Poland between the 1st and 3rd centuries AD remains open to interpretation and debate. It seems plausible that some innovations emerged in the pre-Roman period and were subsequently adopted through contacts with the Celts. The question of the geographical origin of woollen textiles and the identification of imports from local products can potentially be resolved by using extensive strontium isotope analyses. It is beyond doubt that the textiles imported from the Roman Empire to the present-day Poland comprised knotted and silk fabrics. The available evidence indicates that the Roman Empire's most significant impact can be observed in the custom of placing distaffs in female graves and the elite's preference for adornment with superior quality fabrics. Distaffs, along with other commodities such as glass, bronze, and silver vessels, constituted part of a trade and exchange network that connected the Roman Empire with the region of modern Poland and other northern parts of the European Barbaricum (Kolendo 1998: 19).

There is a strong need to extend research into the textile economy in the northern ranges of the European Barbaricum. During the Roman period in Poland, there was a pronounced increase in the number of textile-related tools that were interred in graves (Mierzwiński 2019: 32). This suggests a significant shift in the textile economy, moving from a household-based production for personal use to a more organised and commercialised system involving craft workshops. Further research and targeted analyses may elucidate the process of adopting new textile technologies and the extent of the Roman Empire's impact on the textile economy in ancient Poland.

Bibliography

ABASCAL, J. M. – CEBRIÁN, R. (2011–2012) – Osculatorios de bronce de Segobriga. *Cuadernos de Prehistoria y Arqueología*, 37–38: 647–654.

ÁLVAREZ-OSSORIO, F. (1929) – *¿Amuletos? Conocidos como "osculatorios" romano-cristianos, de bronce, hallados en España*. Madrid.

ANTONIEWICZ, W. (1919) – Wrzeciono bursztynowe z Kowanówka. *Przegląd Archeologiczny*, 1: 45–49.

BENDER JØRGENSEN, L. (1988) – *Forhistoriske textiler i Skandinavien – Prehistoric Scandinavian Textiles*. Copenhagen.

BENDER JØRGENSEN, L. (1992) – *North European textiles until AD 1000*. Aarhus.

CALVI, M. C. (2005) – *Le Ambre Romane di Aquileia*. Aquileia.

DANKOVIĆ, I. D. (2019) – Burial of a Woman with an Amber Distaff at Viminacium. *Starinar*, 69: 215–229.

DANKOVIĆ, I. D. (2020) – Roman Bone Distaffs and Spindles: Could They Have Been Used for Spinning? *Journal of Serbian Archaeological Society*, 36: 79–98.

DOHIJO, E. (2016) – Los "osculatorios" hallados en el yacimiento de Tiermes (Soria). Varillas con y sin anilla circular y remate figurado, versus removedores y/o ruecas. *Oppidum, Cuadernos de Investigación*, 12: 149–186.

FACCHINETTI, G. (2005) – La Rocca. In ROSSIGNANI, M. P – SANNAZARO, M. – LEGROTTAGLIE, M. (eds.) – *La signora del sarcofago, Una sepoltura di rango nella necropoli dell'Universita Cattolica, Vita e Pensiero*. Milan: 199–223, 333–334.

FACSÁDY, A. R. (2010) – Glass Distaff From Aquincum: Symbol or Tool? *ANODOS. Studies of the Ancient World*, 8: 165–174.

FERNÁNDEZ OTERO, M. (2021) – Instrumentos textiles a debate: ruecas de dedo u osculatorios? *Boletín do Museo do Castro de Viladonga*, 31: 84–95.

FREI, K. M. (2014) – Provenance of Archaeological Wool Textiles: New Case Studies. *Open Journal of Archaeometry*, 2: 5239 DOI: https://doi.org/10.4081/arc.2014.5239

FREI, K. M. – FREI, R. – MANNERING, U. – GLEBA, M. – NOSCH, M. L. – LYNGSTRØM, H. (2009) – Provenance of Ancient Textiles – a Pilot Study Evaluating The Strontium Isotope System in Wool. *Archaeometry*, 51(2): 252–276. DOI: https://doi.org/10.1111/j.1475-4754.2008.00396.x

FREI, K. M. – MANNERING, U. – PRICE, D. – IVERSEN, R. B. (2015) – Strontium Isotope Investigations of the Haraldskær Woman–a Complex record of Various Tissues. *ArchéoSciences*, 39: 93–101. DOI: https://doi.org/10.4000/archeosciences.4407

FREI, K. M. – MANNERING, U. – VANDEN BERGHE, I. – KRISTIANSEN, K. (2017a) – Bronze Age Wool: Provenance and Dye Investigations of Danish Textiles. *Antiquity*, 91(357): 640–654. DOI: https://doi.org/10.15184/aqy.2017.64

FREI, K. M. – VILLA, C. – JØRKOV, M. L. – ALLENTOFT, M. E. – KAUL, F. – ETHELBERG, P. – REITER, S. S. – WILSON, A. S. – TAUBE, M. – OLSEN, J. – LYNNERUP, N. – WILLERSLEV, E. – KRISTIANSEN, K. – FREI, R. (2017b) – A matter of months: high precision migration chronology of a Bronze Age female. *PLOS ONE*, 12(6): e0178834. DOI: https://doi.org/10.1371/journal.pone.0178834

GLEBA, M. (2008) – *Textile Production in Pre-Roman Italy* (Ancient Textile Series, 4). Oxford.

GOSTENČNIK, K. (2010) – The Magdalensberg Textile Tools: A Preliminary Assessment. In ANDERSSON STRAND, E. – MANNERING, U. – MUNKHOLT, C. – RINGGAARD, M. (eds.) – *North European Symposium for Archaeological Textiles X* (Ancient Textiles Series, 5). Oxford: 73–90.

GOTTSCHALK, R. (1996) – Ein spätrömischer Spinnrocken aus Elfenbein. *Archäologisches Korrespondenzblatt*, 26: 483–500.

HAHUŁA, K. (1993) – Nowoodkryta przęślica z Nowego Łowicza w województwie koszalińskim. *Archeologia*, 44: 76–79.

ISINGS, C. (1957) – *Roman Glass from Dated Finds*. Groningen/ Djakarta.

KACZMAREK, Z. (2016) – *Tkactwo w relacjach kulturowych Cesarstwa Rzymskiego z Barbaricum (I-III wiek n.e.)* (Acta Humanistica Gnesnensia, 8). Gniezno.

KACZMAREK, Z. (2017) – Textile Production and Consumption in Roman Provinces and in Free Germania – A 21st Century Perspective. *Studia Europea Gnesnensia*, 16: 567–584.

KISELEVA, D. V. – CHERVYAKOVSKAYA, M. V. – SHISHLINA, N. I. – SHAGALOV, E. S. (2021) – Strontium Isotope Analysis of Modern Raw Wool Materials and Archaeological Textiles. In YUMINOV, A. – ANKUSHEVA, N. – ANKUSHEV, M. – ZAYKOVA, E. – ARTEMYEV, D. (eds.) – *Geoarchaeology and Archaeological Mineralogy. Proceedings of 6th Geoarchaeological Conference, Miass, Russia, 16–19 Semptember 2019*. Berlin: 27–32. DOI: https://doi.org/10.1007/978-3-030-48864-2_4

KOLENDO, J. (1998) – Kontakty Rzymu z Barbarzyńcami Europy Środkowej i Wschodniej. In KOLENDO, J. – *Świat Antyczny i Barbarzyńcy. Teksty, zabytki, refleksja nad przeszłością*. Warszawa: 15–28.

KOVANCALIEV, Z. (2019) – Roman and late roman bone spinning tools from Strobi. *Cuadernos de prehistoria y arqueología de la Universidad de Granada*, 29: 119–131. DOI: https://doi.org/10.30827/cpag.v29i0.9768

KURZAWSKA, A., MICHAŁOWSKI A., SOBKOWIAK-TABAKA, I. (2024) – Metal ornaments and mineralized textiles: uncovering dress and identity in the 2 /3 century burial from Mirosław, Poland. In: ULANOWSKA, A. – WAGNER, M. – WOŹNIAK, M. – ŻUCHOWSKA, M. – ŻEBROWSKA, K, (eds.) – *Book of Abstracts for the XVth North European Symposium for Archaeological Textiles*. Warszawa: 13.

MAIK, J. (1988) – *Wyroby włókiennicze na Pomorzu z okresu rzymskiego i ze średniowiecza* (Acta Archaeologica Lodziensia, 34). Wrocław.

MAIK, J. (2010) – Tkaniny importowane w kulturze wielbarskiej. In URBANIAK, A. – PROCHOWICZ, R. – JAKUBCZYK, I. – LEVADA, M. – SCHUSTER, J. (eds.) – *Terra Barbarica Studia ofiarowane Magdalenie Mączyńskiej w 65. rocznicę urodzin* (Monumenta Archaeologica Barbarica Series Gemina, 2). Łódź: 713–718.

MAIK, J. (2012) – *Włókiennictwo kultury wielbarskiej*. Łódź.

MAIK, J. (2018) – V.6. Tekstylia z cmentarzyska kultury wielbarskiej w Czarnówku, stan. 5. Część 2 (obiekty R300, R374, R380, R400 i R430). In SCHUSTER, J. – *Czarnówko, stan. 5. Osiem grobów okazałych – narodziny nowych elit w II wieku po Chr. w basenie Morza Bałtyckiego*. Lębork / Warszawa: 154–167.

MAKAREWICZ, C. A. – SEALY, J. (2015) – Dietary reconstruction, moblility, and the analysis of ancien skeletal tissues: Expanding the prospects of stable istope research in archaeology. *Journal of Archaeological Science*, 56: 146–158. DOI: https://doi.org/10.1016/j.jas.2015.02.035

MIERZWIŃSKI, A. (2019) – *Eschatologiczne skutki przędzenia i tkania*. Wrocław.

PASZTÓKAI-SZEÖKE, J. (2011) – "The mother shrinks, the child grows. What is it?" The evidence of spinning implements in funerary contexts from the roman province of Pannonia. In MARTÍNEZ GARCÍA, M. J. – ALFARO GINER, C. – ORTIZ GARCÍA, J. (eds.) – Mujer y Vestimenta. Aspectos de la Identidad Femenina en la Antigüedad. Valencia: 125–140.

PETCU, R. – PETCU-LEVEI, I. (2022) – Glass Distaffs Discovered in Roman Tombs from Dobrudja (Romania) – Moesia Inferior. Symbolism and Use. In BOȚAN, S.-P. – HONCU, Ș. (eds.) – In medias res antiquorum. Miscellanea in honorem annos LXV peragetis professoris Costel Chiriac oblat. Cluj-Napoca: 167–184.

RATIU, A. (2016) – *Venus Pudica* on a Bone Distaff from *Capidava*. *Cercetări Arheologice*, 23: 137–150.

SCHUSTER, J. (2010) – Germanische Spinnrocken im nördlichen Mitteleuropa. In URBANIAK, A. – PROCHOWICZ, R. – JAKUBCZYK, I. - LEVADA, M. – SCHUSTER, J. (eds.) – *Terra Barbarica Studia ofiarowane Magdalenie Mączyńskiej w 65. rocznicę urodzin* (Monumenta Archaeologica Barbarica Series Gemina, 2). Łódź: 755–765.

SCHUSTER, J. (2018) – *Czarnówko, stan. 5. Osiem grobów okazałych – narodziny nowych elit w II wieku po Chr. w basenie Morza Bałtyckiego*. Lębork / Warszawa.

TOXVAERD, S. (2020) – The strontium isotope ratio 87Sr/86Sr in archaeological organic matter conserved in acidic anaerobic environments is hard to interpret. *Journal of Archaeological Science - Reports*, 31: 102379. DOI: https://doi.org/10.1016/j.jasrep.2020.102379

von CARNAP-BORNHEIM, C. – NOSCH, M. L. – GRUPE, G. – MEKOTA, A. M. – SCHWEISSING, M. M. (2007) – Stable strontium isotopic ratios from archaeological organic remains from the Thorsberg peat bog. *Rapid Communications in Mass Spectrometry*, 21: 1541–1545. DOI: https://doi.org/10.1002/rcm.2980

von HOLSTEIN, I. C. C. – FONT, L. – PEACOCK, E. E. – COLLINS, M. J. – DAVIES, G. R. (2015) – An assessment of procedures to remove exogenous Sr before 87Sr/86Sr analysis of wet Archaeological wool Textiles. *Journal of Archaeological Science*, 53: 84–93. DOI: https://doi.org/10.1016/j.jas.2014.10.006

WĄSOWICZ, A. (1989) – Berło czy przęślica? Przyczynek do poznania zwyczajów sepulkralnych Nadczarnomorza w starożytności. *Archeologia*, 36: 37–56.

WILD, J. P. – BENDER JØRGENSEN, L. (1988) – Clothes from the Roman Empire. Barbarians and Romans. In BENDER JØRGENSEN, L. – MAGNUS, B. – MUNKSGAARD, E. (eds.) – *Archaeological textiles: report from the 2nd NESAT Symposium 1 – 4.V.1984* (Arkaeologiske Skrifter fra Historisk Museum, 2). Bergen: 65–98.

WIELOWIEJSKI, J. (1993) – Zagadnienie przęślic z czasów Cesarstwa Rzymskiego. *Archeologia*, 44: 69–79.

WOŹNIAK, M. M. – BEŁKA, Z. (2022) – The Provenance of Ancient Cotton and Wool Textiles from Nubia: Insights from Technical Textile Analysis and Strontium Isotopes. *Journal of African Archaeology*, 20: 202–216. DOI: https://doi.org./10.1163/21915784-bja10019

ZIELIŃSKI, M. – DOPIERALSKA, J. – KRÓLIKOWSKA-CIĄGŁO, S. – WALCZAK, A. – BEŁKA, Z. (2021) – Mapping of spatial variations in Sr isotope signatures ($^{87}Sr/^{86}Sr$) in Poland - Implications of anthropogenic Sr contamination for archaeological provenance and migration research. *Science of the Total Environment*, 775: 145792. DOI: https://doi.org/10.1016/j.scitotenv.2021.145792

POLÍTICA EDITORIAL

Objectivos

A Ophiussa – Revista do Centro de Arqueologia da Universidade de Lisboa foi iniciada sob a direcção de Victor S. Gonçalves em 1996, tendo sido editado o volume 0. A partir do volume 1 (2017), a Revista Ophiussa converte-se numa edição impressa e digital da UNIARQ – Centro de Arqueologia da Universidade de Lisboa (ISSN 1645-653X / E-ISSN 2184-173X).

O principal objectivo desta revista é a publicação e divulgação de trabalhos com manifesto interesse, qualidade e rigor científico sobre temas de Pré-História e Arqueologia, sobretudo do território europeu e da bacia do Mediterrâneo.

Periodicidade

A Ophiussa – Revista do Centro de Arqueologia da Universidade de Lisboa publicará um volume anual. O período de submissão de trabalhos decorrerá sempre no primeiro semestre e a edição ocorrerá no último trimestre de cada ano.

Secções da revista

A revista divide-se em duas secções: artigos científicos e recensões bibliográficas. Excepcionalmente poderão ser aceites textos de carácter introdutório, no âmbito de homenagens ou divulgações específicas, que não serão submetidos à avaliação por pares. Isentas desta avaliação estão também as recensões bibliográficas.

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Ophiussa – Revista do Centro de Arqueologia da Universidade de Lisboa started under the direction of Victor S. Gonçalves in 1996, with the edition of volume 0. After Volume 1 (2017) it became a printed and digital edition of UNIARQ – Centro de Arqueologia da Universidade de Lisboa (ISSN 1645-653X / E-ISSN 2184-173X).
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For more information contact:
ophiussa@letras.ulisboa.pt

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